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# Emotions, Intuitions and Risk Perception in Critical Care

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EMOTIONS, INTUITIONS AND RISK PERCEPTION IN CRITICAL CARE

A Dissertation

Submitted to the McAnulty College and Graduate School of Liberal Arts

Duquesne University

In partial fulfillment of the requirements for

The degree of Doctor of Healthcare Ethics

By

Alex Dubov

December 2017

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## ABSTRACT

### EMOTIONS, INTUITIONS AND RISK PERCEPTION IN CRITICAL CARE

By

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December 2017

Dissertation supervised by Henk ten Have

The theory of decision-making as it applies to bioethics and healthcare assumes a rational decision maker: someone who knows all his alternatives, has clear preferences, can rank and weigh risks and benefits of an intervention, and always acts in his own best interests. However, the growing body of research from the field of decision science shows that, in reality, such a purely rational decision maker does not exist. Instead, patients are rational within personal or environmental constraints such as uncertainty or ambiguity in which non-rational approaches such as emotion and intuition are instrumental. This issue is particularly important in critical care. To ensure that patients receive the end-of-life care that they want, especially considering the increase in futile care, proper risk communication is necessary. While the move from paternalism to the current emphasis on patient empowerment and shared decision-making means that patients and surrogates want comprehensive and understandable information about their

conditions and treatment in order to participate fully in decisions about their care, emotions complicate this decision-making. Though there is a great deal of empirical research on emotions and risk perception, there is a lack of philosophical research on this topic, especially when it comes to futility considerations in critical care. This research asserts that emotions should be considered a necessary component of ethical assessment of risk and communication about risk, especially in the field of critical care. It explores the existing literature on how people employ emotions and deliberation in their decision-making, and it questions the existing bias among normative scholars that decisions resulting from deliberation are inherently better or superior to those grounded in intuition. Furthermore, this research attempts to determine the value of autonomy in designing health policies grounded in behavioral economics. While providers want patients to make decisions that promote their own interests, this task is rarely achieved when patients are left alone to make important decisions. This research questions whether providers should let their patients make decisions that divert them from their own health goals or intervene by actively directing patients toward choices that are most likely to promote their goals.

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## CHAPTER ONE

### INTRODUCTION

#### **Background**

The theory of decision-making as it pertains to bioethics and healthcare rests on a number of critical assumptions about the structure of healthcare and the behavior of its main stakeholders – patients and health providers. The first and most important assumption is that everyone is rational. In other words, most bioethical theory is built around the notion that patients and providers, as well as individuals and healthcare organizations, always act in their own best interests. If these stakeholders are not always rational, then they will not make decisions that promote their well-being and autonomy, thus complicating the normative work of bioethicists.<sup>1</sup>

Second, bioethicists have traditionally assumed that patients and their families know their health preferences, especially when it comes to end-of-life choices and decisions. It would be difficult for a patient to maximize her well-being without knowing her preferences.<sup>2</sup> Third, it is often assumed that patients and providers have enough information to make rational choices. It is assumed that as long as family or patients have accurate information on the benefits and risks of an intervention, they will be able to make the best decision for themselves, that is, their decision reflecting their preferences and intentions. Physicians are expected to learn of the patient's values but only to assist in matching those values with the medical facts of the situation. In this exchange, the physician offers choices and evidence while the patients explain their values. Then, collaboratively, they search for a solution that is both consistent with the evidence and in accordance with patient values.<sup>3</sup>

Another, less explicit, assumption of traditional bioethics is that patients' values and preferences are context independent. The preferences or values that patients have and the



decisions that they make based on those values should not depend on how they arrive at those preferences or decisions.<sup>4</sup> For instance, while completing advance directives, patients should arrive to the same kind of choices regardless of the way questions are framed and default options are presented. In the “withhold” version of advance directive (the default preference in favor of treatment) and in the “provide” version (the default preference against treatment), patients are expected to make the same kind of choices, as the default inherent in a question should not sway their pre-meditated values and preferences for medical treatment.<sup>5</sup>

Finally, even if traditional bioethics may admit that patients and providers make mistakes, they assume that these mistakes are random and not systematic. So, if patients or providers miss the mark of a medically sound and beneficial choice in making their decisions, sometimes they will be above that mark and sometimes below. There is no possible way to predict what mistakes will be made and when. However, many recent studies demonstrate that there is a systematic way to predict some cognitive errors in patients’ decision-making and even to use this knowledge to improve their choices.<sup>6</sup> The famous study by McNeil et al. can be used as an example. Researchers presented respondents with information about the outcomes of two treatments for lung cancer. Although the statistics presented were identical, they were framed in terms of survival or mortality rates. Even though respondents should react similarly to both statistical presentations, the number of those who favored radiation therapy over surgery went from 18% for those presented with the survival framing to 44% for those presented with the mortality framing.<sup>7</sup>

This research focuses on both emotion and intuition as the two non-rational or non-traditional decision approaches in individual decision-making about health risks. The traditional rational approach is described above. Within this approach, a rational decision maker is someone

who knows all his alternatives, has clear preferences, is able to rank and weigh risks and benefits of a particular intervention, and always acts in his own best interests. The growing body of research from the field of decision science shows that, in reality, such a purely rational decision maker does not exist.<sup>8</sup> Patients are rational within personal or environmental constraints such as uncertainty or ambiguity (“bounded rationality”).<sup>9</sup> While dealing with complex issues, they will tend to simplify their calculations and settle for a satisfactory, rather than an approximate-best, decision.<sup>10</sup> Therefore, bounded rationality results from adaptation to the environment, and non-rational approaches such as emotion and intuition are instrumental in this adaptation. Emotions direct attention and help patients attend to immediate needs. Intuition, informed by prior experience and existing knowledge, usually produces reasonably accurate and fast inferences.

A further rationale for the concurrent study of emotions and intuitions in healthcare decision-making is their interconnectedness. If identified, emotions can be used as conscious triggers or modifiers of intuitive processing. As a result, emotional states often determine whether patients or providers will use either a deliberative or an intuitive decision-making style. For instance, fear and anger play a role in intuitive decision-making about risk – fear amplifies risk estimates and anger attenuates them.<sup>11</sup> In evaluating risks of a particular intervention, providers and patients may often translate some complex thoughts into simpler emotional evaluations. Thus, they can compare good and bad feelings instead of trying to make sense of many conflicting logical reasons. It is not uncommon to observe this kind of intuitive evaluation of risk among patients – “How bad is it?” or “Well, how bad does it feel?” Consequently, any attempt to study the intuitive way of decision-making should consider emotion or affect as its basis.

## Statement of the Problem

In the US, about 2.5 million people die each year; approximately 41% of these deaths happen in hospitals, and nearly 60% of hospital deaths occur during or shortly after ICU care.<sup>12</sup> These numbers mean that more than one in five Americans die while in an ICU or soon thereafter. The overwhelming majority of these deaths follow decisions to limit life-sustaining treatment. Proper risk communication has an effect on what medical intervention the patient will receive and whether futile care will be provided. Proper risk communication is the best way to ensure that patients receive the end-of-life care they want. Additionally, it is the most effective way to limit the increase in provision of futile treatment that is responsible for driving up overall costs of healthcare. A recent study on frequency of futile treatment in ICU shows that more than one in ten patients being treated in ICUs were at some point receiving what doctors deemed to be futile care. In those cases, intensivists believed patients would never survive outside an ICU or that the burdens of their care “grossly outweighed” any benefits.<sup>13</sup> Treating each of those patients costs about \$4,000 per day. Given this substantial cost, strategies to reduce futile care could have an impact on total healthcare spending.<sup>14</sup>

One of the ways to mitigate these costs is to create a working framework for risk communication that would address different cognitive limitations and emotional biases that affect the way in which risk information is interpreted. The move from paternalism to the current emphasis on patient empowerment and shared decision-making has meant that patients and surrogates want and need comprehensive and understandable information about their conditions and treatment. This must include information about the risks and benefits of the different treatment options if patients are to participate fully in decisions about their care. However, complicating their queries, the intricacy of rational decision-making, are emotions. It is often

noted (but rarely studied) that patients and surrogates are swayed by their emotions at least as much as they are convinced by rational arguments. What role should emotions play when we judge whether an intervention and its complications are morally acceptable? Though there is a great deal of empirical research on emotions and risk perception, there has been a lack of philosophical research on this topic, especially when it comes to futility considerations in critical care.

So, could emotions function as a normative guide when making judgments about morally acceptable risks? The dissertation research suggests that emotions and intuitions are necessary for ethical knowledge about risk. The aspect of emotion is often ignored in bioethical literature, especially when it discusses the intricacies of ethical assessment of risk in critical care.<sup>15</sup> This research offers reasons for taking emotions and intuitions seriously as a part of moral decision-making in critical care and emphasizes the need to create decision support tools that count in various emotional influences. The objective of this research is to identify and evaluate moral significance of emotional determinants and intuitive shortcuts that influence end-of-life communication and care of patients and families in the ICU. When emotions and intuitions are ignored, families may end up demanding unreasonable therapies that intensivists know will not work. Not able to comprehend the risks, families will continue to demand “everything to be done,” and biological, unperceptive life is prolonged. In this way, families force their loved ones to experience painful treatment prior to their death. The death is undignified, the patient suffers, and scarce resources are wasted. Therefore, this research asserts that emotions should be considered as a necessary component of ethical assessment of risk and communication about risk especially in the field of critical care in order to avoid the scenario described above.

## Conceptual framework

Moral philosophers, ethicists, and moral psychologists have long studied how people determine whether an action is morally wrong or morally acceptable. The traditional framework used to study moral judgement assumes that a deliberate process of reasoning and reflection leads to individual moral judgments in mature individuals. This rationalist approach argues that conscious reasoning is the cognitive mechanism ultimately responsible for moral judgments. Affective responses could sometimes be inputs to moral reasoning, but affect itself is considered amoral. People only determine the morality of an act after they have engaged in a careful consideration of it. Kohlberg developed his theory of moral reasoning by interviewing children and adults about what a hypothetical character should do in a moral dilemma.<sup>16</sup> For example, Heinz's dying wife needs an expensive drug in order to survive, but Heinz does not have enough money to pay for it; should Heinz steal the expensive drug to save his wife's life? Based on children's and adults' explanations of which acts were morally wrong or acceptable and why, Kohlberg concluded that as children grow to become young adults, they use more advanced forms of reasoning to resolve moral dilemmas. For instance, young children determine morality based on fear of punishment (Heinz should not steal because he will be arrested.), while adolescents determine morality based on rules they learned from society or their parents (Heinz should not steal because the law says so.). Young adults in the most advanced stage of moral development recognize that man-made laws are not absolute, and they use abstract reasoning, often based on justice, to determine morality (Heinz is justified in stealing because everyone has the right to receive medicine.). Kohlberg's rationalist approach to moral judgements has been used to demonstrate that moral development is synonymous with using logic to form a moral judgment.<sup>17</sup>

Although there is little question that people engage in moral reasoning, a debate remains about whether such reasoning and logic is the true cause of moral judgment. The social intuitionist approach to moral judgment used in this dissertation research differs from the rational models by proposing that moral reasoning may, in fact, be a mere consequence of moral judgments, rather than their cause.<sup>18</sup> This framework claims that people come to accept moral truths based on immediate, affective assessments of situations. They then use their automatic evaluative responses to such stimuli as the basis of the moral judgments they form. This framework makes a distinction between reasoning and intuition. Reasoning is an effortful process that takes place slowly and deliberately, while intuition arises automatically, outside of conscious awareness. Moral intuition, then, is “the sudden appearance in consciousness of a moral judgment, including an affective valence (good-bad, like-dislike), without any conscious awareness of having gone through steps of searching, weighting evidence, or inferring a conclusion.”<sup>19</sup> Like automatic evaluations more generally, moral judgments are instantly interpreted on good-bad dimensions as a result of one’s individual moral intuitions. Haidt offers the following example: suppose you were asked how you would feel about eating your pet dog after it died. You would likely have an emotional reaction to the mere thought of such an act. When considering hypothetical situations that are perceived as distasteful yet harmless, Haidt’s research subjects tried hard to support their negative emotional reactions with logical reasons. Most, however, were unable to provide evidence about harmful consequences yet remained determined that distasteful but harmless acts like eating one’s pet are universally wrong.<sup>20</sup>

Social intuitionist framework suggests that these affective reactions and moral intuitions may be particularly hard to overcome when it comes to interpersonal disagreements over what is right, moral, or fair. When the initial, unconscious affective response is driving the attitudes of

the person, reasoned arguments of logic are unlikely to be effective at changing how one feels. Rather, affect-based attitudes are changed more easily using persuasion tactics that rely on emotion, and cognition-based attitudes are changed more easily using persuasion tactics that rely on rational argument.<sup>21</sup> Therefore, this dissertation research will look specifically into ethical limits of persuasion in critical care and potential nudge strategies that may be effective in times when rational arguments fail. Haidt suggests that when moral intuitions and emotional reactions drive moral judgments, people may be hard pressed to justify their position as right or wrong. Rather than changing their attitude in the face of this inability, people tend instead to be left “morally dumbfounded” and stick to their moral intuition even when they can find no compelling rational argument to support such feelings.<sup>22</sup> Moral intuitions are more prominent in situations when uncertainty is present. Uncertainty is present in most medical decisions. In the words of Atul Gawande, “Medicine's ground state is uncertainty. And wisdom - for both patients and doctors - is defined by how one copes with it.”<sup>23</sup> Given that moral intuitions may drive uncertain decisions, this dissertation will also look into ways in which providers navigate morality of disclosures about uncertainty.

### **Purpose of the Study**

In their last month of life, one in two Medicare beneficiaries visits an emergency department, one in three is admitted to an intensive care unit, and one in five has inpatient surgery.<sup>24</sup> This statistic represents an important but unmet challenge in delivering end-of-life care, namely to increase the probability that the care patients receive in their last months is consistent with their goals, values, and preferences. A large body of research demonstrates that the majority of patients prefer less aggressive care and death at home to ER visits, ICU interventions, and hospital death.<sup>25</sup> This mismatch between patient preferences and actual care

received in their last days can be in part explained by emotional influences on communication and decision-making. Caring for critically ill patients requires nearly constant decision-making. Ideally, decision makers carefully consider the risks and benefits of each choice before settling on the option that maximizes the patient's well-being. However, the emotions and time pressures of the ICU may exacerbate contextual barriers to rational choice, impact autonomous agency, and lead to suboptimal choices. There is a need to understand and improve upon the ways in which end-of-life decisions are made. Instead of passively accepting emotional influences on choice, there is a need to discuss their ethical relevance and design morally appropriate policies aimed to increase the probabilities that end-of-life choices match the goals of patients.

### **Research Questions**

This research intends to answer the following questions:

1. What moral significance should be attached to emotional determinants and intuitive shortcuts that influence end-of-life communication and care in the ICU?
2. What impact do emotional determinants and intuitive shortcuts in end-of-life choices have on liberty and autonomy?
3. What are the moral limits to influence in end-of-life care? When providers see their patients falling prey to cognitive biases, should they let patients make decisions that divert them from their own health goals, or should they intervene by actively directing patients towards choices that are most likely to promote their goals?

### **Significance of the Study**

There is a growing interest among health policymakers, insurance companies, researchers, and healthcare providers in using insights from behavioral economics and social psychology in order to persuade people to change their health-related behaviors and improve



their healthcare choices. For instance, the National Institutes of Health has designated the “science of behavior change” as a priority by making it a new Roadmap Initiative,<sup>26</sup> and a report has been published detailing the proposed research and implementation agenda. Similarly, the United Kingdom Institute for Government and the Cabinet Office published a 96-page report, “MINDSPACE: Influencing Behaviour Through Public Policy,”<sup>27</sup> exploring how behavior change theory can meet policy challenges.

In addition to this growing interest in the study of behavior change, there is also a strong movement toward patient-centered, shared decision-making.<sup>28</sup> This movement stems from the recognition that in order to practice medicine ethically, health care professionals must take seriously the values and preferences of their patients. At the same time, there is growing recognition that minor and seemingly irrelevant features of how choices are presented can substantially influence the decisions people make.<sup>29</sup> Behavioral economists have identified striking ways in which trivial differences in the presentation of options can powerfully and predictably affect people's choices. For example, seriously ill patients' choices to receive comfort-oriented care in advance directives are heavily influenced by whether such options are presented as the default,<sup>30</sup> and ICU physicians more quickly enact do not resuscitate (DNR) orders for patients who will ultimately die when their ICU environment is busier than usual.<sup>31</sup>

Given this interest in the study of behavioral change and the recognition that the environment in which choices are made substantially influences the decision people make, it is important to consider the ethical dimensions of nudge strategies implemented to improve decision-making in healthcare. This research explores the existing literature on how people employ emotions and deliberation in their decision-making, and it questions the existing bias among normative scholars that decisions resulting from deliberation are inherently better or

superior to those grounded in intuition. Furthermore, this research attempts to determine the value of autonomy in designing health policies grounded in behavioral economics. It recognizes that while providers want patients to make decisions that promote their own interests, this task is rarely achieved when patients are left alone to make important decisions. They may procrastinate or fall victim to cognitive biases and other pitfalls of human decision-making. Should providers let their patients make decisions that divert them from their own health goals, or should providers intervene by actively directing patients toward choices that are most likely to promote their goals? This question needs to be answered before nudge policies are implemented.

### **Organization of the Study**

**The first chapter** discusses the fact that risk is perceived and acted upon in two ways. Risk as feelings refers to intuitive responses in the context of moral decision-making. Risk as analysis brings logic, reason, and scientific deliberation to bear on decision-making. This chapter presents various interpretations of dual-system theory in decision-making sciences which posits that in our decisions about risks we may rely on two systems of thinking. System 1 is a kind of thinking that occurs automatically and very quickly, includes the automatic development of memories, and is associated more with impressions and feelings. System 2 is a more effortful way of thinking that requires concentration and helps more effectively manage complex problem solving. We use these two systems in parallel and often rely on one more than we do on the other.<sup>32</sup> This chapter also explores the role of heuristics, or “rules of thumb,” in making decisions about risk. Heuristics allow us to form judgments or select decisions based on only one or two pieces of information.<sup>33</sup> This chapter takes a closer look at the nature of intuitive decisions and sets the stage for a discussion on whether moral judgment is accomplished by intuition or deliberation.

**The second chapter** will argue analogously that in the moral domain, patients and providers also rely on fast and frugal decision rules or decision norms that produce judgments quickly based on limited information. As was shown in chapter one, most research on heuristics has been conducted by psychologists in the area of risk and probability estimates. Their work deals not with moral questions but with some factual issues such as judgments of frequency, probability, and risk. Chapter two suggests that in a similar fashion, when confronted with a complex moral issue, people resort to moral heuristics and simplify their judgments by using familiar to judge unfamiliar. Decisions to limit or forgo life-sustaining therapy are one of the areas in clinical practice where moral heuristics can be particularly relevant. A number of studies demonstrate striking variability in these decisions (sixfold) even after adjusting for patient and ICU factors.<sup>34</sup> Ideally, these decisions should depend on the goals and preferences of families, survival estimates and quality of life considerations, and illness severity. However, the recent research suggests this variability is not driven by the factors above, but, rather, by decision-making norms deriving from hospital or ICU cultures. Assuming that moral heuristics are the results of these cultural decision-making norms, this chapter discusses a number of relevant moral heuristics, such as commission/omission distinction, means to an end/end in itself distinction, rule of rescue, and decision ownership.

Given the fact that most decisions under uncertainty are susceptible to the influence of heuristics and often grounded in intuition, **chapter three** will take a closer look at the ethical limits of disclosing uncertainty to patients in order to avoid suboptimal decisions. Treatment decisions in chronic illnesses are complicated not only by uncertainty about their effectiveness and the balance of benefits and harms but also by multiple uncertain outcomes that patients must consider. When deciding between a number of alternative treatment options, patients need to

consider the potential for long-term and delayed effects of each treatment. It is often the case that some of these delayed effects of treatment described in the literature are ambiguous and may not even be attributed to the treatment itself. Consider a conversation that provider L. needs to have with her patient about two treatments. Dr. L. knows that one treatment choice is more efficacious, but the literature describes negligible and ambiguous risks that may not even be directly attributed to this particular treatment. Dr. L. also knows that disclosure of these ambiguous risks will likely sway her patient's decision. People have a preference against options involving ambiguous versus known probabilities and respond to ambiguity by forming pessimistic judgments of risk (ambiguity aversion). This chapter discusses ethical questions that Dr. L. may ask herself, namely – is it ever ethical to refrain from disclosure of ambiguous risks in order to ensure that patients will make the best choices for themselves? Might there be such a thing in medicine as too much information? If we recognize that possession of information carries trade-offs, are there situations when the 'totality of evidence' may increase a patient's autonomy but reduce his welfare?

**Chapter four** further analyzes the concept of autonomous choice as having the components of intentionality, rationality, and lack of persuasion. This chapter shows that physicians' non-involvement is expected to safeguard intentionality. Rationality is preserved by means of appropriate risk communication. Advance care planning is seen as a safeguard against undue influence. Each of these assumptions and the possibility of autonomous choice will be further questioned on the basis of research discussed in previous chapters. Using the conceptual framework of autonomous choice, this chapter analyzes the impact of heuristics and biases on different dimensions of autonomy. When these emotional influences and heuristics are present in decision-making, efforts should be made to mitigate them. This chapter discusses the following

three questions: Is it plausible to assume that most of patients' decisions are autonomous? Should autonomy be the guiding value in patient-physician communication? And, is it possible to remove physicians' influence? This chapter sets the tone for the following discussion of ethically permissible modes of influence in healthcare.

**Chapter five** reviews the ethics of persuasion in critical care. Rational appeals in critical care fail to move patients or surrogates to a better course of action. Appeals to their emotions are considered illegitimate because they may preclude autonomous choice. This chapter discusses whether it is always unethical to change someone's beliefs, whether persuasive communication is inherently harmful, and whether it leaves no space for voluntariness. To answer these questions, the chapter engages with Aristotle's work, *Rhetoric*.<sup>35</sup> In considering whether there is a place for emotionally charged messages in a patient-provider relationship, the chapter intends to delineate the nature of this relationship and describe the duties this relationship implies. Chapter five presents examples of persuasive communication used in critical care and discusses whether providers may have a duty to persuade patients. This duty is supported by the fact that doctors often influence patients' and families' choices by framing presented options. Doctors should assume responsibility in recognizing these personal and contextual influences that may influence the medical choices of their patients. They should attempt to modify these contextual factors and biases in a way that would assist patients and families in reaching the desired outcomes. This chapter looks at the differences between persuasion and similar concepts such as manipulation, coercion, and deception. Considering the fact that patients and families often make irrational decisions and the fact that doctors inadvertently influence their choices, the chapter suggests that persuasion can be a positive tool in medical communication. When patients or families clearly do

not understand the risks, or make decisions that contradict their long-term goals, persuasion can be used as a positive influence.

**The sixth chapter** will suggest solutions grounded in the principles of behavioral economics. These “soft paternalistic” approaches make use of interventions aimed at suggesting one choice over another by gently steering individual choices and enhancing directions yet without imposing a limit on available choices. Nudges propose to organize the context in which people make decisions and minimize the negative impact of cognitive biases against healthy behaviors. These terms “nudge” and “libertarian paternalism” were first used in Richard Thaler and Cass Sunstein’s book of the same title to describe “any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives.”<sup>36</sup> The illustration used in this book explains how the placement of food in a cafeteria affects the choices people make when deciding what to eat; for example, if the fruit is placed before cake and cookies, patrons are more likely to take fruit. This chapter considers potential nudges that may improve communication and choices in end-of-life care. In addition to reviewing potential nudges, this chapter addresses the ethical aspects of using these strategies in healthcare. Given the current aspirations of medical professionals around increasing patient empowerment and promoting freedom and fairness, to what extent does nudge support these aims? This chapter explores the following questions: Can nudge be empowering, and can it bring about changes that are fair and sustainable? Should one be worried about the paternalistic aspect of nudging? When exactly do we nudge and is there a potential for nudges to misfire?

## CHAPTER TWO

### INTUITION AND DELIBERATION

#### **Introduction**

There is a natural tension to decision-making in the critical care unit. In a busy ICU with multiple patients to assess and keep track of, it can be difficult to dissect every patient's complaints and make clinical decisions both quickly and effectively. Emergencies, by definition, must be dealt with fast. For this, whether they are fully aware of it or not, critical care providers rely on their intuition, informed by their experience and education. During most of their day, they deploy intuition to assess patients and respond to critical situations. A cardiac patient comes in, and without even reading the chart, the physician knows which tests to order and what questions to ask the patient. ICU providers deal with this type of patient many times per day and are easily able to rely on their intuition to identify the next steps. While going with intuitive judgments makes sense in many cases, there are times when it can result in a critical misdiagnosis. This is the reason why physicians need to cultivate deliberative thinking. Being an excellent clinician requires balance between the two. Too much focus on deliberation, and the provider will get bogged down. Too much focus on intuition, and the proper diagnosis isn't always made.

Unfortunately, physicians don't make correct diagnoses as often as they would like to think: the diagnostic failure rate is estimated to be 10 to 15%. The rate is highest among specialties in which patients are diagnostically undifferentiated, such as emergency medicine, family medicine, and internal medicine, including critical care.<sup>37</sup> While there are many causes for diagnostic errors, cognitive error is the most common one. Usually, it is not a lack of knowledge that leads critical care specialists to failure but problems with the physician's thinking. Consider

this example of failure in clinical intuition taken from a NEJM article by Pat Croskerry.<sup>38</sup> A 21-year-old victim of multiple stabbing is brought to a trauma center by ambulance. He is in no significant distress, lacking dyspnea or shortness of breath. His oxygen saturation, blood pressure, and pulse are all within normal limits. The resident is concerned about the chest stab wounds, but after a discussion with the attending physician and ultrasonography, the conclusion is reached that no additional treatment is indicated. All lacerations are cleaned and sutured, and the patient is discharged home. Five days later, he presents to a different hospital reporting vomiting, blurred vision, and difficulty concentrating. A CT of his head reveals the track of a knife wound penetrating the skull and several inches into the brain. The previously admitting resident has focused on the chest wound as the most significant injury. When he thought that the chest wound was stable, the satisfied resident failed to conduct a sufficient search to rule out other significant injuries.

Critically ill patients admitted to an ICU experience, on average, 1.7 medical errors each day, and many patients suffer a potentially life-threatening error during their stay.<sup>39</sup> Stories like the one mentioned above are not isolated incidents. Researchers believe that specialties like critical care characterized by a high degree of time pressure, data uncertainty, stress, and distractors have a higher incidence of errors compared to other fields of medicine.<sup>40</sup> Ideally, medical decision-making is a straightforward process. A combination of clinical findings should generate a limited differential of known clinical conditions, ordered by their probability of occurrence. Diagnostic tests would then refine the list until only a few candidates exist with a clear favorite. Abundant evidence, however, suggests that real-world medical decision-making is rarely a rational and straightforward process. Physicians often fail to agree on the interpretation of diagnostic test results,<sup>41</sup> are inconsistent in their approach to disease management,<sup>42</sup> and arrive



at different diagnoses in the presence of identical information.<sup>43</sup> Both physicians and patients are rational within personal or environmental constraints such as uncertainty or ambiguity (“bounded rationality”). While dealing with complex issues, they will tend to simplify their calculations and settle for a satisfactory, rather than an approximate-best, decision. Therefore, bounded rationality results from adaptation to the environment, and non-rational approaches such as emotion and intuition are instrumental in this adaptation.<sup>44</sup> Emotions direct attention and help patients and physicians attend to immediate needs. Intuition, informed by prior experience and existing knowledge, usually produces reasonably accurate and fast inferences.

This chapter will review the role of emotions and intuitions in healthcare decision-making. Emotions and intuitions are interconnected. If identified, emotions can be used as conscious triggers or modifiers of intuitive processing. As a result, emotional states often determine whether patients or providers will use either a deliberative or an intuitive decision-making style. For instance, fear and anger play a role in intuitive decision-making about risk – fear amplifies risk estimates, and anger attenuates them. In evaluating risks of a particular intervention, providers and patients may often translate some complex thoughts into simpler emotional evaluations. Thus, they can compare good and bad feelings instead of trying to make sense of many conflicting logical reasons. It is not uncommon to observe this kind of intuitive evaluation of risk among patients – “How bad is it?” or “Well, how bad does it feel?” Consequently, any attempt to study the intuitive way of decision-making should consider emotion or affect as its basis.

### **Intuition and Deliberation**

Intuition has occupied an important place in the history of philosophical thought. The word intuition is derived from the Latin word *intuitus* meaning “to look or to gaze.”<sup>45</sup> The

etymology of the word places this concept close to what Plato and other philosophers call a direct perception. Plato describes intuition as the image of the ideal truth able to be perceived by the mind (nous).<sup>46</sup> Aristotle has modified this Platonic notion of nous to refer to the capacity of the mind to abstract universals from reality known empirically by the senses. Aristotle writes about an intuitive mind that simply knows without constructing its proof on prior knowledge.<sup>47</sup> This notion of intuition as direct perception is evident in the writings of many modern philosophers. For instance, Descartes talks about intuition as the inner certitude that facilitates the perception of a relationship between ideas. He writes: “By intuition I understand, not the fluctuating testimony of the senses, nor the misleading judgment that proceeds from the blundering constructions of imagination, but the conception which an unclouded and attentive mind gives us so readily and distinctly that we are wholly freed from doubt about that which we understand.”<sup>48</sup> Later on, he adds: “Intuition is the undoubting conception of an unclouded and attentive mind, and springs from the light of reason alone.” Descartes contrasts intuition with “deduction, by which we mean the interdependence of something as following necessarily from some other propositions.”<sup>49</sup> He explains this contrast as follows: “Hence we are distinguishing mental intuition from certain deduction on the grounds that we are aware of a movement or a sort of sequence in the latter but not in the former.”<sup>50</sup>

In his philosophy of conception, Spinoza uses the concept of intuition of the *scientia intuitiva* as the third kind of cognition, different from the knowledge of objects and reason: “This kind of knowledge proceeds from an adequate idea of the formal essence of certain attributes of God to an adequate knowledge of the essence of things.”<sup>51</sup> Spinoza argues that the highest virtue of the mind is to “understand things by the third kind of knowledge.”<sup>52</sup> He uses the example of simple numbers and the ability to deduce the next numbers in a sequence to illustrate how

intuition works. This kind of intuition is the highest form of human cognition, and it is practical in being able to make quick and effortless associations.<sup>53</sup> A similar concept of intuition is present in Kant's epistemology. In his *Critique of Pure Reason*, Kant lays the foundations of a theory of a priori judgments. According to this theory, one can arrive at correctly believing the truth of some statements, while not all, simply by contemplation. This type of knowledge is called a priori knowledge: knowledge that comes prior to experience. In these cases, it is the intuitive capacity of the mind that justifies such beliefs. The other type of knowledge is a posteriori, posterior to experience.<sup>54</sup> Intuition is crucial to both kinds of knowledge. Kant defines intuition as follows: "In whatever way and through whatever means a cognition may relate to objects, that through which it relates, immediately to them, and at which all thought as a means is directed as an end, is intuition."<sup>55</sup> In Kant's system of cognition, perceptions are broken down into sensations and cognitions. Cognitions, in turn, are broken down into intuitions and concepts.

One of the most complex and thorough accounts of intuition is found in the writings of Husserl, the father of the phenomenological method. This method emphasized the subjective way in which objects and ideas are mentally determined. Intuition is a central aspect of intentionality, as it is the process through which objects are presented to consciousness. Intuitive acts include perception, imagination, and memory. Intuition for Husserl is an act that possesses its object or, in other words, intuitions are inconceivable without the prior natural objects. Husserl sees intuition as an intentionality that "consist[s] in reaching its object and facing it as existing."<sup>56</sup> Therefore, intuition is the source of all knowledge. Truth results from a correspondence between object as it is perceived and object as it is seen intuitively. Similarly to a Platonic or Aristotelian understanding of intuition, or the description of this concept as it is found in the writings of

Spinoza or Kant, intuition for Husserl is important in bridging the relation between the world and the mind.<sup>57</sup>

The more developed distinction between intuition and deliberation can be found in the modern philosophy of mind. Philosophers of mind are interested in the analysis of everyday “folk” concepts - more specifically beliefs – and their role in the explanation of thought and action. Thus, Dennett in his writings makes a distinction between belief and opinion.<sup>58</sup> He sees belief as a basic mental state, which can be found in humans and animals. Opinions, in turn, are more sophisticated, “linguistically infected” states, found in humans alone. To have an opinion is to be committed to the truth of a sentence in a language one understands, often as a result of consciously making up or changing one’s mind. Similarly, Cohen makes a distinction between belief and acceptance. He argues that to believe something is simply to be disposed to feel it true, while acceptance presupposes conscious, rule-based reasoning. Belief is passive and non-linguistic, found in animals and humans. Acceptance is active and linguistically formulated, not found in animals.<sup>59</sup> Frankish describes belief as non-conscious, implicit, passive, and non-linguistic. His concept of superbelief is conscious, explicit, active, and involves language. These theories have a common thread: the existence of two types of belief. One type is implicit, non-linguistic, and intuitive, while the second type is explicit and involves language and deliberation.<sup>60</sup>

The most important psychological account of intuition and deliberation is found in the writings of Freud. Freud believed that the human mind is composed of two systems: one conscious and the other unconscious. He argued that these systems operate in different modes (“primary process” and “secondary process”): the former associative and the latter logical. Freud also believed that the contents of the unconscious are inaccessible to the conscious mind and that

the unconscious system is a source of motivation and mental conflict. However, the intuitive or unconscious in Freudian logic is not a reasoning system since it consists mostly of repressed impulses or memories. The unconscious only affects deliberative indirectly, through dreams and neurotic symptoms.<sup>61</sup> Later, Jung, in his theory of the ego, described intuition as an irrational function, opposed most directly by sensation, and opposed less strongly by the "rational functions" of thinking and feeling. Jung defined intuition as "perception via the unconscious": using unconscious processes to bring forth ideas, images, and possibilities.<sup>62</sup> Jung also described a person who mostly uses intuition as an "intuitive type," a person who acts not on the basis of rational judgment but on sheer intensity of perception. He talks about extroverted intuitive types, those who are oriented by new and promising but unproven possibilities. They are entrepreneurs and cultural revolutionaries. He also mentions introverted intuitive types who are oriented by images from the unconscious in their attempts to understand the meaning of events. They are mystics, prophets, and philosophers.<sup>63</sup>

Research on intuition and its role in decision-making has been greatly influenced by the Nobel Laureate Simon and his concept of bounded rationality, coined in 1947. Bounded rationality is the idea that when people make decisions, their rationality is limited by the complexity of the problem, their cognitive limitations, and the available time to make the decision. Therefore, people often make choices in a satisfactory manner, seeking 'good enough' solutions rather than optimal ones.<sup>64</sup> Simon developed a pattern-recognition based theory of intuition. He argued that the term 'intuition' may be used to describe decision-making that is fast and for which the actor is unable to describe in detail the reasoning that produced the answer. For Simon, intuition was "nothing more and nothing less than recognition" or "analyses frozen into habit and the capacity for rapid response through recognition."<sup>65</sup> In other words, Simon believed

that people store important information in their long-term memory in the form of coherent patterns, intuitive judgments being a product of pattern recognition. Simon also acknowledged the role of emotion in decision-making but concluded that ‘emotion-driven intuition’ results in irrational decisions.<sup>66</sup>

In the late 1960s and early 1970s, Daniel Kahneman and Amos Tversky used the theory of bounded rationality to explore the systematic biases resulting from choices based on intuitive errors. In their research, Kahneman and Tversky defined intuition as “thoughts and preferences that come to mind quickly and without much reflection.”<sup>67</sup> Their research was guided by the notion that intuitive judgements are positioned between the automatic operations of perception and the deliberate operations of reasoning. Kahneman and Tversky were successful in identifying many situations in which people had very compelling intuitions that were normatively inferior to a deliberative analysis. Their heuristic and biases program of research on judgement under uncertainty emphasized the value of clear, rational thought. For instance, in one of their most famous demonstrations, participants were asked to consider the following problem: “Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.” Kahneman and Tversky asked participants which scenario is more probable: 1. Linda is a bank teller or 2. Linda is a bank teller and is active in the feminist movement. Participants’ intuitions led them to believe that the second option was more probable (85%) even though this is a logically impossible outcome as it is a subset of the first.<sup>68</sup>

Although Tversky and Kahneman stressed the fact that intuitive judgements sometimes succeed and sometimes fail, their research program was typically interpreted as indicating the down-side of intuitive judgements. They were able to identify three main heuristics that

underline judgements under conditions of uncertainty: representativeness heuristic (“what is typical”), availability heuristic (“what comes to mind easily”), and anchoring (“what happens to come first”).<sup>69</sup> Their seminal work, for which Kahneman received the Nobel Prize in 2002, revolutionized research on judgement and decision-making, and their influence quickly spread beyond psychology into a number of fields such as medicine, politics, economics, and law. However, one of the limitations of this program, later recognized by Kahneman and Frederick, was considering these intuitive judgements as “cold,” or lacking emotion and affect. Kahneman and Frederick wrote: “The failure to identify [the affect heuristic] earlier reflects the narrowly cognitive focus that characterized psychology for some decades.”<sup>70</sup> The predominant account of intuitive judgements during those decades was completely cognitive with no account for emotion or affect. Only later, researchers have started to emphasize feelings as an important aspect of intuition, describing intuitive judgments in affective terms, such as “gut feelings,” or “gut instincts.”

The most influential account of intuitive judgements being driven by emotions was proposed by Slovic and colleagues in what they would later call “affect heuristic.” Affect heuristic is a mental shortcut that allows people to make decisions and solve problems quickly, in which emotional response influences decisions.<sup>71</sup> The affect heuristic is often used while judging the risks and benefits of an activity, depending on the positive or negative feelings that people associate with this activity. Risk as feelings refers to one’s fast and intuitive reactions to danger. Risk as analysis brings logic and deliberation to bear on risk management. The intuitive system and “risk as feelings” enabled human beings to survive evolution, and it still remains the most natural and common way to respond to risk. Slovic and colleagues noticed that while risk and benefit tend to be positively correlated (If a stock is riskier, it may offer a higher return.), they

are negatively correlated in people's minds (i.e., herbal medicines perceived as high benefit and low risk).<sup>72</sup> They concluded that this inverse relationship between perceived risk and perceived benefit of an activity is likely to be connected to the strength of positive or negative emotions associated with that activity. Affect heuristic explains that when people feel that an activity is good, they appear to judge risks as low and benefits as high; if they feel that it is bad, they may judge the opposite – high risk and low benefit.<sup>73</sup>

Despite this extensive research on intuition that spans hundreds of years of discourse, it has been historically difficult to define this concept. Epstein, one of the most famous researchers of judgement and decision-making, noted, "Intuition has been given so many different meanings that it makes one wonder whether the term has any meaning at all."<sup>74</sup> Dane and Pratt, in their 2007 article on the role of intuition in managerial decision-making,<sup>75</sup> list 17 various definitions of the concept. Some of them were mentioned earlier in this chapter. It is worth adding several more definitions. For instance, Wild defines it as "an immediate awareness by the subject, of some particular entity, without such aid from the senses or from reason as would account for that awareness."<sup>76</sup> Bruner describes it as "the act of grasping the meaning, significance, or structure of a problem without explicit reliance on the analytic apparatus of one's craft."<sup>77</sup> Shirley and Langan-Fox write that intuition is "a feeling of knowing with certitude on the basis of inadequate information and without conscious awareness of rational thinking."<sup>78</sup> For Hogarth, intuition is "thoughts that are reached with little apparent effort, and typically without conscious awareness; they involve little or no conscious deliberation."<sup>79</sup> Finally, Shapiro and Spence consider intuition as "a nonconscious, holistic processing mode in which judgments are made with no awareness of the rules of knowledge used for inference and which can feel right, despite one's inability to articulate the reason."<sup>80</sup>



From the variety of definitions listed above, as well as from the earlier discussion of intuition research, one can deduce several aspects of intuitive decision-making. Researchers describe the process by which intuitive judgements are reached as nonconscious, fast, and frugal. This process occurs automatically with little or no effort on the part of the decision maker. There is little or no awareness on the part of the decision maker of how intuitive judgements have been achieved. The outcomes of intuitive processes are usually approximate and often experienced in the form of feelings rather than words or statements. Intuitions help decision makers to form relevant beliefs or hypotheses. Intuitions should not be confused with similar concepts such as instincts or insight. An instinct is a reaction that is innate; for example, quickly removing a hand when touching a hot surface. Intuitions are based on previous experience. They represent learned behavior. While insight can be achieved in an intuitive manner, it can also be reached through deliberative processes.

Intuitive judgements have a number of strengths when it comes to clinical decision-making. The last twenty years of psychological research into intuitive decision-making shows that compared to deliberative decision-making, intuitive decisions often result in better judgments, are more in line with expert opinion, and are more accurate.<sup>81</sup> Intuitive judgements are based on automatic and unconscious cognitive processes. These processes are thought to be less limited in capacity than deliberation and, therefore, to be able to integrate larger amounts of information. Additionally, intuitions are better at incorporating feelings and affective cues in the decision-making process.<sup>82</sup> Feelings and emotions are critical sources of information for decision-making. The story of Phineas Gage, shared by the neurosurgeon Damasio, serves as an illustration for this point. Phineas Gage was the victim of an 1848 mine explosion that hurled an iron rod through his skull and brain. Gage recovered, but his frontal lobe, and consequently the

ability to experience emotions, was damaged. His cognitive and intellectual abilities were preserved, but he was no longer able to make decisions. For instance, it would take him hours to decide where to dine by obsessing about each restaurant's seating plan and menu. This story shows the importance of emotions for decision-making and the importance of intuition as vehicle that brings emotions into the decision-making process.<sup>83</sup>

Despite the importance of intuitive processes in decision-making, there are also some critical pitfalls associated with reliance on intuition. Several decades of psychological research into intuitive decision-making shows that reliance on intuitive strategies and on strong, immediate emotional reactions can cause bias and error in decision-making. Numerous biases and heuristics have been documented in human judgement (e.g., framing, anchoring, and availability). Many of these biases have been attributed to failures of human intuition.<sup>84</sup> Another pitfall of intuitive decision-making is that reliance on intuition may make it difficult for patients and their surrogates to articulate reasons for their preferences. Healthcare providers are often skeptical when families and patients lack plausible-sounding reasons for their decisions.<sup>85</sup> Finally, reliance on intuition may be appropriate for some stages of the decision-making process but not suitable for others. For instance, intuitions can lead to poor decisions when they are applied to information search and early stages of decision-making.<sup>86</sup>

### **Dual Process Framework**

As shown earlier in this chapter, the contrast between two types of thinking - one intuitive, fast, and automatic, the other deliberative, slow, and effortful – is present in many philosophical and psychological accounts of cognition. Some researchers have sought to unify these views under a general dual-process theory. According to these theories, one type of process is fast, automatic, effortless, and non-conscious, while the other is slow, deliberate, effortful, and

conscious.<sup>87</sup> One way to conceptualize these systems is to think of the processes involved in driving a car. A new driver needs to rely on conscious processing, requiring focus and concentration. His driving involves mental effort, and he can be easily disrupted by a distraction. In contrast, an experienced driver, relying on automatic processes, can carry out the same task efficiently while being engaged in a conversation or finding a radio station. When needed, the experienced driver can switch to more deliberative processing, for instance, during bad weather, heavy traffic, or windy roads. Similarly, a provider faced with a new consultation may quickly recognize the constellation of symptoms and signs using pattern recognition and System 1 thinking. At times, however, System 2 processing will be needed. For instance, imagine a 28-year-old woman presenting with a two-month history of exertional chest pain when pushing her baby's buggy. She has a past history of type 2 diabetes, hypothyroidism, and a BMI of 34.6. If this patient were a 58-year-old man, System 1 processing would lead most physicians effortlessly to a diagnosis of ischemic chest pain. In this case, however, the symptoms do not fit a well-recognized pattern and require System 2 thinking. When a physician employs this type of thinking and orders a number of tests, he will diagnose the patient with critical stenosis of an artery.

In 1984, Evans formulated his heuristic-analytic theory of reasoning, inspired by the results of two sets of experiments. One was the famous Wason selection task, or four-card problem. Here is the example of this task: "You are shown a set of four cards, each of which has a number on one side and a colored patch on the other side. The visible faces of the cards show 3, 8, red, and brown. Which card(s) must you turn over in order to test the truth of the proposition that if a card shows an even number on one face, then its opposite face is red?"<sup>88</sup> Evans noticed that, on average, only 10-20% of people solve this puzzle correctly. In his second

set of experiments, Evans asked participants to evaluate the logical validity of a group of arguments. The task was further complicated by the fact that half of the valid arguments had an unbelievable conclusion, based on common sense prior beliefs. Participants consistently failed to correctly assess logical validity when the believability of the conclusion conflicted with the validity of the argument. Evans' dual process theory of reasoning was an attempt to account for the biases documented in these experiments. In his first formulation of the theory, Evans assumed that reasoning is the product of the interaction of two types of processes: intuitive that generates specific representations of the task at hand while analytic processes derive judgements or inferences from these representations. Later, Evans rephrased the theory so that intuitive processes would generate default responses while analytic processes sometimes intervene and replace these default intuitive judgements. This means that the interaction between the two types of processes is sometimes sequential and other times competitive. Finally, since the analytic system works on the representations generated by the intuitive system, it is still susceptible to bias.<sup>89</sup>

In judgement and decision-making research, Kahneman and Tversky have shown that decisions under uncertainty often rely on the automatic use of heuristics and not the deliberate use of logic and rules. Similarly to Evans' view, Tversky and Kahneman claimed that there is a conflict between judgments and decisions made according to formal rules (such as probability laws) and those relying on heuristics.<sup>90</sup> For instance, in one of their experiments, they told participants that a group of psychologists administered personality tests to 30 engineers and 70 lawyers. Then, they offered participants personality descriptions based on these personality tests, some neutral and some representative of either the engineering or law profession, such as this description of Jake: "Jack is a 45-year-old man, married, and has four children. He is generally

conservative, careful, and ambitious. He shows no interest in political and social issues and spends most of his free time on his many hobbies which include home carpentry, sailing, and mathematical puzzles.” When participants were asked to estimate the likelihood that Jack was an engineer, the estimates were high regardless of base rate information. When participants had to assess a neutral profile, they again ignored base rate information. Instead, they calculated the degree of similarity between this profile and a stereotypical lawyer or engineer and concluded that both are more or less the same. Hence, the likelihood of this profile being an engineer is 50%. Tversky and Kahneman performed this experiment with doctors and medical students in an effort to determine whether the results of the original experiment were due to participants’ inexperience with probabilistic problems. However, the results were the same, and experts made similar mistakes. They conducted many similar experiments demonstrating that when participants err in their judgements, it is usually the result of a fast and intuitive kind of reasoning process. By contrast, correct responses were given when participants consciously and deliberately reasoned through the tasks.<sup>91</sup>

A simple task proposed by Frederick clearly demonstrates the work of both systems. Students were given the following problem: “A bat and a ball cost \$1.10 in total. The bat costs \$1 more than the ball. How much does the ball cost?” Most students quickly respond, “10 cents.” This answer jumps to mind: it is fast, automatic, and it is not clear where it comes from. On the other hand, when they had to think about the problem for a moment, they realized that it is not the correct answer. In order to get to the right answer, they needed to engage in conscious calculations.<sup>92</sup> Given the number of similar experiments and the consistency of the results, many researchers sought to unify dual-process theories into a general dual-system view of cognition. According to this view, there are two cognitive systems: one system underlies fast, automatic,

effortless, and unconscious processes, while the other underlies slow, deliberate, high effort, conscious processes. The two systems were given different names by different authors: implicit and explicit, experiential and rational, heuristic and systematic, or associative and rule-based. Later, researchers started using the labels ‘System 1’ and ‘System 2’ to refer to the two systems.

According to the researchers, what differentiates the two systems is: 1. their speed (slow versus fast), 2. their obedience to rules (automatic versus deliberate), and 3. the type of information they rely on to make decisions (affective, specific, and pattern-based for system 1; statistical, abstract, and theoretical for system 2). Most researchers also agree that both systems work in tandem, and some tasks can migrate from one system to another as expertise and skill are acquired.<sup>93</sup> In the same work mentioned above, Frederick described the two systems as follows: “System 1 - executed quickly with little conscious deliberation; occurs spontaneously and does not require or consume much attention; it is unaffected by intellect, alertness, motivation or the difficulty of the problem being solved” and “System 2 - executed slowly and more reflectively; the kind of mental operations that require effort, motivation, concentration, and the execution of learned rules.”<sup>94</sup> In 2011, Kahneman published *Thinking, Fast and Slow*, a *New York Times* bestseller on the dual system view, in which he claims that the main difference among the two systems is the amount of effort, attention, and control that the two types of processes require. System 1 operates automatically and quickly, with little or no effort and no sense of voluntary control. System 2 gives attention to the effortful mental activities that demand it. It is often associated with the subjective experience of agency, choice, and concentration.<sup>95</sup> Kahneman claims that the dual-system view explains why people sometimes make very simple and surprising mistakes in judgement: they engage in the wrong type of reasoning. They use System 1 when they should engage System 2 instead. He also believes that System 1 gets

automatically engaged in any reasoning task, and that System 2 oversees, authorizes, and sometimes overrides System 1's response.<sup>96</sup>

Fuzzy trace theory is a type of the dual system theory often used in medical decision-making. The phrase fuzzy trace refers to a distinction between verbatim memory representations that are vivid and gist memory representations that are "fuzzy" (vague and impressionistic). For example, if a physician tells a patient that she has a 22% chance of having a stroke in the next three years, she forms two kinds of memories for that information: 1. a memory of the precise details of what was said ("22% chance of stroke"), which fades rapidly and is subject to interference (e.g., from anxiety), and 2. a memory of the bottom-line meaning, or gist, of what was said (e.g., there is a good chance of having a stroke in the next few years). Multiple gist memories are typically encoded into memory for a single piece of information. Even though people are capable of processing both verbatim and gist information, they prefer to operate on gist memories rather than use verbatim ones.<sup>97</sup> For instance, even if people are capable of understanding ratio concepts like probabilities and prevalence rates, which are omnipresent in health-related information, their choice in decision situations will usually be determined by the bottom-line meaning of it (e.g., "the risk is high" or "the outcome is bad") rather than the actual numbers. While most dual system theories assume that decisions generated by System 2 are superior to those made by intuition or System 1, fuzzy trace theory predicts the opposite. It assumes that intuitive processing is more sophisticated and is capable of making better decisions and that increases in expertise are accompanied by reliance on intuitive, gist-based reasoning rather than on literal, verbatim reasoning. For instance, simply educating people with statistics regarding risk factors can hinder prevention efforts. Health providers need to explain information

in more meaningful ways that facilitate forming an appropriate gist (i.e., explaining quantities qualitatively, visual presentation of information).<sup>98</sup>

Dual system theories have a number of limitations. These theories assume that System 2 decisions are better and less prone to cognitive errors. However, reliance on deliberation in health care decision-making has a number of pitfalls. Many choices ICU patients face are laden with strong emotions, such as feelings of anxiety or depression. When a patient experiencing negative emotions is asked to deliberate, his/her thinking will go in line with her emotional state and may even intensify these emotions. Another disadvantage of deliberation is that people are often unaware of factors that influence their choices. When asked to give reasons why they prefer certain options, patients may invent reasons that seem plausible, but they are not correct. If patients cannot articulate the reasons for their preferences after a decision is made, then asking them to do so as part of the decision-making process could lead them to a decision they might not otherwise make. Additionally, the mere fact of explaining reasons for patients' preferences can decrease their satisfaction with decisions and agreement between their judgements and opinions of providers. Deliberation tends to cause people to focus on just a select few reasons for choosing one option over another. These reasons may not actually be the most important or even the real reasons for one's preferences. Instead, they are likely to be the reasons that are easiest to articulate. As a result, deliberative reasoning can shift one's perception of which option is the best.<sup>99</sup>

Critics of dual-system theories point out the lack of conceptual clarity when it comes to categorizing System 1 and System 2 processes. For instance, the term unconscious is often used as a feature describing System 1, and conscious as a feature describing System 2. Most theories argue that consciousness enables higher-order, meaning-based, truth-value-preserving processing



of information, while the unconscious is restricted to a simpler, associative type of processing. Therefore, it is more advantageous to engage conscious processing for more complex decisions.<sup>100</sup> This claim, as well as the distinction between “dumb unconscious” and “complex conscious,” has been challenged in recent literature. For instance, Dijksterhuis and colleagues came to an interesting conclusion that when faced with complex decisions (what car to buy, where to live), people are better advised to stop thinking and let their unconscious decide. These researchers argued that explicit consideration of options and attributes overwhelms our capacity-limited conscious thought. In contrast, the unconscious is capacity-unlimited and it is better positioned to weight information appropriately and decide optimally. In their study, participants were quickly (although consciously) presented with a set of twelve positive and negative attributes each about four different cars (i.e., 48 attributes total, with one car having 75% positive attributes, two having 50% positive attributes, and one having 25% positive attributes). One group of participants (“conscious thinkers”) made their decision after four minutes of deliberation and another group (“unconscious thinkers”) after four minutes of engaging in a distracting anagram-solving task. The unconscious thinkers group was most likely to choose the “good” car compared to the conscious thinker group.<sup>101</sup>

This experiment demonstrates the issue with dual system approach to judgement. It highlights the tendency of dual system theorists to focus on static rather than dynamic properties of judgement and decision-making. Less attention has been given to the transitions from one system to another. Samuels refers to these transitions as crossovers or occurrence of processes with both System 1 and System 2 features, for instance, some unconscious processes that are rule-based rather than associative. Heuristics and biases, typically characterized as unconscious and automatic, can also be conscious and controlled. Similarly, emotions and emotional reactions

can be understood as resulting from both System 1 and System 2 processes. Several researchers have attempted to clarify the role of emotions in dual system theories. For example, Keltner and Haidt distinguish two classes of emotions. Primordial emotions are universal, biologically based patterns of responses that can be found in any culture. Elaborated emotions are more complex bundles of meanings, social practices, and norms that are constructed around emotions in a certain cultural context. The authors suggest that the deliberation process loosens the link between a primordial emotion and its original evolutionary function. For instance, the primordial emotion of disgust, initially designed to prevent people from consuming contaminated food, can be applied to norm violators (i.e., someone who committed incest) who might metaphorically contaminate the social group. Ochsner and Barrett describe emotion as resulting from interactions between System 1 and System 2 processes. System 1 bottom-up processes categorize events or objects as positive or negative and generate an emotional response. Top-down processes of System 2 can direct one's attention to specific aspects of an object or event, regulating or inhibiting corresponding emotions. For these authors, consciously experienced emotions occur only when both systems are engaged and produce an emotional response.

Despite the abovementioned tendency to associate emotion with System 1 processing, it is possible to assume that both systems can be involved in emotional processing and decision-making. At times, System 2 processes cannot prevent or regulate emotional reaction. For instance, in a well-known psychological experiment, participants responded with disgust at the sight of chocolate in the shape of feces, despite being fully aware that the material was simply chocolate.<sup>102</sup> Emotional reactions can also occur without deliberate awareness of the trigger. For example, when researchers briefly flashed pictures of spiders or snakes to people with phobias, research participants experienced elevated skin conductance responses demonstrating emotional

response to the stimuli.<sup>103</sup> On the other hand, emotions can be elicited by deliberate, reflective System 2 processes. For instance, anxiety can result from thinking about what other people might think of me (System 2 processes) as well as by the simple perception of a spider (System 1 processes). Fear can be elicited by actual exposure to a threat or by the anticipation of danger in the future. System 2 processes are not only important in elicitation of emotions but also in their regulation. People may attempt to reinterpret or re-categorize quick emotional reactions, for instance, when they realize the presence of a stereotype or implicit bias. They may try to direct their attention to a different and less emotionally laden aspect of emotional response, for instance, thinking about individual characteristics of a stereotyped person rather than group characteristics. Finally, one may attempt to teach their System 1 in order to respond differently to the stimuli.<sup>104</sup>

### **Heuristic Decision-Making Model**

When faced with a clinical emergency situation, ICU providers are often expected to make diagnostic decisions within a limited time frame. A delayed decision, although an accurate one, is a futile decision if the patient deteriorates. Therefore, these urgent decisions have to be made with some degree of uncertainty, especially in an environment like the ICU. Physicians in a critical care unit make many decisions in the course of a working shift, some of which can have high consequences. Furthermore, critical care units often have unpredictable patient volume load as well as clinical acuity. Given the unfavorable nature of such an environment, the critical care unit is often a place that is vulnerable to error. The likelihood of the occurrence of errors in critical care is higher than in other areas of inpatient care. For instance, an observational study in Israel documented a rate of 1.7 errors per patient per day.<sup>105</sup> In another study, 31% of ICU admissions experienced an iatrogenic complication (half of which were serious), where human

error was a major contributor.<sup>106</sup> A prospective incident reporting system in Australia found that adverse events occur in 5% to 25% of patients admitted to the ICU,<sup>107</sup> while errors occurred in 20% of patients in a single center study in the United States.<sup>108</sup> A high number of these errors can be attributed to diagnostic decision-making. Diagnostic reasoning involves the use of both System 1 and System 2 processes, the combination of which depends on the experience of the physician and the familiarity of the situation. Factors such as overconfidence, fatigue, and time pressure can create an overreliance on intuition when there may be insufficient expertise to justify its use. Cognitive biases or heuristics may lead to diagnostic inaccuracies and medical errors.

The first part of this chapter outlines a number of perspectives on the role of emotion and intuition in medical decision-making. According to the traditional model of rational choice, when making a diagnostic decision, a physician will gather and evaluate all relevant information; he will then weigh each piece of this information according to some medical criterion, and then combine the pieces to maximize the chances of arriving at a diagnosis. The dual framework argues that physicians may try to arrive at the best diagnostic decision via pattern recognition and intuitive processes or via conscious and deliberative processes. However, the third way of conceptualizing medical decision-making would argue that reaching the best and most optimal decision may not be possible in the real world. Instead, physicians use simple strategies, seeking answers that are good enough with respect to the treatment goals. Therefore, the heuristic framework adapts a more situated view of decision-making through which it tries to understand how and when reliance on heuristics can result in smart choices.<sup>109</sup> The term heuristic is translated from the Greek as “serving to find out or discover.” Einstein used this term in the title of his Nobel-prize winning paper on quantum physics, alluding to the fact that the view he

presented was incomplete but highly useful.<sup>110</sup> Similarly, in the study of decision-making, heuristics are often referred to as “rules of thumb” that make use of less than complete information, often in a very useful way.

When it comes to the study of decision-making, heuristic has been defined in a number of ways. For instance, Shah & Oppenheimer explain that heuristics exist for the purpose of reducing cognitive effort during the decision-making process by means of: examining fewer cues, reducing the effort of retrieving cue values, simplifying the weighting of cues, integrating less information, and examining fewer alternatives.<sup>111</sup> Sunstein describes heuristics as any mental short-cuts or rules of thumb that generally work well in common circumstances but also lead to systematic errors in unusual situations.<sup>112</sup> However, the most helpful definition was proposed by Kahneman and Frederick as a strategy that assesses a target attribute by another property (attribute substitution) that comes more readily to mind. For instance, a person wants to determine whether an object has a target attribute. This target attribute is difficult to detect directly, often because of lack of information or time. Hence, instead of asking directly about the target attribute, this person asks about a different attribute, the heuristic attribute, which is easier to detect. If the person detects the heuristic attribute, then the person forms the belief that the object has the target attribute.<sup>113</sup> For example, a parent refuses to vaccinate her child after she sees an isolated media report of a child who developed autism after being vaccinated. In this example, the target attribute is the effectiveness of vaccination, and the heuristic attribute is the vivid example of a rare and publicized event. In another example, a patient may think that because she has developed so many incident health problems in the past year, she is unlikely to also develop breast cancer because she is “due for a break.” She, thus, skips her mammography.

In this case, the target attribute is the importance of mammography, and the heuristic attribute is the belief that the patient is “due for a break.”

Heuristics usually operate unconsciously. This has been demonstrated in experimental conditions. Subjects in the reported experiments usually do not mention the heuristic attribute when asked to explain how they arrived at their answers. In contrast, when subjects are asked about their evidence, if they have any, they usually give it. Moreover, when subjects are told about heuristics, they often deny that they used them, possibly because the attribute substitution seems questionable when it becomes conscious. Partly because heuristics are unconscious, they are not easily corrected when they go astray.<sup>114</sup> Researchers find that even experts on probability make the mistakes predicted by the various heuristics. When the experimental design makes the mistakes obvious enough, and there is no concurrent cognitive load, then experts do make fewer salient mistakes. Finally, attribute substitution plays a role that normal evidence does not, since attribute substitution silences or distracts from opposing evidence. When representativeness is substituted for probability in the example above where the mother decides on vaccination for her child, representativeness is not weighed against percentage estimates. Instead, the baseline percentages are overlooked, and the judgment is based almost completely on the heuristic attribute of representativeness.

In the rest of this chapter, I will describe heuristics and cognitive biases relevant to clinical decision-making. The *availability heuristic* was referenced earlier in this chapter. It refers to the tendency of people to make judgements about the frequency of an outcome (i.e., side effect of a drug) using whatever information is most accessible or most available. This available information may often be unrepresentative or incomplete, thus leading to erroneous judgments.<sup>115</sup> For instance, vivid events such as plane crashes with multiple fatalities are more

readily accessible in people's memories (due in part to disproportionate media coverage) than are more ordinary events with singular or few fatalities such as automobile fatalities. This leads to exaggerations of the likelihood of the vivid events. Similarly, celebrities developing cancer, made vivid by repeated media coverage, may increase cancer risk perception and worry.

This heuristic becomes problematic when patients attempt to determine the association between a potential risk factor and the occurrence of a disease. Due to the media coverage of specific cases, such as a child who developed autism after being vaccinated, parents may develop biased beliefs about how events are associated. The availability heuristic may also be problematic when patients attempt to estimate the proportion of their peers who engage in a given action or hold a given opinion. For example, if a patient's friends all discount the importance of prophylactic colonoscopy, this patient will likely avoid the procedure as well. Finally, it is worth mentioning that people rely on the subjective perception of availability just as much as on general availability heuristic. For instance, when asked to list eight reasons why they should not adopt aggressive ICU therapy, patients feel more inclined to accept this therapy than those who were asked to list only three reasons. The group that had to come up with eight reasons found it difficult to make the list and concluded that they not strongly against this option.<sup>116</sup>

When facing medical decisions in the ICU, patients make assumptions about how they will adjust emotionally to living with disabilities and declines in health. Because these decisions involve predictions of future feelings, wrong predictions about their future emotional states may lead to suboptimal decisions. Research shows that people are poor predictors of their future well-being. Specifically, people overestimate the impact and duration of negative emotions in response to loss. *Affective forecasting errors* describe the process by which people anticipate

their emotional responses to future events.<sup>117</sup> These errors are important in the context of ICU decision-making since patients often have to decide between treatment options with similar impacts on mortality but very different effects on their lives. They need to form realistic beliefs about their future quality of life in order to make decisions. However, when thinking about their future health, patients tend to focus narrowly on what will change in their life while ignoring how much of what they enjoy daily can still be continued. This is the reason why some patients may refuse life-saving amputations because they are not able to imagine their life using a wheelchair. Patients also fail to recognize the extent to which their coping mechanisms will help them in dealing with emotional suffering. Additionally, patients fail to predict their adaptation while estimating the duration of negative emotions. While people are mostly accurate at estimating the intensity and duration of a positive reaction, they systematically overpredict the intensity and duration of their negative emotional reactions. These affective forecasting errors may result in suboptimal treatment decisions.<sup>118</sup>

The *anchoring heuristic* describes the human tendency to rely too heavily on the first piece of information offered (the "anchor") when making decisions. Guided by this heuristic, a clinician may be perceptually fixated on the salient features in the patient's initial presentation at an early point of the diagnostic process. Even when the new information comes to light, a clinician may fail to adjust this initial impression.<sup>119</sup> There are many studies demonstrating the anchoring heuristic at work. For instance, researchers asked study participants to write the last two digits of their social security number and consider whether they would pay this number of dollars for items whose value they did not know, such as wine, chocolate, and computer equipment. They were then asked to bid for these items. The group with higher two digit numbers submitted bids that were between 60 percent and 120 percent higher than those with the



lower social security numbers.<sup>120</sup> Even when the anchor is obviously wrong, its influence remains strong. Researchers asked students whether Mahatma Gandhi died before or after age 9, or before or after age 140. Obviously neither of these anchors can be correct, but the two groups still guessed significantly differently (average age of 50 versus average age of 67).<sup>121</sup> Similarly, when it comes to medical risk estimates or diagnostic process, the influence of anchoring is present. A physician can anchor on a specific aspect of the patient's history, a physical finding, or a laboratory result. For instance, a patient's complaint of gas may cause the physician to miss an abdominal aneurism. The influence of anchoring can be strong among patients, resulting in misinterpretation of their risk of developing a disease. For instance, when asked to estimate whether their risk of developing colorectal cancer is higher or lower than 70 percent, patients gave higher estimates than when the original question asked about whether their risk was higher or lower than 30 percent.<sup>122</sup>

The *representativeness heuristic* is the assumption that something that seems similar to other things in a certain category is itself a member of that category. In order to demonstrate this heuristic, Kahneman and Tversky presented participants with descriptions of people who came from a fictitious group of 30 engineers and 70 lawyers (or vice versa). The participants then rated the probability that the person described was an engineer. Their judgments were much more affected by the extent to which the description corresponded to the stereotype of an engineer (for example, "Jack is conservative and careful") than by base rate information (only 30% were engineers), showing that representativeness had a greater effect on the judgments than did knowledge of the probabilities.<sup>123</sup> This heuristic may affect clinical judgement. For instance, clinicians were given two scenarios of patients with symptoms suggestive of either a heart attack or a stroke and asked to provide a diagnosis. The heart attack scenario sometimes included the

additional information that the patient had recently been dismissed from his job, and the stroke scenario sometimes included the information that the patient's breath smelt of alcohol. This additional piece of information had a significant effect on the diagnosis and made it less likely that clinicians would attribute the symptoms to a serious physical cause.<sup>124</sup>

The *sunk-cost heuristic*, sometimes referred to in literature as “irrational escalation,” is a tendency for people to pursue a course of action even after it has proved to be suboptimal, because resources have been invested in that course of action. A classic example of the sunk-cost heuristic was given by Thaler: “A family pays \$40 for tickets to a basketball game to be played 60 miles from their home. On the day of the game there is a snowstorm. They decide to go anyway, but note in passing that had the tickets been given to them, they would have stayed home.”<sup>125</sup> This heuristic affects many decisions people make on a daily basis. They may keep useless clutter in their homes just because they paid for it, persist in a bad relationship or career just because they invested their time, or they may continue gambling to make their lost money worth it. Sunk cost heuristic can affect clinical decision-making in a number of ways. For example, a physician might be more reluctant to change medications after a course of an expensive cancer treatment that bears minimal results as opposed to an inexpensive treatment. Similarly, a clinician might be less willing to consider an alternative diagnosis after spending several hours or days pursuing an apparently inaccurate diagnosis than if less time were spent looking at the mistaken option.

The *confirmation bias* involves the tendency to ignore or rationalize contradictory data to make the pieces of the puzzle fit neatly into the presumed picture. An unusual complaint or laboratory finding is dismissed in the mind of a clinician as an “outlier” when it should actually raise a red flag indicating that the clinician’s presumption may be incorrect.<sup>126</sup> Confirmation bias

often compounds an anchoring error when the clinician uses confirmatory data to support the anchored hypothesis even when clearly contradictory evidence is also available. For example, a clinician may steadfastly cling to patient history elements suggesting acute coronary syndrome (ACS) to confirm the original suspicion of ACS even when serial electrocardiography (ECGs) and cardiac enzymes are normal. According to research, clinicians form diagnostic impressions very quickly during the initial assessment, and it is often difficult to set aside these initial impressions to allow for new and or inconsistent information to be considered. Confirmation bias is able to impact not only the diagnostic process but may also lead to treatment errors. It is reasonable to expect that the drug a nurse is able to administer is the correct drug. Some obvious cues that this nurse has the wrong medication, such as a label marked ephedrine instead of the expected epinephrine, can be easily ignored or misinterpreted to confirm her expectation that the drug is correct.<sup>127</sup>

The *bandwagon effect* can be best demonstrated using the example of vitamin E that was believed to decrease the risk of heart attack due to its antioxidant effect. The idea seemed plausible in the early 1990s, and it was almost a common practice for doctors to recommend vitamin E. However, this practice was discredited by a number of studies that showed no demonstrable benefit of vitamin E. In fact, there was a potential for harm as it was associated with an increased risk of prostate cancer. Regardless, many practitioners still seem to be recommending Vitamin E two decades later, and it is still heavily promoted by vitamin companies.<sup>128</sup> The bandwagon effect is a heuristic whereby the rate of uptake of beliefs or ideas increases the more that they have already been adopted by others. Medical bandwagons have been identified as “the overwhelming acceptance of unproved but popular ideas.” They have led

to inappropriate therapies for a numerous number of patients and have impeded the development of more appropriate treatment.

The *default heuristic* occurs when a clinician or a patient gives preference to a default option over the active choice. A default option is the set of events or conditions that will occur if no action is taken. For instance, while patients can express their preference by explicitly answering a question or checking a box on a form, they usually tend to endorse the default option or the preference implied by no response or checking the box. They tend to do it regardless of implications and may consequently accept options they would not otherwise accept or reject options they would not otherwise reject.<sup>129</sup> For example, Johnson and Goldstein found that organ donation rates in countries with presumed consent policies (where the default position is a preference to donate organs) were twice as high as in countries with explicit consent policies (where the default is a preference not to donate organs).<sup>130</sup> Recent research links default options to advance directives and overuse of critical care during one's last months of life. The text and structure of advance directives carries the default for aggressive life-extending treatment. For instance, in the widely used 'Five Wishes' document, the option "I want to have life support" is listed first in all three clinical scenarios, despite evidence that the ordering of choices may anchor patients and influence their selections. Researchers suggest that people will be significantly more likely to indicate preferences to forgo life-sustaining interventions when completing advance directives in which forgoing these interventions is the default than when they have to actively choose to forgo the interventions.<sup>131</sup>

One recent study suggested that decisions to withdraw life -sustaining treatment in the ICU are strongly related to the characteristics of the physician rather than the medical conditions of the patient. This study notes that intensivists influence decisions by framing the presentation

of options. Therefore, *gain/loss framing* is another relevant heuristic in the context of ICU decision-making. Framing heuristic occurs when decision-makers respond differently to different but objectively equivalent descriptions of the same problem.<sup>132</sup> For instance, a study by McNeil et al. presented respondents with information about the outcomes of two treatments for lung cancer. Although the statistics presented were identical, they were framed in terms of survival or mortality rates. Even though respondents should react similarly to both statistical presentations, the number of those who favored radiation therapy over surgery went from 18% for those presented with the survival framing to 44% for those presented with the mortality framing. Similarly, intensivists may facilitate the decision about treatment withdrawal, focusing on the concept that “there is nothing more medically to be done” and invoking the image of abandonment and letting one die. They can also present this decision as the optimal level of care at the given stage of the patient’s illness, not focusing on what is medically effective but rather what is beneficial.<sup>133</sup>

The gain/loss framing heuristic is related to the *loss aversion* in decision-making. Loss aversion is an important heuristic stating that people care much more about avoiding losses than they care about making gains. It is better to not lose \$100 than to find \$100 because losses loom larger than gains. Some studies have suggested that losses are twice as powerful, psychologically, as gains.<sup>134</sup> In medicine, losses may take a variety of forms, including physical harm to a patient, perceived loss of reputation if a physician makes an error, and possibly even loss of licensure. In end-of-life care, the choice to overutilize life-sustaining treatment can be explained by loss aversion. Life-sustaining treatment decisions involve choices between two prospects – potential death from foregoing the treatment and a poor-health prospect (incapacitated status) resulting from accepting the treatment. For a healthy individual, the

difference between death and poor-health prospect is minimal; thus, a generally healthy patient with a critical condition will likely forego life-sustaining treatment. However, a chronically-ill critical patient may see these two options differently, considering death as a significant loss compared to an incapacitated state. Therefore, sicker people may choose to live longer in worse prospective health and may strongly prefer life-sustaining treatments.

The *ambiguity aversion* is another heuristic that may influence treatment decisions. It was first described by Ellsberg in 1961 as a preference for known risks over unknown risks. In his experiment, known as the Ellsberg paradox, people preferred to bet on the outcome of an urn with 50 red and 50 blue balls rather than to bet on one with 100 total balls but for which the number of blue or red balls was unknown. The concept of ambiguity aversion is also expressed in the English proverb: “Better the devil you know than the devil you don't.”<sup>135</sup> In a recent experiment, researchers demonstrated ambiguity aversion in treatment decisions. They recruited more than 700 men between the ages of 40 and 75 and randomly assigned them to one of four conditions. One group received information about the risks and benefits of a prostate biopsy. The other groups received one of three hypothetical results from the prostate-specific antigen (PSA) screening test, which informs the decision to have a biopsy: normal, elevated, or inconclusive. An inconclusive test result, subjects were informed, “provides no information about whether or not you have cancer.” Of subjects who weren't given the PSA screening results, only 25 percent chose to proceed with the prostate biopsy. However, 40 percent of subjects who received inconclusive PSA test results opted for the procedure. The mere presence of ambiguity led to a preference for a costly and invasive testing. Ambiguity aversion can also cause unnecessary treatment and testing in the ICU.<sup>136</sup>

The *optimism bias* can be another factor that drives unnecessary treatment and testing in the ICU. Optimism bias is a heuristic that causes a person to believe that they are at a lesser risk of experiencing a negative event compared to others. For instance, smokers often believe that they are less likely to contract lung cancer or disease than other smokers. Several factors exist that cause a person to be optimistically biased: their desired end state, their cognitive mechanisms, the information they have about themselves versus others, and their underlying emotional state.<sup>137</sup> In the context of ICU, the optimism bias is present in the interpretation of prognostic information by surrogate decision makers when they consistently interpret grim prognostic statements in an overly optimistic way. For example, a study involving 80 surrogates presented them with several prognostic statements. Study subjects were asked what exactly each prognostic statement meant to them and used a numerical scale to demarcate the patient's corresponding chance of survival. When presented with numerical prognostic statements such as: "He has a 90% chance of surviving," "He has a 50% chance of surviving," and "He has a 5% chance of surviving," only 15% of surrogates interpreted these statements accurately. Most of the study subjects interpreted these statements more optimistically than they actually were ("A 50% chance of surviving" meant that the patient was likely to survive.).<sup>138</sup>

The *outcome bias* is a cognitive bias which refers to the tendency to judge a decision by its eventual outcome instead of judging it based on the quality of the decision at the time it was made. In order to illustrate this bias, Baron and Hershey presented subjects with hypothetical situations. One example involved a surgeon deciding whether or not to do a risky surgery on a patient. The surgery had a known probability of success. Subjects were presented with either a good or bad outcome (in this case living or dying), and asked to rate the quality of the surgeon's pre-operation decision. Those presented with bad outcomes rated the decision worse than those

who had good outcomes.<sup>139</sup> Similarly, Caplan and colleagues demonstrated that not only the harshness of judgements about appropriateness of care by other physicians, but also the willingness to make such judgements, was increased when there was a severe outcome. Outcome bias is, therefore, very important in relation to medical expert reports in medical errors/negligence claims made in critical care.<sup>140</sup>

### **Conclusion**

This chapter has highlighted the difficulties patients and providers face when trying to make healthcare decisions. Various heuristics and biases can affect the decision-making process in terms of how people make decisions and how critical medical information is presented. These heuristics can be traced to the simultaneous operation of dual cognitive processes in judgement, and particularly to the intuitive system, which highlights associations between events and offers rapid evaluations of decision situations. Research presented in this chapter shows that the responses of the intuitive system reflect not only cognitive strategies but also considerable input from the affective system. The theories of decision-making described in this chapter divide decision-making into two types of processes: intuitive (fast, reflexive, and requiring minimal cognitive resources) and analytical (slow, deliberate, and demanding more conscious effort). Intuitive processes are based on pattern recognition, allowing providers and patients to save time and effort by matching already-known patterns to particular decisions and actions. While some may consider intuition a better way of making decisions, and others may caution against its perils, the research presented in this chapter shows that this is not a useful dichotomy. It is simplistic to consider intuition as superior to analytical reasoning or vice versa. Human decision-making involves both processes, and different situations require different approaches. For example, decisions that need to be made in a split second, those that depend on social and



emotional intelligence, and those that call for inspiration and creativity may be effectively made in the intuitive mode. On the other hand, those that have no room for error, such as treatment decisions about an aggressive cancer, can only be made analytically.

The majority of current ethical decision-making models provide a logical and reasoned process for making ethical judgments, but these models are removed from research in the fields of psychology and decision-making. These models rely upon assumptions of rational and conscious reasoning despite the fact that many nonrational factors presented in this chapter influence ethical thought and behavior, including emotions, intuitions, and heuristics. In addition to a presumption of rationality, traditional bioethics models assume that patients and families know their health preferences, especially when it comes to end-of-life choices. There is also a presumption that, once given enough information, patients and families will use it to make rational choices. One less explicit assumption of traditional bioethics is that patients' values and preferences are context independent. In other words, patients should make similar choices regardless of the framing of options in terms of survival or mortality rates. Research presented in this chapter proves the opposite – patients and families rarely have stable values and preferences. Their preferences are context dependent and can change with the way the options are presented to them. Finally, traditional bioethics assumes that even if patients and providers make mistakes in decision-making, these mistakes are random and not predictable. However, research presented in this chapter demonstrates that there is a systematic way to predict some cognitive errors in patients' decision-making and even to use this knowledge to improve their choices.

Considering the body of research discussed in this chapter, one can argue that bioethicists should do more than teach medical students and professionals how to recognize right or wrong. The moral duty of medical ethicists is also to help medical practitioners recognize the

circumstances that influence them to behave in ways they know aren't right. There are many examples of practices that medical students would consider as wrong (for instance, pelvic examination on an anesthetized woman with no prior consent). However, their attitudes change dramatically by the end of their rotations. This example shows that only telling medical students or medical practitioners what is right or wrong will not immunize them against the cultural norms they encounter in hospital wards. Bioethicists would do a better job helping these practitioners recognize this attitude change by helping them understand their own moral psychology. People need to recognize the behavioral forces that influence their moral actions. Autonomy and beneficence, Kant and Mill, are not enough to immunize students against these forces. We need to integrate research from areas of psychologies and decision-making to help people deal with these forces and make better decisions despite heuristics and biases that may otherwise drive their decisions.

Decision-making science suggests a number of strategies that can be useful in improving decision-making, especially when it comes to medical practitioners. Metacognition is one of these strategies. Metacognition refers to the deliberate monitoring of cognitive processes and their impact. It can benefit care providers in at least two ways. First, by identifying the cognitive strategy used to reach a conclusion, the appropriateness of the strategy in a particular context can be evaluated. In this way, errors may be recognized early on, before they cause harm. Second, an awareness and appreciation of thought processes may provide extra motivation to follow up on their accuracy in novel and unclear situations. It can also help in building expertise and experience. Cognitive forcing strategies is another method developed to help providers improve their ability to self-monitor and recognize their use of specific heuristics in decision-making, and then use predetermined actions to counteract them. For instance, providers can be forced to rule

out the worst-case scenario or to consider new diagnoses if three interventions fail to create improvement.

Finally, providers should be taught to acknowledge the use and value of intuition in clinical decision-making. There are many situations in clinical practice and especially in critical care when the System 1 process provides the most effective starting point for diagnosis and action. An experienced intensivist can walk into the room of a patient with bleeding and launch right into intubation and transfusion, while a resident may be at loss for the criteria supporting these actions. Therefore, some situations in critical care call for decisions that emerge with little deliberation, while others require an analytic strategy. For intuition to develop properly, Kahneman and Klein argue that the context for learning must be defined by generally predictable elements and the ability to receive feedback on the quality and outcome of decisions. Pattern recognition ability and appropriate feedback are important in helping younger doctors recognize and use intuition in their clinical decision-making.

## CHAPTER THREE

### MORAL HEURISTICS

#### **Introduction**

Mrs. D is an 84-year-old patient in the Emergency Department presenting with a severe shortness of breath and signs of right-sided pneumonia. She is hypoxic despite high-flow oxygen. The Emergency staff suspects an underlying neurological condition. Dr. I, an ICU provider, is called to consult on the potential ICU admission. Since the patient cannot communicate her wishes, Dr. I calls the patient's husband. From the phone conversation, it becomes apparent that Mrs. D has a rapidly progressive neurodegenerative condition, and she would never want to be in intensive care for her pneumonia. Her GP confirms this information over the phone, and Dr. I decides against admitting Mrs. D to the ICU. When he returns to the Emergency Department, he finds Mrs. D intubated, on the ventilator with good oxygen levels. The Emergency staff had misinterpreted Dr. I's instruction, and they had started to work on the ICU transfer. At this point, as Dr. I is reluctant to withdraw treatment, he proceeds with the admission and opts out for a 'one way wean'.

Now, imagine that Mrs. D has responded well to the ICU treatment, and she is ready to be transferred to the medical floor. However, her blood glucose level is 500 mg/dL. Dr. I decides to keep Mrs. D in the ICU until her hyperglycemia is resolved, though he would never have accepted a patient from the medical floor to the ICU as the result of the same finding. These two episodes in the treatment progression of Mrs. D may indicate that many morally relevant medical choices consist of simple and highly intuitive rules that reduce the effort associated with the decision-making process. Providers may often resort to automatic, unreflective moral judgments, for which they have a difficult time finding a suitable explanation. For instance, Dr. I decides to

keep Mrs. D in the ICU despite the fact he would never consider a transfer from the medical floor to the ICU under similar circumstances. He prefers omission (keeping Mrs. D) to commission (transferring Mrs. D). In the Emergency Department, Dr. I decides against intubating and admitting Mrs. D to the ICU. However, he changes his mind when he finds her intubated. This pattern of decision-making is similar to the way people decide the morality of an act based on commission-omission distinction. For example, people do not have a problem with keeping an excess of change given for a transaction (an omission) while they would never even consider stealing the same amount of money (an action). Similarly, in both cases, Dr. I prefers an omission to an equally (or even more) beneficial act of commission.

This chapter will discuss the role of moral heuristics in judgments about life-sustaining treatment in an intensive care unit. I propose that end-of-life treatment intensity on a given ICU can be influenced by a number of moral “rules of thumb,” or heuristics. Moral heuristics are a set of strong, stable, and immediate moral beliefs. These beliefs are not results of a deliberative process. Rather, they are fast and frugal decision, rules, or norms that produce judgments quickly, based on limited information.<sup>141</sup> Most research on heuristics has been conducted by psychologists in the area of risk and probability estimates. This work deals not with moral questions but with some factual issues such as judgments of frequency, probability, and risk. For instance, people tend to rely too heavily on the first piece of information offered (anchoring) when making decisions.<sup>142</sup> When considering the probability of events, people take a mental shortcut and judge the probability by the ease with which examples come to mind (availability).<sup>143</sup> People assume that once they have invested time, money, or effort into something they should stick with it even after it has proved to be suboptimal (sunk cost bias).<sup>144</sup>

Similarly, when confronted with a complex moral issue, people resort to moral heuristics and simplify their judgments by using the familiar to judge the unfamiliar.

### **Moral Heuristics**

Simon, the “father” of heuristics, defines this concept as “methods for arriving at satisfactory solutions with modest amounts of computation,” suggesting the utility of a heuristic in its potential to reduce decision-making effort.<sup>145</sup> Kahneman and Frederick define heuristics as a psychological process of attribute substitution. When people have to make judgments of a target attribute (a process that is computationally complex), they tend to substitute it with a more easily calculated heuristic attribute. In other words, when someone tries to answer a difficult and unfamiliar question, they may actually answer a related but different question, without realizing that a substitution has taken place.<sup>146</sup> Consider this puzzle: A bat and a ball cost \$1.10. The bat costs \$1 more than the ball. How much does the ball cost? Most people would tend to answer “10 cents” because the sum of \$1.10 separates naturally in \$1 and 10 cents. However, the right answer is 5 cents. This is an example of quick associative thinking otherwise called heuristics.<sup>147</sup> Analogous quick thinking may occur in the process of making moral judgments. Some researchers suggest that the human mind was conditioned by natural selection to develop certain moral heuristics: decision rules that quickly produce moral judgments based on limited information.

Haidt has developed this idea into the moral foundations theory, which explains the origins of (and variation in) moral reasoning on the basis of moral intuitions or gut feelings.<sup>148</sup> He was able to gather empirical evidence that demonstrated how moral judgments take place automatically, at least in their initial stages. In a series of studies, Haidt used hypothetical scenarios meant to describe actions that people will find offensive, but harmless. In one scenario,

a woman cuts her national flag into pieces and uses the rags to clean her toilet. In another, a family thoroughly cooks and eats a pet dog after a car kills it in front of their house. His participants often immediately concluded that the action was wrong and then began searching for reasons. They would mention potential harms from eating the dog or guilt from using the flag to clean a toilet. When the interviewer dismissed these concerns, participants would drop one argument and start searching for another. These study subjects would not give up on their moral intuitions but, rather, try to find reasons to support them. Haidt concludes his studies by claiming that, while conscious reasoning may have something to do with moral judgments, it does not play the leading role as suggested by most moral theories. Moral actions correlate more with moral emotions than with moral reasoning.<sup>149</sup>

Haidt's approach to moral judgment stands in contrast with many previous rationalist theories, including Kohlberg's theory of moral development. Instead of seeing reasoning as the driving force behind moral judgments, Haidt suggests that reasoning is often used for post-hoc rationalization of already formed judgments. These judgements are formed by quick moral intuitions. He defines these intuitions as follows: moral intuitions are "the sudden appearance in consciousness, or at the fringe of consciousness, of an evaluative feeling (like - dislike, good - bad) about the character or actions of a person, without any conscious awareness of having gone through steps of search, weighing evidence, or inferring a conclusion."<sup>150</sup> Therefore, moral intuitions are affect-laden, fast, and automatic reactions. Where do these intuitions come from? According to Haidt and colleagues, moral intuitions result from six innate moral modules that they refer to as moral foundations. Each foundation can be labeled in positive or negative terms: care/harm, fairness/cheating, loyalty/betrayal, authority/subversion, and liberty/oppression.<sup>151</sup> Foundations have a corresponding set of moral emotions. For instance, the value of care is

associated with feelings of compassion. The value of sanctity is related to the feeling of awe or disgust. Haidt compares these foundations to the tongue's five chemical taste receptors. Just as a human tongue has distinct receptors for sour, bitter, sweet, salty, and savory foods, human minds have moral receptors or capacities to respond emotionally to actions that are related to the six moral foundations. For example, a suffering, defenseless animal engages the moral mind's care/harm receptor, producing feelings of compassion.

A number of scholars have engaged in research on moral heuristics or decision rules that generate our intuitions about fairness and justice, and right and wrong. For instance, Baron points out that consequentialism, or utilitarianism, provides normatively correct answers to moral dilemmas. However, people with no philosophical training are not thinking according to these normative guidelines but instead use simple heuristics.<sup>152</sup> In a number of well-controlled experiments, Baron and colleagues have shown that people consider harmful acts worse than harmful omissions with otherwise identical predictable outcomes. This group of researchers has also documented that people's moral decisions are affected in a seemingly irrational way by the status quo or a preference for the current state of affairs. For example, this heuristic is responsible for the strong opposition to human enhancement, preferring the current state of humanity.<sup>153</sup> Additionally, Baron has shown the difference in moral evaluations of risks or damages when the risk or the actual harm is manmade versus natural. The latter are more accepted than the former. People are generally convinced that a manmade harm could have been avoided by more prudent behavior.<sup>154</sup> Sunstein has described a number of moral heuristics: do not knowingly cause human death, do not permit wrongdoing for a fee, punish betrayals of trust, and do not tamper with natural processes for biological reproduction.<sup>155</sup> These moral heuristics are different from the cognitive ones. As the name suggests, moral intuitions bear moral



implications while cognitive heuristics do not. Facts and simple logic can be a good test of whether a cognitive heuristic is at work. It is more difficult to demonstrate that a moral heuristic is at work due to the fact that it is more difficult to agree on what constitutes a moral error. In addition, an assessment of accuracy for moral heuristics requires social consensus, while assessment of accuracy for heuristics about objective facts do not.

### **Moral Heuristics in Critical Care**

ICU providers must often make a decision between “watching” and “treating.” One of the hallmarks of a good medical decision is considering a patient’s clinical course over time. Changes over time should ideally influence decisions to transfer patients out of ICUs. In one experiment conducted by Poses, Bekes, Copare, and Scott, the researchers asked intensivists in a surgical unit to estimate the probability of incoming patients’ survival until they were discharged from the hospital. Between 48-72 hours after admission, the physicians were then asked for a new estimate. The authors assumed that physicians caring for the same patient would have better prognostication information after having opportunities for observation and discussion and that doctors would take full advantage of clinical data accrued over time. However, these hypotheses were disproved by the study. Even when having access to considerably new information during the 48-72 hours after admission, physicians’ estimates showed no significant variance and were similar to their initial estimates.<sup>156</sup> Such little variance in estimation can be explained by anchoring bias. It is logically appropriate for people to adjust their probability estimates whenever new information suggests that the true probability is higher or lower than they initially thought. However, people tend to place too much weight on their first estimates and rarely adjust their estimates accordingly. This is an example of a cognitive heuristic in the decision-making of critical care physicians. It was relatively easy to factually demonstrate the presence of this bias in

the clinical decision-making of physicians. All researchers needed to do was compare the pairs of estimates made on admission and 48-72 hours later for the same patient.

Now, consider a scenario where a physician practicing in Oregon is asked to prognosticate but for a slightly different reason than recovery or hospital discharge. The patient, Mr. S, is in the very early stages of dementia and has authored a living will laying out the terms under which the dementia must have progressed for him to commit physician-assisted suicide (PAS, or rather, euthanasia, as he will not be able to understand the purpose of taking certain pills by that point). As a former university professor, Mr. S has full information about his disease and its progression, which has helped him to get a good sense of what it may be like to be demented. He has been very persistent with his request, which his family describes as a competent and autonomous choice. Furthermore, the family argues that there is no difference between considering PAS for a terminal cancer and for the request made by Mr. S. In both cases, the request needs to be persistent, competent, and autonomous, while the person must be terminally ill. The family now asks the physician to determine whether the criteria outlined in the living will meet these criteria, and whether this physician can help them to fulfill the wishes of Mr. S. Anyone reading this case will likely have a strong intuition that the consulted physician should not consider Mr. S. as a candidate for PAS. However, suppose we argue based on facts and research that to proceed with such a request would ease the tremendous individual, familial, and societal burden associated with Mr. S.'s condition. The yearly cost to society of dementia is estimated to be one hundred billion dollars.<sup>157</sup> Furthermore, demented people have lost the concept of self, or as Arras describes it, "they continue to have biological life, but their biographical life has come to an end."<sup>158</sup> Regardless of research, factual arguments, and expert recommendations, people would still disagree with the suggestion to consider PAS for demented

patients. Most will look for contra-arguments, question the validity of research data, and will bring additional considerations such as dignity, voluntariness, and subjectivity of suffering.

What makes these two examples so different? The first example is supported by facts demonstrating that physicians often fail to consider new clinical information while making their survival estimates. While intuitively we assume that providers constantly update survival estimates during the clinical course of a patient, the facts prove otherwise. The second example deals with values rather than facts. We intuitively feel that PAS for dementia patients is wrong. The factual information is then used for post-hoc rationalization of already formed judgments. It is relatively easy to demonstrate the influence of cognitive heuristics on the decision-making of medical providers. For instance, doctors tend to overestimate the risk of addiction when prescribing opioid analgesics for pain relief and to undertreat severe pain as a result, falling prey to the availability heuristics.<sup>159</sup> In taking medical histories, doctors often ask questions that acquire information confirming their early judgments, or they may stop asking questions because they reach early conclusions, playing into confirmation bias.<sup>160</sup> A physician who recently missed the diagnosis of pulmonary embolism in a healthy young patient who had vague chest discomfort but no other apparent risk factors might then overestimate the risk in similar patients and overuse chest CT angiography. This is an example of availability heuristic.<sup>161</sup> However, it is more complicated to demonstrate the influence of quick intuitive judgments when it comes to values in medical decision-making. There is a scarcity of research related to this topic which can likely be attributed to the difficulty in using facts to prove the superiority of one moral belief over the other (i.e., the belief that the Oregon physician should proceed with PAS for Mr. S compared to the belief that he should not).

The decision to limit or forgo life-sustaining therapy is one of the areas in ICU practice where moral heuristics can be particularly relevant. According to statistics, one in five US patients die during or shortly after an ICU stay.<sup>162</sup> An ICU admission is the time when most decisions to forgo life-sustaining therapies are made. A number of recent studies demonstrate striking variability in these decisions (sixfold) even after adjusting for patient and ICU factors.<sup>163</sup> Ideally, these decisions should depend on the goals and preferences of families, survival estimates and quality of life considerations, and illness severity. However, recent research suggests this variability is not driven by the factors above but, rather, by decision-making norms deriving from hospital or ICU cultures.<sup>164</sup> These studies call for better insight into the way physicians reach and convey prognostic judgments and into specific organizational factors or decision norms that influence decisions to forgo life-sustaining therapy. Some of these norms have been described. For instance, Barnato et al. have compared the norms of decision-making about forgoing life-sustaining treatment between two hospitals based on their treatment intensity (both a low-intensity and a high-intensity academic medical center in the same state and health care system). The researchers identified several norms that may explain the difference in ICU treatment intensity. While ICU staff at the low-intensity center was more concerned with avoiding harms of commission, the high-intensity center staff was more focused on avoiding harms of omission. Additionally, the research showed that the low-intensity center perceived life-sustaining treatment as a “bridge to something” and the high-intensity center had a more open-ended approach to using it. The determination of dying at the low-intensity center was associated with a more pronounced role of intensivists. The high-intensity center, however, had more disagreements about the point at which a patient would be considered as dying; thus,

decisions about life-sustaining therapy were often deflected to another provider, surrogates, or the patient.<sup>165</sup>

Similarly, researchers from Mayo Clinic and University of Chicago studied variance in physicians' judgments about the use of cost-effectiveness data to guide their clinical decisions. There is an implicit pressure for an intensivist to consult cost-effectiveness data prior to suggesting an intervention. It is assumed that doctors should use cost-containment strategies to balance the competing needs of individual patient versus society. However, many physicians feel that their duty is to advocate for their individual patients without being exclusively utilitarian in their clinical thinking. The study uses moral foundation theory, specifically searching for correlations between the harm/fairness foundation and favorable perceptions of using cost-effectiveness data and cost-containment strategies. Harm and fairness intuitions were independently associated with physicians' judgments about cost-containment (but not associated with their objections to using cost-effectiveness analysis in clinical practice).<sup>166</sup> Based on the examples above, one can argue that although the outcomes of moral judgments in a clinical setting may be conscious (i.e., escalation/de-escalation of treatment, cost-effectiveness versus individual needs of a patient), the processing leading to these judgments often is not. Fast processing is necessary in complex and evolving clinical scenarios to produce suitable responses. At times, such processing involves unconscious integration of various cues and considerations into one response. Because of the moral and clinical complexity, as well as the need for a prompt response, doctors may not rely solely on conscious deliberation. Intuitions and moral heuristics can play a role in facilitating prompt and appropriate response. Some of the moral heuristics are discussed below.

### **The Action Factor and Commission/Omission Distinction**

Psychologists describe omission bias as the tendency to judge harmful commissions (actions) as worse than equally harmful omissions (inactions).<sup>167</sup> The presence of this bias has been well-researched and demonstrated in various domains of decision-making, including health. For instance, people tend to regard death resulting from vaccination as much worse than death resulting from not getting a shot. Public health specialists disagree regarding the need to either encourage or discourage PSA tests to screen for prostate cancer, thus serving as another example of this omission/commission distinction.<sup>168</sup> Furthermore, providers may evaluate the harmful outcome (i.e., small risk of cancer) from prescribing hormone replacement therapy for postmenopausal women more harshly than the harmful outcome (i.e., bone fracture) from not prescribing.<sup>169</sup> There are a number of good reasons to judge the outcomes from commission as worse than those resulting from omissions. Omissions may be a result of ignorance, but commissions are usually not. Additionally, commissions may involve more malicious intents than omissions; commissions require more effort, that in itself being a sign of strong intentions. Even the law usually treats omissions and commissions differently. For example, some states have “bad Samaritan” laws prosecuting those who failed to help someone in need.

Nevertheless, there are many cases that do not involve these distinctions and should be judged equally. Some of the critical care examples are given in the introduction section. The judgments made in such cases are often the moral ones. Spranca, Minsk, and Baron illustrate the application of omission bias to judgments of morality by using the example of a tennis player who is set to face a tough opponent the next day in a decisive match. This tennis player knows that his opponent is allergic to a specific food. The researchers asked people which is more immoral – the tennis player recommending the allergenic food to his opponent or the opponent

himself ordering the food containing the allergen while the tennis player says nothing.<sup>170</sup> While people would disagree on whether these scenarios should be judged equally, there is no moral difference between the two choices. Similarly, in the realm of critical care, withholding and withdrawing care can be used as the morally equivalent example of commission/omission distinction. Clinicians are psychologically more comfortable withholding treatments than withdrawing them. However, both philosophical and legal analysis demonstrate that there is no relevant distinction between decisions to withhold or to withdraw. According to the Equivalence Thesis, if the moral distinction between withholding and withdrawing is absent, there can be no cases where it would be permissible to withhold treatment, but it would not be permissible to withdraw the same treatment (provided the treatment had already been started, but all other relevant factors are equal).<sup>171</sup>

In the ICU context, where the stakes are high, doctors tend to favor omission over commission because of the psychological comfort from assuming one is less at fault if a patient dies. When an action results in a bad outcome, it is more difficult not to assume the blame for the cause and effect sequence. Thus, withdrawing care is often associated with a greater sense of causing the patient's death, of responsibility, and even of guilt. Providers may experience similar sentiments in many other ICU scenarios. Dr. David Katz, a nationally recognized preventive medicine specialist, shares his example from the time he was the senior resident on-call for the ICU. Another resident on-call asked him to assess a female patient in her late 50s with advanced kidney disease who was in respiratory distress and needed to be intubated and transferred to the ICU. The patient was rapidly declining, and both residents suspected pulmonary edema. However, the difference in decision-making between the two residents was striking. The on-call resident was hesitant to inject the potentially dangerous cocktail of reducers and morphine into a

patient whose kidneys didn't work. Dr. Katz, however, reasoned that if the patient had something that couldn't be fixed in a short period of time, she was going to die; thus, it was best to assume she had something that could be fixed quickly and give it a shot. Dr. Katz, in short, felt that the potential harms of injecting drugs couldn't make the patient worse off as she was already dying.<sup>172</sup>

Individual providers may differ in the way they approach the commission/omission distinction. However, this distinction can be observed on the level of ICUs or hospitals and be rooted in a specific culture. Most of the studies related to decision-making about life-sustaining treatment are focused on individual provider-patient/family relations, ignoring the larger context of ICU culture and how that culture may differ across ICUs and hospitals. One of the lessons from the SUPPORT study was the need to address the health care context of end-of-life treatment in the ICU, not just individual decisions.<sup>173</sup> Barnato and colleagues have noticed the difference in treating sins of omission and sins of commission between high and low-intensity hospitals. The staff at the high-intensity hospital was more preoccupied with sins of omission as an intern explained: "You know because we have the resources, the chance that we miss something would just make us feel terrible. You know 'oh we could have done that and then we would've known, and then..." However, the low-intensity ICU staff was more interested in avoiding harms of commission as one of the intensivists reasoned: "Sure, we could trach him, but what then? We can be doing more harm than good."<sup>174</sup>

### **The Intention Factor and Means to an End/End in Itself Distinction**

Almost one of every five patients in the intensive care units of a major teaching hospital got treatment that was futile or "probably" futile, according to the doctors who treated them. Furthermore, older patients, especially those admitted from a nursing facility, were most



likely to get care that did nothing to improve their quality of life, or even keep them alive for more than a brief period of time. These are the conclusions of the study by a group of UCLA researchers. This study was based on a survey of 36 critical care physicians who treated 1,136 patients over a three-month period in 2011-2012. Of those ICU patients, 11% got care that their doctors deemed futile, and another 9% received treatment that physicians considered probably futile. These patients accounted for about 7% of all ICU patient days. The cost of futile treatment in one hospital's ICU was estimated to average \$2.6 million over three months.<sup>175</sup> A number of consecutive studies attempted to explain the factors that lead to provision of futile care. Modern culture overpromises what is possible at the end of life, and it impacts the doctor-patient relationship. On the patient's side, there is misinformation, unrealistic expectations, and a denial of death. On the provider's side, there is an enabling role in an effort to avoid the discomfort of talking about death and intense emotions and wishing to fulfill the patient's or surrogate's omnipotent wishes.<sup>176</sup>

Hospital cultures may have embedded incentives or disincentives for provision of futile care. Some hospitals perceive ICU care as a "bridge to something" and a means to an end (recovery). ICUs within such hospitals would not initiate aggressive care without having a clear endpoint. Some other medical centers have a rather open-ended approach to the use of life-sustaining treatment. Instead of being viewed as a mean to achieve an end (recovery), this treatment is often considered an end in itself.<sup>177</sup> The means/ends distinction may represent another moral heuristic in decision-making processes about life-sustaining treatments. The philosopher Immanuel Kant has formulated this distinction as the main difference between deontological and utilitarian approaches to ethics. Kant's categorical imperative states that one should "act so as to treat people always as ends in themselves, never as mere means."<sup>178</sup> In other

words, everyone is intrinsically valuable; we ought, therefore, to treat people as having a value all their own rather than merely as useful tools by means of which we can satisfy our own goals. This is in contrast to some interpretations of the utilitarian view, which allow for the use of individuals as means to benefit the many. Similarly, ICUs may approach the use of life-sustaining treatment with the intent to use it instrumentally in some cases and open-endedly in some other cases.

Consider the example of a 69-year-old patient who collapses from a massive bleed in his brain. The neurosurgeon observes the rising pressure in patient's skull and inserts a ventriculostomy tube, while the ICU team fights to control the pressure by pushing the patient into a coma. There is a worsening bleed below the skull caused by trauma during the fall, so the patient is taken to the operating room for drainage and stays a few days on a ventilator. Within a week, the patient's pressures resolve, and the ventriculostomy tube is pulled, yet his eyes remain closed. Family have a difficult time catching the neurosurgeon making rounds. The patient receives routine ICU care, contracts pneumonia that is successfully treated, and remains unresponsive. Three weeks after the ICU admission, the family is told not to expect improvement given how serious the patient's original injury was. After so many ups and downs, the suggestion to withdraw care is made, and it comes across as confusing. Why all the treatments just to end up here? After more family meetings, a tracheostomy and feeding tube become the middle ground, to "give the family more time," and placement for the patient is sought in a long-term facility.

The concept of "treating the family" is well-known to ICU professionals.<sup>179</sup> As in the example above, this concept at times drives the provision of futile care. While ICU staff recognizes the priority of patients' wishes and interests, there are times when those interests begin to fade while the interests of families intensify. Families will have to live through the

aftermath of choices they make in the ICU; therefore, honoring their wishes to provide care that professionals consider futile may, in fact, be an act of caring and compassion. There are families and patients that do not place much value in the concept of good death. It is important for them to believe that they have fought until the very last moment. Can it be that in those cases the provision of futile care is an act of compassion? One can argue that by “giving the family more time,” the ICU staff essentially uses the patient as a means to an end - an end unrelated to his own well-being. In the abstract, fighting every second of the way sounds admirable. Practically, however, it may be cruel and unethical. In the example above, the ICU care was used open-endedly as a mean in itself, leading to more futile care that treated the patient as a means to help the family achieve psychological closure.

#### **Time Factor: Timing of End-of-Life Conversations and Fairness**

Wesley Autrey, a 50-year-old New York construction worker and Navy veteran, was waiting for the subway train in Manhattan on January 2, 2007 while taking his two little daughters home before work. Nearby, a man collapsed, his body convulsing. Mr. Autrey and two women rushed to help. The 20-year-old man managed to get up but then stumbled to the platform edge and fell to the tracks between the two rails. The headlights of an approaching train appeared, and Mr. Autrey had to make a split-second decision. Autrey thought there might be a chance of survival if he could keep the man still until the train passed, so he threw himself on top of the man and held him down in the shallow trench between the rails. The train passed over them with inches to spare. When asked about the reason for his action, he responded, “I just saw someone who needed help. I did what I felt was right”<sup>180</sup> Would Mr. Autrey have acted the same way with more time to decide? What if this story took place on the deck of the sinking *Titanic*, and Mr. Autrey had nearly three hours to deliberate on the consequences of saving his own life

or sacrificing himself for the lives of other more vulnerable passengers? Researchers looking through historical records found that the *Titanic* crew's survival rate was 18% higher than that of the passengers'. It is possible to assume that crewmembers were acting in their own self-interest, taking advantage of better access to lifeboats.<sup>181</sup>

These two examples demonstrate that the outcome of moral decisions may vary a great deal depending on the time that is available for their consideration. The various inherent and perceived differences between the near and the distant future are likely to render near future events more emotionally arousing than distant ones, thereby affecting any judgments or decisions that are based on emotion.<sup>182</sup> Furthermore, because perceptions of fairness, ethics, and morality tend to be based on precisely these types of affective reactions, it is plausible to assume that such judgments will be relatively more extreme for events set in the near future than for events set in the distant future.<sup>183</sup> The two examples above lead to the similar conclusion that temporal orientation could be an important factor in determining which cognitive or emotional processes or judgements we engage in in response to problems with moral implications. Some moral questions leave the possibility of contemplating them carefully while other moral judgements have to be made under time pressure. Therefore, temporal perspective can be a heuristic that alters the outcomes of moral judgements when every other aspect is held constant. Similarly, the timing of end-of-life conversations in an ICU may impact the moral evaluation of the resulting decisions.

The temporal orientation in moral decision-making can serve as a moral heuristic, as the difference in judgements resulting from near and distant future perspectives is not the product of deliberate processing, but of quicker, more reflexive processes that are less available to conscious intervention. According to Greene's dual-process theory of moral judgements,<sup>184</sup> there

are two separate methods for moral reasoning: the intuitive or emotional method and the conscious, controlled reasoning method. In everyday decision-making, most decisions use one or the other system – emotional System 1 that operates on fast and frugal heuristics or deliberative System 2 that brings in logic and reflection. When it comes to moral dilemmas in which a person must compromise between violating moral rules and maximizing overall good, these systems come into conflict. Emotional processes trigger deontological judgments and focus on “right action,” whereas controlled cognitive processes tend to prompt consequentialist judgments and focus on “best results.” These processes do not contribute equally in all moral dilemmas since various dilemmas are able to engage emotions at different levels. When people consider decisions with consequences that are more remote in time, emotions are less engaged, and people tend to evaluate those decisions as morally right, just, and fair. When people are faced with decisions that are time-sensitive and pressing, they tend to focus on the consequences of these actions and the “best results,” disregarding their moral appropriateness.<sup>185</sup>

According to recent research, the vast majority of patients with incurable cancer talk with a physician about their options for care at the end of life but often not until late in the course of their illness. The researchers found that these belated conversations tend to occur under particularly stressful conditions - when patients have been admitted to a hospital for critical care. This deprives patients of the opportunity for deliberation that would have been possible months earlier when the conversation could have occurred under less trying and hectic conditions, the authors suggest. Among the nearly 1,000 patients who passed away and whose records document an end-of-life discussion with a physician, the median time of those discussions was 33 days before death. For four out of ten patients, the discussions occurred only in the last 30 days of life. Nearly half of all the patients that participated in the study received aggressive care, such as

chemotherapy, in the last 14 days of life and acute hospital care or ICU care in the last 30 days of life.<sup>186</sup> Another study documented that the timing of end-of-life conversations varies significantly from unit to unit and by the provider type. Decisions to limit or withhold treatment made hours before a patient's seemingly unavoidable death were seen as appropriate by surgeons, and delayed or avoided by physicians. For surgical patients, decisions were more commonly left until the providers thought death was imminent and inevitable, meaning no additional treatment interventions were deemed available.<sup>187</sup>

### **Identifiability Factor: Rule of Rescue**

People often have a strong intuitive sense that we ought to rescue those in serious need, even in cases where we could produce better outcomes by acting in other ways. This moral urgency is the reason why we mount expensive searches — for sailors lost at sea, for example— when there is little chance of finding those who are missing. Given that these searches are expensive, and the chance of success is negligible, logically we would be better off spending this money for a more important cause. This intuition is the reason why we offer critically ill patients intensive care even when the prognosis is terrible. This rescue heuristic is also the reason why some patients receive a second or third heart or liver transplant even though first-time recipients have a higher one-year survival rate.<sup>188</sup> Jones coined the term “rule of rescue” to describe the imperative we feel to rescue identifiable individuals facing avoidable death, without giving too much thought to the opportunity cost of doing so. He writes about it as follows: “Our moral response to the imminence of death demands that we rescue the doomed. We throw a rope to the drowning, rush into burning buildings to snatch the entrapped, dispatch teams to search for the snowbound. This rescue morality spills over into medical care, where our ropes are artificial hearts, our rush is the mobile critical care unit, our teams the transplant services.”<sup>189</sup>

The influence of the rescue heuristic was observed in laboratory conditions. For instance, researchers asked one group of study participants how much money they would give to help develop a drug that would save the life of one child and asked the other group how much they would give to save eight children. The answers were about the same. But when researchers told a third group a child's name and age, and showed her picture, the donations shot up—now there were far more to the one than to the eight.<sup>190</sup> While charities struggle to raise money to feed the thousands of starving children in third world countries, stories of a single victim capture the attention of the masses. In 1987, one child, “Baby Jessica,” received over \$700,000 in donations from the public when she fell in a well near her home in Texas.<sup>191</sup> Similarly, the plight of a wounded Iraqi boy, Ali Abbas, captivated the news media in Europe during the Iraq conflict, and £275,000 was quickly raised for his medical care.<sup>192</sup> In another case, more than \$48,000 was contributed to save a dog stranded on a ship adrift in the Pacific Ocean near Hawaii.<sup>193</sup> These stories seem to share a number of characteristics: an easily identifiable victim, acutely impending death, a reasonable chance of effective rescue, acceptable costs to those involved, and exceptionality of occurrence.<sup>194</sup>

Critical care is a specialty designed to save immediately threatened identifiable lives. ICU providers are often faced with distressed people and, triggered by empathy, they feel the urge to alleviate their distress. However, this impulse to save identifiable lives runs against the need to limit futile care in the ICU. Rationing of health interventions provided in the ICU is necessary and unavoidable. Many ethical quandaries arise when a treatment is needed but is not cost-effective. While it might be reasonable to forgo an expensive, marginally effective, and significantly burdensome treatment, the strong pull of the rule of rescue leads physicians and patients to believe otherwise. Thomas Schelling describes this phenomenon as follows: “Let a

six-year-old girl with brown hair need thousands of dollars for an operation that will prolong her life until Christmas, and the post office will be swamped with nickels and dimes to save her. But let it be reported that without a sale tax the hospital facilities of Massachusetts will deteriorate and cause a barely perceptible increase in preventable deaths—not many will drop a tear or reach for their checkbooks.”<sup>195</sup>

Rule of rescue represents a moral heuristic. While rule of rescue gives rise to “good Samaritan” behavior, which is highly praised in many moral traditions, it can also lead to systematic moral errors. In the case of “Baby Jessica,” whose family received over \$700,000 in donations, one could argue that if those donations had instead been spent on preventative care for children, hundreds of lives could potentially have been saved. There are a number of potential drivers for this heuristic. Identifiable victims stimulate a more powerful emotional response than do statistical victims, thus appealing to System 1 versus System 2 processing. Moreover, identifiable victims are guaranteed victims, whereas statistical victims are, by definition, probabilistic. Decision-making research suggests that people are loss-averse—they dislike losses much more than they like equivalent valued gains. If saving a statistical life is seen as a gain, but saving an identified victim is seen as avoiding a loss, people will then place greater value on identified victims than on statistical ones. People engage in retrospective thinking while considering the needs of an identifiable victim, while the needs of statistical victims are prospective. People feel more responsible for retrospective events as compared to the tragedies that might occur. Finally, people feel greater concern toward victims as the reference group they are part of grows smaller. The more disperse the risk among the population is, the less disturbing the risk becomes in people’s eyes.<sup>196</sup>



### **Naturalness Factor: Preference for Natural Death**

Throughout history, people have tried to reduce the risks imposed by nature. Antibiotics, vaccines, and many treatments have been celebrated as triumphs against nature's forces. However, lately, people have begun to associate naturalness with reduced risk. The food industry is the most prominent illustration of this trend: it is almost impossible to take a trip to the grocery store without noticing labels like "all natural," "organic," or "non-GMO." Sales of organic food in the United States increased at a rate of 20% or more annually between 1990 and 2002.<sup>197</sup> This preference for natural things influences medical decisions. For instance, obstetricians and gynecologists who showed preference for natural over identical synthetic hormones also held more negative attitudes toward hormone replacement therapy, considering it an "unnatural" intervention whose overall benefits outweigh risks. Similarly, the preference for a natural remedy over an identical synthesized medicine was negatively associated with attitudes and behaviors toward the influenza vaccine.<sup>198</sup> According to Rozin et al., there are two types of justifications for "natural preference": instrumental and ideational. Instrumental reasons refer to the specific advantages of natural products: they are more appealing, healthier, and/or kinder to the environment. Ideational reasons refer to the belief that natural is inherently better in a moral sense. This moral heuristic is often at work when people assess the risks of particular treatments or interventions.<sup>199</sup>

Lowenstein and colleagues suggested that people confront and deal with risk in two different ways. Risk as feelings refers to our intuitive, fast, mostly automatic reactions to danger. Risk as analysis brings logic, reason, and scientific deliberation to bear on risk assessment and management. This type of risk assessment is sensitive to changes in probabilities as it objectively weighs costs and benefits according to their probabilities. People rarely assess risk in an

analytical way and rely on feelings elicited by potential costs and benefits, independent of probabilities.<sup>200</sup> This approach to risk assessment goes in line with affect heuristic. According to this heuristic, we automatically assign good and bad labels to items or events. “Good” events elicit positive affect and are seen as beneficial and safe, while “bad” items elicit negative affect and are seen as riskier and less beneficial. Given the fact that natural items are often perceived as good, they will likely elicit positive affect. Therefore, they are often perceived as having high benefit and low risk. A number of studies confirmed this correlation between low risk and high benefit for natural relative to artificial items. People perceived a high level of riskiness for genetically modified foods or animals, forms of energy, or chemicals.<sup>201</sup> Similarly, people are usually more upset when an emergency is caused by humans as opposed to some natural events.<sup>202</sup>

The futility conversations and end-of-life choices in the ICU are often centered around the concept of good death. Within the context of end-of-life care, a good death is a natural death. Technology and treatment become the obstacles that stand in the way of reaching this good death. A good death is the one without machines, tubes, and lines. It is believed to be more dignified and aesthetically pleasing. It is also considered to be more dignified as the body is no longer surrounded by noisy and invasive equipment making its humanity and dignity less recognizable. The presence of life-sustaining equipment often increases the sense of patients’ dependency and vulnerability, while the withdrawal of invasive treatment is often presented by the care team as restoring patient dignity. Additionally, natural death is often presented as though it happens in its own time, according to nature’s course. On the other hand, due to its suddenness and unresponsiveness to technological intervention, natural death can also be viewed as uncontained, random, and uncontrollable. Thus, the ICU care team often has to navigate the

meaning of the natural death in a way that would help decision-makers feel better about their difficult choices.<sup>203</sup>

Many end-of-life disputes and disagreements arise from the determination about those responsible for causing death when medical treatment is unsuccessful, which makes it an important moral issue. There is a tension between the concept of natural death, which attributes death to patients' bodies, and hastening death through withholding or withdrawing treatment, which attributes death to intensivists. Therefore, natural death becomes a moral heuristic, determining causation and attribution in end-of-life choices. Some physicians may attempt to avoid this causation by engaging in gradual withdrawal of life support in order to mimic the natural decline and death. If life support is removed rather abruptly, then death will follow, and the ICU staff will be perceived as guilty of causation. In order to support the grieving family, physicians often will balance medical action with inaction, gradually reducing dependence on mechanical ventilation and allowing for a diffusion of responsibility for death to the patient's body. The patient's body is then described as no longer being able to take advantage of the technology, and through this gradual process is given permission to die, which shifts the responsibility for death away from the physician.<sup>204</sup> This is also the reason why researchers have begun to advocate for a change in language in "do not resuscitate" DNR forms. These proposals have instead called for "allow natural death" (or AND) forms. While the language of "do not resuscitate" invokes the image of abandonment and places guilt on the surrogate and care team, the language of natural death invokes the image of dignified death and places responsibility for dying on the patient's frail body.<sup>205</sup>

### **Agency Factor: Decision Ownership**

A large body of research in a variety of fields stresses the important influence of ownership on human motivation, attitudes, and behavior. The state of ownership promotes feelings of responsibility or stewardship, increases willingness to assume personal risk or make personal sacrifice, and enhances self-image.<sup>206</sup> People may experience feelings of possession in the absence of formal claims of ownership, and they can feel ownership toward non-physical objects such as ideas or artistic creations.<sup>207</sup> Building on these observations, it is possible to assume that decision ownership amongst critical care providers can serve as a moral heuristic when it comes to treatment decisions. When a physician has a sense of decision ownership, they then become personally invested in clinical decisions made for their patients. Decision ownership is the cognitive-affective phenomenon in which a medical practitioner develops a sense of responsibility over decisions about care for a particular patient and personal investment in this decision-making process. The possessive nature of medical decision ownership differentiates it from other similar attitudes such as responsibility or commitment.<sup>208</sup>

As a cognitive-affective state, decision ownership includes both intellectual and emotional components. The state of ownership reflects personal thoughts and beliefs regarding a particular decision (cognitive), as well as feelings of efficacy and competence (emotional).<sup>209</sup> On the cognitive level, a provider will feel invested in the decisions they make in care for a patient. The provider will not see him or herself as just a medication prescriber but will be actively involved in all aspects of patient care being thorough, proactive, and responsible. This assumption of responsibility for a decision may lead to feelings of ownership as a result of one's self-investment in it (time to discern, energy, care, concern). On the affective level, a resident may feel an affective connection between self and the treatment decisions made in a particular

case (“this is MY decision” or “that was MY idea”). Similar statements (“this is MY decision”) include both affective and cognitive information based on factual beliefs and affective judgments. The psychology of possession describes three criteria to develop ownership – the need to be in control (efficacy), the opportunity to know the target of ownership intimately (familiarity), and the investment of personal time, energy, and effort (self-investment).<sup>210</sup> There is a causal relationship between the amount of control a provider has over a particular clinical case and the degree of decision ownership in that case. Furthermore, the longer a provider knows the patient and the deeper the relationship between them, the greater the degree of decision ownership that will be manifested by that physician. Finally, the more a physician invests himself or herself into a clinical case by investing their time, ideas, and psychological/intellectual energy, the more they feel ownership over decisions resulting from this investment.

Unfortunately, the opportunity to foster ownership of decisions in patient care is not readily available in the context of ICU care. According to a number of recent studies and statistics, there is a nationwide shortage of intensive care providers.<sup>211</sup> As ICU bed utilization, acuity of illness, complexity of care, and associated costs continue to rise, critical care providers are increasingly needed and sought after. Research shows that the presence of intensivists on ICU units can reduce the mortality rate by 40%.<sup>212</sup> Currently, the death rates for patients admitted to the ICU average 10-20% in most hospitals. More than 200,000 patients die in US ICUs each year.<sup>213</sup> A recent meta-analysis demonstrated that with full implementation of 24/7 coverage of ICUs by a trained intensivist, at least 53,850 lives could be saved annually.<sup>214</sup> However, more than half of the nation’s ICUs have no intensivist coverage whatsoever, and high-intensity coverage is present in a mere 26% of ICUs.<sup>215</sup> The staffing pattern is even worse

in medical ICUs and, more so, in smaller non-teaching hospitals. In the midst of these shortages, the critical care environment has become increasingly more stressful with high levels of shiftwork occurring among various providers. ICUs may employ only one or two full-time providers who develop and run the department and a larger group of workers who come, treat patients, and leave. This fragmentation results in the loss of patient continuity.

Lack of ownership induced by the shiftwork mentality in critical care may foster diffusion of responsibility. Diffusion of responsibility refers to the observation that the mere presence of other people in a situation makes one feel less personally responsible for the events that occur in that situation.<sup>216</sup> Analogously, if an unidentified provider will take over their patient tomorrow, an intensivist or a hospitalist currently covering that ICU may reason not to invest in their decisions as much as they would if they were following the case. They may not be motivated to do their best and will tend to shift their responsibility onto some unspecified “other.” In the current system of shortages, providers may find themselves as unwitting bystanders whose decisions have no identifiable beginning, middle and end. Instead, they have to decide in an evolutionary manner, not knowing who else will be involved in this decision later and owning just a small part of the decision process. Decreased ownership may also lead providers to focus on short-term benefits and disregard future losses.<sup>217</sup> In some treatment situations, the course of action that is most desirable over the long run may not be the best course of action in the short term. The immediate relevance of short-term treatment decisions is often necessarily prioritized in patient care, even though future-oriented thinking is an important characteristic of optimal treatment choices.

## **Organizational Culture as the Origin of Moral Heuristics**

Moral intuitionist theories suggest that moral heuristics are influenced by the social and organizational context in which they occur. Moral choices are often embedded in contexts such as a situation framed with a certain kind of language that compels decision makers toward more or less intuitive approaches to moral judgment. The nature of moral intuitions themselves also reflect social influences. In the social intuition model of Haidt and colleagues, moral intuitions both (a) develop at a cultural/societal level as a kind of evolutionary solution to problems of cooperation and coordination and (b) develop in specific ways within any given individual from the mix of social influences to which that individual is exposed.<sup>218</sup> Haidt gives several examples about the way motivated reasoning may shape our moral intuitions and judgements. He starts with the notion of “post-hoc reasoning,” or the idea that moral reasoning typically occurs after a moral judgment is made and that it involves a post hoc search for arguments to support that judgment. In other words, this search does not lead us to the moral judgement but instead follows from it. Post-hoc reasoning may stem from our desire for harmony and agreement with others. According to Haidt, “it would be strange if our moral judgment machinery was designed principally for accuracy, with no concern for the disastrous effects of periodically siding with our enemies and against our friends.”<sup>219</sup> Similarly, our moral judgements may often be based in the desire to avoid or resolve cognitive dissonance. We often reason defensively, seeking to align beliefs and behavior in an integrated and consistent self-image.

Organizational culture helps to determine what is considered morally right or wrong, acceptable or unacceptable in an organization. Similarly, hospital culture may determine when and what kind of moral heuristics are used in making end-of-life decisions. According to recent research, there is substantial variation in end-of-life intensive care and life-sustaining treatment

use between hospitals. At the hospital level, norms of practice may influence these treatment decisions. For instance, in the abovementioned study conducted by Barnato and colleagues, researchers found differences in physician practice patterns and institutional norms associated with life-sustaining treatment use and ICU length of stay. The low-intensity center had a close-knit culture with strong social norms. The levels of social persuasion that form moral norms and intuitions were high in that setting.<sup>220</sup> People loved to talk about moral questions and communicate their moral judgements to others in an effort to reach some consensus on the moral norms. Therefore, the formation of moral intuitions in this setting likely was an adaptive process that aligns with people's desire to fit in and belong. Moral judgements in such settings are not a single act occurring within a single person but an ongoing process that happens over time and involves many people. On the other hand, the high-intensity hospital had higher volumes of patients and higher patient case mix index due to the institution's status as a referral center that attracts patients needing treatment other hospitals would not provide. The complexity of cases, need for faster decision-making, and high levels of cognitive load dictated moral norms in this institution.

Cognitive load may contribute to a higher reliance on moral heuristics. By cognitive load, I mean the level of mental activity that takes up one's cognitive bandwidth.<sup>221</sup> A provider may have higher levels of cognitive load with an increase in the number of competing mental tasks, the complexity of a task at hand, the psychological state he is in (eg., fatigue), or environmental factors (such as noise or presence of others). Researchers found that, on average, a hospitalist deals with three problems per patient visit. The number of problems rises with chronic diseases or physician's specialty.<sup>222</sup> Intensivists are working under very high levels of cognitive load as they deal with multiple uncertainties while handling several problems simultaneously. It is



estimated that physicians have about eight unanswered questions for every ten patient visits.<sup>223</sup>

The need for physicians to cope with a wide range of problems leads to high cognitive load and reliance on moral heuristics. In this context, cognitive load is perceived as a quantity that varies (how much one's bandwidth is tasked) rather than a state that is either present or absent. It is possible to assume that under greater levels of cognitive load, the providers' medical decisions will be more likely to be influenced by moral heuristics. In order to better understand the interrelatedness of cognitive load and moral heuristics, it is important to consider this connection from the point of dual process cognition, in which System 1 and System 2 processes handle different types of mental activity. System 1 processes are relatively effortless, can occur outside of consciousness and without intent, and are not disrupted under high levels of cognitive load. System 2 processes involve intentional, conscious, and effortful thought. High levels of cognitive load can interrupt or impair these processes by "taking up" the necessary cognitive resources.

Certain features of the healthcare environment may increase cognitive load and reliance on moral heuristics. In the domain of medical care, a number of mental processes become spontaneous and effortless with training. Physicians are able to diagnose a variety of disorders automatically when a patient's symptoms match previously observed patterns of symptoms. This is similar to driving a car. A novice driver relies more on System 2 processes, paying attention to steering and breaking. An experienced driver relies more on System 1 processes unless they are in a situation where they need to focus and pay more attention. Similar to an experienced driver, a physician should be able to shift from System 1 to System 2 processes when a clinical case becomes more complex. However, under cognitive load, her ability to switch can be compromised, resulting in poorer care. This is likely to happen more often in a teaching hospital since fatigue, work stress, and emotional exhaustion continue to remain high among residents

even after new work hour regulations.<sup>224</sup> Moreover, research shows that the mere presence of others in a situation (in this case interns) may influence a physician's moral judgements. We look to others for cues to interpret the meaning of a situation, especially when it is ambiguous.<sup>225</sup>

Increases in cognitive load correlate with increases in patient case mix index. An increase in case mix index means that physicians are seeing sicker patients with more complex needs. A number of studies report that the level of case difficulty influences diagnostic reasoning and accuracy in physician decision-making. Case complexity refers to features of a patient's history that affect cognitive load during decision-making such as number of comorbidities, number of potential alternatives during differential diagnostic process or when considering a variety of treatments, and time constraints imposed on the task.<sup>226</sup> In his pioneering work, Woods suggests that the complexity of a task can be evaluated according to component complexity, coordinative complexity, and dynamic complexity. Component complexity represents the number of cognitive tasks that need to be executed to arrive at a decision as well as the number of information cues that must to be processed during this decision-making process. Coordinative complexity refers to the number of alternatives that need to be considered. For example, a treatment decision for a patient on a ventilator with multi-organ failure has higher coordinative complexity than the same task for a patient with uncomplicated mild infection in general practice. Dynamic complexity reflects the speed of changes in a patient's condition or clinical evidence. Each of these three components are higher in critical care than in any other specialty, leading to high cognitive load and a reliance on moral heuristics.<sup>227</sup>

Finally, certain clinical environments characterized by a higher level of shiftwork and a lower level of decision ownership will result in a reliance on moral heuristics. As a patient moves among specialized services within a hospital, and as shifts of providers come and go,

there are numerous episodes in which control of, or responsibility for, the patient passes from one health professional to another. Lack of decision ownership results in a diffusion of responsibility among providers. This shiftwork mentality may also lead a provider to prioritize short-term gains over long-term consequences. Within short horizons of decision-making, the treatment decision-making process of a provider may be focused on short-term benefits, increasing the likelihood that this physician may disregard potential negative outcomes that another provider may manage days or months later in the course of the patient's treatment.<sup>228</sup> Finally, during their shifts, providers make more isolated decisions and are unlikely to have the opportunity to make interrelated choices in the ongoing care of a patient. Isolated decisions are problematic because their consequences can rarely be fully appreciated. When a physician makes these choices without thinking about their cumulative effects, that physician may make a number of apparently good choices which will collectively lead to a bad outcome. Isolated decisions made under the shiftwork mentality may lead to greater risk-seeking behavior. Therefore, an environment characterized by continuity and reduced shiftwork will decrease physicians' reliance on moral heuristics and will improve the overall quality of treatment decisions.<sup>229</sup>

### **Conclusion**

From both a medical and ethical standpoint, the ICU is one of the most taxing clinical settings in a hospital. Given the complexity of ICU medical treatments, the fragility of the patients therein, and the sheer volume of patient indications to consider, physicians are often required to make difficult decisions quickly. The question can then be posed: with life-sustaining ICU care being so multifaceted and complex, how do medical professional make judgments in these settings in an efficient and timely manner? The answer, simply put, is via moral heuristics.

In this chapter, I suggest that in the ICU, physicians utilize a number of moral heuristics (or “rules of thumb”) to create a framework of strong, stable, and immediate moral beliefs that afford clinicians the ability to produce judgments quickly based on limited information. These heuristics are not the result of a deliberative process but exist as fast and frugal, subconsciously derived decisional rules for the ICU setting. In short, intensivists, when faced with complex clinical and moral problems, utilize moral heuristics to simplify the decision-making process by using the familiar to judge the unfamiliar.

I described six moral heuristics frequently used by doctors in the ICU. The first heuristic is called the action factor, and relates to the commission/omission distinction. This heuristic causes ICU physicians to judge harmful commissions (actions) as worse than equally harmful omissions (inactions). Thus, to an ICU intensivist, it is worse to have a patient die from a withdrawing a treatment than to have a patient die from not having a treatment started. The next heuristic is the means to an end/end in itself distinction. Here, physicians will make judgments one way or another based on how they view the role of a treatment; meaning, whether or not the ICU treatment is viewed as helping to facilitate further progress or is simply buying time becomes an important distinction. The third heuristic is the time factor. In this case, the temporal perspective of an ICU case can result in physicians using different cognitive tools to make decisions. Decisions that are time-sensitive and need immediate action are processed through a lens of emotional consideration and are focused on achieving the “right action.” Decisions that can be processed over longer periods of time, however, are viewed through a lens of more objective cognitive reasoning, and tend to be framed in the context of bringing about the “best results.” The fourth heuristic is the rule of rescue. Physicians often have a strong intuitive sense that they must act to save patients who they have identified to be in serious need, even in cases

where better outcomes could be reached by acting in other ways. That is to say, ICU physicians might be more inclined to go to drastic measures to save a patient they know is sick than to consider how this use of time and resources might otherwise be used. The penultimate heuristic is the preference for natural death. This heuristic is directly tied to our current societal belief that natural is better; meaning, a physician might decide that it's better for a patient to pass without the use of tubes, machines, and drastic technological and mechanical support. The final heuristic is the decision ownership. This concept states that as medical practitioners invest themselves into a clinical case, they feel ownership over decisions resulting from the investment. Thus, a clinician might be less inclined to fully apply themselves to a case they have been recently assigned to or only have passing oversight on.

It should be noted that while these moral heuristics help make ICU intensivists' decision-making processes quicker and easier, this does not mean that they help guarantee well-thought out, moral outcomes. Indeed, heuristics such as those mentioned above might actually often bring about medically futile or inappropriate treatments, rather than help ensure ethical and medically-sound outcomes. This discrepancy is due to the fact that these heuristics typically allow physicians to make immediate, gut judgments, which can then be validated via post-hoc rationalization. Moral heuristics such as those discussed in this chapter will always play a role in medical decision-making, for better or for worse. Further study into this topic could help elucidate ways in which to train ICU physicians how to avoid harmful moral heuristics. Further study could also help medical settings develop hospital cultures that afford physicians adequate resources (like time and support) which can in turn better guarantee that patients will receive moral and medically appropriate treatments.

## CHAPTER FOUR

### UNCERTAINTY COMMUNICATION AND LIMITS OF DISCLOSURE

#### **Introduction**

Dr. Feng cleared her schedule for the rest of the afternoon in order to have some extra time to discuss biopsy results with Ms. Reid. There was a chance that the lump on her neck might be cancerous. During their conversation, Dr. Feng informed Ms. Reid that the pathology results from the thyroid nodule aspiration are unclear. Some of the cells raised a concern about possible malignancy. Dr. Feng presented two potential options – repeating the aspiration or removing a part of the thyroid. “Is this a big surgery? Do I have to stay in the hospital?” Ms. Reid asked. With her job as a teacher and her kids, an inpatient stay would be difficult. “No, it’s a day surgery, and one I do routinely. The complications we might see are mainly bleeding and infection. We can control bleeding by cauterizing blood vessels or tying them off, and if there are signs of infection, like if the wound becomes red or if you develop a fever, we will start you on an antibiotic. There is always a slight risk of injuring a nerve to your vocal cord, but this complication is rare,” responded Dr. Feng. Ms. Reid said she would prefer surgery. The surgery was scheduled to take place in a few days, and it went as planned. However, only days after the surgery, Ms. Reid came in for an emergency appointment with Dr. Feng. It was obvious that she was irate, but her voice could barely be heard above the noise of the clinic. “I thought you said this was rare,” she said, shaking a printout of a journal article on the subject. “My recurrent laryngeal nerve was injured. I’m a teacher, and I have children! I need my voice. I would have never done the surgery if I knew there was a three percent risk that I would lose my voice!” Was Dr. Feng negligent in explaining the risks of surgery to Ms. Reid?

A similar question was raised in the landmark decision *Canterbury v. Spence*. In this case, 19-year-old patient Jerry Canterbury underwent surgical laminectomy performed by neurosurgeon William Spence. However, the day after the procedure, Canterbury fell out of bed and became paralyzed from the waist down. Spence re-operated to relieve pressure on the spinal cord, restoring most motor function, but Canterbury had enduring bowel and bladder dysfunction, necessitating a penile clamp. This incident took place in 1959, and the meaning of informed consent was not necessarily clear. Canterbury later sued, claiming Spence hadn't adequately informed him of the risk of paralysis. Spence argued that he had followed the community standard for disclosure, and the district court agreed. Nevertheless, the court deciding Canterbury's appeal ruled that, "True consent... is the informed exercise of a choice, and that entails an opportunity to evaluate knowledgeably the options available and the risks attendant upon each."<sup>230</sup>

This court ruling established two principles applicable to medical decisions today: consent is not merely the granting of permission but an exercise in choosing, and choice requires disclosure of a certain amount of information. However, the question remains: how much information is adequate? Apparently, as much as necessary for a patient to decide: "The scope of the physician's communications to the patient must be measured by the patient's need, and that need is whatever information is material to the decision."<sup>231</sup> Modern medicine is guided by the principle that more information is always better. Providers expect their patients to be empowered with medical facts in order to make wise choices about treatments, but are there situations in which more information is, in fact, detrimental to a decision?

In the context of critical care, patients must deal with multiple sources of uncertainty when facing treatment options involving two or more rational alternatives. When deciding

between alternatives, they often need to consider the potential for long-term and delayed effects of each treatment. Some of these delayed effects can be ambiguous and may not even be attributed to the treatment itself according to the available literature.

Consider a conversation that a Dr. L. needs to have with her patient about two comparable choices of treatment. Given the specifics of the patient's conditions, Dr. L. knows that one treatment choice is superior and more efficacious, but the literature describes negligible and ambiguous risks that may not even be directly attributed to this particular treatment. Dr. L. also knows that disclosure of these ambiguous risks will likely sway her patient's decision. Compared to known probabilities, people have a preference against options involving ambiguous risk and respond to ambiguity by forming pessimistic judgments of risk (ambiguity aversion). Research shows that perceptions of ambiguity are associated with fatalistic perceptions about treatment choices, and the communication of ambiguity regarding the effectiveness of health-protective measures makes people less willing to adopt them.<sup>232</sup>

In this chapter, I would like to discuss ethical questions that Dr. L may ask herself, namely – are there ethical limits to the disclosure of ambiguous risks? In other words, is it ever ethical to refrain from the disclosure of ambiguous risks in order to ensure that patients will make the best choices for themselves? Might there be such a thing in medicine as too much information? Finally, if we recognize that possession of information carries trade-offs, are there situations when the “totality of evidence” may increase the patient's autonomy but reduce his welfare?

In order to answer these questions, I will first consider the implications of shared decision-making and whether this approach will be successful in facilitating informed decisions. According to shared decision-making, under conditions of ‘equipoise’ – when the evidence



supporting a treatment is limited by scientific uncertainty – the patient’s values and preferences should be the determining factor in decision-making. However, the science of decision-making brings into question the assumption that patients hold stable values and preferences. Research shows that patients instead construct values and preferences in the moment of decision-making based on the available cues. This understanding may change our approach to the disclosure of information.

### **Shared Decision-making and Uncertainty**

Shared Decision-making (SDM) is an approach to clinical decisions in which patient and clinician work together to reach a mutually agreed-upon decision that is consistent with the best available evidence, as well as patient’s preferences.<sup>233</sup> The SDM concept evolved from the legal doctrine of informed consent, which legally binds a physician to provide the patient with salient information regarding the proposed treatment in order to obtain authorization from the patient. Generally, the patient must be provided information regarding treatment benefits, risks, and alternatives, though the depth of information disclosure required varies by jurisdiction. In some states, physicians are obligated to provide an amount of detail that is similar to what most other physicians would provide (this is called the “professional standard”). In other states, physicians are held to a more patient-centered standard and are required to provide the amount of information that the typical patient would want (the so-called reasonable person standard).<sup>234</sup> Neither standard explains precisely how a physician should decide what a reasonable person would want to be told. Disclosure may vary depending on the unusualness of the procedure and the probability of the outcome. The physician must judge whether to address all conceivable risks, just the most common risks, or only the most important risks. For example, in sports medicine, one can discuss the global level of risk from playing football (including injury,

medical cost, and time lost from study or work) or a specific outcome (such as muscle aches, knee injuries, or deaths). The former approach has been called a *thick* conception of risk, or a conception that comprises all conceivable harms, while the latter approach has been called a *thin* conception of risk, focusing only on the most common and immediate harms.<sup>235</sup>

The difficulty in deciding the amount of risks needed to be disclosed in end-of-life decision-making can be illustrated by the case of 43-year-old Miklos Arato, who was diagnosed with pancreatic cancer during a nephrectomy. The surgeon who incidentally discovered and resected the tumor and the oncologist who administered chemotherapy were not asked for and did not volunteer to share a specific statistical estimate of prognosis. Testimony from his physicians suggests that Mr. Arato was told that most victims of pancreatic cancer die of the disease and that he was at great risk of recurrence and death. The tumor recurred, and Mr. Arato died one year after diagnosis. His family sued the surgeon and oncologists, claiming that they had violated California's informed consent doctrine because Mr. Arato was not told that 95% of people with pancreatic cancer die within five years. Ultimately, the Supreme Court decided in favor of the physicians, affirming the trial judge's verdict. They argued that it was "unwise to require as a matter of law that a particular species of information be disclosed;" however, they emphasized that in declining to endorse the mandatory disclosure of life expectancy probabilities, they did not mean to signal a retreat from the patient-based standard of disclosure.<sup>236</sup> This case demonstrates that different patients and their families will want different amounts and different kinds of information for their decision-making to be adequately informed. Moreover, it is impossible for care providers to strive to provide every potentially meaningful piece of information, as the list of facts can be unreasonably long and even attempts to be

reasonably inclusive would over-burden most patients. However, excluding items that seem irrelevant to the clinicians will almost certainly leave some patients inadequately informed.

To engage in SDM, clinicians must help patients understand that there is a decision to be made, describe available options (including risks, benefits, and uncertainties associated with available options), elicit patients' preferences about probable outcomes of options, and work together to establish a next step in the decision-making process.<sup>237</sup> SDM is typically described as most appropriate for decisions that are considered "preference-sensitive," where there is equipoise between treatment options with equal or similar outcomes from a medical standpoint. In these situations, patients' preferences for the possible risks, benefits, and trade-offs between options are central to the decision. Most of the professional guidelines and best practices for SDM describe the following six steps that should occur during a SDM process regarding preference-sensitive medical decisions: the provider should invite the patient to participate, they should present options, they should discuss information on benefits and risks for each option, they need to elicit the patient's preferences for good and bad outcomes, they must facilitate deliberation and decision-making, and finally, they must assist with implementation of the decision.<sup>238</sup> It can be argued that uncertainty poses a special set of difficulties for each step of the shared decision-making process.

*Invitation to participate in the decision-making process.* This step can be affected by providers' perceptions about their patients, and the effort to engage patients in the decision-making process may vary accordingly. There is a growing body of research showing that the level of physician involvement in decision-making may vary according to physician's perception of how much uncertainty their patients will be able to tolerate. Physicians who perceive their patients to be averse to uncertainty may opt to forgo SDM, yet at times this may be in the best

interest of the patient.<sup>239</sup> These paternalistic attitudes related to patient participation in decision-making seem to be counterproductive because they preclude giving patients the opportunity to react to uncertainty and may only increase their worries. The fact that physicians are unlikely to engage patients in the decision-making process when they think that their patients would have a difficult time coping with uncertainty may be a projection of the physician's own discomfort. One may question whether physicians' perceptions represent an accurate assessment of their patients' attitudes. Providers may simply project their own attitude towards uncertainty onto their patients. A long line of research suggests that when information about another person's state, mood, or attitude is unknown, the perceiver's judgement is likely to drive behavior. Power differential is a psychological concept used to explain a disparity of relational power that arises because of a patient's vulnerability.<sup>240</sup> Some compare this concept to a parent/child relationship where physicians may be unnecessarily protective and form inaccurate perceptions of patients' reactions to uncertain information.

***Presentation of options.*** Providers are often hesitant to communicate uncertainty to patients, despite the prevalence of uncertainty in medical decisions. A recent summary reported that nearly half (47%) of all treatments for clinical prevention were of unknown effectiveness, and an additional 7% involved an uncertain tradeoff between benefits and harms.<sup>241</sup> Despite this high incidence of situations where uncertainty needs to be discussed, the majority of providers have not been trained to manage uncertainty and display confidence to their patients, with limited or no disclosure of uncertain risks. The lack of communication about uncertainty is demonstrated in a study that analyzed 1057 clinical encounters by primary care physicians and surgeons. Researchers found that only 16% to 18% of discussions met the minimum criteria for an informed decision. This study also found that a discussion of uncertainty about risks and

benefits of treatment was done only 1% of the time for basic decisions, 6% for intermediate decisions, and 17% for complex decisions.<sup>242</sup>

What are some of the reasons for such inadequate communication of uncertain risks? The reasons for withholding information on uncertain and ambiguous risks can be divided into patient-related and provider-related reasons. Providers may often doubt that conveying information related to ambiguous risks will serve a useful purpose because many patients do not understand the concept of risk and because patients have a poor memory of the disclosed information. Indeed, some patients might experience cognitive or emotional burden from overwhelming amounts of information that are highly uncertain. They might not want to spend time during family conferences reviewing detailed quantitative risk information to understand how little evidence is available for their condition. Instead, they might want to spend more time talking about their fears, concerns, and hopes. Providers might rightly assume that some patients want to spend less time focusing on incidental findings with small clinical significance.<sup>243</sup> Therefore, deciding how much information is appropriate to share becomes a very burdensome task for a provider.

In addition to patient-related reasons for withholding information about ambiguous risks, there are some provider-related reasons. Providers may feel that being explicit about the uncertainty is misleading, because it conveys more precision than is warranted. In order to address this misplaced imprecision, some professional bodies separate the quality of evidence (ambiguity) and the strength of recommendation (probability) in their summaries of evidence and recommendations. For instance, the American College of Physicians uses a four-category scale (insufficient, low, moderate, high) to rate the quality of evidence about the expected effect of a treatment or intervention and a two-category scale (weak or strong) for the strength of

recommendation.<sup>244</sup> However, this separation between quality of evidence and strength of recommendation can be very confusing. When a provider conveys to a patient that a side effect is extremely likely (or extremely unlikely) to occur, it is implied that this provider has high confidence in that statement. It would make little sense for a provider to say that a side effect was extremely likely and then add that he has low confidence in that statement. In addition, confusion may arise from various overlapping (and at times conflicting) goals a provider may try to achieve while communicating uncertainty. Communication of uncertainty may serve a number of goals, such as: to convey doubt or to increase the level of confidence in a finding, to inform patients about their estimated disease risk and the limitations of these estimates, or to help patients understand the general complexity or unpredictability of illness and its management.<sup>245</sup> These goals are not always consistent with one another and may require different methods and approaches to communicating uncertainty.

***Information about risks and benefits.*** When asked explicitly, most patients report that they like to be informed about uncertainties, as this information deepens their trust in their providers and improves the patient-provider relationship. At the same time, many patients indicate that they would like to receive information on whether something is safe or not, rather than numerical probability information.<sup>246</sup> These self-reported findings seem to be related to the concept of ambiguity aversion. As described in chapter two, ambiguity aversion is defined by Ellsberg as a preference for known risks over unknown risks.<sup>247</sup> Ambiguity aversion should be distinguished from risk aversion. Risk aversion is demonstrated in situations where a probability can be assigned to each possible outcome while ambiguity aversion is expected in situations where the probabilities of outcomes are unknown. In a healthcare context, when patients are

confronted by ambiguous information about risks, they tend to evaluate these risks pessimistically, overreact, or avoid making decisions altogether.<sup>248</sup>

Ambiguity aversion in a healthcare setting is explained in chapter two with the example of the men who received differing amounts of information about the risks and benefits of a prostate biopsy. In this example, the mere presence of ambiguity led to preference for a costly and invasive test.<sup>249</sup> More research has shown that some patients have higher ambiguity aversion than others. For example, less optimistic people were reported to have higher ambiguity aversion compared with highly optimistic people. Researchers have attempted to explain causes of ambiguity aversion. People have been found to prefer the ambiguous option if they feel competent and in control about the issue that is at risk.<sup>250</sup> Moreover, ambiguity aversion is more likely to occur when choosing between options that either have a high probability of losing or a low probability of winning.<sup>251</sup> Researchers suggest that ambiguity aversion only occurs in comparative situations when the risky and ambiguous options are presented simultaneously. Ambiguity aversion complicates discussions of risks and benefits.

*Exploring preferences for good and bad outcomes.* When uncertainty is present, it becomes difficult to explore patients' preferences for two reasons. First, a patient may find it impossible to compare the desirability of various outcomes because they cannot formulate a "precise guess" about the likelihood of these outcomes. This incompleteness in preference is usually called indecisiveness in beliefs. Second, even if the patient is able to assess, subjectively, the likelihood of each outcome, their preferences over decisions might still be incomplete due to a possible inability to compare certain outcomes. This incompleteness of preferences is called indecisiveness in tastes.<sup>252</sup> Providers attempt to approach indecisiveness in tastes and beliefs by providing more information. However, there are psychological limits to the amount of

information patients are able to process and practical limits in the time and resources available to facilitate this processing. In the setting of all these limitations, communicating uncertainty may simply confuse and lead patients to defer decision-making to the clinician—paradoxically diminishing rather than enhancing patient autonomy.

Communicating uncertainty may also prompt different information-seeking behaviors. Some patients may respond to uncertainty by actively seeking information. The attempt to resolve uncertainty may help them to cope with it. Loewenstein describes this behavior in his information gap theory. This theory describes information-seeking “as arising when attention becomes focused on a gap in one’s knowledge. Such information gaps produce the feeling of deprivation labeled curiosity. The curious individual is motivated to obtain the missing information to reduce or eliminate the feeling of deprivation.”<sup>253</sup> However, uncertainty may also lead to information avoidance and confusion if patients lack the proper resources to interpret available information and manage uncertainty. In one study, for example, 13% of people who were tested for HIV never received their results,<sup>254</sup> even though in a separate study, those who initially avoided learning their HIV status showed an improvement in mood upon receiving their test results (regardless of their HIV status).<sup>255</sup> Information avoidance may be used as a coping strategy by people who have difficulty tolerating potential but uncertain negative health consequences. A similar example can be seen in those who receive or fill prescriptions but do not take medications because of their fear of side effects.

***Deliberation and decision-making assistance.*** While physicians are expected to provide decision-making assistance, the simple presence of uncertainty can affect patients’ decision satisfaction. For instance, one study demonstrated that communication of scientific uncertainty leads to decision dissatisfaction among women facing cancer treatment decisions.<sup>256</sup> Knowledge



about uncertainty adds additional anxiety to patients facing “high stakes” decisions such as those involved in cancer decisions or ICU decision-making. Additional research has shown that patients can experience three types of regret following treatment decisions: outcome regret, which is regret about a negative health outcome following a decision; option regret, which is regret about the choice one made; or process regret, which is regret about the quality of the decision-making process.<sup>257</sup> Uncertainty can trigger process regret as well option regret in case of a bad outcome. In addition to regret, patients who negatively appraise uncertainty might subsequently experience fear, anxiety, panic, and a desire to reduce uncertainty. These negative emotional responses may lead to heightened vigilance about illness, which may further exacerbate worry about illness. Decision dissatisfaction, regret, and negative emotional responses to uncertainty may complicate the physician’s attempts to provide assistance with the decision-making process.

### **Definitions of Uncertainty**

Since uncertainty is omnipresent in healthcare, and it may significantly impact every component of shared decision-making, it is important to have a working definition of this concept. Due to the fact that uncertainty may affect various areas of clinical practice (such as prognostic information, treatment recommendations, or aligning treatment goals with patients’ values), a few existing definitions seem to mirror the multifacetedness of this concept. The Merriam-Webster dictionary defines uncertainty as “the state of being indefinite, indeterminate, unreliable, unknown beyond doubt. Not clearly identified or defined, and/or not constant.”<sup>258</sup> According to Mishel, uncertainty is a “cognitive state created when an event cannot be adequately defined or categorized due to lack of information.” She further defines clinical uncertainty as the “inability to determine the meaning of illness-related events resulting from the

ambiguity, complexity, unpredictability of illness, deficiency of information about one's illness and its consequence."<sup>259</sup> These definitions highlight the variety of types, sources, and manifestations of uncertainty, which might also explain the difficulty in addressing uncertainty in healthcare settings. Most of the definitions conceptualize uncertainty as a "state" or a "cognitive state" and emphasize a lack of pertinent information or knowledge. Therefore, uncertainty can be viewed as a subjective awareness regarding gaps in one's knowledge. In this way, uncertainty is different from ignorance or lack of awareness about incomplete knowledge.

Uncertainty in medicine can stem from a number of sources. For instance, Beresford categorized uncertainty into three types: technical, personal, and conceptual. Technical sources of uncertainty describe situations in which there is not enough evidence to adequately predict the prognosis or the effect of interventions. The information may not be available (due to rapidly increasing medical knowledge), or the provider may be unsure whether they have the most recent data. Personal sources of uncertainty originate from the doctor-patient relationship and include uncertainty about patient's values and preferences. Conceptual uncertainty arises from an inability to apply treatment guidelines to a specific case.<sup>260</sup> There is often an inherent variation in one's disease progression or in the way that a patient responds to medical interventions which complicates the provider's task of applying clinical data generated at the population level to a specific case. Beresford's categorization is helpful in distinguishing between uncertainty related to data, uncertainty in applying the data to a specific patient, and uncertainty about the unique characteristics or preferences of a patient. This categorization also demonstrates that the management of uncertainty is more complicated than the simple provision of additional information. While this solution has been suggested by a number of authors, a mere provision of information may help with the technical uncertainty, but it will not address the other sources of

uncertainty. In the words of Atul Gawande, “Medicine's ground state is uncertainty. And wisdom - for both patients and doctors - is defined by how one copes with it.”<sup>261</sup>

This chapter will focus on ambiguity as a special kind of uncertainty. Given that many decisions in critical care revolve around potential intervention, this chapter will discuss ambiguity in decision-making about treatment alternatives. Most of the existing literature approaches uncertainty in this type of decision-making from the perspective of risk. Under risk, the consequences of possible outcomes for a given decision are not certain, but the probabilities of different outcomes can be estimated. Providers use risk estimates to facilitate decisions about various treatments (i.e., 20% chance that the treatment will be successful, 10% chance of a side effect occurrence, etc.). These estimates describe uncertainty in probabilistic terms, and they are derived from population studies measuring the occurrence of a given outcome. However, these estimates may have limited applicability at the individual level since they are based on past patterns of the occurrence of a specific outcome. Providers may struggle with using this postdictive information in a predictive manner with an individual patient. Furthermore, both providers and patients often struggle with the complexity of risk information. For example, providers and patients often need to process and interpret multiple risks simultaneously and to make sense of risks that change over time and as a consequence of different actions. Providers may know the probabilities of an outcome yet still be uncertain about the severity of this outcome and its scope or timing. This type of uncertainty is described as complexity.<sup>262</sup> Ambiguity is different from decisions under risk or complexity. Under risk or complexity, the probabilities of different outcomes can be estimated, whereas under ambiguity, even these probabilities are not known. Some authors describe ambiguity as “uncertainty about uncertainty.”

Ambiguity can be defined as uncertainty about the strength or validity of evidence about risk. Ambiguous situations are specifically problematic because the information available to inform a decision is inconsistent or (to make matters even worse) contested.<sup>263</sup> Ambiguity is not uncommon for decisions about treatments. Knowledge about treatment effects, in specific rare but serious side effects, is nearly always less precise, as some newer treatments may have been studied for only a few years. Treatment decision-making for elderly patients can serve as an illustration for uncertainties involving risk, complexity, and ambiguity. While risk estimates are available for many treatments, usually these risks are described in the general population and may not be applicable to elderly. Clinicians often need to individualize certain decisions based on their patients' health and life expectancy. Treatment decisions for a healthy individual with a normal long life expectancy are relatively straightforward. Complexity occurs when there are variations in health and life expectancy. For patients with moderate morbidities, physicians need to assess estimates of life expectancy, weigh the expected benefits and downsides of a treatment adjusted for health conditions, and decide whether this treatment is in the patient's best interests. Physicians may deal with ambiguity when treating elderly patients with complex medical problems since they may not be included in treatment guidelines and, therefore, risk and side effects may be unknown.

In scientific literature, ambiguity is often expressed statistically through the use of a confidence interval around a point estimate. While physicians may struggle with communicating uncertainty, it can be especially difficult to explain ambiguity to patients. Patients may struggle to understand "uncertainty about uncertainty," and it may result in additional anxiety and pessimistic judgments about treatment and prognosis. While most people exhibit at least some aversion to both risk and ambiguity, research shows that risk and ambiguity aversion are two

different phenomena of very different magnitudes. Risk aversion is simply a trade-off between amount and probability according to the individual preference of a patient. Ambiguity aversion, which tends to be much stronger, is instead irrational and leads to suboptimal decisions.<sup>264</sup>

Researchers have tried to describe ambiguity aversion and its sources. For instance, Heath and Tversky explained it as a sense of incompetence or lack of control.<sup>265</sup> Fox and Tversky described it as comparative ignorance driven by the comparison with more familiar events or more knowledgeable individuals.<sup>266</sup> Hsu and colleagues suggest that ambiguity aversion can be explained through informed opponent theory, such as betting against another person who has seen a sample of cards from the deck. Even when there is no informed opponent, people usually act as if there is one.<sup>267</sup> Regardless, the source of ambiguity aversion remains unclear.

### **Unique Challenges Posed by Ambiguity and Informational Uncertainty**

Ambiguity represents a special kind of uncertainty and poses a unique set of challenges for patient-provider relationships and the decision-making process. Ambiguity aversion, or anxiety and pessimistic judgments about a treatment involving ambiguous risk, has been described above. Disclosure of ambiguous risks represents another challenge. Providers understand that different patients will want different amounts and kinds of information in order to be adequately informed. Physicians also realize that it is impossible to strive to provide every potentially meaningful piece of information. The resulting list will be infinitely long, and even attempts to be reasonably inclusive will overwhelm most patients. Consequently, physicians must decide which risks to discuss and emphasize. Oftentimes, they may have to choose between two alternative courses of action. One is to explain to the patient every risk involved in the procedure or treatment, no matter how remote or uncertain. This may create anxiety for the patient who is already unduly apprehensive and who may, as a result, refuse to undertake the

procedure or treatment in which there is, in fact, minimal risk. Even if this anxious patient consents to the procedure, her anxiety may actually increase the risks due to the physiological results of stress. The other course of action would be to recognize that the patient's mental and emotional condition is important, that heightened anxiety may lead to suboptimal decisions (and can be viewed as a harm in itself), and, therefore, disclosure of ambiguous risks can be avoided to spare the patient from anxiety and decisional conflict. A number of ethical arguments can be used to support both courses of action.

### **Deontology Versus Consequentialism**

The decision to disclose minor and ambiguous risks can be argued from a deontological and a consequential position. According to the deontological line of reasoning, in order for actions to be ethically sound, they must be made on the basis of principles that are worthy in themselves, apart from any consideration of the consequences that those actions may have. The consequential reasoning weighs relevant harms and benefits of an action, both physical and psychological, in order to choose the option that is most likely to benefit the patient. When it comes to nondisclosure of risks, the duty of truthfulness is strong in deontological theories, and nondisclosure of minor harms will violate Kant's Categorical Imperative. Kant wrote an essay on the subject, titled "On the Supposed Right to Lie from Altruistic Motives," in which he argued that "the duty of being truthful... is unconditional... to be truthful (honest) in all declarations, there is a sacred and absolutely commanding decree of reason, limited to no expediency."<sup>268</sup> Consequentialism, however, evaluates actions only according to their likely consequences, and, in this view, nondisclosure may be ethically legitimate, depending on the anticipated consequences in a given case. This line of reasoning might view nondisclosure of ambiguous risks more favorably, since by paying the negligible price of omitting potentially redundant

information, physicians may maximize patients' happiness and well-being. Veatch echoes similar sentiment when he argues that "physicians, being committed (theoretically) to the consequentialist principle of working for the benefit of the patient, have traditionally been particularly skeptical of the moral relevancy of the 'truth for truth's sake' principle."<sup>269</sup>

The deontological position regarding nondisclosure of ambiguous risks finds its clear formulation in the following passage from Mill's *On Liberty*: "That the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant. He cannot rightfully be compelled to do or forbear because it will make him happier, because, in the opinions of others, to do so would be wise, or even right.... Over himself, over his own body and mind, the individual is sovereign."<sup>270</sup> In other words, even if a self-regarding action results in harm to oneself, it is still beyond the sphere of justifiable influence by means of deception or non-disclosure. An attempt to justify such influence by referencing a patient's emotional incompetence can be a convenient way of overriding that patient's wishes since what a physician may consider irrational is, at times, a value judgment. According to deontological thinking, harm often results from a failure to meet an obligation. Morality generates obligations. In the case of ambiguous risks, physician needs to meet a number of obligations such as truth telling, provision of all relevant information, and maintaining a patient's trust.

The consequentialist approach of working for the benefit of the patient can be inherently skeptical of the moral relevancy of the "truth for truth's sake" principle. This approach requires a moral judgment to be made: whether or not to disclose an ambiguous risk. In doing so, the possible harms and benefits, both physical and psychological, should be weighed, and the option that is most likely to benefit the patient is then selected. But is a physician equipped to make

such a decision? In order to distinguish between what may be perceived as insufficient, adequate, or excessive information for a patient, there should be a unique kind of relationship: one of empathy, insight, and sensitivity. Even if one assumes that physicians are equipped to make such an assessment, the lack of time and continuity of relationship with a patient suggests that this is not a reality in most clinical settings. Additionally, this requires a judgment of the patient's hopes and fears and personal circumstances and whether (from the patient's perspective) there are any risks are worth running. While the deontological approach will consider failure to inform a patient of ambiguous risks as negligence to respect patients' autonomy, a consequentialist would argue that disclosure of information and dialogue rests with welfare rather than autonomy.

### **Harm versus Benefit**

Physicians must place the well-being of their patients above all other competing interests, and this consideration alone often places them in a position in which they must choose between two alternative courses of action. One is to explain to the patient every risk, no matter how remote and ambiguous; this may result in alarming a patient who is already anxious and who may, as a result, refuse to undergo a necessary treatment that, in fact, bears minimal risk. The other option is to recognize that the patient's mental and emotional condition is important while tailoring the extent of risk information to the particular patient to avoid unnecessary anxiety and apprehension. The second option reflects the notion of therapeutic privilege. Meisel and Kuzcewski describe this concept as follows: "The therapeutic privilege permits physicians to tailor (and even withhold) information when, but only when, its disclosure would so upset a patient that he or she could not rationally engage in a conversation about therapeutic options and consequences."<sup>271</sup> In justifying this concept while considering harms and benefits of nondisclosure of ambiguous risks, it is important to keep in mind that physicians and patients



may weigh these harms and benefits differently. Physicians are trained to focus on the patient's physical and mental health, so they may not see health risks to counterbalance the anxiety-avoidance benefits of nondisclosure. On the other hand, patients may see non-medical harms of non-disclosure such as costs of ignorance and lack of control over their treatment. Given the cultural importance of self-determination, these substantial costs can outweigh the benefit of avoiding anxiety.

In addition to avoiding anxiety, physicians may cite secondary harms stemming from anxiety such as nocebo effects and irrational decisions. When taking medications, patients frequently experience nocebo effects produced by negative expectations rather than by the drug itself. These nocebo effects add to the burden of illness and lead to care-seeking behavior. Research shows that nocebo effects can be induced by what doctors tell patients about a medication, and they are likely to occur when providers disclose uncertain risks to hypochondriac patients with high levels of somatization.<sup>272</sup> Furthermore, anxious patients may be prone to make irrational decisions about their treatment that will lead to unfortunate outcomes. Physicians may find it very difficult to strike a balance between helping patients overcome fears that prevent them from pursuing promising treatments and respecting the different weights people assign to avoidance of ambiguity and ambiguous risks. For instance, Pellegrino and Thomasma believe that "overly hasty decisions not to treat (out of deference to the principle of autonomy) may be more damaging to the patient's best interests than some degree of paternalism."<sup>273</sup> They feel that patient autonomy should be one of the goals of treatment, but not to the exclusion of all other considerations, and that the most appropriate model of treatment is the one that maximizes overall potential benefit.

It may seem that while considering ambiguous risks of a treatment, a patient may reject the physician's recommendations and make irrational decisions about their own care. The irrationality of fear-driven decisions was discussed in the case of *Lane v. Candura*, where a court was asked to override a patient's refusal of treatment. The patient in *Lane* had initially consented to amputation of her gangrenous leg but withdrew her consent on the morning of the scheduled operation. Responding to a psychiatrist's testimony that the patient was incompetent to make a rational choice, the trial court held that the irrationality of the patient's choice justified the appointment of a guardian to make the decision. However, this view was rejected during the appeal hearing due to the fact that the physician and the trial court were both interpreting rationality to mean medical rationality. The patient was deemed irrational and incompetent because her decision differed from that of her treatment team. There were no questions about the rationality and competence of this patient up until the point when the patient changed her mind and rejected the surgery. The treatment team was ready to proceed with the surgery if the patient were to change her mind and consent again. In the view of the healthcare team, rationality and competence were equal to agreement with the medical viewpoint.<sup>274</sup> Similar attitudes may be present in decisions about avoiding disclosure of ambiguous risks in order to make sure the patient follows the optimal course of treatment.

### **Disclosure of Certain Risks Versus Disclosure of All Risks**

The 1994 *Smith v. Tunbridge Wells Health Authority* case demonstrates the difficulty in deciding what risks should be disclosed to the patient and whether there is an obligation to disclose all inherent risks, no matter how remote and ambiguous they may seem. In *Smith v. Tunbridge Wells Health Authority*, a claim was brought by a 28-year-old man who was not warned of the negligent risk of impotence inherent in rectal surgery. The claimant succeeded

despite the testimony of experts referencing the fact that most surgeons did not warn patients of that specific risk. The judge found that failure to warn a patient of a risk of such importance to him was ‘neither reasonable nor responsible.’ This case highlights the importance of considering the potential impact of ambiguous risks on the welfare of individual patients. While most providers would base their decisions about the disclosure of risk information on a statistical probability of certain negative outcomes, the potential impact of these adverse events on one’s life should be an important consideration.<sup>275</sup> It is possible to assume that in a similar case as described above but involving an elderly man facing rectal surgery, a provider may contemplate an ambiguous risk of impotence differently. While the notion of a 1% risk threshold is often operational in clinical practice in decisions on what qualifies as a ‘material’ risk that must be disclosed, the legal and ethical approach regards risk incidence as only one of several elements.

The severity of the outcome associated with a risk also matters. One may argue that considerations of incidence and severity of risks are usually linked in decisions about disclosure. For instance, negligible risks of serious outcomes are usually emphasized, as well as high risks of relatively minor adverse events, but not low risks of minor outcomes. Furthermore, certain characteristics of individual patients may also serve as a determinant in consideration about the necessity of a discussion about ambiguous risks. There might be no need to present a well-educated patient with an exhaustive list of every conceivable complication of treatment. Rather, the patient may need to become an active participant in a dialogue about treatment and risks that are specifically of concern to that patient. For instance, the complications of hand surgery may be more material to a concert pianist than the average patient. The treatment’s urgency can serve as an additional layer of considerations. Details of risks tend to matter more when the treatment is more elective and less urgent. The high number of legal disputes about cosmetic surgeries can

serve as an example. Finally, temporal orientation of ambiguous risks can be an additional factor worth considering in decisions about disclosure. The subjective gravity of adverse effects depends on whether these effects may occur in the short term or in the distant future. Even serious risks are judged as subjectively less severe if they will happen in the distant future.

The subjective value assigned to particular risks can, in part, be explained by the risk as affect paradigm developed by Slovic, in which risk is arranged along two axes relating to dread and uncertainty. Dread risks, such as nuclear reactor accidents, are uncontrollable, catastrophic, and not equitable, whereas risks from things like caffeine or aspirin are controllable, individual, and equitable. Slovic categorizes ambiguous risks, such as those from nitrogen fertilizers, as dreaded due to the fact that these risks are not observable, unknown to those exposed, and delayed.<sup>276</sup> On the other hand, more common and serious risks, such as car accidents, are not dreaded because they are observable, known to those exposed, and immediate. While these examples are nonmedical, the concept of dread may help explain why patients fear some medical risks that are uncontrollable and uncommon more than others that are common. Since the goal of risk communication is to inform patients about risks, to encourage an informed decision, and to promote shared decision-making, it is important to remember that certain forms of risk and risk communication formats may evoke strong emotions and can be assigned more subjective weight.

### **Moral Obligation to Inform Patients about Ambiguous Risks**

The decision to shield patients from unavoidable uncertainty is problematic for a number of reasons. First, there is considerable potential for a breach of trust when areas of uncertainty are not disclosed, as patients may feel betrayed if and when their treatment does not work or if it progresses in ways not previously flagged. Second, the principle of autonomy, which protects patient self-determination, goes hand in hand with truth-telling. Non-disclosure of ambiguous

risks to patients, therefore, ignores and demeans the patient's rights of autonomy and can be equated to paternalism on the part of physician. Finally, one can argue that from a moral standpoint, there is no significant difference between lying and non-disclosure when the physician's motivations, and the consequences of the action from the patient's perspective, are the same.

### **Veracity and Patients' Trust**

It is difficult to overestimate the importance of trust in patient-provider relationships. Many authors consider trust as "the fundamental virtue at the heart of being a good doctor."<sup>277</sup> As a result, patients trust doctors to provide them with the information on which they can base a decision about whether or not to proceed with a procedure or treatment. A relationship built on trust acknowledges the expanding role of patients in the decision-making process regarding their health care. This cooperative partnership and shared decision-making, rather than a more paternalistic approach, has increased the need for physicians to fully discuss treatment options and risks so that the patient can make an informed decision. However, this element of full disclosure of information is not entrenched in the traditional codes of ethics governing physician behavior. The Hippocratic Oath does not mention veracity, nor does the Declaration of Geneva of the World Medical Association or the American Medical Association in its "Principles of Medical Ethics."<sup>278</sup> As a matter of fact, the writings of Hippocrates urge physicians to conceal "most things from the patient while you are attending him."<sup>279</sup> Until recently, many physicians in the US reverted to nondisclosure and non-discussion in the face of uncertainty about patients' prognosis and the best course of treatment.

Is there a moral obligation for a full disclosure of information between physician and patient? Disclosure within the patient-physician relationship encompasses the communication of

information to patients that is comprehensive, accurate, and helpful in making decisions about therapeutic options. According to Beauchamp and Childress, three arguments contribute to the justification of an obligation to veracity: 1.) Respect is owed to others. 2.) Obligation of veracity is closely connected to the obligations of fidelity and promise keeping. 3.) Relationships between physicians and patients are ultimately dependent on trust, and adherence to veracity is essential to foster trust.<sup>280</sup> Therefore, the need for disclosure of information is not only important to the process of deciding between several therapeutic options but also fundamental to the ongoing relationship between physician and patient. When a patient perceives a lack of communication or selective communication of facts by their physician, it can serve as an additional stressor. Psychiatrists have noted that the loss of self-esteem that results from poor communication can occur in a setting that is inherently stressful. This effect is magnified where the lack of communication deprives an individual of the opportunity to make decisions on such important matters as the choice between treatment options. A patient in this situation tends to feel "isolated, alone, and abandoned, even though [he] may try hard to deny such feelings by clinging to the helpful reassurances that [his] physicians provide."<sup>281</sup>

While physicians may feel an impulse to reduce worry and decisional conflict when describing treatment options to patients, bioethics literature suggests that ambiguity in risk information should be communicated to patients to avoid an artificial sense of certainty. If patients are informed about ambiguous risks, they can, in turn, alert their provider early on in case they see the signs of adverse effects. Furthermore, anxiety and uncertainty arising from ambiguity can be interpreted as indicators that patients truly understand information and can engage in shared decision-making. Miesel suggests that "almost any encounter with a physician may entail some emotional stress for the patient" and "it would be quite unusual if a patient,

informed of the serious risks of a proposed treatment, were not upset by the disclosure, but it is not clear that being upset necessarily interferes with one's ability to engage in rational decision-making."<sup>282</sup> Patients' anxiety does not always translate into harm for the purpose of nondisclosure. The deliberate withholding of information from a competent patient, thereby disempowering this patient, requires greater justification than the reference to anxiety, distress, and inability to make rational choices.

### **Paternalism**

Paternalism, as a model for the patient-physician relationship, is most often cited as an example of a model in which conflicts arise from the physician's desire for beneficence and the patient's need for autonomy. The paternalistic model is often compared to the relationship between incompetent children and their need for beneficent parental guidance. Beauchamp and Childress define paternalism as "the intentional overriding of one person's known preferences or actions by another person, where the person who overrides justifies the action by the goal of benefitting or avoiding harm to the person whose preferences or actions are overridden."<sup>283</sup> There are grades of paternalism, varying from the weak form, in which interventions are sought to protect patients from their non-autonomous actions, to the strong form, in which action is taken for patients who remain autonomous. One can argue that limited disclosure of ambiguous risks may fit under the paternalistic model. The presence of paternalism can be explained by the fact that the patient does not even know that a decision to withhold information has been made and, thus, makes a treatment decision believing it to be based on all material information when it is not. Consequently, the treatment decision is also tainted when the physician has exercised the authority to determine that information should be withheld out of "beneficent" considerations.

While patients may not have the medical expertise of their doctors, they are nonetheless in a better position to determine what is in their best interest based on the information made available to them. In many instances, a physician, due to his knowledge and expertise, may have a clear understanding of what treatment should be undertaken. However, it is the prerogative of the patient, not the physician, to determine for herself the direction in which she believes her interests lie. When a physician is concerned that the patient would make an inappropriate choice by placing an undue weight on the information about ambiguous risks and consequently refusing beneficial treatment, it should still be the patient and not the physician who determines what weight is due or undue. Both the physician and patient's assignments of weight reflect different values, and the purpose of shared decision-making is to protect the subjective values of the patient. A physician may appreciate the risks of a decision not to undergo treatment and the probability of a successful outcome of the treatment. However, no physician is trained to weigh these risks against the individual subjective fears and hopes of the patient. Such evaluation and decision is a nonmedical judgment reserved for the patient alone. A patient should be denied the opportunity to weigh the risks only where it is evident he cannot evaluate the data, such as when there is an emergency or the patient is a child or incompetent.

When a patient is denied the ability to evaluate risks on the basis that the information about uncertain risks of treatment will upset the patient so that they will not be able to engage in decision-making in a rational way, such reasoning conflates capacity with outcome.<sup>284</sup> There is no way to predict the way the patient will react to disclosure of ambiguity. When a provider avoids disclosure of certain information because it will upset the patient, this implies that the doctor has a highly developed predictive skill regarding the decision-making of individual patients. Furthermore, research shows that in many cases the desire to shield patients from



uncertain information reflects the provider's own inability to deal with uncertainty.<sup>285</sup> Attempts to conceal ambiguity from patients may often be motivated by the provider's desire to protect their medical authority, since sharing uncertainty with patients may reveal both the limits of medical knowledge and the extent of this particular provider's ability to apply medical knowledge in patient care. Therefore, provision of information about uncertainty can be interpreted as a means of addressing the imbalance of power between the informed doctor and the vulnerable patient. On the other hand, concealing uncertain information from a competent patient equals disempowerment and paternalism. Tailoring of information to achieve the "best" result for the patient effectively allows the provider to substitute her judgment without a sound moral justification.

### **Distinction between Non-Disclosure and Lying**

Assessments of patients' ability to tolerate ambiguity and engage in a competent decision-making process are subject to a number of cognitive biases. Outcome bias leads to judging decisions by the outcomes that follow them, rather than by the thinking that goes into them. As a result, people facing easy choices (e.g., choosing places to eat) seem more competent than people facing hard ones (e.g., choosing medical treatments).<sup>286</sup> Hindsight bias leads to exaggerating the competence of people who experience good outcomes from a treatment and underestimating that of those who do not.<sup>287</sup> Furthermore, preconceived ideas about decision-making competence can also reflect motivated thinking<sup>288</sup> when a moral justification about limits of disclosure depends on patients' perceived tolerance of uncertainty and their ability to make competent choices. Examples of such motivated thinking are abundant. For instance, supporters of physician-assisted suicide will emphasize competence and voluntariness of assisted dying, while those who oppose such regulations will point out that decisions about suicide can never be

competent or voluntary. Advocates of reproductive rights for adolescents usually make strong claims for teens' competence, while opponents of adjudicating teens as adults will claim that the opposite is true. Is it possible to assume that such motivated thinking about one's competence and ability to tolerate uncertainty can be, in fact, deliberate misrepresentation?

Several authors attempt to argue that in certain cases, nondisclosure and lying can be viewed as morally equal. For instance, Cox and Fritz use the example of two young hospital patients staying at a hospital in late December.<sup>289</sup> Both are very anxious to get home for Christmas. When Dr. A. makes his rounds, one of the patients asks him whether he will be home for Christmas. Not wanting to upset the boy, Dr. A. replies "Yes," even though he is sure this patient will not make it home for the holidays. The other child does not ask Dr. A. such a question but instead talks excitedly about being home for Christmas dinner. Similarly, Dr. A. does not want to upset the child, so he avoids mentioning that going home for Christmas is unrealistic at this point. Is it possible to draw any moral distinction between the two scenarios? This question seems to mirror the debate surrounding the commission/omission distinction - the tendency to judge harmful actions as worse, or less moral, than equally harmful omissions (inactions) because actions are more obvious than inactions. Many moral philosophers argue that the omission-commission distinction is, in itself, morally irrelevant. Some also argue that in the example above, the distinction between non-disclosure and deception is irrelevant due to the fact that the underlying intention not to upset his patients is constant in both cases.

Consider one more hypothetical scenario. Three patients – Smith, Doyle, and Green – all in their early 70s with no previous history of heart disease, but with increased risk of a heart attack, are given recommendations about low dose daily aspirin. Smith is told to take one aspirin daily to prevent the possibility of a heart attack. Doyle is told to take one aspirin daily to prevent

the possibility of a heart attack even though there is not enough evidence to make a recommendation about using daily aspirin for this age group, as the elderly are underrepresented in clinical trials involving aspirin for prevention. Green is told to take one aspirin daily to prevent the possibility of a heart attack even though the benefits of taking daily aspirin may not be enough to outweigh the uncertain risk of internal bleeding that is potentially high in this age group. (In other words, the elderly are at a high risk of bleeding, and the heart disease protection gained from low-dose aspirin use may be offset by serious risks of bleeding. The overall balance of harm and benefit could go either way.) No one has been lied to, yet Smith has not been as fully informed as Green. What exactly does their provider need to disclose, and in how much detail, in order to ensure truthfulness? In this scenario, Smith has been deceived by non-disclosure, as he does not have a full appreciation for the situation. His provider has been less truthful to him. However, it is pointless to discuss truthfulness unless there is clarity over exactly what information should not be withheld. The relevance of information is crucial. This provider would not be criticized for withholding the weather forecast from Smith. Some ethicists would argue that non-disclosure becomes deceptive if patients would reasonably expect their providers to disclose this information.

### **Conclusion**

In today's medical landscape, the issue of uncertainty is of paramount importance. As facilitating patient autonomy continues to be lauded as the gold standard of ethical and moral patient care, many health care providers may find themselves torn and confused as to how to communicate uncertainty in medical treatments with those in their care. In this chapter, I worked to explore the ethical limits of the disclosure of ambiguous risks in patient care.

The chapter began with an overview of the concept of the shared decision-making model as it relates to the topic of conveying uncertainty. First, this section on shared decision-making addressed the role of the physician in extending an invitation to the patient to participate in the decision-making process. Next, this section explored how physicians should present treatment options to patients when uncertainty is involved. The next topic addressed was how uncertainty factors into the process of informing patients about treatment risks and benefits. The section elucidated how doctors can best explore patient preferences for good and bad outcomes and the clinician's role in assisting a patient's deliberation and decision-making process. In short, the shared decision-making model seeks to involve patients and physicians in a partnership, where uncertainty in treatment is taken into account, and patient preference dictates how the physician goes about disclosing ambiguity.

After exploring the facets of the shared decision-making model and how uncertainty plays out in these conversations, the chapter turned to definitions of uncertainty. Though there are a variety of definitions of uncertainty, most definitions agree that uncertainty is rooted in individuals' personal assessments of risk and their discomfort with ambiguity. Thus, medical professionals should be mindful to understand that what one person might define as an uncertain risk might not be viewed the same way by another person.

The chapter continues by examining how uncertainty provides a unique set of challenges in the medical setting. The first challenge is that depending on what moral theory one uses (such as deontology versus consequentialism), the dialogue about uncertainty will be drastically different. Secondly, uncertainty is directly tied with both the concept of patient harm versus patient benefit; physicians and patients alike must engage in a dialogue to establish what harms and benefits the patient might sustain as a result of treatment and how uncertainty might shift the

patient's perspective. Finally, uncertainty also provides a unique challenge to physicians in their decision about how much ambiguity they are ethically and morally obligated to disclose.

The chapter concludes by addressing how uncertainty and the moral obligation to inform patients about ambiguous risks might play into medical treatment. It is suggested that veracity and patients' trust is of inherent and utmost importance to the medical profession, and that non-disclosure of uncertainty, while sometimes valid, must be done with good reason and careful consideration. Next, the last section addressed the concept of paternalism and how disclosure of uncertainty factors into a now frowned upon system of practicing medicine. Finally, the last section addressed the fine line between non-disclosure and lying and how this line often becomes harder and harder to locate in many clinical settings.

I would like to finish this chapter by noting that uncertainty in medical care is a complex issue. There are no easy answers as to when, what, and how physicians should disclose medical ambiguity to those in their charge. This fact underscores the importance of continued dialogue and shared decision-making between patients and doctors, as such a course of action will help ensure moral and ethical outcomes in clinically uncertain circumstances.

## CHAPTER FIVE

### PERSUASION

#### **Introduction**

Rhetoric and persuasion are praised in ancient philosophy but condemned by modern philosophy. This change in attitude can be explained by a shift in the concept of autonomy from being open to some forms of influence to being deemed incompatible with persuasion. The modern criticism of rhetoric stems from the criticism of all authority that threatens autonomy. Since autonomy is closely related to rationality and deliberate choice, rhetoric is depicted as a force that clouds rationality, influencing people to act from desire as opposed to deliberation. This chapter explores the relationship between autonomy and persuasion through the prism of modern critique, considering whether it is legitimate to influence one's desires, whether persuasive communication is inherently harmful, and whether it precludes voluntariness and free choice. In order to address these questions, the chapter engages the famous defense of rhetoric presented in Aristotle's work *Rhetoric*.

In his work, Aristotle closely links rhetoric with the understanding of voluntary action. He describes a voluntary action as one that is conceived and implemented by the individual, as this is the action in which the "initiative lies within ourselves."<sup>290</sup> He writes that both reason and emotion can prompt desire, and, thus, both can help determine action. Emotion is not opposed to reasoned judgment but is instead an important aspect of it. Therefore, one's emotional response to a situation is not simply a result of one's understanding but a part of that understanding. Aristotle also claims that appeals to reason alone can rarely influence an audience. A rhetorician always finds his audience with a pre-existing set of emotions, coloring what aspects of the

situation they will understand. One cannot counter the way already existing emotion clouds the vision by eliminating all emotions. One must replace distorting emotions with clarifying ones.

Consequently, is there a place for emotionally charged messages and persuasive communication in a patient-provider relationship? Some may consider this communication as an integral part of providing risk information to patients. Physicians always find patients with a pre-existing set of emotions. Providers also know that appeals to reason alone may not be the most effective form of risk communication. They are aware of the difference between patients knowing they are at risk and feeling at risk. In considering the ethical permissibility of persuasion in this context, one should further delineate the nature of the relationship between patient and provider and describe the duties that relationship implies. Inasmuch as this relationship is grounded in care, the section on care ethics discusses the moral permissibility of persuasion in patient-provider interactions. The care perspective provides answers to the questions of whether there is a duty to persuade and whether the instance of persuasion will damage the existing relationship. The final section of this paper provides examples of persuasive communication used in critical care. These examples and the previous justification grounded in care ethics or Aristotelian *Rhetoric* are not intended to demonstrate that all persuasion in healthcare is good nor that all forms of influence used by providers are legitimate. Rather, these concepts are described in order to reassess the principles by which one judges the legitimacy of influence in medical communication.

### **Definition of Persuasion**

#### *What Persuasion Is*

The history of persuasion reaches back into ancient times and goes parallel with the history of rhetoric because since its origins in Ancient philosophy, rhetoric was understood as the

art of persuasion. Plato was the first to discuss the ethical aspects of persuasion in his critique of the Sophist perspective on public speaking based on style and emotional appeals. According to Plato, the only moral means to persuasion is grounded in logic.<sup>291</sup> His disciple Aristotle developed a great insight on this issue, agreeing with Plato on the importance of truth, and supporting the Sophists in their belief that persuasive communication is very useful. He defined rhetoric in terms of “observing in a given case the available means of persuasion.”<sup>292</sup> These means include a number of appeals grounded in logic (logos), in emotion (pathos), and in the communicator (ethos). In his work *Rhetoric*, regarded by many scholars as “the most significant work on persuasion ever written,”<sup>293</sup> Aristotle claims that the goal of rhetoric is not so much in finding the truth about an issue but, rather, in convincing an audience to make the best decision about that issue.

There is hardly a single good definition of persuasion. The word persuasion comes from the Latin verb *persuadere*, to persuade, from *per*, strongly, and *suadere*, to urge. In line with the etymology of the word, some authors define persuasion as “a human communication designed to influence others by clarifying their beliefs, values, or attitudes.”<sup>294</sup> A definition given by Bettinghaus and Cody frames persuasion as an intentional act on the part of a communicator: “a conscious attempt by an individual to change the attitudes, beliefs, or behavior of another individual or group of individuals through the transmission of some message.”<sup>295</sup> Smith highlights the role of perception in his definition, claiming that persuasion happens when the audience feels free to reject the communicator’s position. Persuasion is “a symbolic activity whose purpose is to effect the internalization or voluntary acceptance of new cognitive states or patterns of overt behavior through the exchange of messages.”<sup>296</sup> This aspect of voluntariness and freedom is echoed in the definition given by O’Keefe: “a successful intentional effort at



influencing another's mental state through communication in a circumstance in which the persuadee has some measure of freedom."<sup>297</sup> Therefore, a number of concepts are implicit in these definitions. There is some sense of having a goal on the part of the communicator. This intentional aspect is important because considering every possible attempt to influence as persuasion would include under its heading all communicative behavior. Persuasion is also a process; it does not occur momentarily. This process occurs in the context of freedom and communication.<sup>298</sup>

It feels important to further outline the concepts involved in persuasion. Counting a communication as an act of persuasion involves an intentional and successful attempt to change one's attitude or behavior. Consider the example of a person who tries to escape a burning building by jumping from the window. A team of firefighters waits to catch her on the ground; however, she is afraid to make the move. There is something counter-intuitive in saying, "I unintentionally persuaded her to jump" or "I persuaded her to jump but failed." The firefighting team may have tried to persuade her and then failed, and they obviously could not persuade her without having a clear intent. To claim that she was persuaded to jump implies a successful attempt. This intentionality, however, should leave enough room for the woman to choose freely. If she had been knocked down unconscious and then thrown out of the window, this act would not count as an act of persuasion. Moreover, the desired effect in this case was achieved by means of communication; she was talked into jumping. Most likely this communication was a process consisting of an engaging dialogue and a number of arguments designed to help this scared woman feel better about her decision. This communication was designed to change her feelings and, as the result, to change her behavior. The firefighting team may have resorted to

some sort of emotional appeals rather than appeals to her logic in order to offset her fear and make her jump.

### *What Persuasion Is Not*

There are a few notions that are mistakenly used synonymously with persuasion. *Coercion* is one of them. It is often assumed that since both behaviors seek to influence people, the distinction between them is minimal. However, the concept of coercion implicitly involves an assumption of compliance, use of trickery or force, and the intent to harm. Coercion occurs in an atmosphere of constrained choice, where the individual is influenced to act contrary to his preferences.<sup>299</sup> Some authors suggest that the main difference between coercion and persuasion is found in the willingness of the initiator to harm. Unfortunately, they don't further outline the concept of harm. For instance, what if the receiver is only led to believe that the intent to harm exists, while, in fact, there is no such willingness?<sup>300</sup> Related to this, Smith argues that the perception of the receiver makes all the difference. Coercion occurs only in cases when the receiving party believes they have no choice but to comply, while persuasion happens in instances when they feel free to choose. There is an element of intentionality in both coercion and persuasion; nevertheless, persuasion implies no threat, a positive result, no willingness to harm, and no choice constrained.<sup>301</sup>

Persuasion is not manipulation, and manipulation is not coercion. These concepts are often mistaken and used interchangeably. Coercion involves a victim who knowingly acts against her own will. A victim of manipulation may falsely believe that she is acting in accord with her will. Coercion allows for maintaining one's sense of self. Manipulation, on the other hand, takes away one's dignity even though the victim may not recognize this to be the case. Therefore, deception is one of the most important aspects of manipulation. Both coercion and

manipulation imply influence. While coercive influence involves a threat that can't be resisted by the victim, manipulation exerts the type of influence that could be resisted, although it is not.<sup>302</sup> Persuaders are often criticized for being manipulative even though not all persuasion is manipulative. Persuasion necessitates a trusting relationship based on mutual respect and interest. Manipulation objectifies its victim and precludes the possibility of a relationship. Trust and respect are inadvertently undermined by the act of manipulation. Manipulative strategies are designed to create an illusion of free choice in order to lure the victim into a decision that would probably be resisted under normal circumstances. Persuasion is generally viewed as a positive force used to produce positive outcomes by fostering one's free choice. To persuade someone usually means to awaken in this person a desire toward a particular course of action.<sup>303</sup>

*Persuasion is not deception.* Even some great philosophers such as Socrates and Kant have criticized persuasion as being deceitful. This excerpt from Kant's critique can be used as a good example of this suspicion: "Rhetoric, in so far as this means the art of persuasion, i.e., of deceiving by a beautiful show (*ars oratoria*), and not a mere elegance of speech (*eloquence and style*), is a dialectic, which borrows from poetry only so much as is needful to win minds to the side of the orator before they have formed a judgment and to deprive them of their freedom."<sup>304</sup> However, persuasion is not deceptive, but it is the art of making the truth apparent. It is generally assumed that providing a logical argument involves the desire to make clear the true nature of one's circumstances. Rational argument is believed to be the only ethical way of influencing someone, while a persuasive appeal to emotion and reason is believed inappropriate because it may prevent a person from seeing the real facts of the situation (i.e., deceive the person). However, in the example of the burning building used above, this assumption translates to the belief that a logical argument is enough to make the escaping woman jump. Nevertheless, she

might remain clinging to the window after having her circumstances and options explained. Her fear causes her to misjudge the nature of her circumstances. Replacing this emotion with the reminder of her love and responsibility for her kids may prompt a more appropriate judgment of the situation. Firefighters may appeal to her emotions, not to cloud her ability to understand the facts, but to put her in a state of mind in which she will read the facts more reasonably.

### **Critique of Persuasion in Modern Philosophy**

#### *Autonomy and Voluntariness*

The concept of autonomy is theoretically rich and is not easy to define.<sup>305</sup> An attempt to define it would move from an understanding of autonomy being an individual property to determining what conditions must hold for a person to be autonomous with respect to his desires or actions. Since individual actions are motivated by one's desires, in order to consider those actions autonomous, it is necessary to assure that the desires behind the action are autonomous as well.<sup>306</sup> Therefore, most accounts of autonomy would include the right to be free to self-govern and the state of being capable of and actually exercising self-government.<sup>307</sup> Beauchamp and Childress incorporate these notions of right and agency in their influential definition of the concept as "at a minimum, self-rule that is free from both controlling interference by others and from limitations, such as inadequate understanding, that prevent meaningful choice."<sup>308</sup> According to the Kantian account of autonomy, a person is autonomous if it is her, and not some outside force, that directs what desires she has and what actions she performs.<sup>309</sup> This condition is similar to the later distinction made by Frankfurt and Dworkin with respect to "higher order" desires and "lower order" psychological needs. A decision is autonomous if it is consistent with these "higher order" beliefs and not only driven by the "lower order" needs without reflection.<sup>310</sup> Rationality is the second condition for an autonomous decision. This decision should be made in

an impartial manner, based on relevant information, and lead to a choice with the best outcome.<sup>311</sup> The third condition requires lack of undue influence by external factors. While complete independence may not be required, covert influences on decisions would pose a threat to autonomy.<sup>312</sup>

The modern suspicion of persuasion stems from this account of autonomy, understood as inseparable from human rationality. Many philosophers, including Kant, Descartes, and Locke, voiced their concerns with persuasion and its compatibility with autonomous choice. Descartes dismisses rhetoric as useless, since he considers forceful reason and clear orderly thoughts sufficient to convince any audience.<sup>313</sup> Locke argues that the art of rhetoric, “all the artificial and figurative application of Words Eloquence hath invented, are for nothing else but to insinuate wrong ideas, move the passions, and thereby mislead he judgment and so are perfect cheats.”<sup>314</sup> Some modern authors are apprehensive about the possibility of changing another’s desires, assuming this change may not be in the best interests of the one persuaded. While guidance provided in the form of rational arguments is warranted, the appropriateness of influencing one’s desires is questioned. Considering autonomy as a good in itself, the way one makes choices becomes more important than what one chooses. The account of autonomous choice is presented as being completely free from desire and emotion.<sup>315</sup> These philosophers believe that a person can act either from desire or from reason. Actions grounded in desires are similar to those of animals driven by impulses. Furthermore, they claim people should always act reasonably and avoid the influence of desire in order to sustain their autonomy. Desire lacks rationality, and, thus, a desire driven action prevents one from acting from reason and exercising personal autonomy.<sup>316</sup>

Consequently, if autonomy is of reason alone, the only possible forms of influence should be restricted to those that appeal to one's reason. Lockean and Kantian notions of consent presume that reason either rules over desires or serves them. Reason determines what desires should be fulfilled and represses desires that are deemed unreasonable. It is necessary that reason always be used to consider the alternatives of a choice and determine when to serve desires. In this context, persuasion is seen as a force that excites desires and clouds reason.<sup>317</sup> The persuadee is not in the position to consult her reason, and, being swayed by desires, she is not able to make an autonomous choice. Persuasion, therefore, amounts to compliance with another's wishes. On the other hand, the ability to consider the options and come to agree with another constitutes consent. Modern philosophers set up a dichotomy between force and consent in order to discuss influence. A person can never be led to a good she has not made her own, since the act of making this end her own, the act of autonomous choice, is inseparable from the value of that end. Her personal good can never be a reason to take away her choice.<sup>318</sup>

#### *Increased potential of harm*

Taking the force\consent dichotomy one step further, some authors voiced their concerns about the possibility of forceful persuasive messages to result in harm such as anxiety, guilt, blame, and stigma.<sup>319</sup> They describe how campaigns aimed to promote breastfeeding resulted in feelings of guilt and shame among mothers who were not able to breastfeed.<sup>320</sup> Persuasion ascribes an 'ought' component to risk communication in clinical settings and tells patients the desirable way to think and act. The potential for guilt and anxiety increases together with the sense of moral responsibility attached to the health messages, leaving patients feeling guilty every time they are not able to follow the recommendation. Correspondingly, persuasive communication may stigmatize and inadvertently blame those who lack complicity.<sup>321</sup> For

instance, those who choose to carry on with the intensive treatment provided for their 85-year-old family member may feel ostracized in an environment geared to promote age-based rationing of the ICU resources. Furthermore, even if one could demonstrate that emotion is necessary for judgment and that emotional considerations are necessary in the design of effective risk communication, there is still a danger of promoting the mindless acceptance of risks.<sup>322</sup>

The notion of harm calls into consideration the understanding of good. Instead of considering good as something set and established, many philosophers tend to consider good as always developing and progressing. Locke echoes this idea in his famous quote, “men may choose different things, and yet all choose right.”<sup>323</sup> One of the important features of human good is that it must be consciously chosen. It is better to make a bad choice voluntarily than to make a good choice under one’s guidance. Therefore, the notion of human good is found in one’s ability to map one’s own future, rather than in getting to a particular destination on the map. Kant agrees with this paradigm when he writes, “what is essentially good is the mental disposition, let the consequences be what they may.”<sup>324</sup> The human good is found in one’s maxim and not in the realization of that maxim. For instance, Kant would argue that a choice to tell the truth has intrinsic moral worth found “in the maxims of the will which are readily in this way to manifest themselves in action, even if they are not favored with success.”<sup>325</sup> Thus, goodness is found in the choice of telling the truth regardless of the fact of whether the truth has been told.

There are a number of reasons why one could consider the act of choosing as the locus of human good. Personal choice is cherished because it provides one with a chance of obtaining results that are in line with his preferences. Having this ability to choose is a valuable “predictor of what brings us enjoyment or advances our aims.”<sup>326</sup> Choice adds meaning to many things and

circumstances that would lack it otherwise. For instance, a gift chosen by one's lover has more meaning than a gift chosen by his secretary. The more marginalized and ostracized people become, the less choice they have. Choice grants one with a status he might not otherwise possess, as choice is the main determinant of one's capacity and judgment. Furthermore, it is believed that choice is instrumental in the development of qualities such as maturity, independence, and responsibility. It is always linked to one's growth and development. People derive joy from having the ability to exercise choices. Finally, choice is inseparable from self-determination.<sup>327</sup> Considering the connection between choice and human good, it is possible to argue that persuasion can be harmful when it appeals to one's desires and, thus, precludes the real choice from happening.

#### *Legitimacy of influencing one's desires*

By definition, persuasion affects one's desires, and this fact alone renders it morally questionable. When persuasion is perceived as an attempt to convince another by appealing to her logic, it need not be considered unethical. Such a form of influence leaves the person free to consider her alternatives and objectively choose between them. The firefighting team from the example above can explain to the frightened woman why she can't get out from the burning building by any other means but jumping. Then, they would allow her to consider the advantages of the option being offered in order to understand for herself why jumping down is a preferable option. In this way, the team would respect her right to determine her own actions. Appealing to her emotions or shaming her into jumping is inappropriate because it encourages an unthinking response on her part and forces her to feel a certain way. Similarly, when a situation in critical care is presented by a provider in such a way that the family must fear one choice, that family is consequently bound to make the other choice. For instance, when the option of resuscitation is



presented as a very aggressive procedure (patient's ribs are broken and chest is compromised), families are forced to choose the DNR option. However, they were persuaded and swayed by the presentation and language choice rather than determined by consideration of the relevant circumstances. This strong emotional appeal might have clouded their ability to consider the soundness of their reasoning and prevented them from interpreting the real facts of the situation.<sup>328</sup>

This sentiment is reflected in the National Research Council statement: "To say that success requires that the recipients do or believe what a particular message source desires is to assume that that message source is a better judge of the recipients' interests than the recipients themselves."<sup>329</sup> This statement is made in view of the traditional association between persuasion and paternalism in medicine. Such persuasion reflects paternalistic values of dominance and change, functioning from within a "power-over" framework in which the physician, as a persuader, attempts to shape the views and feelings of her listeners. The absence of persuasion in medical communication will reflect the belief that individuals are the experts of their own lives, capable of self-determination. The provider's expectation that families or patients will follow his suggestions rather than their own opinions seems to negate their rights and responsibilities dictated by the ability to choose.<sup>330</sup> Furthermore, persuasion about what is good or bad does not involve the prescription of a right behavior. One can be persuaded to lose weight because obesity increases the likelihood of diseases. However, this persuasion will not entail the exact steps needed to be taken to prevent obesity, it will not outline certain foods and habits that need to be abandoned, and it will not determine the locus of responsibility for the weight loss (e.g., personal, societal, institutional, etc.).

Finally, the possibility of shaping one's desires is questioned by some philosophers. According to Locke, the only possible response to a desire is to temper it. In his discussion of virtue and education, he points out that the virtuous person is one who achieves a "mastery over his inclinations" and the "ability to resist pleasure and pain".<sup>331</sup> If children are to be educated in virtue, they must be taught "the art of stifling their desire."<sup>332</sup> The "right direction of our conduct to happiness" depends on "the moderation and restraint of our passions so that our understanding may be free to examine, and reason unbiased give its judgment."<sup>333</sup> If one has learned to give reason authority over one's actions, a good argument that jumping from a window is best will influence the woman to jump regardless of any fear she feels. The difference between virtue and vice, for Locke, "lies not in the having or not having appetites but in the power to govern and deny ourselves in them."<sup>334</sup> Locke claims that virtue requires reason to oppose desire. He famously wrote: "Reason and desire very seldom if ever coincide."<sup>335</sup> Kant echoes this dualism in his discourse on the conflict between duty and inclination. This conflict is the only way for someone to recognize an act as moral. His emphasis on obligation implies that human beings find themselves knowing they should do something other than what they want to do. Obligation requires that it is possible for an act to proceed from the "absolute spontaneity" of the will, free from any inclinations.<sup>336</sup> Morality, thus, requires no change in our inclinations but, rather, that we act from duty instead of from inclinations. Even in his discussion of virtue, Kant falls into the language of mastering desires rather than shaping them.

### **Aristotle's Defense of Persuasion**

#### *Theoretical versus practical deliberation*

A significant part of Aristotle's writing in *Rhetoric* is concerned with the study of passions and possible ways to evoke them in a public discourse. Considering desire as the

driving force behind our active response to the environment, Aristotle implies that both reason and emotion can prompt desire. Desire and emotion are inseparable and, therefore, the task of a rhetorician is to awaken desire by appealing to corresponding emotions.<sup>337</sup> If desire could be directed by reason, this task should be left to reason alone. However, as in the example with the burning building, the woman's problem is not that she lacks information. Instead, she fears when she should not and calculates her actions poorly. She probably realizes on a cognitive level that jumping down is best and probably the only option. Nevertheless, she will remain clinging to her window until the rescue team attempts to offset her fear of jumping with another emotion like love and affection for her family members, who would want her to jump, else they will lose her. They can also create a sense of urgency or connect her previous experience and emotional states with the present situations, but no rational argument alone will be able to influence her actions. Aristotle agrees with this assumption when he says that only reason for the sake of something can move one to action while reason as such cannot.<sup>338</sup>

Aristotle further claims that emotion is an integral aspect of a practical judgment. He describes emotion as "all those feelings that change people so as to alter their judgments and [that] are accompanied by distress and pleasure—for example anger, pity, fear, and the like, and their opposites."<sup>339</sup> He further notes that when we are pleased and friendly, "our judgments are not the same as when we are pained and hostile,"<sup>340</sup> since our affective orientation to a situation can "make things appear altogether different, or different in a degree."<sup>341</sup> Therefore, emotions are not only integral to a judgment in the sense of influencing specific features of a situation we perceive as morally relevant, but emotions are also capable of influencing judgment by forming attitudes toward those features we perceive as important. The presence of emotion is what distinguishes practical reason from theoretical. Theoretical reason offers a picture of the world

toward which an individual may feel nothing. Practical reason paints the world in a way that gives one clues as to whether the objects in it are to be pursued or avoided. The presence of emotional attitude plays a role in the ability to characterize something as having a moral significance. Removing affective disposition from judgment for the sake of objectivity equals denying the difference between practical and theoretical reason. Aristotle considers practical reason as the one relevant for choice, and this reason ties in emotion and desire together.<sup>342</sup>

One can never embark on a decision-making process without having a pre-existing desire and, consequently, a corresponding emotion. This antecedent emotion influences what one understands along with being part of that understanding. Aristotle agrees that people form their judgments about an activity and the risks involved in it based not only on what they think about it but also on how they feel about it. An angry person will perceive a situation and judge risks in a completely different way from someone who is afraid. They are not merely reacting differently to a situation they both understand similarly; their interpretation of the facts is biased due to their affective states.<sup>343</sup> The woman escaping the burning building may tend to underestimate the risks of clinging to her window and overestimate the risks of jumping down. Replacing fear with another emotion such as urgency or love and commitment to her family may prompt a more appropriate judgment of the situation. It seems obvious that a mistake in judgment not caused by flaws in reason and lack of information cannot be corrected by appeals to reason alone. When this woman has a strong emotional response to the situation preventing her from making a good choice, the needed influence will speak to her emotions. The firefighting team will attempt to put her in a state of mind in which she will judge the facts in one way rather than another, but this will not be an attempt to prevent her from seeing the facts at all.

### *Persuasion and the voluntary action*

In his defense of persuasion, Aristotle closely links this notion with the understanding of voluntary action. He describes a voluntary action as one that is conceived and implemented by the individual, as this is the action in which the “initiative lies within ourselves.”<sup>344</sup> On the other hand, actions can be considered involuntary when “they are done in ignorance; or they are not done in ignorance, but they are not up to the agent; or they are done by force. For we also do or undergo many of our natural actions and processes, such as growing old and dying, in knowledge, but none of them is either voluntary or involuntary.”<sup>345</sup> Therefore, if an action is to be voluntary, it should have its origin in the agent, and it must be in the agent’s power to knowingly perform it. Aristotle later makes a distinction between externally imposed actions and internally forced actions. The difference between these two notions is important for understanding the link between voluntary and persuasion. Persuasion reshapes desire rather than creates it, and, thus, it limits the scope of influence to only those things that are in line with the desires and character of the audience. The persuader always finds his audience already, to some extent, disposed to respond to his appeals.<sup>346</sup> Aristotle explains: “Nobody encourages us to perform what is not within our power and what is not voluntary; there would be no point in trying to persuade man not to feel hot, in pain, or hungry and so forth, because he will go on feeling these conditions no less for that.”<sup>347</sup>

In this passage, Aristotle presumably ascribes a participatory feature to persuasion. In order for the influence to take place, there should be some reciprocity, as the persuader intends to co-opt rather than coerce others into believing and acting. This participation is undermined by the modern understanding of emotion being passive in its core. Anyone able to evoke an emotion automatically determines one’s actions. The persuadee is thought to act mindlessly on the basis

of what the persuader can make him feel. He is driven into action by his feelings being subtly manipulated by the persuader. Such understanding is built on the presumption that emotions are not fully under one's control. However, in his discussion of involuntary action, Aristotle goes to great lengths to show that acting from emotions does not equate to acting under duress.<sup>348</sup> If reason is the precondition of voluntariness, an individual is then responsible for the emotions he is prone to experience as well as for the desires he tends to act upon.<sup>349</sup> Aristotle points out that while a person may not be responsible for a momentary emotion, his choices will influence recurrence of this emotion. Therefore, the ability to persuade someone is constrained by the affective states of the given audience.

It has been shown that persuasion satisfies two out of three criteria for voluntariness proposed by Aristotle: namely it is up to the agent and is not done by force. The one who is persuaded is responsible for his emotion and consequently his acts will be internally forced rather than externally imposed. The third criterion requires absence of ignorance from the one who is persuaded in order to render his actions voluntary. There is no doubt that the one persuaded acts on the basis of what the persuader makes him feel. However, according to Aristotelian reasoning, the important information about a particular situation always includes the significance of the circumstances. Influencing those who are persuaded to reach a particular affective state can make the relevant information clearer rather than obscuring it. This can be demonstrated in the previously used example of the fearful woman and Aristotle's discussion of fear. Aristotle claims that what makes a person fearful is a number of reflections and beliefs "since fear is with the expectation that one will suffer some destructive affect, it is evident that nobody is afraid who thinks that he can suffer nothing"<sup>350</sup> These beliefs are necessary conditions for this emotion. Fear can be increased by the belief that the future damage will be irreparable,<sup>351</sup>

and no assistance will be offered. Given the connection between emotions and beliefs, one can argue that modification of emotion may lead to the modification of belief, while the absence of an appropriate emotion may signify bad judgment of the situation. When the escaping woman has no fear of immediately jumping out of her window, without even looking down to make sure the safety net is there, it is possible to assume that she misunderstands the situation.

### *Emotions and judgments of value*

In his discourse on the role of emotions in normative judgments, Aristotle famously links emotion with virtue. He claims that “It is moral virtue that is concerned with emotions and actions, and it is in emotions and actions that excess, deficiency and the median are found. Thus, we can experience fear, confidence, desire, anger, pity, and generally any kind of pleasure and pain either too much or too little, and in either case not properly. But to experience this at the right time, toward the right object, toward the right people, for the right reason, and in the right manner –that is the median and the best course, the course that is the mark of virtue.”<sup>352</sup> Aristotle further explains his point using the example of anger. It is not appropriate to observe an act of moral injustice without experiencing anger. He writes, “those who do not show anger at things that ought to arouse anger are regarded as fools; so, too, if they do not show anger in the right way, at the right time, or at the right person.”<sup>353</sup> Therefore, anger is not just a mindless bodily reaction, and its absence in the situation of injustice seems problematic because it involves misevaluation of the object of anger. As Aristotle points out, in order to describe anger, one should mention the object it is directed at and the reasons for anger. In order to do so, one must evaluate the object as it is perceived by the one who is experiencing anger. This anger will represent some sort of discernment about the objects and will be based on a number of beliefs and judgments.<sup>354</sup>

The connection between belief and emotion can be found in this example of anger. The person experiencing anger against injustice may change her beliefs about what constitutes injustice in the given situation. This change of beliefs will likely cause the anger to disappear. As has been shown earlier, this connection can also be traced in the example of fear. What makes the escaping woman fearful is a number of beliefs and judgments about the situation. While designing a persuasive strategy, the firefighting team may think something along the lines of “She will not fear if...” or “She fears because...” These statements demonstrate that preexisting beliefs are the necessary conditions of the fear. On the other hand, presence of emotion is a necessary condition for a correct understanding of the circumstances. Taking the analogy with the burning building one step further, let us imagine that the woman escaped only to find out that some of her relatives perished, trapped in that building. If she would have no emotional response to such news, one could doubt her understanding of the tragedy. Furthermore, in complex situations, emotions help one to frame the problem by directing attention to certain features of the environment that are most relevant. The escaping woman may not be concerned with the direction of the wind or the outside temperature when considering jumping down. Her fear has narrowed the scope of information, muting the unimportant and emphasizing the important.

Given the strong connection between emotions and understanding on one hand, and emotions and beliefs on the other, it is possible to conclude that emotions are relative to virtue and virtuous living. Virtue by definition cannot be unintelligent, and it has been shown that emotions are necessary for the possession of appropriate knowledge. While not all situations and knowledge should be emotionally framed, in many cases the absence of a corresponding emotion will hinder understanding and resulting action. Discussion of virtue in Aristotelian ethics is always connected to the parallel discussion of *eudaimonia* – wellbeing, good life or human



flourishing. For Aristotle, *eudaimonia* is activity in agreement with virtue in a full life,<sup>355</sup> or, in other words, it is the life of a virtuous person. A few passages further, Aristotle explains that virtues are established tendencies to feel and act rightly.<sup>356</sup> *Eudaimonia* precludes not only achieving certain ends but also having the right ends. Having the right ends is linked to one's emotional life, since the virtuous person cares for the right things in the right way. This claim can be supported by the story of Phineas Gage, the most famous neuroscience patient of the 19<sup>th</sup> century, whose frontal lobe was destroyed because of an accident, making him unable to experience emotions while not affecting his intelligence. This lack of emotions significantly affected his life, rendering him unable to learn, follow schedules, make simple decisions, and understand the significance of things. Later, a similar patient was followed and described by Dr. Damasio. In both cases, patients were perfectly normal in terms of their personality and cognitive ability. Lack of emotions precluded them from having a good life.<sup>357</sup>

### **Ethics of Care and Persuasion Within a Relationship**

#### *Relational autonomy*

The concept of care was first introduced to the field of moral philosophy in 1982 through the work of moral psychologist Carol Gilligan. According to her investigation, the “justice view” of morality fails to capture the distinctive feminine way of moral reasoning, grounded in care. She argues that the psychological reality of care in feminine ethical thought has been ignored and that the normative importance of care has also been overlooked.<sup>358</sup> The ethics of care starts not with impartiality but with the recognition of interconnectedness through ongoing relationships. This view seeks to maintain such connections and bonds rather than equality and independence. While justice ethics tend to be neutral with respect to context, ethics of care remains contextual, refusing to generalize. The traditional medical ethics regards a patient as an independent,

autonomous, rational individual. Non-interference and self-determination are given priority. The care ethics recognizes the reality of human dependence, portraying individuals as shaped by their connections to others. The idea of an isolated, independent individual is rejected since, by definition, we are social beings not designed to live in a relational vacuum.<sup>359</sup>

Relational autonomy is the foundational concept of care ethics built on the premise “that persons are socially embedded and that agents’ identities are formed within the context of social relationships and shaped by a complex of intersecting social determinants, such as race, class, gender and ethnicity.”<sup>360</sup> Care ethicists distinguish between autonomy and independence and criticize the idea of self-sufficiency as a helpful construct in describing autonomy. The ideas of independence and self-sufficiency grounded in the assumption that a person needs no outside help in making and carrying out life goals are replaced with the idea of interdependence. Interestingly, this idea of interdependence is also present in the earlier discussed concept of *eudaimonia*. In his writings, Aristotle argues not for independence but for *eudaimonia* as a certain quality of life for the whole community rather than for a separate individual. The nature of *eudaimonia* is common rather than private, and the pursuit of this excellence requires communities and friendships that define this good life. When an individual makes mistakes in attaining his own good, someone else can help him correct those errors because the human good is an object of deliberation.<sup>361</sup> An individual pursuit of *eudaimonia* affects others not only when different efforts to attain personal goods overlap. Personal good is integral to that of others, because those who care take pleasure in another’s flourishing as much as they do in their own. According to Aristotle, personal autonomy frees one from natural necessity but not from human community.<sup>362</sup>

Therefore, this relational understanding of autonomy leaves enough space for an active intervention from outside the agent to support his autonomy. Relational autonomy is more than simply non-interfering. It is not merely offering information and waiting for consent. Those acting under this relational paradigm will be more concerned with dangers of abandonment rather than with dangers of interfering. According to Moody, care is a process of negotiation and finding a common ground. He proposes the term “negotiated consent,” where instead of presenting the risks and waiting for a decision, a provider will attempt to encourage the patient to handle risks in a responsible way.<sup>363</sup> Verkerk calls this “compassionate interference,” pointing out that the care perspective is informed by the understanding of responsibilities rather than of rights. Instead of being concerned with the right for non-interference, a provider frames his relationship with the patient as a caring relationship in which he is responsible for the needs of the patient, and the patient is responsible for being responsive to the provided care. In such a relationship, any intervention proven to be in the interest of the other party can be seen as an intervention to support rather than to threaten her autonomy.<sup>364</sup>

*Is there a duty to persuade?*

Patients often make irrational decisions, giving preference to a choice involving inaction even though this choice may cause greater harm than adopting a particular course of action. At times, patients prioritize short-term benefits over long-term consequences, refusing care out of fear even when the consequences can be serious. A good decision, especially in the context of critical care, assumes provision and understanding of relevant information. The type of information most often communicated in the ICU setting is risk information. Comprehension of this information is a precondition of a rational and informed decision. Because of the inherent uncertainty of the medical practice, this risk information is often needed to be expressed in

numbers and percentages. However, most of the patients and families exposed to this kind of information will not have the necessary skills to understand risk-benefit ratios.<sup>365</sup> For instance, dealing with percentages, they may perceive a 50% chance as simply lack of certainty (“might happen, might not happen”). They would disregard small percentages (up to 10%) which characterize many risks of serious complications or death. This is the cause of overestimation of small risks.<sup>366</sup> On the other hand, when risk is presented in fraction form (i.e., 9 of 100 patients die from this procedure), families would tend to focus on the 9 people who die rather than on the 91 who do not, thus making the risks something larger than the reality is.<sup>367</sup> Therefore, most of the important risk information is misunderstood.

Is there a duty to persuade patients in cases when they clearly misunderstand risks or make decisions that contradict their long-term goals? When patients make irrational choices about a course of treatment that will not maximize their well-being, the values or respect for their self-determination and the duty to protect their well-being are in conflict. Furthermore, it is difficult to distinguish between truly irrational and unconventional choices. However, based on the previous considerations of relational autonomy, one can claim that the duty to persuade exists in situations where there is clearly only one medically beneficial choice. After all, a physician is in a much better position than a patient to evaluate different care choices. Therefore, to withhold this special knowledge and skills from a patient by merely presenting options without an attempt to persuade, would be unfair and would deprive patients from relevant knowledge, making them unable to consent.<sup>368</sup>

Some scholars recognize this duty. For instance, Faden and Beauchamp write: “Frequently in clinical situations, professionals would be morally blameworthy if they did not attempt to persuade their patients to consent to interventions that are medically necessitated.

Reasoned argument in defense of an option is itself information and as such is no less important in ensuring understanding than provision of acts.”<sup>369</sup> Culver and Gert agree with the necessity of persuasion: “We think that sometimes it is morally praiseworthy for a physician to put pressure on a patient during the consent process.”<sup>370</sup> This influence will be less ethically justifiable in cases where there is no certainty about the best course of action. Under clinical equipoise, a physician might be advised to make patients aware of various ways in which their judgments can be clouded by biases and heuristics and negotiate available options. In their recent JAMA article, Shaw and Elger consider removal of biases the most important form of persuasion. They provide a number of characteristics for ethical persuasion in a medical context such as: provision of relevant information mixed with the physicians’ beliefs and views regarding the best choice; use of reason but appealing to patients’ emotions to counterbalance their existing emotional responses; avoidance of creating new biases, removal of existing ones, and sensitivity to the patient’s changing preferences.<sup>371</sup>

*Would the instance of influence damage the relationship?*

In their recent study of persuasive communication within the context of shared decision-making in pediatric critical care, Karnielli-Miller and Eisikovits describe persuasion as something that precludes partnership between a patient and physician. They describe “these (treatment) decisions” as “the result of partnership or of persuasive tactics based on power and hierarchical relationships.”<sup>372</sup> This binary understanding of persuasion is prevalent within biomedical literature. As has been mentioned earlier, the nature of context, and consequently the nature of the relationship, determines the moral appropriateness of persuasive communication. Specifically, in the context of a patient-provider relationship built on trust, transparency, and beneficent concern for the other party, instances of persuasion may violate trust and lead to some

changes that are not sustainable. Patients may feel that persuasion or affective communication is nothing but a play on their weaknesses, an attempt to circumvent their reasoning, and a lack of respect.

Here it is appropriate to mention the framing effect that is often present in physician communication. One recent study empirically documented this by demonstrating that decisions to withdraw life-sustaining treatments are strongly related to the characteristics of the physician rather than the medical conditions of the patient. The statistical association between individual physicians and the decisions made by surrogates to limit the use of life support measures was demonstrated by the 15 fold range increase in hazard ratios associated with individual intensivists.<sup>373</sup> This framing effect occurs when decision-makers respond differently to different but objectively equivalent descriptions of the same problem.<sup>374</sup> Levin et al. identified three possible types of framing in various domains. One is risk choice framing, where the difference between options is made based on whether the option was described in positive terms (i.e., lives saved) or in negative terms (i.e., lives lost). Another is attribute framing, when some characteristics of an object or event are used as the focus of framing. Finally, there is goal framing, in which the goal of an action is framed.<sup>375</sup> Given the prevalence of framing in clinical decision-making when physicians' preferences are conveyed subtly, this type of influence can be even more detrimental for trust between patient and provider than open persuasion.

Keeping in mind that physicians persuade patients even unconsciously, what kind of obligations may they have toward their patients in an attempt to promote the best choice of actions? Blumenthal-Barby describes three instances when persuasion can be detrimental to the patient-provider relationship. First, when the patient feels that the instance of persuasion amounts to a failure on the part of the physician to treat him or her in a respectful manner - not as lesser,

not capable, and not equal. Second, when persuasion is dismissive of the patient's views and judgments. Third, when the patient feels that the physician is exploiting her weakness.<sup>376</sup> Going back to the analogy with the escaping woman, it would be wrong for a firefighter to start persuading her without acknowledging her fears, or treating her like a mentally-challenged person who would not understand or appreciate the reasons to jump. The same persuasive tactic used in this context can be interpreted as being supportive or damaging to the relationship and trust between the firefighter and the woman.

### **Examples of Persuasion in Critical Care**

#### *Use of analogies*

Physicians often use analogical reasoning in order to help patients and their families navigate the complexity of decisions in critical care. Analogies are conducive for bringing order into a disordered situation by augmenting one's understanding, improving communication, and helping to bridge what is known with what is unknown. In their groundbreaking work on metaphorical and analogous reasoning, Lakoff and Johnson showed that the human conceptual system is designed to operate analogously. In other words, many abstract and complex ideas are often understood in terms of other, more familiar concepts.<sup>377</sup> Furthermore, as one oncology study points out, analogous language in medicine is not only used to describe similarities but also to create them.<sup>378</sup> Intensivists often use analogies to describe the proposed course of treatment and its possible effects. They may describe treatment in martial terms ("The treatment is like a bullet that we'll aim at that target.") or they may use a language of travelling ("We have a bumpy road ahead," or "This treatment is not a sprint, but rather a marathon, so brace yourself."), or they may use analogies of dance, drama, a chess match, etc.<sup>379</sup>

Analogies can be used as an effective persuasive device. Thus, Aristotle writes that when analogies are used with enthymemes, or syllogisms with an implied premise, analogies can complement and confirm the argument. They function as witnesses, and there is always a tendency to believe witnesses.<sup>380</sup> In his other work *Poetics*, Aristotle claims that to use analogies correctly is a skill and, “in itself, a sign of genius.”<sup>381</sup> Therefore, the use of analogies often adds credibility for the physician who uses them. Analogies also function as a tool to stimulate thoughts and feelings in the recipient. Aristotle states that analogies give vivid expression to one’s thoughts.<sup>382</sup> This vividness is possible through explaining things in a “state or sense of activity.”<sup>383</sup> Consequently, analogies have the ability to evoke emotions and stimulate thoughts. Some scholars have mentioned the potential of analogies to stimulate not only thoughts about the subject but also a particular response to the party making the analogy. Analogies can be a motivational device used to increase audience responsiveness.<sup>384</sup>

#### *Use of empathy induced messages*

As has been mentioned earlier, in the *Rhetoric*, Aristotle distinguished three kinds of arguments: those from logic, those from authority, and those from pathos. The argument from pathos is used to induce empathy in the audience. The persuader may seek to affect sympathy in order to influence his audience to accept the argument. Burke, in his influential work on persuasion, writes that “You persuade a man only insofar as you can talk his language by speech, gesture, tonality, order, image, idea, identifying your ways with his.”<sup>385</sup> He also quotes St. Augustine who said that “a man is persuaded if he likes what you promise, fears what you say is imminent, hates what you censure, embraces what you commend.”<sup>386</sup> This idea of identification with the recipient and empathic persuasion is reflected in Aristotle’s writings about mimesis, or acts of imitation and resembling in persuasion. He points out that it is only through simulated



representation, or mimesis, that the audience responds to a message. It is the task of the persuader to design his message in such a way that his audience will empathize with him and the content.

Empathy induced messages are often used in critical care to persuade families. One may consider the difference in framing end-of-life options. For instance, when a provider strongly feels that DNR is a preferable option, he may attempt to frame the process of resuscitation as a very invasive procedure involving chest compression and broken ribs, electrical shocks, and painful intubation. He may remind the family about how weak the patient is and that, at her advanced age, they may reconsider the use of “heroic measures” that will result in “unnecessary suffering.” He may attempt to discuss the concept of “the good death and nature taking its course.” This language is loaded with emotional appeals intended to evoke empathy in family members in order to forego the invasive treatment. The design of such empathic messages intended to persuade decision-makers usually includes identification with another person or the ability to take another’s perspective, empathic understanding of the context, and appeals to concern for the other.<sup>387</sup>

### *Use of visuals*

The power of vivid messages in persuasive communication is well known and researched. Vividness strategies are commonly used in all kinds of marketing communication and promotion due to their ability to arouse emotion. The emotive impact of visual material has been demonstrated in a number of studies. For example, Iyer and Oldmeadow discovered that people felt more fear when shown video materials about kidnapping than when reading about it from a newspaper.<sup>388</sup> Vivid material is also processed differently than verbal, being more easily absorbed because the viewer is not provoked to reflect or deconstruct the content. Furthermore,

vivid information is more likely to be stored and remembered than other kinds of information. Information that is easily remembered is more likely to be retrieved at the time of decision-making. According to dual-coding theory, information encoded in both verbal and imagery codes is more likely to be retrieved. Visual information has the power to attract and hold a viewer's attention and to excite the imagination. This increases the valence of information affecting the extent to which people will engage in favorable cognitive elaboration.<sup>389</sup>

A novel approach to communicating end-of-life information suggests the use of video materials rather than verbal communication to facilitate end-of-life decisions. Dr. Volandes pioneered this approach at Massachusetts General Hospital. He claims that the use of visual materials in addition to verbal communication will lead to more informed advance care planning by helping patients and their families imagine a hypothetical health state. According to his multiple published studies on this subject, video materials are associated with a significant and dramatic change in subjects' preferences for medical care and improved understanding of disease.<sup>390</sup> When used in surrogate decision-making, video consent leads to more accurate surrogate predictions that are more congruent with patient preferences. However, as one of the studies mentions, "criteria regarding the necessary content and editing of each video portrayal must be carefully considered before clinical application of these videos."<sup>391</sup> These criteria are needed because, by its nature, visual consent is highly persuasive.

### **Conclusion**

Persuasion is a key component of medical communication. Patients may have to persuade a provider that they are in need of care; physicians may have to persuade patients to adhere to a specific treatment; public officials may try to persuade us to live healthier; and pharmaceutical companies constantly persuade both providers and the public to use their products. Moreover, the

language used in medical communication can be inherently persuasive. The term ADHD persuades parents of a hyperactive child to seek treatment and the phrase “fighting illness” induces guilt in those who fail to do so. The symptoms and solutions are framed in a certain way, and it often seems that the persuasive element is an inseparable part of the discourse of health and medicine. This chapter intends to identify some of the strategies of influence in medical communication and to discuss their moral appropriateness. In order to do so, it is important to outline first what instances of communication can be considered as persuasion. The opening sections of this chapter surveyed a number of definitions found in relevant literature and outlined some of the concepts that a working definition of the notion should include. This definition helps to distinguish instances of persuasion from cases of manipulation, coercion, and deception.

After the concept is clarified, the essay proceeds to discuss some of the reasons for the modern suspicion of persuasive communication. Modern philosophers consider persuasion incompatible with autonomous choice. They foresee a potential for harm resulting from attempts to influence one’s choice, since the act of choosing is, in itself, the locus of human good. Furthermore, they point out that persuasion affects one’s desire and this fact alone renders it morally questionable. Emotional appeals may cloud one’s reasoning, preventing the person being influenced from interpreting the real facts of the situation and having a sound reasoning. This understanding is further contrasted with the famous defense of persuasion in Aristotle’s *Rhetoric*. There, Aristotle contrasts theoretical and practical deliberation, claiming that emotion is an integral aspect of a practical judgment. He points out that only reason for the sake of something can move one to action, while reason as such cannot. Aristotle links persuasion with the notion of voluntary action and also with the notion of virtue. He uses examples of fear and anger to demonstrate that emotions are not merely bodily reactions but that they involve some judgment

and evaluation. The presence of emotion is often a condition of understanding, and part of the understanding. Therefore, appealing only to reason precludes complete judgment and understanding of a situation.

In order to consider the ethical permissibility of persuasion in a medical context, one should describe the nature of the patient-provider relationship and outline duties this relationship may imply. In the last sections of this essay, the moral aspects of this relationship are described through the prism of care ethics. Ethics of care provide a framework that can evaluate and accommodate some of the instances of persuasion. Within this framework, the ideas of independence and self-sufficiency, grounded in the assumption that a person needs no outside help in making and carrying out life goals, are replaced with the idea of interdependence. Consequently, in some instances where there is only one medically beneficial choice, a provider may have a duty to persuade, and this persuasion will not be damaging to the ongoing relationship with the patient. The final part of the essay provides some examples of persuasion in critical care such as the use of analogies, empathy induced messages, and video consent forms.

## CHAPTER SIX

### AUTONOMY

#### **Introduction**

Advances in medical science and the increasing number of healthcare choices related to emerging medical technologies make the preservation of end-of-life autonomy a growing concern for both patients and clinicians. These concerns have resulted in a number of measures aimed at securing the individual autonomy of patients in order to ensure that they receive care consistent with their preferences. The goal of this chapter is to analyze the concept of autonomy as it pertains to end-of-life decision-making in the ICU context.

Since its early beginnings, one of the concerns of medical ethics was to define the balance between several important concepts – the patient’s best interest, both medical and psychosocial; the legal rights of the patient; the authenticity of the patient’s decisions or the concern that the patient’s choice reflects his values; and the obligations of a physician. Some of these concepts may come in conflict with each other. For instance, the physician may want to do what she believes is best for the patient while, at the same time, acknowledging the patient’s own preferences about treatment. Similar conflicts have received substantial attention in bioethics literature, but it is generally accepted that respect for patient autonomy takes precedence in such cases. Many regard autonomy as a deontological norm or an absolute right and duty. Some would consider autonomy as a prima facie duty. Prima facie (from Latin “*apparently correct*”) is a duty that is binding (obligatory), other things equal, unless it is overridden or trumped by another duty or duties.<sup>392</sup> The value and moral weight of autonomy is generally understood as being a priori – it is not contingently valuable or worthy simply as a means to some other end.

It is difficult to determine what is an autonomous choice in the context of end-of-life decision-making and which autonomous choices should be respected. Mark Siegler illustrates this difficulty in his narrative about Mr. D,<sup>393</sup> a previously healthy sixty-six-year-old black man, who came to a university hospital emergency room and described a three-day history of sore throat, muscle aches, fevers, chills, and cough. The patient was acutely ill with a high fever, shortness of breath, and a limited attention span. A chest X ray demonstrated a generalized pneumonia in both lungs. The clinical impression was that Mr. D was critically ill, that the cause of his lung disease was obscure, and that a low platelet count and blood in the urine were ominous signs. He was treated aggressively with three antibiotics in an effort to cure his pneumonia.

The next day, Mr. D's condition worsened. After reviewing the available clinical and laboratory data, the physicians caring for this man recommended that two uncomfortable but relatively routine diagnostic procedures be performed: a bronchial brushing to obtain a small sample of lung tissue to determine the cause of the pneumonia and a bone marrow examination to determine whether an infection or cancer was invading the bone marrow. The patient refused these diagnostic procedures. Separately, and together, the intern, resident, attending physician, and chaplain explained that these diagnostic tests were necessary to help the physicians formulate rational treatment plans. Mr. D became angry and agitated by this prolonged pressure and subsequently began refusing even routine blood tests and X-rays. A psychiatric consult was called, and the conclusion was that while obviously ill and having impaired memory, Mr. D was not mentally incompetent. According to the psychiatrist's note, Mr. D was able to understand the severity of his illness and the reasons the physicians were recommending certain tests. He was still making a rational choice in refusing the tests.

Twenty-four hours later, Mr. D was approaching demise. Dr. Siegler was the attending physician, and he attempted to place Mr. D on a respirator with hopes to win some time for the treatment to become effective. Mr. D refused. The ICU team was divided on whether Mr. D was sufficiently rational to refuse a potentially life-saving treatment. In an effort to resolve this controversy, Dr. Siegler spent two 45-minute periods talking to Mr. D and explaining the reasons for these recommendations. He explained that if Mr. D survived the crisis, he would be able to return to a normal life with no disability. However, every reply from Mr. D was convincing Dr. Siegler that the patient understood the gravity of his situation. When Dr. Siegler told Mr. D that he was dying, Mr. D replied: "Everyone has to die. If I die now, I am ready." When Dr. Siegler asked Mr. D if he came to the hospital to be helped, he stated, "I want to be helped. I want you to treat me with whatever medicine you think I need. I don't want any more tests, and I don't want the breathing machine."

Dr. Siegler became convinced that despite the severity of his illness and his high fever, Mr. D was making a conscious, rational decision to selectively refuse a particular kind of treatment. Despite vigorous attempts by social workers, neither Mr. D's wife nor children could be located. Mr. D soon became semi-conscious and had a cardio-respiratory arrest. Dr. Siegler did not attempt to resuscitate him, and Mr. D died. In his narrative, Dr. Siegler asks whether it was appropriate for this critically ill patient to establish diagnostic or therapeutic limits on the care he wished to receive. What were some morally relevant factors that would encourage physicians to either support or deny the wishes of Mr. D? Are there limits to autonomy and autonomous choices in the context of critical care, especially in light of many recent developments in the science of human cognition and decision-making? This chapter will attempt

to answer these questions and will focus on understanding what autonomy means (and what it does not mean) and how it functions in the clinical setting.

### **Importance of Autonomy**

Mr. D's case is an example of a classical issues in bioethics – the ability to forgo medical treatment is the most common and accessible example of medical ethics to the general public. A patient's ability to act autonomously is rightly praised. Individual liberty is highly valued in Western society, and if one's ability to act autonomously is going to be limited, there is a need for a significant level of justification. This relatively recent transition of control in medical decision-making from paternalism, in which the physician had more ability to direct the decision-making process, to the current triumph of patient self-determination has caused many bioethicists to step back and reexamine the concept of autonomy and the role it plays in medical decision-making. Nowadays, patients are presented with a vast variety of options regarding various types of treatment, making for more complicated decisions that need to be made at the end of life. Providers recognize patients' values as an essential element in decisions about how long and under what conditions life should be and expect active participation from their patients in all aspects of decision-making. This has not been the case in the not so distant past when paternalism, or "the overriding or restricting of rights or freedoms of the individual for their own good,"<sup>394</sup> was the dominant model of decision-making. The physician was the one who had medical knowledge and experience and was, therefore, perceived to be better suited to make the medical decisions. The patient had little voice in the medical context and simply hoped that the physician's knowledge would be the best guide in navigating the foreign land of medical information.



The recent shift from paternalism to patient autonomy did not happen by chance. It has begun with a growing public awareness of the inappropriate and unethical incidents within medicine, especially within clinical research. A growing distrust of medical research then began to spill over into the clinical setting. This distrust served to exacerbate the increasing distance within the physician-patient relationship. As the number of specialists increased and the amount of primary care providers decreased, patients were likely to encounter a greater number of doctors, many of whom they had never met. Given these transitions in care, physicians rarely feel that they have ownership of care over their patients. When health maintenance organizations (HMOs) appeared in the mid-seventies, the ever-increasing number of physicians and healthcare providers made the traditional intimate and long-term physician-patient relationship almost obsolete. Additionally, the tying of health insurance to employment meant that a person's physician was likely to change with his job.

Alongside changes in medical context, there were changes occurring in the social realm. Siegler describes them as follows: "The modern medical era, which began triumphantly after WWII... might be called the Age of Autonomy. This emphasis on autonomy was sparked by widespread political and social movements to gain entitlements and rights, and to achieve equity and equality in the distribution of services."<sup>395</sup> Some of these movements were the women's liberation and civil rights movements in the 1960s and 1970s. People wanted to have their autonomy respected in every area of their lives, including healthcare. They wanted to be informed of pertinent details which could influence their decisions so as to be able to play an active, informed role and have their values respected. Such a role had been withheld from people for too long, especially within healthcare. Empowering patients and giving more weight to

patient autonomy was heralded as the means by which patients would be guaranteed a role in the decision-making process.<sup>396</sup>

In 1979, Beauchamp and Childress published the first edition of *Principles of Biomedical Ethics*, in which they codified the phrase “patient autonomy” as one of the four principles of biomedical ethics. They define autonomy as “a form of personal liberty of action where the individual determines her own course of action in accordance with a plan chosen by himself or herself... A person’s autonomy is her independence, self-reliance, and self-contained ability to decide.”<sup>397</sup> They then explain that the understanding of autonomy is based on the work of philosophers Immanuel Kant and John Stuart Mill. Later in the book, they comment on cases similar to the case of Mr. D and conclude that “if a suicide were genuinely autonomous and there were no powerful utilitarian reasons or reasons of human worth and dignity standing in the way, then we ought to allow the person to commit suicide, because we would otherwise be violating the person’s autonomy.”<sup>398</sup> This shows the importance they assign to the principle of autonomy.

### **The Concept of Autonomy**

In order to align the science of decision-making with the concept of autonomy, it is important to outline a conceptual framework for thinking about autonomous decision-making. The term “autonomy” has been used in a variety of ways and in many different contexts. The variety of contexts in which the concept of autonomy is used suggests that there are a number of different conceptual accounts of autonomy. For instance, Joel Feinberg identifies four meanings of the term: the capacity to govern oneself and make one’s own decisions, the actual condition of self-government, a personal ideal, and the right to govern one’s self.<sup>399</sup> Nomy Arpaly discusses eight senses in which the term is used: agent autonomy concerns the relationship that an agent has to his motivational states; autonomy as personal efficacy concerns physical independence

and not relying on others; autonomy as independence of mind concerns not blindly accepting the views of others; normative autonomy concerns one's moral right to have his decisions respected; autonomy as authenticity concerns the absence of external desires and values; heroic autonomy concerns an ideal condition that a great majority of persons do not have; and autonomy as acting rationally concerns the ability to respond to reasons.<sup>400</sup>

In the context of clinical decision-making, most bioethicists would agree that an autonomous medical decision can only be made by a competent patient. We usually consider a patient competent to make a medical decision when she has the basic abilities to understand and to communicate, and does not make gross logical mistakes. However, a competent person in this strictly medical sense may still lack autonomy. First, the patient may lack information about her disease or treatments (including the nature, outcomes, or side-effects). A decision that is based on insufficient information is irrational and, therefore, non-autonomous. In her decision-making, a competent patient may be influenced by her provider or her relatives. The presence of influence would render her decision as non-autonomous. Finally, a decision can be made on the spur of the moment without sufficient planning or deliberation. Such unintentional decision can be considered non-autonomous.

One might argue that the main thread going through these discussions of autonomy is a conception of the person able to act, reflect, and choose on the basis of factors that are somehow her own (authentic in some sense). In other words, to be autonomous is to be true to self, to be directed by desires and considerations that are not imposed externally but are part of what can be considered one's true self. In their influential definition, Faden and Beauchamp consider an action autonomous if it is performed intentionally with understanding and without controlling influences.<sup>401</sup> Similarly, Beauchamp and Childress define this concept as "at a minimum, self-

rule that is free from both controlling interference by others and from limitations, such as inadequate understanding, that prevent meaningful choice.”<sup>402</sup> Therefore, an action can be considered autonomous when it is intentional or planned and not done by habit or accident. The decision-maker should possess full understanding of an action, the nature of the action, and the possible consequences of this action. The third condition of autonomous decision or action is that actions are free of external control, especially the kind of control or influence that may “rob the person of self-directedness.” In what will follow, I will take a closer look at these conditions, ways in which they are preserved in decision-making about end-of-life care, and the potential influence of heuristics or biases on each of these components.

It is important to mention that autonomous decisions presuppose rationality. Irrational choices may not be fully autonomous because they imply errors in the understanding of relevant information or errors in self-determination. Choosing irrationally is choosing on the basis of an error - either of belief grounding the choice or in the intended end of action or in the selection of the means to that end – and, thus, is inappropriate grounds for self-determination.<sup>403</sup> As has been mentioned earlier, relevant information about a particular treatment, its nature, and possible outcomes is crucial for an autonomous decision. However, the information itself does not make a decision autonomous but, rather, it is how that information is processed and applied as relevant to a patient’s goals in seeking treatment. That is important in supporting autonomous decision-making. Therefore, the importance of information for autonomous decision-making-consists in its ability to enhance the process of decision-making. Furthermore, people should make decisions that will benefit them. Their decisions and actions should be directed toward their best self-interest. Over the past several decades, however, research in fields like cognitive psychology, behavioral economics, and neuroscience has revealed flaws in this cognitivist picture of

autonomy by pointing out critical roles for affect and emotion in decision-making. This research shows that people often make predictably irrational decisions and act not in their best self-interest.

According to decision-making science, people do not consistently or even regularly make rational decisions due to ‘bounded rationality.’ Suggested first by Simon, the bounded rationality framework assumes that people attempt to make optimal decisions, but their decisions are affected by the conditions under which the decisions are made. These include but are not limited to limits on available information, awareness of relevant criteria, time constraints, and limited memory.<sup>404</sup> Furthermore, because of the robust conclusions demonstrated by decision-making science, it is possible to conclude that human decisions are biased - they are biased in predictable ways. One of the key concepts for this theory of human decision-making is the idea of a heuristic. A heuristic, more fully described in chapters two and three, is a shortcut or rule of thumb in a decision-making process. For example, patients may need to make a decision under time constraints. They may not have the opportunity to gather all the information that could be relevant to a decision they need to make. Instead of randomly choosing between options, they use a heuristic. Heuristics facilitate decisions made at a relatively rapid pace, but they also increase the likelihood of mistakes. Heuristics are not bad or inefficient—in many cases, they are much more efficient than laboriously researching every decision.<sup>405</sup> Nonetheless, heuristics open up the decision-making process to certain predictable mistakes or biases.

### **Bounded Rationality and Autonomy**

Bounded rationality and the presence of heuristics and biases in a decision-making process complicates our understanding of autonomy. Ideally, an autonomous decision is that made by a mentally competent, fully informed patient, arrived at through a process of rational

self-deliberation so that the agent's chosen outcome can be justified and explained by reference to reasons which the patient has identified and endorsed. However, many medical decisions are influenced by underlying cognitive processes which may interfere with rational judgment. Under stressful and uncertain conditions, risk information is often misunderstood, and rational judgment can be obscured. According to a growing body of literature, rational decision-making in healthcare is bounded by a host of factors, including often faulty intuitions, context dependence, and strong risk aversion, which regularly trumps the attraction of an opportunity to benefit. Furthermore, a tendency to rely on heuristics in judgment frequently leads patients to make choices that are not only deemed irrational and undesirable by external observers or healthcare professionals but also would be deemed irrational and undesirable by the patient making the decision if she were taking into account all relevant and available information, including her own preferences.<sup>406</sup> Given this reality, the following three questions need to be asked.

*Is it plausible to assume that most of patients' decisions are autonomous?* At the center of autonomy argument lies an idea that all people want to make the decisions that shape their lives. Few decisions are more consequential than end-of-life decisions. Therefore, patients must want to make their own medical decisions. In the reality of ICUs, patients and their families often shy away from their predominant role in medical decisions because they recognize that such decisions are very difficult, they lack experience with medical science, they recognize their difficulty with processing risk information, and they are not able to handle the reality of uncertainty present in each medical decision. Beyond cognitive limitations, simply being in the hospital can be intellectually disorienting and psychologically debilitating, especially during an ICU admission. As one patient puts it: "It is very confusing to be chronically ill. The machine of

my body is broken; a delicate poise between body and spirit is disturbed. I have been cut off from my past as an athlete, as a member of the work force, as a vital human being. Family relationships and friendships have altered. My life has been changed utterly. This is difficulty to grasp.”<sup>407</sup> Even if the patient is competent, decisions may be altered by fear, by panic, by a passing preference for short-term comfort, by pain, by bitterness, by guilt, by depression, or by despair.

One more requirement of an autonomous decision is the need to “provide the values – his or her own conception of the good – with which to evaluate alternatives, and to select the one that is best for himself or herself.”<sup>408</sup> The values needed to make a medical decision raise the most imponderable questions people may ask. Because these values are so hard to face, to formulate, and to use in decision-making, they are usually unexplored. Patients or their surrogates don’t have a set of premediated and neatly-ordered values that would navigate their decision-making process. People lack what theorists of autonomy call “a set of preferences which are clearly-defined, well-understood, and rank-ordered so that people can make logical tradeoffs among them.”<sup>409</sup> Additionally, their values and preferences may change with time as they learn more information or adjust to living with certain conditions. For instance, a longitudinal study asked patients to write advance directives and then questioned participants over two years about whether they would want various life-sustaining treatments if they were terminally ill. “Instability was substantial during the 2-year period in patients’ preference for a given treatment.”<sup>410</sup> More specifically: “Of the patients who answered ‘yes’ to any of the questions at baseline, only 18% to 43% answered ‘yes’ to the same question at follow-up. Patients responding ‘no’ to baseline questions were more consistent, with 66% to 75% still answering ‘no’ at follow-up.”<sup>411</sup> As another study explained, “Patients may change their wishes

for life-sustaining therapy because of their experience with their illness, changes in their subjective appreciation of their ‘quality of life,’ or changes in their evaluation of the benefits and burdens of life-sustaining measures as they realize the imminence of death.”<sup>412</sup> Therefore, autonomy in its full understanding is not present in many medical decisions.

*Should autonomy be the guiding value in patient-physician communication?* While we may acknowledge that patients’ decisions are rarely autonomous in the full sense of the term, physicians may still strive to make these choices autonomous based on the assumption that doing so has normative value. This assumption is grounded in understanding that patients and surrogates find it important to exercise their own autonomy. However, this presumed preference for non-interference has been challenged by a number of studies. For instance, a study of treatment preferences in the outpatient setting used a 0-100 scale to ascertain preference for being the one to make decisions where 0 meant a very low preference for autonomy in decision-making, 50 was neutral, and 100 was very high. The average score given by patients was 33. The study used various treatment scenarios, and the more severe the illness scenario, the less patients wanted to make decisions themselves.<sup>413</sup> A similar study in the ICU setting involved surrogate decision-makers. Of 789 surrogates of ICU patients, only 4 (0.5%) wished to make decisions without clinicians’ involvement, whereas 112 (14.8%) wished to leave decisions entirely to physicians, and the majority (84.7%) preferred some form of shared decision-making.<sup>414</sup> This shows that while in other areas of life patients may prefer complete autonomy, when it comes to medical decisions. they may prefer not to be left to make decisions themselves.

*Is it possible to remove physicians’ influence?* Despite the evidence that many clinical decisions may lack autonomy in its full understanding and that patients prefer some involvement on the part of their physicians, healthcare providers may still believe that they should not



influence decisions made by their patients. During their training, physicians are encouraged to remember that not everyone with a particular condition may choose the course of treatment which someone else has determined to be the most effective. This is especially true when the judgment about effectiveness was made according to a set of criteria defined by clinicians with little knowledge of what it is like to live with or have a loved one suffer from the condition. Therefore, it is assumed that an active involvement in the decision-making may harm the patient or family by inadvertently steering them in a certain direction which reflects a physician's own bias. One may argue that it is impossible for physicians to fully separate their own values from the way they communicate with patients. When presenting patients with information regarding the risks and benefits of medical and surgical therapies for a particular condition, physicians must choose to lead with either the medical options or the surgical options; they must frame possible outcomes as chances for benefit, chances for harm, or both; and they must do all of this while often having a clear sense of what they would choose were they in the patient's shoes. Inevitably, some choices will be presented first or as the default, and it will steer the preference of the physician's patients in a certain way. The choice of presenting the risk of harms instead of the potential for benefit will influence their choices one way or another. Therefore, it is plausible to assume that the ethical task of physicians is not in avoiding influence but in avoiding restriction of choice. The following sections will take a closer look at the components of autonomous choice, namely comprehension, intentionality, and lack of persuasion. Each section will attempt to take a closer look at how these components are traditionally preserved in medical decision-making, how bounded rationality may pose challenges for each of these components, and why the focus on avoiding restriction of choice rather than preservation of autonomy may be warranted.

## Comprehension

The component of comprehension focuses on the deliberative process that requires possession of relevant information and time to consider the advantages and disadvantages of each option in order to choose the most valuable one. If a patient fails to comprehend key components of a decision or key components of its consequences, then this patient lacks the understanding required for autonomy with respect to that decision. In other words, for a decision to be autonomous, a patient should be able to understand the nature of the action and the foreseeable consequences and possible outcomes that might follow as a result of performing and not performing the action. Most of the decisions taking place in the ICU setting can be characterized as a tradeoff situation, where an intervention may decrease the likelihood of one symptom but increase the probability of others. Therefore, risk communication is a prominent part of every discussion between an intensivist and patients or surrogates. Comprehension of this information is a precondition of a rational and informed decision. However, due to the inherent uncertainty of the medical practice, this risk information often needs to be expressed in numbers. Uncertainty exists about the magnitude or severity of possible benefits and risks of an intervention. Uncertainty is also present in explaining the strength of current evidence about a particular treatment.

While this uncertainty and risk information is often conveyed numerically, a large body of research demonstrates that people generally have a great deal of difficulty using and responding to numerical information.<sup>415</sup> Inability to interpret numerical information has the potential to negatively affect a variety of important outcomes, ranging from health decision-making, use of interventions and therapies, adherence to a treatment, to even quality of life and mortality.<sup>416</sup> Innumeracy is not correlated with educational achievement, and it is present even

among well-educated people. For example, Lipkus et al. asked three samples to imagine that the chance of getting a viral infection was .0005 and to estimate from this information how many of 10,000 individuals would get the infection. All three samples were older (mean age 47, 53, and 62 years), and more than 85% of them had at least some form of secondary education. Regardless, only 48.6% answered this item correctly, and when asked to convert a proportion (20 out of 100) to a percentage, only 70.4% answered correctly.<sup>417</sup>

In a healthcare setting, and especially in ICUs, risk is often elicited or presented as a frequency in fraction form (e.g., 8 of 100 patients die from this procedure). People often give undue weight to the numerator relative to the denominator in such a fraction; in the example above, they focus more on the 8 people who die than on the 92 who do not.<sup>418</sup> When the denominator is increased, it affects risk perception. For instance, in one study, undergraduate students were asked to choose between two bowls of jelly beans—one with 1 red jelly bean out of 10 and the other with 7 red jelly beans out of 100—and were told they would win a prize if they randomly selected a red jelly bean out of the bowl they chose. Many preferred the second bowl (despite the lower probability of winning) because they focused on the 7 ways of winning compared with the 1 way of winning in the first bowl.<sup>419</sup> In many cases, participants acknowledged the difference in probability, yet they still preferred the second bowl. This study also shows how emotions may influence risk perception.

In a similar study, Slovic, Monahan, and MacGregor asked experienced forensic psychologists and psychiatrists to judge the likelihood that a mental patient would commit an act of violence within six months of being discharged. Clinicians who were given an expert's assessment of a patient's risk of violence framed in terms of relative frequency ("Of every 100 patients similar to Mr. Jones, 10 are estimated to commit an act of violence.") labeled Mr. Jones

as more dangerous than did clinicians who were shown risk as probability (“Patients similar to Mr. Jones are estimated to have a 10% chance of committing an act of violence.”). When clinicians were told that “20 out of every 100 patients similar to Mr. Jones are expected to commit an act of violence,” 41% refused to discharge the patient, compared to only 21% of clinicians who were told that “patients similar to Mr. Jones are estimated to have a 20% chance of committing an act of violence.”<sup>420</sup> Subsequent studies show that representation of risk in the form of frequencies (“1 out of 20”), rather than probabilities, create emotional images of violent patients. These emotional images lead to a greater perception of risk.<sup>421</sup>

The same group of researchers looked into the popular perception of correlation between risks and benefits of various activities. They noticed that while risk and benefit tend to be positively correlated (if a stock is riskier, it may offer a higher return), they are negatively correlated in people’s minds (herbal medicines perceived as high benefit and low risk).<sup>422</sup> They concluded that this inverse relationship between perceived risk and perceived benefit of an activity is likely to be connected to the strength of positive or negative emotions associated with that activity. They called this inverse relationship an “affect heuristic.” This heuristic explains that when people feel that an activity is good, they appear to judge risks as low and benefits as high; if they feel that it is bad, they may judge the opposite – high risk and low benefit.<sup>423</sup> Finucane et al. explored this correlation further, showing that giving information about benefit changes the perception of risk and vice versa. For instance, giving information that benefit is high for a technology like nuclear power led to more positive emotion and decreased perceived risk.<sup>424</sup> The researchers also showed that less deliberation due to time constraints greatly increases the inverse relationship between perceived risks and benefits.<sup>425</sup>

It is commonly assumed that in consideration of risk, one should, and does, pay attention to the likelihood of important potential consequences. However, emotions can cause decision-makers to neglect to consider probability. Loewenstein observed that when consequences carry emotionally charged meaning, as is the case with a lottery jackpot or a cancer, differences in probability will not mean much. Thus, one's feelings toward winning the lottery will likely be similar whether the probability of winning is 1 in 10 million or 1 in 10 thousand.<sup>426</sup> Under the uncertainty, people are likely to act in all or none manner, being sensitive to the possibility rather than the probability of positive or negative consequences, causing very small probabilities to carry great weight. The probability neglect is especially relevant for treatment decision-making. For instance, in oncology, the disease will act as an emotional cue that creates insensitivity to its relatively low risks of death (e.g., prostate cancer). In case of prostate cancer, the risk is reduced through treatment and monitoring but not eliminated and so the fear of cancer will remain, and it will cause high-risk perceptions. Further research shows that variations in the way that information is framed influences the interpretation and use of that information in medical decisions. Emotional processes definitely play a role in determining the strength and direction of such framing effects.

Framing of healthcare information can be a strong predictor of the consecutive choices made by patients. Framing effect occurs when decision-makers respond differently to different but objectively equivalent descriptions of the same problem. There are many examples in the literature that demonstrate the occurrence of framing effects in patient-provider relationship. For instance, one study shows that negative messages containing the risk of not undergoing mammography (“Women who do not use mammography have a decreased chance of finding tumor in the early stages of the disease.”) was more persuasive than the positively-framed

message (“Women who use mammography have an increased chance of finding tumor in the early stages of the disease.”).<sup>427</sup> Another study by McNeil et al. presented respondents with information about the outcomes of two treatments for lung cancer. Although the statistics presented were identical, they were framed in terms of survival or mortality rates. Even though respondents should react similarly to both statistical presentations, the number of those who favored radiation therapy over surgery went from 18% for those presented with the survival framing to 44% for those presented with the mortality framing.<sup>428</sup> Similarly, in the ICU setting, a provider may facilitate the decision about treatment withdrawal, focusing on the concept that “there is nothing more medically to be done” and invoking the image of abandonment and letting one die. They can also present this decision as the optimal level of care at the given stage of the patient’s illness, not focusing on what is medically effective but rather what is beneficial.

In addition to framing, optimism bias is the lens through which surrogate decision makers interpret information about potential risks and prognosis. Prognostic information strongly influences treatment decisions near the end of life, but there is often a disconnect between the information conveyed by the ICU doctor and the way surrogates interpret the meaning. In a recent study, researchers surveyed 80 surrogate decision-makers at three ICUs in San Francisco. The participants read statements such as “He will definitely survive,” “He has a 90% chance of surviving,” “He has a 5% chance of surviving,” and “He will definitely not survive,” and then noted their interpretation of the survival odds on a scale marked in 10% intervals from 0 to 100%. The researchers found that participants accurately interpreted statements when the prognosis was generally good. However, that was not the case with poor prognoses: 40% of surrogates interpreted the 50% survival chance more optimistically than stated, and nearly two-thirds interpreted a 5% survival chance more optimistically than stated. When asked to explain

overly optimistic expectations, participant responses included: “I hold on to hope strongly,” “We are talking about my father in this case, not just any patient,” and “They’re not giving you a real figure.”<sup>429</sup> This research indicates that in the ICU setting, family members want to see the glass as half full, even if it’s really nearly empty. This leads them to misinterpret important information.

In order to secure a better comprehension of information, ICU providers often resort to decision aids. A decision aid is a “tool that provides patients with evidence-based, objective information on all treatment options for a given condition. Decision aids present the risks and benefits of all options and help patients understand how likely it is that those benefits or harms will affect them.”<sup>430</sup> Decision aids can include written material, Web-based tools, videos, and multimedia programs. Some decision aids are designed for patient use, and others are designed for clinicians to use with patients. Currently, there are more than 500 decision aid tools available, while many organizations such as AHRQ, the NCI, the Informed Medical Decisions Foundation, Healthwise, and many others are working on developing new tools.<sup>431</sup> Video decision aids have been effective in the cancer setting in promoting patients' understanding of end-of-life care options. For instance, in a recent study by Dr. Volandes et al., patients with terminal cancer who viewed a three-minute video demonstrating cardiopulmonary resuscitation (CPR) were less likely to indicate a preference for receiving CPR in the event of an in-hospital cardiac arrest than patients who only listened to an oral description of the procedure.<sup>432</sup> The use of decision aids enhances the procedure of obtaining informed consent for various risky procedures.

### **Intentionality**

Intentionality requires that actions are initiated and performed according to a patient’s goals and plan. At a minimum, patients should articulate their preferences and then settle on a

course of action that implements their preferences. The component of intentionality also requires that patients participate in the development of the treatment plan. Faden and Beauchamp write, “Whether a given act, X, is intentional, depends on whether in performing X the actor could, upon reflection say, ‘I did X as planned,’ and in that sense, ‘I did the X I intended to do.’”<sup>433</sup> Beauchamp and Childress also emphasize the importance of planning to achieve an intended outcome. It is not enough to just have a desired outcome in mind to fulfill the condition of intentionality. For example, if a cancer patient deciding what course of treatment to pursue only intends “to get better,” it is not apparent that they have intended any particular course of treatment. Anything from faith healing to invasive surgery might play a part in achieving such an end, and by intending only “to get better,” the patient has not made sufficiently clear what they are after.<sup>434</sup>

Intentionality is not a matter of degree; an action is either intentional or unintentional. However, philosophers may disagree on what actions should be called intentional. What happens when an intentional action produces an unintentional side effect? In other words, one and the same action can be both intentional and unintentional. For example, one may alert the burglar by turning on the light. The person may have been intentional under the description “turning on the light,” but not under “alerting the burglar.” In this case, we have an intentional action that was not intended by the one performing it. A lot of literature on intentionality has focused on several ways in which moral considerations can magnify the distinction between intentionality and unintentional actions. Most of this literature has focused on the following pair of cases, devised by Joshua Knobe:

Harm Vignette: The vice-president of a company went to the chairman of the board and said, “We are thinking of starting a new program. It will help us increase profits, but it will also



harm the environment.” The chairman of the board answered, “I don’t care at all about harming the environment. I just want to make as much profit as I can. Let’s start the new program.” They started the new program. Sure enough, the environment was harmed.

Help Vignette: The vice-president of a company went to the chairman of the board and said, “We are thinking of starting a new program. It will help us increase profits, but it will also help the environment.” The chairman of the board answered, “I don’t care at all about helping the environment. I just want to make as much profit as I can. Let’s start the new program.” They started the new program. Sure enough, the environment was helped.

Knobe reports that 82% of respondents participating in his study describe the chairman as having intentionally harmed the environment. But given the previous discussion about side effects, the chairman did not intend to harm the environment since he did not desire this result. Interestingly, the Help Vignette elicits very different reactions, with only 23% of respondents describing the chairman as having intentionally helped the environment.<sup>435</sup> This research demonstrates how moral considerations regarding the intentionality of an action can be affected by emotional considerations. Additionally, some consequences of an action may not necessarily be unwanted but just unlikely. Consider the following example: Time is running out in the basketball game. Jim has the ball at half-court and, knowing that the only chance for victory is a last second shot, throws the ball toward the hoop. Miraculously, the ball goes in. Did Jim hit the shot intentionally? Opinions differ, and just like in the example of help and harm vignettes, emotions may impact the way we think about the intentionality of an act. Ronald Butler demonstrates this in the following example: “If Brown in an ordinary game of dice hopes to throw a six and does so, we do not say that he threw the six intentionally. On the other hand, if Brown puts one live cartridge into a six-chambered revolver, spins the chamber as he aims it at

Smith and pulls the trigger hoping to kill Smith, we would say if he succeeded that he had killed Smith intentionally. How can this be so, since in both cases the probability of the desired result is the same?”<sup>436</sup>

Emotions may impact not only the way we think about the concept of intentionality but also the ability to act intentionally in a healthcare context. Given that one of the preconditions of intentionality is planning, or the ability for a person to look back on an act or decision and to say that she planned to do that, emotions can cause a bypass in the planning stage. Default bias or status quo bias is one of the ways in which emotions may interfere with intentionality. Default bias suggests that people are much more likely to stick with the status quo than what we might expect given the benefits of switching to another option. In studies of retirement savings, for example, researchers have found that default bias plays a significant role in determining whether or not employees participate in a 401(K) plan. Until recently, the default option for most 401(K) plans was non-participation, meaning that employees had to actively choose to participate. Changing the default option to participation—with no other changes to the benefits—leads to significantly higher participation in the 401(K) plan.<sup>437</sup>

Similar preferences for default options are evident in many healthcare decisions. Organ donation rates are an often-used example of the power of defaults. European countries such as Austria, Belgium, Spain, and others adopted a “presumed consent” organ donation system that assumes people want to donate their organs unless they specifically say otherwise. As a result, they have 85-99% organ donation participation rates. In other countries, such as Germany, the United Kingdom, or the Netherlands with ‘opt in’ systems where people can note their organ donation decision on their driver's license and/or sign up to be donors through a state registry, participation rates stay between 4-27% only.<sup>438</sup> Additionally, in a study of asthma patients,

researchers noted a similar “status quo” bias or preference toward current medication even when better alternatives were offered. Advance directives can serve as an example of critical care choices affected by defaults. It is a well-known fact that most ICU patients value comfort and dignity over prolonging of life, but ICU care is often geared toward extending life by all means possible. Deviating from this life-extending norm requires that someone actively request or suggest doing so. Advance directives are an opportunity to counter this life-extending norm and actively choose comfort care. However, the same default preference for life-extending treatment exists in the text and structure of this form. Patients have to ‘opt out’ from the unwanted care instead of ‘opting in’ and actively select the care they prefer while having comfort care as the default. Researchers suggest changing defaults in advance directives forms so that patients’ preferences for comfort care and their treatment choices were more aligned.<sup>439</sup>

One other way in which emotions may influence intentionality is by negatively impacting what the person has decided on and intends to do. The following example shared by Peter Ubel can demonstrate how this might occur. He tells the story of a well-educated pregnant physician who had given much thought to whether or not to have an amniocentesis to test for certain genetic abnormalities. She had weighed the potential consequences of having and not having the test and decided to not have the test. However, once in her obstetrician’s office, she saw a young boy with a genetic abnormality, fell prey to the availability heuristic (associating the probability of an event with the ease with which an occurrence can be brought to mind), and told her physician that she wanted the test.<sup>440</sup> One can modify this example to demonstrate some other ways of emotional interference with intentionality. For instance, this physician could have arrived at her obstetrician’s office and discovered that the majority of other women in the office were planning to have the test. She then changed her mind and told her physician that she wanted

to have the test, finding herself doing something that was not at all what she intended to do (bandwagon effect).

The article “Cure Me Even If It Kills Me: Preferences for Invasive Cancer Treatment” demonstrates how emotions may impact intentionality in critical care. In this study, researchers found that when faced with a hypothetical cancer diagnosis, many people say they would pursue treatment (surgery) even if doing so would increase their chance of death, demonstrating a clear commission bias, or a drive to “do something.”<sup>441</sup> It is not uncommon to encounter patients who weighed pros and cons, decided that surgery was not worth it, and have no intention to pursue it. However, later on, they give in to the intensity of this commission bias, undermining their intention to forgo treatment. Many treatment choices in the ICU are shrouded with uncertainty. Naturally, people have an intense aversion to uncertainty called ‘ambiguity aversion’ bias. Affected by ambiguity aversion, people may choose the option that is most certain even if its outcome is worse. Such choices have no impact on intentionality. However, in the ICU context, patients may have to choose between two options that both involve significant uncertainty, and the options may be so adverse that the patient fails to form an intention about which option to pursue. For instance, patients needing to make very difficult choices such as death or life on a ventilator may be paralyzed by such choices and not able to form an intention.

Shared decision-making has been described as the most ethical and appropriate approach for making important decisions in ICU care. While this concept of sharing the responsibility for and control over medical decisions between clinicians and patients has been in existence for at least thirty years, in 2004, North American and European critical care societies endorsed it as the model of decision-making.<sup>442</sup> This model is grounded in a recognition of the limited decision-making ability of patients and their surrogates and gives the physician an active role in the

decision-making process bounded by constraints of respecting autonomy. The way to preserve intentionality in this model is by asking physicians to learn of the patient's values but only to assist in matching those values with the medical facts of the situation. In this exchange, the physician offers choices and evidence while the surrogates or patients explain their values. Then, collaboratively, they search for a solution that is both consistent with the evidence and in accordance with patient values. The collaborative nature of this model separates it from paternalism, where a physician makes the decision with little input from family, or the informed choice model, where a physician provides information but withholds their opinion. There are a number of competencies that are required on the part of physicians for the successful implementation of this model. Providers should be skilled in eliciting the patient's preferences and values and accommodating his communication to the families' preferred role in decision-making. They should also provide complete and consistent medical information as well as their assessment of the patient's prognosis.<sup>443</sup>

### **Lack of Persuasion**

The early discussions of personal autonomy, attributed to the 1970s works of Harry Frankfurt and Gerald Dworkin, were concerned with the kind of individual freedoms that ought to be protected. They assumed that everything we do is a response to past and present circumstances over which we have no control. It is impossible to govern one's self without being influenced by powers or circumstances over which the subject has no control. Some of these external forces that move us to act do not only affect our choice of actions or the way we govern ourselves in making these choices. They influence us in a way that may undermine our autonomy. What distinguishes autonomy-undermining influences on a person's decision, intention, or will from those motivating forces that merely play a role in the self-governing

process? Dworkin writes, “It is only when a person identifies with the influences that motivate him, assimilates them to himself, views himself as the kind of person who wishes to be moved in particular ways, that these influences are to be identified as ‘his.’”<sup>444</sup> In other words, our decisions are worth protecting if they are rooted in our values and goals. They are not worth protecting if they run counter to those values, commitments, and goals. It is not worth protecting the decision of a weak-willed person who decides to do something against her better judgment and against her conscious desire to do otherwise. On the other hand, it is worth protecting one’s decision to pursue an action that aligns with her consciously held values, even if it is not what we ourselves would have done. Frankfurt and Dworkin call this hierarchy of desires.<sup>445</sup>

Hierarchy of desires calls us to distinguish between first order desires and second order desires. Dworkin explains that a first order desire is a desire for anything other than a desire; a second order desire is a desire for a desire. For example, a person might have a first order desire to smoke a cigarette and a second order desire that she desire not to smoke a cigarette. A second order desire may or may not correspond with a first order desire. For instance, one may want to have a desire to give all her money to a charity since she believes that having such a desire would make her be an excellent person. Nonetheless, she might not actually want that desire to be effective. She might think that giving her money away would be a terrible idea. When a person does want the first order desire to be effective, when they want it to be their will, Frankfurt calls this a second order desire.<sup>446</sup>

Some may lack second order desires altogether. Frankfurt calls such creatures wantons. He claims that non-human animals and children are all wantons in this sense. He uses the example of a drug addict to contrast wantons with people who have second order desires. In his example, he asks readers to consider the difference between a willing and an unwilling drug

addict.<sup>447</sup> Frankfurt argues that although both are addicted, only the unwilling addict is non-autonomous wanton. He is a “passive bystander” with respect to the desire to use drugs, whereas the willing addict engages and identifies with that desire and, therefore, endorses it. In other words, first order desires – such as a desire to inject heroin – are autonomous only when they are endorsed by second order desires – such as a desire to desire to inject heroin. In Frankfurt and Dworkin’s understanding, the origins of higher order desires are not important. These desires can be influenced socially or relationally. The origin of desires does not matter, only the ability of the person to identify with them.<sup>448</sup>

John Christman develops this account of autonomy that incorporates the means and processes by which a person arrives to certain decisions and desires. He argues that if a person is brainwashed into having a desire, this person will lack autonomy with respect to that desire and resulting action. Therefore, the person is autonomous with respect to a decision or a desire when she: (a) did not resist the development of the first order desire when attending to the process of development. Or (in cases where she did not attend to the process of development), she would not have resisted the development had she attended to the process. (b) And, the lack of resistance was not under the influence of factors that might inhibit self-reflection. (c) And, the self-reflection was “minimally rational” (meaning that it did not involve self-deception or mistakes in logical inference). (d) And, the agent is minimally rational with respect to desire at t (where minimal rationality demands that an agent experience no manifest conflicts of desires or beliefs that significantly affect the agent’s behavior and that are not subsumed under some otherwise rational plan of action).<sup>449</sup>

Emotions may diminish autonomous agency by acting as controlling or alienating influences on decision-making. Controlling influences are ones that are overwhelmingly difficult

to resist. Frankfurt's example of a willing or unwilling addict is a good example of someone who is subject to a controlling influence from the inside. It is possible to assume that a person could recognize being influenced by heuristics or emotions and try very hard to resist its influence but be unsuccessful. The more likely threat is that a person finds emotions and heuristics to be alienating influencers on her decision-making. In Christman's account, an autonomous decision involves a person reflecting on the process by which a certain desire or decision was formed and not resisting the development of that desire or decision when attending to the process of development. If a person feels alienated from her desire or decision in light of the process by which it was informed (as if it is not "her"), then autonomy is threatened.<sup>450</sup> Christman gives examples of someone who was brainwashed, makes a decision under hypnosis, or is a victim of over manipulation. It is plausible to assume that a person may feel alienated by her decision when she learns that it was influenced by a heuristic or emotion.<sup>451</sup> For instance, a patient may decide that she wants a course of radiation therapy. As in the example above, this decision could have been influenced by framing heuristics. Her oncologist may inform her that her favorable decision is the result of his choice framing when he told her about the 90% survival rate instead of mentioning the 10% mortality rate. If he would have told her about 10% mortality rate, she would have likely decided against radiation therapy. This patient may retrospectively feel as if that was not really her decision but just an outcome of emotional influences and framing.

Atul Gawande, in his book *Being Mortal*, shares the story of a cancer patient. Her husband reflects on pursuing surgeries and treatments that had not made his wife better and may have even made her worse or shortened her life. He says, "I've often thought, what did that cost us? What did we miss out on, or forgo, by consistently pursuing treatment after treatment, which made her sicker and sicker? We should have started earlier with the effort to have quality time



together. . . chemo had made her so weak she couldn't even hold [their baby] and that was not good outcome for the final months . . . it's not where we wanted to be."<sup>452</sup> This narrative can serve as an illustration of how emotional influence on their choices and decisions resulted in feelings of alienation from their decisions and desires, posing a threat to autonomy. Advance directives are always perceived as an antidote to these types of regrets and feelings of alienation from previous decisions. These forms are not merely an evidence of what will be good for the later incompetent patient (which can be altered when more reliable facts come along). Advance directives serve as acts of self-determination. These forms demonstrate a congruency between first and second order desires in regard to a specific treatment.

In order to complete an advance directive, patients are asked to think about how well they might adjust emotionally to a progressive decline in health. However, the accuracy of their predictions about their future well-being, and consequently the role of these predictions in their decision-making, is questionable. People usually tend to exaggerate the intensity and duration of negative emotions in response to loss. For instance, respondents without a particular disability consistently rank their predicted quality of life much lower than those actually living with that disability. This leads to the conclusion that people underestimate their psychological defenses and coping mechanisms that help them to adjust in a crisis situation. Analogous to the physiological immune system that protects the body from unwanted intruders, there is a psychological immune system designed to protect emotional systems from potential threats. These defense mechanisms and coping skills usually work on an unconscious level that makes it more difficult to recognize and rely on them in attempts to predict a future quality of life.<sup>453</sup> Another variable that affects the quality of prediction is the temporal proximity to the event. One

tends to be more accurate predicting future feelings in response to an event that is relatively soon rather than to one far in the future.

However, as the name implies, advance directives require making decisions in advance, being temporarily removed from the experience and having to parse one's current affective state from an emotional state that might be experienced in the future. This discrepancy between states is described by Loewenstein as "cold-to-hot" and "hot-to-cold" empathy gaps.<sup>454</sup> In cold-to-hot empathy gaps, people in cold emotional states, being relatively healthy, have to make decisions about emotionally-charged moments of their lives. For instance, the research done on drug addicts in a non-craving state reported the optimism of respondents about the effort needed to withstand temptation if they went out with friends several days in the future. This optimism stems from a failure to acknowledge that their future emotional state, a state of craving, will be overwhelmingly powerful. Similarly, advance directives are often signed in a relatively cold affective state, discounting the range of emotions and desires a patient may be feeling near the end of life. On the other hand, people often sign advance directives in hot-to-cold states when they are emotionally overwhelmed and have to make decisions about a future state without taking their current emotional state into account.<sup>455</sup> Often, the delivery of bad news (such as the presence of malignancy or a very bad test result) is accompanied with the recommendation to complete advance directives. Patients, being devastated by this news, may assess their future risks and make decisions discounting the acknowledgment of their present state. Remorse and regret might be the outcome of these decisions.

### **Conclusion**

In this chapter, I have argued that the process of shaping patients' or surrogates' decisions is an inescapable reality. The way physicians frame their questions or present relevant

medical information will inevitably shape surrogates' or patients' preferences. Most of the solutions proposed so far have been focused on minimizing the influence of heuristics and biases by either alerting people about these influences or framing things in a variety of ways to reduce the pull of a potential frame. For instance, a physician going through the decision-making and consent process with a patient should provide this patient with the frame of both survival and mortality. However, this physician should also pair these frames in such a way that survival would be first in one set, and, then, mortality would be first in the second set in order to avoid anchoring bias. Survival and mortality rates should be presented in both percentages and frequencies to avoid the frequency/percentage bias. This list can go on.

This reality may lead some to argue for the applicability of non-argumentative forms of influence in the process of decision-making. Being grounded in the principles of behavioral economics, this “soft paternalistic” model makes use of interventions aimed at suggesting one choice over another by gently steering individual choices and enhancing directions, yet without imposing any significant limit on available choices. This model proposes to organize the context in which surrogates make decisions and minimize the negative impact of cognitive biases against potentially beneficial choices and outcomes. Physicians should assume responsibility in recognizing the previously mentioned contextual influences that may hamper the ability of surrogates to achieve their goals. Furthermore, they should modify these contextual factors and biases in a way that would assist surrogates in reaching their desired outcomes. In cases where there is one treatment that provides a greater measure of comfort or leads to improved clinical outcomes, physicians should attempt to influence or steer decision-making processes to help surrogates or patients choose that particular intervention. For instance, when a young patient who has lost limbs in recovery from sepsis refuses to continue treatment because of not being able to

imagine life without the ability to move around, it might be ethically justifiable to persuade him to go on with the treatment by focusing his attention on the number of things he will be able to do afterward.

This approach of aiming at influencing choice without restricting it is obviously questionable due to a number of considerations. Physicians may influence choices to serve their own interests. Their authority in interfering with value-laden decisions can be objectionable. Most of the objections pertain to the ideals of clinical autonomy and decision-making, but their practical application is plausible under the condition of certainty. However, confidence is not achievable in the context of the ICU as none of the factors that may influence surrogates' decisions can be known with certainty. Most of the ICU patients suffer from a number of co-existing acute and aggressive conditions, making the prognostication efforts extremely difficult. Some of them are admitted to the ICU with rare conditions for which there is little known in terms of outcomes. Whether the patient's past experiences of treatment or the clinician's experience of treating other patients with similar symptoms is the basis for judgment about the likely effects of an intervention, there is no escape from the reality of uncertainty about the outcomes. The uncertainty about utility of most ICU interventions is inevitable. Under the conditions of uncertainty, surrogates will take their decisional cues from the attending intensivist. This uncertainty will inevitably affect the way intensivists present options and communicate with the family.

This chapter questions the traditional paradigm of using autonomy as the central decision-making priority for incapacitated patients in the ICU context. While many clinicians may believe that they have a duty to reduce personal influences on their patients' decisions, this chapter suggests that removing clinicians' influence from the decision-making process is neither

possible nor desirable. Knowledge of relevant medical information about risks and benefits is believed to foster the rational aspect of surrogate decision-making. This chapter highlighted many cognitive difficulties in processing risk information, questioning the ability of surrogates to have an operational level of knowledge. Finally, the ability of advance directives to secure the intentionality of patients' decisions and guard them from undue influence was questioned on the grounds of research in affective forecasting errors. The concept of shared decision-making and the possibility of shaping patients' decisions were suggested as possible remedies for gaps in substituted judgment.

## CHAPTER SEVEN

### NUDGES

#### **Introduction**

Behavioral economics can be defined as the discipline that applies behavioral science principles to the studying of economic reasoning. It is often presented as an attempt to anchor economics within other social and natural sciences, from psychology to neuroscience.<sup>456</sup> This field of inquiry emerged as a reaction to the assumption, made by traditional economists, that individuals were always rational. Behavioral economists use knowledge from behavioral science to study how individuals make decisions which are often non-rational and biased by a series of mental shortcuts. For instance, it looks at the role of emotions or social surroundings in the decision-making process. Behavioral economics offers a different perspective on behavioral change. Its philosophy is that people should not be forced to act in certain ways but, rather, gently encouraged to act in ways that are better for them or help them stop bad habits formed over time. This idea of a “gentle push” or “nudge” is based on libertarian paternalism and favors invitations to change behaviors rather than the introduction of constraints and sanctions to obtain behavior change. The discipline emerged with the work of Thaler at the University of Chicago, who first suggested that using knowledge from behavioral science could induce soft changes in people’s behaviors.

These “soft paternalistic” approaches make use of interventions aimed at suggesting one choice over another by gently steering individual choices and enhancing directions yet without imposing a limit on available choices. Nudges propose to organize the context in which people make decisions and minimize the negative impact of cognitive biases against healthy behaviors. These terms “nudge” and “libertarian paternalism” were first used in Richard Thaler and Cass

Sunstein’s book of the same title to describe “any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives.”<sup>457</sup> Consider a sample of health-affecting influence attempts labelled “nudge” in the *Nudge* book or its official online companion edited by John Balz, *The Nudge blog*:

“Cafeteria. A cafeteria manager places healthy food at eye-level at the beginning of the food queue. Unhealthy food comes last and is least visible. The customer is then more likely to purchase healthy food.”<sup>458</sup>

“Deposit Contract. All primary care physicians of a healthcare system offer their patients the possibility to voluntarily deposit an agreed-upon sum of money with the physicians. The physicians will then return it to the patients in small installments if the latter meet certain agreed-upon objectives to improve their health (e.g., losing weight, exercising, quitting smoking).”<sup>459</sup>

“Generic Medication. Medicare beneficiaries are given generic medication by default but are offered the option of getting the brand-name drug.”<sup>460</sup>

“HIV-Test Cash Transfer. In Malawi, residents who pick up their HIV-test results receive 10% of their daily wage in cash.”<sup>461</sup>

“Less Than You Think. University campuses in Montana organize an alcohol consumption-reduction campaign accurately stating that 81% of Montana college students have four or fewer alcoholic drinks each week. The campaign underlines the fact that the majority of students binge-drink less often than what most students assume.”<sup>462</sup>

“Paternal Competition. In an Indian village, health professionals post children's medical test results in a public place, creating competition among fathers to improve their children's health.”<sup>463</sup>

Although some of these interventions may preserve freedom of choice, some ethicists argue that others do not. For them, preserving freedom of choice requires more than avoiding the use of outright coercion, because we also care about the control an individual has over her evaluations and choices. This chapter considers potential nudges that may improve communication and choices in end-of-life care. In addition to reviewing potential nudges in end-of-life care, this chapter addresses the ethical aspects of using these strategies in healthcare. Given the current aspirations of medical professionals around increasing patient empowerment and promoting freedom and fairness, to what extent does nudge support these aims? This chapter explores the following questions: Can nudge be empowering, and can it bring about changes that are fair and sustainable? Should one be worried about the paternalistic aspect of nudging? What are the ethical limits of using nudges in critical care?

### **Why Nudges in ICU?**

By the year 2050, the proportion of the US population that is over the age of 65 will increase to 20.3%.<sup>464</sup> This trend will have a major impact on the organization and delivery of healthcare, more specifically with the shift in focus from acute to chronic illnesses. Presently, two-thirds of people aged 65 and older suffer from serious, multiple chronic conditions.<sup>465</sup> By contrast, 31 percent of those aged 45 to 64 and only 6 percent of those aged 18 to 44 were treated for two or more chronic conditions in 2009.<sup>466</sup> Patients with chronic illness in their last two years of life account for about 32% of total Medicare spending, much of it going toward physician and hospital fees associated with repeated hospitalizations.<sup>467</sup> In fact, almost a third of the US population saw ten or more physicians in the last six months of their life.<sup>468</sup> According to the Dartmouth Atlas of Health Care, more than 80 percent of patients with chronic diseases say they want to avoid hospitalization and intensive care when they are dying. However, hospitalizations



during the last six months of life are steadily increasing from 1,302 hospital admissions per 1000 Medicare recipients in 1996 to 1,442 in 2005. These hospitalizations often result in prolonged ICU stays. The same report indicates that in 1996, only 10 percent of Medicare recipients spent at least a week in an ICU during their last six months of life; by 2005, the number was 14.4 percent.<sup>469</sup> This statistic demonstrates that we have a rapidly growing subset of aging population with complex medical needs. Even though most of these people would prefer to avoid repeated hospitalizations and ICU admissions in their last months of life, exactly the opposite is happening. We spend most of our healthcare budget providing expensive and mostly ineffective critical care when people are approaching their end.

Increased utilization of critical care does not necessarily translate into better health outcomes. A recent study shows that more than one in ten patients being treated in ICUs were at some point receiving what doctors deemed to be futile care. In those cases, intensivists believed patients would never survive outside an ICU or that the burdens of their care “grossly outweighed” any benefits. Treating each of those patients costs about \$4,000 per day.<sup>470</sup> The U.S. spends more hospital resources on critical care medicine than any other country, as evidenced by it having among the highest ratios of ICU-bed-to-population (20 ICU beds per 100K) and ICU-to-hospital-bed (9 per 100 hospital beds) in the world.<sup>471</sup> While ICU beds account for approximately 10 percent of hospital beds, they also attract 20 percent of all healthcare costs.<sup>472</sup> In addition, nearly 25 percent of healthcare resources are spent on the 6 percent of people who die in a given year.<sup>473</sup> Because approximately 20 percent of deaths in the United States occur during or shortly after a stay in the ICU,<sup>474</sup> critical care represents an important and expensive setting for end-of-life care. Consequently, ICU-based end-of-life care is considered the primary target for reducing healthcare costs.

The need to decrease overutilization of ICU-based end-of-life care is not driven by purely economic considerations. Healthcare policy makers and public health specialists are guided by the overarching goal of ensuring that people nearing the end of life are receiving high-quality care consistent with their needs and preferences. However, a growing body of research suggests a mismatch between the services most readily available to people near the end of life (acute care) and what they most often say they want (supportive services).<sup>475</sup> Clinical interactions at the end of life focus almost exclusively on the possibility of prolonging life, failing to account for other patient and family goals such as human interaction, autonomy, dignity, and spirituality. Many interventions that patients receive near their end of life are not evidence-based, do not meet patients' needs, and often subject them to harm. For instance, CPR and dialysis are offered to patients even when they are likely to be ineffective and burdensome.<sup>476</sup> Feeding tubes for the delivery of artificial nutrition and hydration continue to be inserted in patients with aspiration pneumonia despite strong evidence demonstrating their ineffectiveness in preventing such pneumonias.<sup>477</sup> The need to travel to the hospital for insertion of such tubes can increase agitation and confusion in frail patients. As a matter of fact, research shows that seven out of ten Americans say they would prefer to die at home, according to a systematic review of evidence,<sup>478</sup> but according to the Centers for Disease Control and Prevention, only 25 percent actually do.<sup>479</sup>

Ending up in the hospital often means aggressive, high-cost treatment at the expense of quality of life. A 2010 Dartmouth study of elderly cancer patients nearing death found that 9% had a breathing tube, feeding tube, or other life-prolonging procedure in the last month.<sup>480</sup> Feeding tubes can lead to infections while doing little to prolong life in the elderly. A breathing tube may extend life but detract from its quality since many patients must be restrained or sedated to avoid pulling out these supports. Although palliative care services have been

established in many hospitals across the nation, too many patients still experience unacceptable levels of pain and discomfort and receive inadequate attention to preventing or ameliorating their symptoms in their last days.<sup>481</sup> Receiving palliative care sooner rather than later often makes a dying person's final days more comfortable. It may also give them more time. A 2007 study found that hospice patients lived 29 days longer on average than those who did not receive such services. The authors suggest this can be partially attributed to improved monitoring and psychosocial support.<sup>482</sup> Therefore, there is a mismatch between the values and preferences of chronically ill people approaching their last days and the type of care they receive. While they prefer to spend their last days at home, they are often hospitalized. Hospitalizations result in aggressive and costly treatment that significantly reduces overall quality of life. It also leaves families in debt. One study found that out-of-pocket expenses for Medicare recipients during the five years before their death averaged about \$39,000 for individuals, \$51,000 for couples, and up to \$66,000 for people with long-term illnesses.<sup>483</sup>

From the statistics above, it is obvious that the end-of-life process is driven by the medical system's focus on performing aggressive interventions at any cost while forcing many people who are dying to not get the care they want. What can be done to solve this problem of overutilization of unnecessary and aggressive care at the end of life? The obvious solutions would be to have people communicate their wishes and preferences for their last months of life. The problem with this communication, often resulting in a completed advance directive, is that people prefer not to talk about death. They don't like to prepare for the inevitability of death when they are healthy or to acknowledge its proximity when a family member is terminally ill. According to a California Healthcare Foundation survey, six out of ten people say they don't want their family burdened by end-of-life decisions. However, nearly as many, 56 percent, have

not communicated their preferences.<sup>484</sup> Another review of studies conducted between 2011 and 2016 suggests that only one-third of US adults have some kind of advance directive. The study included data on nearly 800,000 people, and only 36% had an advance directive. The rates of completion were close between adults with chronic conditions (about 38%) and otherwise healthy patients (about 33%).<sup>485</sup>

In 2012, the CDC classified the lack of advance directives and planning for end-of-life care as a public health issue.<sup>486</sup> Not only does advance care planning have the ability to prevent unnecessary suffering and improve quality of care, but this planning can also lead to cost-effective care for the millions of individuals who die each year. Furthermore, end-of-life planning completed before dire circumstances exist will both reinforce patient autonomy and dignity, and will aid surrogates and family members in making difficult decisions. The irrational fear of advance care planning not only deters individuals from talking to their families about their wishes, but it also prevents systemic changes from being implemented to encourage these conversations to happen more often in hospital settings. In 2009, early drafts of President Obama's healthcare proposal included a provision to pay for voluntary end-of-life conversations between providers and patients. Republicans claimed this idea amounted to creating "death panels," believing it would allow government officials to decide whether sick people get to live. Vice presidential candidate Sarah Palin described her understanding of this proposal as follows: "The America I know and love is not one in which my parents or my baby with Down Syndrome will have to stand in front of Obama's 'death panel' so his bureaucrats can decide, based on a subjective judgment of their 'level of productivity in society,' whether they are worthy of health care."<sup>487</sup>

A number of personal and systemic factors are responsible for the failure to ensure that the wishes of chronically ill patients are known and respected. Systemic changes were prevented from taking place because of irrational fears of “death panels.” Fear of death leads to the reluctance of patients, families, and clinicians to explore end-of-life issues. The delivery of healthcare is naturally geared towards aggressive care. Moreover, in the fragmented care system, it is easy for providers to make the discussion of end-of-life preferences “someone else’s problem.” When conversations about end-of-life issues take place, they are happening too late, often days before death. These crucial conversations are often held in hurried or crisis situations. These conversations need to be ongoing and revisited often since caring for critically ill patients requires nearly constant decision-making. Ideally, families should be able to carefully consider the risks and benefits of each choice before settling on the option that maximizes the patient’s well-being. However, the emotions and time pressures of the ICU may exacerbate social and contextual barriers to rational choice.

Given the fact that so many irrational forces are driving choices and decisions about end-of-life care or preclude conversations from happening altogether, many experts have turned to behavioral science in their search for solutions. It is obvious that educational campaigns and policies that assume rationality of stakeholders may only have moderate success. Recognizing the limitations of educational and informational interventions, policymakers are turning to insights from behavioral economics and social psychology in order to improve end-of-life care. Behavioral economics is a branch of economics that challenges the fundamental assumption that humans behave as fully informed and rational actors seeking to make themselves better off. Rather, behavioral economics, as a discipline, combines the basics of economic theory with insights from psychology about the common biases that influence decision-making.<sup>488</sup> Most of

the programs aiming to improve delivery of healthcare are based on the presumption that people want to make themselves better off. These programs penalize consumers for doing the wrong thing (i.e., raising co-payments or deductibles) or rewarding consumers for doing the right thing (i.e., financial incentives). However, according to insights from behavioral economics, people don't always act in their own self-interest. People make decisions that seem out of touch with their goals – for example, becoming a smoker, not wearing a seatbelt, or making end-of-life choices that contradict their goals of receiving support care and dying at home.<sup>489</sup>

The field of behavioral economics starts with the observation that people are often irrational. However, the real value of behavioral economics is that we tend to be irrational in highly predictable ways. A number of industries exploit these irrational patterns in choice. For instance, credit card companies and car dealerships attract new customers with “zero down” and “zero percent interest,” playing on people’s tendency to focus on the present rather than the future. However, the same predictable errors in decision-making that are often used against consumers can also be used in their favor. The promise of behavioral economics for health-related decisions is that the same forces driving patients to make decisions that contradict their overall goals can be redirected to improve their choices and well-being. Health policies are more likely to be successful if designed not based on how perfectly rational patients ought to make health decisions but on how patients actually make them. A lot of efforts directed to improve healthcare delivery rely on helping people understand the health consequences of their decisions with the hope they will thereby make better ones. While it is important to promote a health-informed public, so many of patients’ decisions are made without thinking. Therefore, rather than rely on education to promote change, behavioral economic approaches use the ways people already make decisions to improve their choices.<sup>490</sup>

## What is Nudge?

While behavioral economics has a wide range of applications, the most well-known and increasingly popular among social scientists is referred to as nudging. The idea of nudge was introduced in Thaler and Sunstein's infamous 2008 book entitled *Nudge: Improving Decisions About Health, Wealth and Happiness*. According to the authors, a nudge is "an aspect of choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives."<sup>491</sup> This might be a somewhat helpful definition of the concept. However, the idea of nudge is best understood by reference to specific examples. For instance, one of *Nudge's* most frequently cited examples is the placement of the image of a fly inside the men's room urinals at Amsterdam's Schiphol Airport. The goal of the fly image was to "improve the aim." Apparently, the fly picture was able to reduce spillage by 80%.<sup>492</sup> The book offers many other examples of nudges, including the food arrangement in a cafeteria so that the healthy items are placed at eye level while fattier and less healthy options are placed further back in line in order to encourage customers to choose the healthy options. Thaler and Sunstein discuss the importance of automatic enrollment of new hires into 401K plans which helps them to move future salary increases into a retirement savings plan.<sup>493</sup> They also provide the example of white stripes on road bends being painted more closely together at the most dangerous points to create the illusion of the car going faster. This would hopefully prompt the driver to brake before reaching the dangerous point of the curve.<sup>494</sup>

According to Thaler and Sunstein, the most important feature of nudge policies is their reliance upon "choice architecture." Choice architecture is another concept coined by these authors. It is meant to describe conscious and deliberate attempts to shape the context in which people make decisions, rather than altering or extending the available range of choices.

According to Thaler and Sunstein, choice architects are those responsible for organizing the contexts in which decisions are made, including doctors who describe alternative treatments available to patients or the food services director of a cafeteria who is responsible for the layout of food items.<sup>495</sup> By using the term choice architect, the authors are making allusion to the way in which building architects design spaces to maximize beneficial effects. For instance, open stairwells in a large industrial building may lead to more interactions between employees and promote walking. Similarly, the food services director of a cafeteria can choose a certain type of food arrangement that is likely to influence what people will eat. By drawing on findings from the fields of decision-making science and cognitive psychology regarding ways in which people make decisions, choice architecture offers a set of tools to influence behavior by seeking to nudge people to make decisions that the choice architect deems desirable.

Thaler and Sunstein illustrate this use of psychology with the example of a school cafeteria. The cafeteria manager must decide how the food should be displayed to the students who pass through the line. Placing healthier foods at eye level and less healthy foods in more difficult to see or reach locations makes it more likely that the students will select the healthier foods. By arranging the food in this way, the manager can nudge the students into making healthier selections without prohibiting any of the students' choices. Such use of psychological knowledge to influence choices or to nudge is described by authors as "libertarian paternalism." Nudging is paternalistic because its end is to enhance the welfare of the people whose behavior is being influenced. The school cafeteria manager is acting to improve the diets of the students making the choices. It is libertarian because the means it uses to influence behavior are not coercive. The students are still free to eat anything they want. As Thaler and Sunstein explain it, "The libertarian aspect of our strategies lies in the straightforward insistence that, in general,



people should be free to do what they like—and to opt out of undesirable arrangements if they want to do so.... The paternalistic aspect lies in the claim that it is legitimate for choice architects to try to influence people’s behavior in order to make their lives longer, healthier, and better.”<sup>496</sup>

Libertarian paternalism, therefore, is a strategy designed to help people overcome the cognitive biases that interfere with their ability to make choices that maximize their own welfare. This strategy relies on the type of choice architecture that an individual would willingly accept, if she was aware of the cognitive biases at play. The classic example of libertarian paternalism is Ulysses tying himself to the mast so that he can listen to the Sirens’ songs without being drawn to his own demise. Richard Thaler and Cass Sunstein originally introduced the concept of libertarian paternalism in their 2003 essay of the same name published in “The American Economic Review.” In that article, they defined a policy as “paternalistic” “if it is selected with the goal of influencing the choices of affected parties in a way that will make those parties better off,” where they intend by “better off” that this be “measured as objectively as possible.”<sup>497</sup> According to Thaler and Sunstein, while many economists believe the term paternalistic to be derogatory because they think paternalism always involves some kind of coercion, this is not necessarily the case. Policies may be selected with the goal of influencing the choices of affected parties in a way that will make those parties better off but where there is no coercion involved. They refer to this kind of paternalism as libertarian paternalism and define it as “... an approach that preserves freedom of choice but authorizes both private and public institutions to steer people in directions that will promote their welfare.”<sup>498</sup>

Many critics have pointed out that Thaler and Sunstein’s notion of libertarian paternalism is neither truly “libertarian” nor truly “paternalistic,” and that it is a contradiction in terms.<sup>499</sup> In *Nudge*, the notion of libertarian paternalism is further refined. The authors describe it as a

“strategy” in which the libertarian aspect lies in “the straightforward insistence that, in general, people should be free to do what they like – and to opt out of undesirable arrangements if they want to do so.”<sup>500</sup> Thaler and Sunstein write that “libertarian paternalists urge that people should be ‘free to choose’” and strive to “design policies that maintain or increase freedom of choice.” In particular, the authors say that by adding the “libertarian” prefix to the term “paternalism,” they wanted to underscore the fact that this strategy is liberty preserving, adding that “libertarian paternalists want to make it easy for people to go their own way; they do not want to burden those who want to exercise their freedom.”<sup>501</sup> Consequently, policy makers and public institutions need “to steer people’s choices in directions that will improve their lives.” According to Thaler and Sunstein “libertarian paternalism is a relatively weak, soft, and nonintrusive type of paternalism because choices are not blocked, fenced off, or significantly burdened.”<sup>502</sup> However, it can still be considered as paternalism, or “soft paternalism,” because “private and public choice architects are not merely trying to track or to implement people’s anticipated choices. Rather, they are self-consciously attempting to move people in directions that will make their lives better.”<sup>503</sup> Thaler and Sunstein write that by doing this, “they nudge.”

Nudges are often compared to navigation systems. As the goal of GPS is to make it easier for people to get to their final destination, so are nudges making it easier for people to reach their goals. Nudges stem from an understanding that life can be simple or difficult to navigate, and the goal of nudges is to promote simpler navigation. A GPS tells people how they can best get to their final destination, but it does not punish them when they choose an alternative route. Furthermore, GPS can be useful even for people who are familiar with the road and can navigate it on their own. Similarly, nudges do not impose any sanctions or costs when people refuse to be influenced. Nudges can be useful even for people who do not suffer from cognitive biases. Some

nudges work because they inform people; other nudges work because they make certain choices easier; still other nudges work because of the power of inertia and procrastination. In order to call an intervention a nudge, it should not impose significant material incentives or disincentives. A tax or a fine is not a nudge. An intervention must fully preserve freedom of choice in order to count as nudge.

There are two realities that make nudging or choice architecture important for healthcare professionals. Quite often physicians define their role in medical decision-making around the provision of relevant medical information that will enable patients to make an informed decision. It is often assumed that physicians' non-involvement is possible and even desired to preserve intentionality and autonomy in decision-making. Physicians may think that as long as their patients have accurate information on the benefits and risks of a treatment, they will be able to make the best decision for themselves, the one that reflects their preferences and intentions. Following this train of thought, the duty of the intensivist is to offer families the best data available, free of her own biases or feelings, and let patients plug this data into their value systems. Any resulting choice of treatment will be made by the patients, who will have to live with its consequences. However, removing physicians' influence is not always possible or desirable.<sup>504</sup> For instance, when physicians explain to their patients the risks and benefits of medical and surgical therapies for a specific condition, physicians must choose to lead with either the medical option or the surgical option. Their choice will result in anchoring the choices of their patients. Furthermore, when explaining the risks, they must frame possible outcomes as chances for benefit, chances for harm, or both. This framing will sway patients' choices one way or the other. Finally, physicians will always have a sense of what they would choose were they in

the patient's shoes. Therefore, some choices will be presented first, inadvertently emphasized, and framed to look more advantageous.

The second reality that may warrant choice architecture is the fact that patients don't have a list of well-established preferences. Their preferences tend to be made up on the spot. Even if it would be possible to avoid influence coming from physicians, doing so may not result in better choices that are aligned more closely with patients' values. Patients may be swayed by forces that are already present in the choice environment, nudging them to make suboptimal choices.<sup>505</sup> Thaler and Sunstein argue that our social environment is already manipulated by the private sector to promote unhealthy choices and behavior. For instance, the "upsizing" of fast-food meals, discounts for purchasing large quantities of soda, happy hours in bars and pubs – these are some of the incentives promoting unhealthy choices. Food placement in supermarkets can be another example. Everyday products such as milk and bread are placed at the back of the store so that customers must walk past more discretionary food items, increasing the chances of purchasing them, while items high in sugar and fat are located at the checkout to promote impulse buying. One can find similar examples in clinical setting, where defaults are set for more aggressive care and where the environment is shaped in a way to promote less-optimal choices for patients. Therefore, debates about the appropriateness of influence coming from physicians should encompass all forms of nudges and influences that may affect patient choices. Considering the existing forces that may promote suboptimal choices by inertia, one may consider the use of nudges ethical and desirable.

### **Benefits of Using Nudges**

Consider a provider who is deciding whether to recommend a default treatment for an ICU patient or to instead describe a number of options for that patient, trying to present them in a

neutral way so that the patient may choose for himself. Some may consider the act of active choosing as more ethical or beneficial than setting up a default. By encouraging a patient to decide on a treatment among a variety of options, the provider promotes that patient's self-determination which supposedly leads to higher satisfaction with decisions. However, many times this insistence on the act of choosing can be paternalistic in itself.<sup>506</sup> When faced with difficult decisions involving choice of treatment or intervention, patients or families may be aware of their lack of information. They can be afraid to make a wrong decision because the amount of information coming at them is often confusing and the choices presented to them can be painful. They may not want to take responsibility for potentially bad outcomes for themselves. They may be under stress, lack the capacity to process the required amount of information, and, therefore, would prefer some kind of default choice or strong suggestion.

Even when patients prefer not to choose, providers and healthcare teams will insist on active choosing. While this insistence is done in the name of autonomy, ironically the same act often overrides it. When patients prefer not to choose, required choosing can be a form of coercion, especially in situations when choosing will likely lead to costly errors. In the context of critical care, patient and families are faced with many difficult choices and often avoid choosing. Overutilization of futile critical care and length of stay in ICUs can serve as an example of such choice avoidance. Alternatively, patients and families can be asked whether they want to choose and be given an opportunity to opt out of active choosing in favor of a default rule. This would be a form of libertarian paternalism that would preserve freedom while helping people to make difficult choices. For instance, a physician may ask his patient whether he wants to make a choice among treatments, or instead to have a standard approach that seems to work best for patients like him. In some instances, patients may decide in favor of a default because they may

not trust their own judgement, the topic of choice will make them anxious, or they will not be able to handle the amount of information required to make the choice.<sup>507</sup>

In addition to choice avoidance, nudging often addresses the problem of irrationality in health decisions. The concept of choice architecture is motivated by findings from behavioral science that people often make choices that are inconsistent with their long-term interests. For example, people may overweigh near-term costs and benefits while underestimating delayed costs and benefits. Thus, some may choose to smoke even though they know that their future selves will regret the decision.<sup>508</sup> Similarly, in the context of critical care, patients may be impacted by affective forecasting errors. What if a patient who was involved in an accident that crushed his spine and left him paralyzed requests that life-sustaining treatment be withdrawn because he believes that life as a paraplegic would be worse than death for him? It is not uncommon for patients who become paralyzed to initially see this condition as a fate worse than death, but many of these patients adapt over time. While providers may not want to force life-sustaining treatment on those who really would rather die than live in their conditions, they also would not want patients to go without life-sustaining treatment due to an irrational belief about what life will be like for them in their conditions.<sup>509</sup> In such situations, the role of choice architecture is not only to respond to or correct irrational behavior. Insights from behavioral science can predict, reduce, or even overcome these irrational choices by adjusting choice context and steering patients' attention to specific factors that can promote better choices.

Nudges are preferable to the traditional ways of changing health behavior. For instance, physicians often prescribe expensive and patented drugs even when cheaper generic treatment would be just as effective. The traditional way to address this (and many other similar) problem would be to impose liability on physicians who prescribe suboptimally or incentivize them by

paying bonuses for optimal prescribing. While this “carrot or stick” approach can be effective, it may often create normative problems. For instance, in the example above, there is a potential for intrusion on physician professional discretion. Conflicts of interests and infringements on access to healthcare can be among unfortunate outcomes as well. Both penalties and incentives may have some unexpected effects.<sup>510</sup> One famous example of an unexpected effect of penalties comes from day care centers in Israel. The traditional economic theory suggests that offering incentives for good behavior is likely to produce more of it, while penalties are likely to deter bad behavior. However, this is often not the case. In Israel, day care centers almost uniformly closed at 4pm and depended on the good intentions of parents to pick up their kids on time. This strategy has worked for a while and rarely, if ever, a parent would come after 4:30pm. When parents started to show up late, some day cares introduced a small fine for parents who showed up more than 10 minutes late. In day cares where the fine was introduced, parents immediately started showing up late, with tardiness levels eventually leveling out at about twice the pre-fine level. Before the fine was introduced, parents felt guilty about being late, and their guilt compelled them to be more prompt in picking up their kids in the future. Social norms were strong. However, once the fine was imposed, this social norm was replaced with market norms, and parents felt they were paying for their tardiness.<sup>511</sup>

Incentives have a similar tendency to backfire in certain scenarios. The literature on blood donation has served as the source for the concept of motivational crowding out.<sup>512</sup> In order to understand this concept, one should distinguish between intrinsic and extrinsic motivations. Extrinsic or instrumental motivation refers to a desire for a result that is separable from the action itself, such as obtaining financial benefit or avoiding a penalty. In contrast, intrinsic motivation includes all other motives, such as enjoyment, morality, reciprocity, and social

contract. Adding incentives to a health task promotes one choice over the other by adding to its extrinsic motivation. In the blood donation example, public health officials assume that paying people to donate blood will increase their overall motivation to donate. However, the literature shows that incentives for donation may crowd out willingness to donate among women but not among men. Scholars explain that women are more motivated by prosocial concerns. On one hand, people may view payment for donation as compensation for the risks of donating. When payments are high, risk-averse individuals may stop donating because they believe that the risks of donation are higher than normal. On the other hand, small donations may reduce intrinsic motivation by signaling that the task is not important enough.<sup>513</sup>

The benefit of choice architecture and nudges is in the fact that they work to achieve a desired effect. Nudges are often inspired by laboratory experiments with human subjects, using vignettes or games to identify motivational aspects and underlying aspects of a specific behavior. These experiments can be predictive for how people will make health-related decisions in the real world. Ideally, these laboratory experiments will lead to some large-scale randomized trials to confirm findings in a hospital setting. In this way, choice architects are experimentalists, and they base their nudges on empirical evidence. They are better positioned to modify these nudges as necessary whenever the new evidence is available.<sup>514</sup> Furthermore, nudges rely on a different concept or theory than these traditional “carrot and stick” approaches. “Carrot and sticks” assume that people predictably behave in ways that maximize their own personal interests. This assumption depicts human choice as a comparison of the costs versus benefits, where the chooser selects the option that will maximize net benefit to himself or herself. This is the reason why the “carrot and sticks” approach has been so popular – they simply manipulate the relative costs and benefits of any option, making good behavior less expensive than bad behavior to the actor.



Choice architecture relies on empirical data that shows systematic departures from this rational model of human behavior. As has been shown earlier in this and previous chapters, people often make choices that contradict their long-term interests. While making complicated healthcare choices, people tend to rely on heuristics, or rules of thumb. Choice architecture uses this knowledge about the way people make decisions to steer their choices in a way that would benefit patients the most.<sup>515</sup>

Finally, cost-effectiveness of nudge interventions is often cited as the main reason to implement these strategies. Nudge interventions have been implemented by government agencies in the United Kingdom (Nudge Unit), Australia, Germany, the Netherlands, Singapore, and the United States. Recently, a group of researchers examined existing studies to evaluate the relative cost-effectiveness of nudges and other policy interventions.<sup>516</sup> Looking at the 2015 reports from these government agencies, the researchers developed a list of relevant policy areas and identified one behavior as the outcome of interest within each area. They then searched relevant literature for original research published from 2000 to mid-2015 that directly examined interventions targeting these outcomes. The team compared the effectiveness of nudge strategies with more standard policy interventions, calculating the ratio between an intervention's causal effect and its implementation cost. In each of the domains that the researchers examined, nudges were highly cost-effective, often more so than the traditional policy interventions.

In the case of retirement savings, for example, a nudge that prompted new employees to indicate their preferred contribution rate to a workplace retirement-savings plan yielded a \$100 increase in employee contributions per \$1 spent on implementing the program; the next most cost-effective strategy, offering monetary incentives for employees who attended a benefits fair, yielded only a \$14.58 increase in employee contributions per \$1 spent on the program. Similarly,

a nudge-based mailing that prompted employees to write down when and how they planned on getting their flu shot led to about 13 additional people getting vaccinated per \$100 spent on the mailing. By contrast, an education campaign on the benefits of the flu vaccine led to only about nine additional employees at a health care facility getting vaccinated per every \$100 spent on the campaign. The researchers acknowledge that their analyses do not offer an exhaustive review of the comparative effectiveness of nudges and traditional policy tools. Furthermore, there are many cases in which traditional tools, “carrot and stick” strategies, are essential for achieving specific policy objectives, and nudges might not be of value.<sup>517</sup> Nevertheless, the new findings show that nudges offer a useful, low-cost approach to promoting behaviors tied to a variety of important outcomes. The cost-effectiveness of nudging can be 100, and even 1,000, times greater than more traditional interventions.

### **Ethics of Nudging**

The discussion of ethical aspects of nudge strategies needs to be placed in the context of healthcare. It is possible to assume that nudges are less problematic in the case of health decision-making than in other areas of individual choice. Sustaining and promoting health is very important to everyone, so nudges designed to accomplish these goals are unlikely to impose unwanted or external goals on people. Furthermore, health-related decisions are more complex and emotional than most. This fact may justify the use of nudges to help overcome cognitive heuristics and biases. Health-related decisions often involve advanced medical science, which develops and changes rapidly, requiring outside expertise to intervene in the process of decision-making. These decisions are very personal and emotional, thus complicating the processing of the complex medical information involved.<sup>518</sup> For instance, in order to decide on an intervention in the ICU, people need to compare and weigh against each other probabilities of outcomes.

Most people are not good at performing this task even under ideal conditions, less so when they are in an emotionally “hot” state. Some treatments also involve the performance of tasks over time (adherence to drug regimens), which requires self-control, a thing many people lack.

However, critics may point out that we often take it for granted that health is the most important interest relevant to the decision-making process of patients. It is almost implied that enhancing a patient’s capacity to pursue health has intrinsic value in itself. This may not be the most important interest for everyone, and it is definitely not a simplistic interest. Some may argue that even though we give health a lot of importance, we still eat more than we should or sit around more than we should for a number of reasons, including relaxation, celebration, or socialization. We value health but also our relationships, happiness, or work, and we constantly balance these interests when making a decision. Nudging for health promotion in this context can be compared to nudging to increase savings by employers. While retirement savings may be an interest of many if not most people, there is no reason to assume that it is their main interest when it comes to financial planning. New employees who do not sign up for a retirement program may have fallen prey to irrational biases, but they also may have other uses for the extra money, such as making a down payment on a new home or saving for the arrival of a new child. Therefore, one ethical concern stems from the idea that people may have their own interests when it comes to health or financial planning, and choice architects may override those interests with their own understanding of those interests.<sup>519</sup>

Furthermore, some may argue that even if we assume that health is the most important value in the context of treatment decisions, each patient’s conception of health might vary. Similar to happiness, health is a broad concept and may signify something different for each patient. In the context of the ICU, some may value the absence of pain above all else; for some, it

is important to maintain vital functions regardless of the costs involved, while some may be solely concerned with mental capacity. In the context of health promotion, some people focus on their weight, others on cardiovascular fitness, yet others on strength or endurance – or any combination thereof. A nudge strategy designed to promote a particular aspect of health may fail to correspond to how a patient incorporates health into his overall interests as well as that patient’s specific health goals.<sup>520</sup> This leads to the ethical problem related to individual autonomy. Traditional conceptions of autonomy, described in earlier chapters, maintain that people should have the right to live their lives as they choose, free from judgment or interference from others. However, based on the earlier discussion, choice architects may use nudges to steer patients’ decisions in the direction of interests that are not necessarily their own but rather the architects’ idea of those interests. Furthermore, because nudges often rely on the same cognitive heuristics that motivated their use, the decision based on a nudge is no easier to avoid than the one the nudge is designed to change.

Thaler and Sunstein, in their seminal work, address this ethical concern by suggesting that nudges should “influence choices in a way that will make choosers better off, as judged by themselves.”<sup>521</sup> They argue that the “judged by themselves” standard can be easily applied to most nudge strategies. If a choice architect is genuinely concerned with making patients better off as judged by themselves, he might want to see what these patients do when they are well-informed, when they choose actively, when their judgments are well thought-through, and when they are not impulsive. In most situations, the “as judged by themselves” standard raises no issues. As in the GPS example, if it steers people toward a destination that is not their own, it is not working well. If it offers them a longer and less convenient route, it will not make choosers better off as judged by themselves. Nudges that increase “navigability” by making social

situations easier to manage easily satisfy the standard.<sup>522</sup> It is important to remember that some nudges work precisely because they inform people. Some others work because they make certain choices easier, and people often choose the path of least resistance. Some such nudges, like defaults, work because of the power of inertia and procrastination. Some nudges work because they make some fact or option or risk salient when it previously was not (i.e., reminders to take medications). In many other situations, when it is not clear what patients would judge as a good outcome, there are ways to distinguish it by applying proper design and evaluation techniques. For instance, it is possible to set up two default options with two different opt-out strategies. If more people are opting out in one case, while less people are opting out in the other case, it is plausible that the latter is what people actually prefer.

The previous concern, somewhat related to the “judged by themselves” standard, namely the issue of tradeoffs among various conceptions of health, can be addressed using means-end logic. This logic suggests that people are not only the best judges of their end goals but also the means by which they are reaching those goals. People may reject the GPS route because they prefer the scenic alternative, or, as it was mentioned above, people may reject retirement savings because they have a better use for those funds. It is important to keep in mind that when described in great detail, means become ends in itself. If we consider eating that brownie or having that afternoon nap instead of going to the gym – that brownie and that nap is exactly what people want at the given moment. However, if we consider means and ends in a more global way, nudges often help identify the best means for achieving preferred ends.<sup>523</sup> For instance, if some characteristics of a treatment are not easily distinguishable, and the nudge helps patients to see the treatment for what it is, it may not take away from ends (preserving health) or means (choosing best treatment). Alternatively, when people fall prey to the availability heuristic, a

nudge that corrects their mistake can help them to achieve their ends as well as decide on the means. Should we consider a nudge strategy impermissible in the example of a person who refuses beneficial interventions because he can't imagine his life as a quadriplegic? When such a nudge helps this patient to focus on his long-term interests, it may redistribute the overall well-being between earlier and later versions of this patient to make sure that his future self gains more than the present self loses. It is possible to argue that in this case we may undermine the ends of this patient at the time of choice.<sup>524</sup>

The discussion of autonomy in the context of nudging should mention one important aspect of choices influenced by cognitive heuristics. It is plausible to consider actions driven by cognitive heuristics as less than autonomous, while nudges as tools that help us to restore this autonomy. Luc Bovens famously argued that “there is something less than fully autonomous about the patterns of decision-making that nudge taps into. When we are subject to these mechanisms (heuristics), then we are not fully in control of our actions... these are cases of not letting my actions be guided by principles that I can underwrite. And in as much, these actions are non-autonomous.”<sup>525</sup> By definition, autonomy requires informed choices. If a patient signs up for a costly and complicated treatment without a sense of what it would entail, it is fair to question whether this patient has acted autonomously. On the other hand, if this patient received assistance in the form of nudging (framing of options, making some features more salient), it would be difficult to argue that this patient's autonomy has been reduced. Many nudges are specifically designed to ensure that choices are informed and that relevant information is salient and easy to process. It is also important to notice that autonomy does not require choices to be made about every single feature of a treatment. There is a relationship between time management and autonomy, especially in the context of critical care. Patients should be allowed to devote

their attention to what is really important for them. Defaults may relieve them of unwanted burdens and, by doing so, increase their autonomy.<sup>526</sup>

This example of defaults brings about one argument often used in the defense of nudge policies. Even in the context of important decisions about health that should be made autonomously, nudges or defaults are often a necessity. There is no possible way to avoid them. For instance, deciding whether to become an organ donor is a decision that many would consider an important one, one people ought to make autonomously and after some thinking and deliberation. However, how should a decision be made about the organs of someone who has not made a decision about becoming a donor? In such case, a default rule is inevitable. The decision is really about whether this default should be set so that people are organ donors or so that they are not. Furthermore, given what we know about decision-making and cognitive heuristics, it is possible that many people will stick with the default rule for organ donation, regardless of the chosen default. What rationale could there be for setting the default at not being a donor if being a donor is what most people would prefer if they did, in fact, give serious consideration to the question of whether to be an organ donor? It seems that even the fact that a nudge has the potential to make a particular outcome to a particular important decision more likely (other than by rational persuasion) is not, by itself, reason to be suspicious of nudges.<sup>527</sup>

The possibility of manipulation is a concern often mentioned in the discussion of nudge policies. Given the fact that nudges work best when people are not aware of them and the fact that nudges are not designed to rely on deliberative reasoning, some consider these strategies as manipulative.<sup>528</sup> While discussing manipulation in the context of nudges, it is important to keep in mind that not all attempts to influence someone's behavior count as manipulation. Reminding someone that their bill is due or posting calorie content on foods is not manipulation.

Additionally, most of the choices people make on a daily basis do not involve deliberation and reflection. Minor facts that escape our awareness can influence our decisions – a smile or a frown from a provider, the fact that the provider is male or female, etc. Furthermore, manipulation can occur in cases of complexity (i.e., needing to complete a long consent form). Complexity can be manipulative if it breeds confusion and there is a lot of it present in healthcare. Given the fact that manipulation is encountered in many instances of our daily lives, most of its forms can be considered ethically neutral unless the manipulator's goals are self-interested or sinister and when the act of manipulation subverts the chooser's deliberative capacities.<sup>529</sup>

Some may argue that lack of transparency is what makes manipulation unethical. Choice architects may not be transparent about potential nudges designed to influence a chooser's behavior. Would this render nudges unethical? In order to answer this question, one should decide whether there is a moral obligation to be transparent about psychological mechanisms that make some information more effective than other. For instance, healthcare providers may offer risk information about certain procedures or health behaviors. However, this provider is not disclosing psychological mechanisms that make this information effective. Public health officials don't provide a disclaimer that "we are using risk information because we want you to change, and we know that if we say that your mortality risk will be tripled, you are more likely to change. It is also true that even if you do not change, your mortality risk will remain very low."<sup>530</sup> Is it manipulative not to be transparent about the psychological mechanisms that make influences work? If the act is itself transparent, and if deliberative capacities are sufficiently involved, then a failure to tell people about the underlying psychological mechanisms does not mean that manipulation is necessarily involved.



This discussion on ethics of using influence strategies in healthcare can be best summarized by referencing four ethical factors outlined by Blumenthal-Barby and Burroughs.<sup>531</sup>

1.) The greater the patient’s capacity to make an autonomous choice, the less the health professional should attempt to influence the patient; 2.) The less evidence concerning the efficacy of a treatment or recommendation, the less the justification for influencing the patient’s decision; 3.) Respect for the patient’s autonomy requires that the less evidence concerning a patient’s long-standing values, beliefs, and goals, the less the justification for influencing a patient’s decision; and 4.) The greater the potential magnitude of harm relative to benefit from the attempt to influence, the less the justification for the attempt. As has been discussed in this section, oftentimes, nudges are inevitable, and there is no way to avoid some kind of choice architecture. Therefore, ethical objections can be addressed toward particular forms of nudges but not to the concept as a whole. If we are guided by the principle of maximizing the welfare of patients, then most nudges are actually required on ethical grounds. A failure to nudge might be ethically problematic. It is usually unacceptable not to warn people before they accept some serious risks. A failure to warn is a failure to nudge. Similar problems can be raised when we fail to set an appropriate default. A failure to nudge might compromise autonomy.

### **Potential nudges for End-of-life Care: Providers**

#### *Incentivizing end-of-life conversations*

In a 2014 report titled “Dying in America,” the Institute of Medicine (IOM) recommended extensive changes in end-of-life care, including clinician reimbursement for advance care planning discussions.<sup>532</sup> The idea of letting Medicare reimburse such conversations was first introduced in 2009 during debate on the Affordable Care Act.<sup>533</sup> The issue quickly fueled allegations by some conservative politicians, such as former Republican Vice-

Presidential candidate Sarah Palin and Presidential candidate John McCain, that they would lead to “death panels” that could disrupt care for elderly and disabled patients. The idea was dropped in fears of a public outcry, but it has reemerged a few years later as a response to the 2014 IOM report and a number of studies documenting the lack of advanced care planning. For instance, a 2015 Kaiser Family Foundation poll found that 89 percent of people surveyed said healthcare providers should discuss end-of-life issues with patients, but only 17 percent had had those talks themselves.<sup>534</sup> These studies and reports show that physicians are not trained to have advance care planning discussions and find them difficult to initiate. Providers know that patients and families come to them looking to be cured, looking for hope. It is difficult to have a conversation about what happens when cure is no longer a possibility. Additionally, a number of incentives in the healthcare system nudge providers to adopt the “do all” approach. Although no physician feels she is providing care near the end of life for financial gain, one must consider evidence that healthcare spending in the last weeks of life is linked to how physician and hospitals are compensated for that care.

In order to reduce the impact of these negative incentives and to increase the rates of advance care planning conversations, several US Congressmen have proposed several bipartisan bills. These include the Personalize Your Care Act of 2013, primarily sponsored by Representative Blumenhauer (D– Oregon)<sup>535</sup> and the Care Planning Act of 2015 primarily sponsored by Senator Warner (D – Virginia).<sup>536</sup> These bills proposed process-based incentives whereby health-care professionals would be reimbursed for documenting advance care planning discussions. While these bills have not passed, in November 2015, the Centers for Medicare and Medicaid Services (CMS) finalized changes to the physician fee schedule that includes new payment codes to reimburse health-care professionals for discussing advance care planning.<sup>537</sup>

These changes were supported by the American Medical Association and a number of advocacy groups with minimal public or political opposition. When the CMS Chief Medical Officer announced the final changes in the fall of 2015, he declared that the agency had received “overwhelmingly positive comments” in response to a draft rule published earlier in the year.<sup>538</sup> The new changes are minimal, and the policy allocates minimal time for the advance care conversations at a low reimbursement rate. Providers are compensated \$86 for a first session of thirty minutes in a doctor’s office (\$80 in a hospital setting) and \$75 for a follow-up. The policy requires no specific diagnosis and sets no guidelines for end-of-life discussions. Conversations center on medical directives and treatment preferences, including hospice enrollment and the desire for care if patients lose the ability to make their own decisions.<sup>539</sup>

According to recent data released by the CMS, nearly 14,000 providers billed almost \$35 million, including nearly \$16 million paid by Medicare, for advance care planning conversations for about 223,000 patients from January through June of 2016.<sup>540</sup> Use of the guidelines is on track to outpace an estimate by the American Medical Association, which projected that about 300,000 patients would receive the service in the first year.<sup>541</sup> In California alone, which recorded the highest payments, about 1,300 providers provided nearly 29,000 services to about 24,000 patients at an overall cost of about \$4.4 million, including about \$1.9 million paid by Medicare.<sup>542</sup> The data likely reflects early adopters who were already having the discussions and quickly integrated the new billing codes into their practices. Many physicians are still unaware of the new guidelines. For instance, data from Aethna Health shows that about 17 percent of 34,000 primary care providers at 2,000 practices billed for advance care planning in all of 2016.<sup>543</sup> These numbers will likely grow, regardless of some flaws in the new policy. For instance, many voices have objected to the minimal reimbursement schedule. A physician makes about \$400 on

average to perform a colonoscopy, which takes much less time than an advance care discussion. A colonoscopy takes skill and practice to do well, but so do advance-care planning discussions. This is especially true when the person creating the plan has a significant illness.<sup>544</sup> Furthermore, end-of-life care planning can be pointless without corresponding changes in how healthcare system covers medical costs in the last years of life. In many cases, insurers will pay for invasive procedures that require hospital stays but not for expanded use of palliative care or home-based interventions—no matter what patients might request. Providers can make reliable plans with their patients, but these plans may not be followed through because the system is designed to make hospitalization the easiest option.<sup>545</sup>

#### *Framing code status discussions*

Surrogate decision makers for ICU patients with advanced critical illness are often asked to determine whether use of life support and cardiopulmonary resuscitation is consistent with a patient's values and goals. In order to answer this question, family members need a good understanding of not only their loved one's values but also the potential outcomes of treatment. A number of studies have shown that prognostic information affects decisions to withhold or withdraw life support.<sup>546</sup> However, disagreements about prognosis between physicians and family members are very common. A lack of ability to understand physicians' prognostication is often considered a cause of these disagreements. A number of recent studies suggest that optimism bias, or the mistaken belief that patient is at less risk of experiencing negative outcomes than suggested by evidence, is the main cause of disagreements between families and providers.<sup>547</sup> Families may believe that patients' faith, uniqueness, strength of character, and will to live may influence outcomes differently from what is suggested by the provider. In a study by Zier et al., families' interpretations of prognostic statements expressing a low risk for death were

relatively accurate, but interpretations of statements conveying a high risk for death were more optimistic than the actual meaning. Interpretations of the statement “90% chance of surviving” did not differ from the actual meaning, but interpretations of “5% chance of surviving” were significantly more optimistic. Researchers concluded that families need optimism in the face of a poor prognosis, and they rely on optimism bias to interpret prognostication information which in turn leads to the futile use of CPR and life-sustaining treatment.<sup>548</sup>

The way physicians frame end-of-life care options and the kind of language they use in these important discussions may increase or decrease this optimism bias. Optimism bias underlies risky behavior.<sup>549</sup> Similar to many nudges, framing effects are also more pronounced in decisions involving risk or uncertainty. People are reliably found to be risk averse when gambles are framed in terms of gains and risk-seeking when equivalent gambles are framed in terms of losses. Similarly, when healthcare interventions are framed in terms of survival versus mortality rates, people display the same risk-seeking/risk averse behavior.<sup>550</sup> One of the ways framing may affect decisions is by influencing the decision maker’s emotional response to the decision. Some support to this hypothesis is found in studies suggesting that framing effects may result from differential activation in the emotional centers of the brain. Considering this connection between optimism bias and decisions involving risk, a group of researchers from the same institution as the study on optimism among surrogates explored the use of different frames and their impact on optimism bias in decisions about CPR. Researchers found that several frames were effective in reducing optimism bias. For instance, when asked to choose between CPR and a DNR order, 60 percent of the participants went for CPR. However, when the doctor used the phrase "allow natural death" instead, only 49 percent of patients chose resuscitation. In addition, when the doctor said, "In my experience, most people do not want CPR," only 48 percent decided to go

against the norm and choose CPR anyway (versus 64 percent when they were told CPR was the more popular decision).<sup>551</sup>

Framing of CPR discussions is very important. In these discussions, providers may ask questions such as “If your heart stops beating, do you want us to try and start it again?” or “If you stop breathing, do you want us to put in a breathing tube?” or the more loaded question “Do you want us to do everything?” These questions are problematic because patients are offered no tangible alternatives; in essence, the choice they are presented with is between doing everything and doing nothing. This is the reason researchers suggest to use the term allow natural death (AND) to imply a course of treatment during a natural disease progression.<sup>552</sup> Comfort measures, supportive care, and allowing a natural death to occur should be more explicitly presented as care options in the ICU. Clarifying for patients the difference between the interventions of attempted resuscitation and those of supportive care associated with allowing a natural death could provide valuable nudge and assistance with patient care decisions. Furthermore, the full code status is often considered as a social norm due to perceptions formed by movies and TV shows. This social norm is often inappropriately applied to patients at the end point on a known dying trajectory. Physicians can address this norm by prefacing the discussion of CPR with “In my experience, most people don’t want CPR,” thus setting a different norm.<sup>553</sup> Finally, framing the CPR decision as the patient’s and not the surrogate’s is a useful nudge to remind the family member that they are acting as an informant, rather than relaying their own preferences, and to reduce feelings of responsibility or anticipated regret for the decision.<sup>554</sup>

#### *Framing palliative care as treatment and not as giving up*

Patients and caregivers often see palliative care as being equated with death, loss of hope, dependency, and going into places you never get out of again.<sup>555</sup> Similarly, healthcare providers

interpret choices between aggressive treatment and palliative care as “doing everything or doing nothing,” where palliative care is essentially viewed as “pulling the plug” or “doing nothing.” Some physicians may view palliative care as incompatible with the hospital and ICU goals of saving lives, and some intensivists perceive instituting palliative care as being “soft” or “giving up.” Their views are reflected in the way they frame conversations about palliative care. These “nothing left to do” conversations often frame palliative care as a way to help people die comfortably rather than an approach to care that allows them to live with the highest quality of life for as long as possible.<sup>556</sup> When options are presented in this way, patients and families may see palliative care as a potential loss of care, of treatment, and of hope. According to the prospect theory, people make decisions based on the potential value of losses and gains rather than the final outcome. They interpret the outcomes of a decision as gains and losses, and they are more sensitive to losses than to equally valuable gains.<sup>557</sup> This loss-averse nature of patients’ choices may explain their decisions to refuse palliative care. When palliative care is framed as a loss of treatment, people will cling on to the aggressive care option even when the chances for it to be successful are very slim. The same behavior is demonstrated in gamblers who will continue to gamble after a significant loss in attempts to recoup losses rather than going home. Consequently, people are more risk averse when the probability of benefit is high but more risk-seeking when it is low.<sup>558</sup>

One recent study compared the language used by physicians to introduce treatment options for terminally ill ICU patients.<sup>559</sup> Researchers were interested in exploring different frames used for life-sustaining treatment versus palliative treatment. The study found that when discussing these end-of-life treatment options, physicians most commonly presented intubation first and did not introduce palliation until after the patient or family members expressed their

preference to avoid intubation. In more than 100 encounters in which life-sustaining treatment was introduced to the patient, the most common frame, used in every second conversation, was “must.” While talking about life-sustaining treatment, physicians would use phrases like “we may need to,” “he needs,” or “we should,” conveying an attitude of necessity adopted by the physician toward intubation. For example, one doctor stated, “He will more than likely *require* more oxygen in the near future.... At some point, it will *require* putting a tube down and breathing for you with a mechanical device.” In contrast, examples in which palliation was introduced using a “must” frame, such as, “So in talking to you guys it seems like *we should* do whatever we can just to make him comfortable,” occurred much less frequently, in only 22 conversations.<sup>560</sup>

There were 86 conversations focusing on palliative care option, and the most common frame used in half of those conversations was “could.” This frame was expressed using words like “we can,” “we may,” and “the options include,” reflecting notions of optional possibility adopted by the physician regarding palliative care. For example, one provider offered, “There are a few things that *we could* try to make you more comfortable.” Another subject stated, “We can keep doing maximum management...and if things are not working, then *we can* just withdraw all those things...*we can* just control your pain...and *we can* consult some palliative care people to provide you some support.” In contrast, examples in which life-sustaining therapy was introduced using a “can” frame (e.g., “*We could* put you on a breathing machine if your breathing gets to be too labored.”) occurred much less frequently, in only 10 conversations.<sup>561</sup> This study highlights the difference in language used by physicians to discuss the available treatment options for a chronically ill patient who is likely to die in the ICU. The majority of physicians discussed life-sustaining treatment first and only introduced palliation as an



alternative after the patient revealed his preference to avoid intubation. They most often framed life-sustaining treatment as required, while palliative care was framed as optional. It is interesting to note that physicians who framed life-sustaining treatment as necessary said during debriefing interviews that life-sustaining treatment was not the appropriate option for the patient in this scenario. The framing of intubation as an imperative reflects the default to initiate or escalate life-sustaining therapy unless an alternative is actively chosen. Therefore, it is important to be mindful of this default and to present palliative care as therapy and not abandonment.

#### *Accountable justification for palliative care orders*

Changing clinical decision-making among physicians is notoriously difficult due to many factors, including competing physician motivations, information overload, and clinician alert fatigue. Overprescription of antibiotics can be an example of such clinical decision-making that needs to be changed. Overuse of antibiotics exposes patients to an unnecessary risk of adverse drug events, increases health care costs, and increases the prevalence of antibiotic-resistant bacteria. In 2015, this overuse of antibiotics made Americans more vulnerable to a strain of bacteria that caused nearly half a million infections and contributed to at least 29,000 deaths.<sup>562</sup> Despite published clinical guidelines and decades of efforts to change prescribing patterns, antibiotic overuse persists, while many behavioral interventions such as education, clinical decision support, and incentives, had moderate results. One recent study used accountable justification as a way of changing prescription practices.<sup>563</sup> Accountable justification was embedded in the electronic health record (EHR). An EHR prompt asked each clinician seeking to prescribe an antibiotic to explicitly justify, in a free text response, her treatment decision. The prompt also informed clinicians that this written justification would be visible in the patient's medical record as an "antibiotic justification note" and that if no justification was entered, the

phrase “no justification given” would appear. Encounters could not be closed without the clinician’s acknowledgment of the prompt, but clinicians could cancel the antibiotic order to avoid creating a justification note, if they chose. The accountable justification alert was triggered for both antibiotic-inappropriate diagnoses and potentially antibiotic-appropriate acute respiratory tract infection diagnoses.

This intervention was very successful in changing physician prescription practices. It reduced antibiotic prescription rates for acute respiratory infections by 18 percentage points, from 23 percent to 5 percent.<sup>564</sup> There are several psychological processes at play that can account for the success of this nudge strategy. This intervention was based on prior findings that accountability improves decision-making accuracy and that public justification represents reputational concerns. In order to preserve their reputations, clinicians should be more likely to act in line with norms or what one “ought to do” as recommended by clinical guidelines. Accountable justification signals this norm, indicating that prescribing an antibiotic is not recommended. This may make the provider more likely to believe both that not prescribing an antibiotic is the best medical decision and that prescribing when it is not indicated violates professional standards.<sup>565</sup> Furthermore, this nudge incorporates social accountability. Provider justifications become a separate part of the medical record, so a provider’s decision to prescribe is subject to the review and judgment of her peers.<sup>566</sup> Finally, the justification alert implicitly designates non-prescription as the default action. Defaults may affect behavior for a number of reasons. They may be perceived as a recommended action, and they require less effort. In the case of antibiotic prescription, a provider could avoid the workflow disruption caused by the justification alert if she would cancel the order. Defaults may seem less anxiety-inducing as people tend to regret active choices that lead to poor outcomes more than they regret failures to

act that lead to poor outcomes. Therefore, anticipated regret caused by adverse outcomes related to antibiotics will loom larger in this case.<sup>567</sup>

Similar accountable justification can be implemented in the ICU context, nudging providers to consider palliative care and asking them to write a justification for delays in ordering palliative care consults. Given that the default in the ICU is aggressive treatment, inadequate time is devoted to developing alternative care plans, which results in patients receiving aggressive care despite minimal chance of recovery. This leads to inadequate symptom management at the end of life. Implementing palliative care consults in a form of accountable justification has a potential to change this dynamic. When a similar intervention was implemented for heart failure patients at the St. Francis Regional Medical Center, over 90% of these patients were able to see a palliative care specialist. This also led to a decrease in readmission rates by 6% over the course of one year.<sup>568</sup> A similar dynamic is described among lung cancer patients. Even though most professional guidelines suggest the need for early integration of palliative care for this group of patients, less than 25% of them receive palliative care consultations. When palliative care consults were introduced as the default during ICU admission, researchers observed significant improvement in patient symptoms. In addition, although few (12%) patients had an advance directive before the consultation, and most (81%) had "full code" status at that time, decisions were made not to attempt resuscitation in the event of arrest for 70% of patients after discussions with the palliative care specialists. More than 40% of the lung cancer patients seen in palliative care consultation were alive at hospital discharge.<sup>569</sup>

### **Potential nudges for End-of-life Care: Patients**

*Default options in advance directives*

The need to improve communication between patients and providers about the preferences for end-of-life care is clear. While most critically ill patients value comfort and dignity over life extension, the current healthcare system is set up to promote aggressive treatment near the end of life. It takes a persistent request from patients or families to change this life-extending course of action. There are many effective approaches to improving communication in critical care that may still fail to produce immediate change when implemented. Advanced care planning requires complex interactions among many stakeholders, a conducive environment that will enable patients to explain their values and goals, and a healthcare system structured to give voice to these goals when decisions must be made. Given this complexity, communication interventions may lack scalability. On the other hand, advance directives represent a straightforward and easy to implement approach. These documents are designed to give voice to patients so their preferences and wishes can be respected. However, most of the currently used forms carry the same implicit bias that tends to favor life extension in the absence of advance directives. For example, in the widely used “Five Wishes” document, the option “I want to have life support” is listed first in all three clinical scenarios, despite evidence that the ordering of choices influences the choices selected and that the option presented first will likely be the one most people will select.<sup>570</sup>

Given the importance of the choices embedded in advance directives, it is important to understand how the structure of advance directives affects patients’ stated preferences. A number of recent studies demonstrate that the ability of patients to avoid unwanted care may be promoted by structuring advance directives in a way that comfort measures are presented as the norm, and life-sustaining interventions are to be provided only if actively requested. Kressel and Chapman presented hypothetical advance directives to college students<sup>571</sup> and to a small sample of elderly

outpatients.<sup>572</sup> In both groups, participants were significantly more likely to choose aggressive interventions should they become terminally ill when receipt of such therapies was framed as the default. These findings suggest that people often lack well-formulated and strongly held views on what type of interventions at the end of life will best promote their values. Insights from behavioral economics suggest that preferences for end-of-life care are likely to be “constructed” at the moment people are asked to express them, rather than reflective of strongly held preferences, because such choices are made infrequently and represent a complex decision.<sup>573</sup> In many other settings, patients usually seek to simplify their choices by sticking with the default option. These default effects occur when a patient can express one preference by explicitly answering a question (checking a box) and a different preference, the default preference, by failing to explicitly answer a question (not checking the box).<sup>574</sup> For example, as mentioned in chapter two, Johnson and Goldstein found that organ donation rates in countries with presumed consent policies (default to donate organs) were twice as high as in countries with explicit consent policies (default to refuse donation).<sup>575</sup>

Halpern and colleagues conducted a study to examine how default options influence the choices of seriously ill patients in real advance directives, even after patients were alerted to the default option and their responses to it. They found that default options have large influences on seriously ill patients’ actual choices for health care interventions at the end of life. Overall, most patients with terminal illnesses expressed preferences for comfort-oriented care when offered the opportunity to state these preferences in real advance directives, but the proportions of patients choosing this option differed significantly depending on how the default was set. For example, the proportion of patients choosing to forgo feeding-tube insertion was 54 percent in the comfort-default group, 45 percent in the standard advance directive group, and 26 percent in the life-

extension default group. For cardiopulmonary resuscitation, corresponding proportions were 42 percent, 32 percent, and 20 percent. Interestingly, the effect persisted even when patients were made aware of the defaults and shown how they had responded to them. Only 2 percent of patients in Halpern's study wanted to reconsider their choices after being alerted to the manipulation of the default option, but ultimately these patients did not change their original selections. Additionally, the authors suggest that intentionally setting defaults does not impact patients' satisfaction with their choices, implying that patients were content to be guided in their end-of-life choices.<sup>576</sup>

### *Incentivizing completion of advance directives*

The current demographic trends in the US documents a growing aging population and an increase in the prevalence of chronic diseases among adults over 45 years old. This reality of more people living with, declining from, and ultimately dying of a chronic condition raises challenges that require new ways of thinking about death and dying.<sup>577</sup> Planning for the end of life has a potential to prevent unnecessary suffering and promote individual choices regarding end-of-life care. However, the number of people who completed advance directives remains low despite promotion and education efforts. A Pew Research Center survey in 2009 found that only 29 percent of people had a living will.<sup>578</sup> In 2007, a Harris Interactive study put the proportion with advance directives at two in five.<sup>579</sup> Even among "severely or terminally ill patients," the majority had no advance directives in their medical records, reported researchers for the federal Agency for Healthcare Research and Quality.<sup>580</sup> A more recent large study of advance directives completion rates suggests that only 25 percent of Americans have an advance directive. The traditional approach to the promotion of advance directives is through clinic or hospital-based education.<sup>581</sup> However, the science of decision-making suggests that education

alone may not be enough to overcome psychological biases that interfere with advance care planning.

In order to complete an advance directive, a patient must be willing to think about and plan for death as well as to believe that completion of an advance directive has benefits that cannot be obtained by some other means. Thinking about death is stressful at best, while the benefits from completing advance directives are set in the future. The unpleasant aspect of completing advance directives arises up front, and the future benefits of having completed an advance directive may not be enough to offset the present discomfort. In many areas of life, people tend to discount future benefits in order to avoid present pains.<sup>582</sup> Furthermore, optimism bias may also prevent patients from completing advance directives. People tend to be optimistic about future life events. All newlyweds believe their marriage will last, even when they are presented with concrete data about divorce rates, and most smokers believe they will not suffer the harms of tobacco despite recognizing full well how many people do. Therefore, people may believe they are less at risk of dying connected to machines in the ICU compared with others. Tangible, immediate rewards such as financial incentives can be effective in overcoming these biases. Financial incentives for the completion of advance directives can reduce the immediate costs of unpleasant thoughts involving death and make the completion of advance directives more attractive. Financial incentives have been used successfully to promote other health behaviors influenced by present-biased preferences, such as smoking cessation<sup>583</sup> and weight loss.<sup>584</sup>

Under the Medicare Choices Empowerment and Protection Act, recently introduced by Senator Tom Coburn of Oklahoma and co-sponsored by Senator Chris Coons of Delaware, seniors could receive up to \$75 for completing advance directives. This bill encourages people

on Medicare to register advance directives with the Centers for Medicare and Medicaid Services (CMS). Medicare beneficiaries would receive a one-time payment of \$75 for creating an online directive, or \$50 for creating one manually. The payment from CMS would come either as a check or direct deposit.<sup>585</sup> A recent study by Barnato et al. examined the potential effectiveness of financial incentives on advance directive completion rates. While the overall effect was modest, researchers suggest that these incentives work best in combination with incentives targeting providers. Considering the fact that providers are now being reimbursed for advance care discussions, adding one more layer of incentives by rewarding patients for the completion of advance directives may prove to be an effective way of boosting up the presently low rates of completed forms. An active choice approach can be another way of improving advance care planning. Active choice is based on the idea that “forcing” individuals to choose between two options, instead of letting them go with a default option or avoid choice altogether, encourages more individualized choice.<sup>586</sup> In a recent study by Halpern et al, employees at the University of Pennsylvania employee orientation were randomized to a “forced active choice” condition, in which they were required to either complete an advance directive or decline to do so, or to a control condition, in which they could complete an advance directive or skip ahead to the next section. Giving participants the forced active choice to accept or to decline to complete an advance directive resulted in higher rates of completing advance directives.<sup>587</sup>

#### *Informed assent for decisions about futile life-sustaining treatment*

As has been mentioned earlier in this chapter, about one in five Americans die in an ICU. Many deaths in the ICU involve withholding or withdrawing life-sustaining therapies.<sup>588</sup> These decisions to withhold or withdraw life support are very challenging. They often depend not only on medical facts alone but also on the values of the patient. Because these patients cannot



actively participate in decisions about their medical care, physicians and families often assume this responsibility. These decisions cause a lot of emotional distress for everyone involved, and they are often the cause of disagreement between families and providers in the ICU. The shared decision-making model suggests that physicians need to provide families with relevant medical information, they have to elicit information about the patient's values and treatment preferences, and then they must provide a treatment recommendation and share in the deliberative process. There is no consensus, however, on how much decision authority a physician should assume. While many physicians prefer not to provide recommendations or personal opinions in order to preserve autonomy, this is not necessarily what surrogates need. As mentioned in the last chapter, one study shows that out of almost 800 surrogate decision-makers, 14.8% preferred to leave all decisions to the physician, 23.8% preferred that the physician make the final decision after considering their opinion, 39.1% preferred shared decision-making, 21.8% wanted to make the final decision after considering the physician's opinion, and only 0.5% preferred to make treatment decisions alone.<sup>589</sup> The distribution of preferences in this study shows that physicians should not adopt a "one size fits all" approach to these emotionally-charged conversations.

In their opinion piece published in CHEST journal, Curtis and Burt suggest that ICU providers don't have a moral obligation to discuss or offer futile therapies such as CPR.<sup>590</sup> In cases of withholding CPR or withdrawing medically not indicated life-sustaining treatment, it is ethically acceptable to obtain an informed assent rather than insisting that patients or families always bear the burden of explicit consent. Informed assent is a process in which providers offer full information about the risks and benefits of the treatment, convey their recommendation and reasons why this treatment is not recommended, and clearly indicate that patients and family are allowed to defer to the provider's judgement. This would signal to the patient or family that their

physician is prepared to relieve them of the unwanted burden of making life-or-death decisions.<sup>591</sup> There are many families that agree that CPR or other life-sustaining therapy would not be appropriate. However, they often express hesitation in bearing the burden of being the ultimate decision maker. The informed assent model allows patients or their families to be active participants in the decision-making process without being burdened with the guilt of “letting their loved-one die.” This approach maintains all the elements of informed consent with the exception of an active choice. Patients or surrogates need to be well-informed, they need to understand the reasons why CPR is not recommended, and they should be aware that, while they are asked to defer to the physician’s judgement, they still have a right to take the lead in deciding.

This approach should be adopted with caution and used only for specific groups of patients. During the process of eliciting patients’ values, physicians need to exclude those families or patients who subscribe to the vitalist approach. For vitalists, quality of life has no importance, and as long as the heart is beating and the lungs are functioning with or without the mechanical support, they would prefer to keep on going. The informed assent approach would not be suitable for this group of families and patients.<sup>592</sup> Furthermore, this approach should not be used when providers are uncertain about the possibility of success or when the providers’ convictions about withholding or withdrawing treatment are based on their value judgments about the patient's resulting quality of life. In these situations, there is no sufficient moral justification for using the alternative of deferring to a unilateral clinician decision. Instead of using informed assent, physicians may express their opinions and recommendations about the likelihood and desirability of treatment alternatives, but patients and families should be clearly informed that medical expertise has limited relevance in arriving to a final decision.<sup>593</sup> The

potential concern about preserving autonomy in the context of informed consent can be relieved by the fact that patients and families are explicitly informed about the possibility to disagree with providers' recommendations.

#### *Order effect in presentation of options*

Patients and families need to make many important decisions during their ICU stay. Treatment related decisions are especially important, and physicians strive to provide a balanced description of the risks and benefits of the treatment in question in order to assist patients or families in making these difficult decisions. Most physicians attempt to present medically-relevant facts in an unbiased manner. However, human judgment is known to be sensitive to the order in which a person receives information.<sup>594</sup> Order of presentation can influence trivial decisions as well as judgments of great importance, such as the determination of guilt by jurors.<sup>595</sup> People can be influenced by a recency bias – they may remember the most recent information they receive better than earlier information, and, as a result, their perceptions can be disproportionately influenced by this recent information. Accordingly, patients who learn about treatment benefits first and risk information second might better remember the risks and make treatment choices that are more influenced by this recently received risk information.<sup>596</sup> People can also be influenced by a primacy bias – they may better consider the information listed first rather than last, particularly when the list is long<sup>597</sup>. These primacy and recency effects were demonstrated in physicians' judgements. Research shows that physicians place more weight on items of clinical data when they learn them late in a diagnostic evaluation instead of at the beginning.<sup>598</sup>

While the effect of information order on physicians' decision-making has been documented, there is little research about the impact of information order on the decision-making

of patients. Limited research shows that patients are less favorable about a procedure and less likely to consent to it when they read about the risks after the benefits instead of before the benefits. This order effect was observed when patients were asked about influenza immunization and screening sigmoidoscopy but was not observed when they were asked about carotid endarterectomy.<sup>599</sup> These findings raised the possibility that the variability could be due to differences in risk associated with interventions, differences in benefits, or differences in familiarity with the diseases used in the scenarios. Some studies suggest that primacy has a greater effect on patient decisions about treatment. Thus, one study exploring how the difference in designing patient decision aids affects preferences for obstructive sleep apnea treatment found a significant primacy effect. Patients were more likely to choose the treatment option presented first.<sup>600</sup> Similar effect was observed in a study of preferences for aspirin therapy for symptomatic carotid artery disease. The authors suggest that this effect arises because people typically process sequential information by contrasting each new piece of evidence with their current opinion. Furthermore, this effect was more pronounced for riskier decisions.<sup>601</sup>

While there are no current studies on the order effect in decision-making about treatment options in the ICU, it is possible to assume that the way information is presented to the patient will likely affect their choices. Many ICU options can be presented first or last, for instance, in discussions involving decisions between continuing intensive care or switching to palliative care. Physician can lead with the discussion of risks related to continuing intensive care, or he can start the conversation by discussing benefits and risks of switching to palliative care. On the other hand, discussions involving code status involve two pieces of information that can be presented in a different order. The common practice for critical care doctors is to lead the discussion with information about the medical situation and prognosis. When this information is

presented, the physician asks about the patient's values, and then both family and physician explore options that would match patient values and the gravity of her condition. Alternatively, physicians can open the family conference with an exploration of the patient's values and then tailor prognostication information according to what is learned in the beginning. It is also possible that by getting to know the patient and family better, the physician may frame prognostication information differently.

### **Conclusion**

This chapter has focused on a few ideas. It has analyzed the need for behavioral interventions or nudges in critical care. It has unpacked the concept of nudge and looked at some ethical implications of using this strategy in the context of healthcare. It has considered potential benefits of using nudges in healthcare and has suggested several strategies that may persuade providers and patients to make better decisions in the context of critical care. The first suggestion made in this chapter was that critical care has a dire need to find ways of improving communication between providers and patients or their families and that many traditional approaches were not able to fulfill this need. Admission to the ICU is often a therapeutic trial. While the primary goal of critical care is to help patients survive acute threats to their lives, this goal often remains unattainable. Approximately 20% of all deaths in the United States, or 540,000 deaths per year, occur in the ICU.<sup>602</sup> The majority of ICU deaths involve decisions to withhold or withdraw life-supporting therapies. Two truths ensure that this transition from aggressive to palliative care will remain difficult, despite the best efforts of providers. "First is the widespread and deeply held desire not to be dead. Second is medicine's inability to predict the future, and to give patients a precise, reliable prognosis about when death will come. If death is the alternative, many patients who have only a small amount of hope will pay a high price to

continue the struggle.”<sup>603</sup> Behavioral economics studies the way people make risky decisions under uncertainty. It offers the strategy called nudge.

This strategy was proposed in the book with the same title authored by Thaler and Sunstein. The authors start from the proposition that “individuals make pretty bad decisions - decisions they would not have made if they had paid full attention and possessed complete information, unlimited cognitive abilities, and complete self-control.” Because of these limitations of human decision-making, there is a role for what Thaler and Sunstein call a choice architect, someone who “has the responsibility for organizing the context in which people make decisions.” Thaler and Sunstein have invented this term, but they claim that the corresponding job description already exists; for example, a doctor who has to describe alternative treatments to a patient is acting as a choice architect. Choice architects are supposed to rearrange the physical and social environment in order to make people change behavior to “make the choosers better off, as judged by themselves.”<sup>604</sup> The methods they can use are multiple. They might arrange the options presented to people so that the better choice becomes default, whereas making suboptimal choices requires active decision-making. The example used in this chapter is default option in advance directives where active decision-making is required for choices of aggressive care at the end of life. Another method is to change the environment to encourage desired behavior. This chapter suggests altering the way in which providers place orders to require accountable justification for delaying palliative care orders in patient electronic records. These are examples of nudges, or liberty-preserving approaches, that steer people in particular directions but that also allow them to go their own way.

There are many benefits to using nudges in healthcare. Nudges are cost-efficient. A recent study of nudge interventions reported that the cost-effectiveness of nudging can be 100,

and even 1,000, times greater than more traditional interventions, such as educational campaigns.<sup>605</sup> Nudges are often inspired by laboratory experiments, and these interventions are built on empirical evidence. Finally, nudges are the best strategy in cases when patients refuse to make an active choice. When faced with difficult decisions involving choice of treatment or intervention, patients or families may be aware of their lack of information. They can be afraid to make a wrong decision because the amount of information coming at them is often confusing, and the choices presented to them can be painful. They may not want to take responsibility for potentially bad outcomes for themselves. They may be under stress, lack the capacity to process the required amount of information, and, therefore, would prefer some kind of nudge or default choice or strong suggestion. This fact can also be one of the reasons why nudges are not only effective but also ethical strategies. Decision-making in critical care is often very complex, and, therefore, enhancing patients' capacity to make better choices has an intrinsic value in itself. While there can be a concern that nudges represent a form of manipulation due to bypassing the deliberative properties of a patient, this chapter suggests that most nudges are effective because they are designed to inform people. Some others work because they make certain choices easier, and people often choose the path of least resistance. Some such nudges, like defaults, work because of the power of inertia and procrastination. Some nudges work because they make some fact or option or risk salient when it previously was not (i.e., reminders to take medications). In other words, nudges help patients to find the best means for achieving their goals. Additionally, in many cases, nudges or choice architecture is an inescapable reality.

This chapter suggests several nudge strategies that can be applied in the context of critical care. It evaluates the recent policy of reimbursing providers for advance care planning discussions. Under this policy, providers are compensated \$86 for a first advance care planning

discussion of thirty minutes in a doctor's office (\$80 in a hospital setting) and \$75 for a follow-up. Additionally, this chapter considers the use of various frames in discussions about CPR. For instance, when doctors use the phrase "allow natural death" instead of "do not resuscitate," when they frame this decision as the patient's and not the surrogate's, and when they shift the implied social norm to avoiding resuscitation ("In my experience, most people don't want CPR."), the outcomes of end-of-life choices improve significantly. In a similar way, physicians can frame palliative care as a therapy and not as "giving up" or "pulling the plug." The use of accountable justifications for palliative care orders embedded in electronic records can help physicians to be more mindful about the need to start this therapy early in the ICU admission. There are a number of nudges designed with the patients in mind to make their choices about end-of-life care easier in the context of an ICU admission. One strategy, mentioned earlier, requires switching the default option in advance directives from provision of aggressive to provision of palliative care. The chapter also recommends introducing financial incentives to increase the low rate of completion of advance directives. The unpleasant aspect of completing advance directives (thinking about death) arises up front, and the future benefits of having completed an advance directive may not be enough to offset the present discomfort. Financial incentives may shift this balance. Additionally, the choice to withdraw life-sustaining treatment is very painful for many surrogates. Providers can use the informed assent option to alleviate surrogates from this burden by stating the reasons why CPR is not recommended and asking for their agreement with the physician's judgement. Finally, the way choices are presented in decisions about therapies may influence patients or surrogates. This chapter suggests that starting conversation with palliative rather than with aggressive care in the discussion of options may sway surrogates' preferences. Additionally, instead of first mentioning prognostication information, providers may want to



start with the discussion of values and then later provide tailored information about the prognosis.

## CHAPTER EIGHT

### CONCLUSIONS

In the US, about 2.5 million people die each year, approximately 41% of these deaths happen in hospitals, and nearly 60% of hospital deaths occur during or shortly after ICU care.<sup>606</sup> These numbers mean that more than one in five Americans die while in an ICU or soon thereafter. The overwhelming majority of these deaths follow decisions to limit life-sustaining treatment. Proper risk communication has an effect on what medical intervention the patient will receive and whether futile care will be provided. Proper risk communication is the best way to ensure that patients receive the end-of-life care they want. Additionally, it is the most effective way to limit the increase in provision of futile treatment that is responsible for driving up overall costs of healthcare. A recent study on the frequency of futile treatment in ICU shows that more than one in ten patients being treated in ICUs were at some point receiving what doctors deemed to be futile care. In those cases, intensivists believed patients would never survive outside an ICU or that the burdens of their care “grossly outweighed” any benefits.<sup>607</sup> Treating each of those patients costs about \$4,000 per day. Given this substantial cost, strategies to reduce futile care could have an impact on total healthcare spending.<sup>608</sup>

One of the ways to mitigate these costs is to create a working framework for risk communication that would address different cognitive limitations and emotional biases that affect the way in which risk information is interpreted. The move from paternalism to the current emphasis on patient empowerment and shared decision-making has meant that patients and surrogates want and need comprehensive and understandable information about their conditions and treatment. This must include information about the risks and benefits of the different treatment options if patients are to participate fully in decisions about their care. However,

complicating their queries, the intricacy of rational decision-making, are emotions. It is often noted (but rarely studied) that patients and surrogates are swayed by their emotions at least as much as they are convinced by rational arguments. What role should emotions play when we judge whether an intervention and its complications are morally acceptable? Though there is a great deal of empirical research on emotions and risk perception, there has been a lack of philosophical research on this topic, especially when it comes to futility considerations in critical care. There is a need to understand and improve upon the ways in which end-of-life decisions are made. Instead of passively accepting emotional influences on choice, there is a need to discuss their ethical relevance and design morally appropriate policies aimed to increase the probabilities that end-of-life choices match the goals of patients.

**Chapter one** discussed the fact that risk is perceived and acted upon in two ways. Risk as feelings refers to intuitive responses in the context of moral decision-making. Risk as analysis brings logic, reason, and scientific deliberation to bear on decision-making. In the context of critical care, patients and their families may rely on emotion in judgment and decision-making as a source of information about whether or not they are at risk. Positive feelings act as an incentive, motivating people to act to reproduce those feelings, while negative feelings motivate actions to avoid those feelings. Additionally, emotions may help patients integrate information. Comparing risky options (for instance, alternative cancer treatment options such as surgery and radiation) that hinge on many factors can be a complex task. However, comparing one's feelings about the options can simplify the process of decision-making. The downside is that this simplification process may overlook important information.

The research presented in the first chapter has highlighted the difficulties patients and providers face when trying to make healthcare decisions. Various heuristics and biases can affect

the decision-making process, in terms of how people make decisions and how critical medical information is presented. These heuristics can be traced to the simultaneous operation of dual cognitive processes in judgement, and particularly to the intuitive system, which highlights associations between events and offers rapid evaluations of decision situations. The theories of decision-making described in this opening chapter divide decision-making into two types of processes: intuitive (fast, reflexive, and requiring minimal cognitive resources) and analytical (slow, deliberate, and demanding more conscious effort). Intuitive processes are based on pattern recognition, allowing providers and patients to save time and effort by matching already-known patterns to particular decisions and actions. While some may consider intuition a better way of making decisions, while other may caution against its perils, the research presented in the opening chapter shows that this is not a useful dichotomy. It is simplistic to consider intuition as superior to analytical reasoning or vice versa. Human decision-making involves both processes, and different situations require different approaches. For example, decisions that need to be made in a split second, those that depend on social and emotional intelligence, or those that call for inspiration and creativity may be effectively made in the intuitive mode. On the other hand, those that have no room for error, such as treatment decisions about an aggressive cancer, can only be made analytically.

The majority of current ethical decision-making models provide a logical and reasoned process for making ethical judgments, but these models are removed from research in the fields of psychology and decision-making. These models rely upon assumptions of rational and conscious reasoning despite the fact that the many nonrational factors presented in the first chapter influence ethical thought and behavior, including emotions, intuitions, and heuristics. In addition to a presumption of rationality, traditional bioethics models assume that patients and

families know their health preferences, especially when it comes to end-of-life choices. There is also a presumption that, once given enough information, patients and families will use it to make rational choices. One less explicit assumption of traditional bioethics is that patients' values and preferences are context independent. In other words, patients should make similar choices regardless of the framing of options in terms of survival or mortality rates. Research presented in the opening chapter proves the opposite – patients and families rarely have stable values and preferences. Their preferences are context dependent and can change with the way the options are presented to them. Finally, traditional bioethics assumes that even if patients and providers make mistakes in decision-making, these mistakes are random and not predictable. However, research discussed in chapter one demonstrates that there is a systematic way to predict some cognitive errors in patients' decision-making and even to use this knowledge to improve their choices.

Doctors often have to make rapid decisions, either because of medical emergency or because they need to see many patients in a limited time. Psychologists have shown that rapid decision-making is aided by heuristics—strategies that provide shortcuts to quick decisions—but they have also noted that these heuristics frequently mislead both providers and patients. Heuristics may lead to “cognitive biases” or systematic and predictable errors in judgment that result from reliance on heuristics. For example, people have a tendency to view losses as looming larger than corresponding gains (“loss/gain framing bias”—a phenomenon central to prospect theory), to make judgments of likelihood or frequency based on ease of recall rather than on actual probabilities (availability bias), and to allow previously spent time, money, or effort to influence present or future decisions (sunk-cost effect). People have a tendency to remember and be more influenced by options or facts that are presented first or last (order effect:

primacy/recency), to choose what others choose (bandwagon effect), to go with whatever option is selected as the default (default bias), to view harms from commission as worse than harms from omission (omission bias), and to inaccurately estimate future emotional states (impact bias).

It is not difficult to see how these biases and heuristics might play out in a medical context. A patient with atrial fibrillation might refuse to take warfarin because she is concerned about causing a hemorrhagic stroke despite greater risk of having an ischemic stroke if she does not take warfarin (omission bias). A physician might diagnose chronic appendicitis in patients who present with a new onset of non-specific abdominal pain because he himself had abdominal pain that turned out to be appendicitis several months earlier (availability bias). Another example of this bias is the documented tendency of doctors to overestimate the risk of addiction when prescribing opioid analgesics for pain relief and to undertreat severe pain as a result. Risk of addiction is actually low when patients receive opioids (particularly controlled release formulations) for pain, but opiate addiction tends to receive high publicity and so, through the availability heuristic, its likelihood may be overestimated. The representativeness bias has also been shown in providers' decision-making. Providers were given two fictitious scenarios of patients with symptoms suggestive of either a heart attack or a stroke and asked to provide a diagnosis. The heart attack scenario sometimes included the additional information that the patient had recently been dismissed from his job, and the stroke scenario sometimes included the information that the patient's breath smelt of alcohol. The additional information had a highly significant effect on the diagnosis and made it less likely, consistent with the representativeness bias, that the providers would attribute the symptoms to a serious physical cause.

**Chapter two** discussed the fact that in the moral domain, patients and providers also rely on fast and frugal decision rules or heuristics that produce judgments quickly based on limited

information. As was shown in chapter one, most research on heuristics has been conducted by psychologists in the area of risk and probability estimates. Their work deals not with moral questions but with some factual issues such as judgments of frequency, probability, and risk. Chapter two suggested that in a similar fashion, when confronted with a complex moral issue, people resort to moral heuristics and simplify their judgments by using the familiar to judge the unfamiliar. Kahneman and Frederick define heuristics as a psychological process of attribute substitution. When people have to make judgments of a target attribute (a process that is computationally complex), they tend to substitute it with a more easily calculated heuristic attribute. In other words, when someone tries to answer a difficult and unfamiliar question, they may actually answer a related but different question, without realizing that a substitution has taken place. Chapter two suggested that moral intuitions fit the pattern of heuristics since moral intuitions involve 1.) A target attribute that is relatively inaccessible, 2.) A heuristic attribute that is more easily accessible, and 3.) an unconscious substitution of the target attribute for the heuristic attribute.

Research presented in this chapter shows moral heuristics can generate our intuitions about fairness and justice, and right and wrong. For instance, Sunstein has described a number of moral heuristics: do not knowingly cause human death, do not permit wrongdoing for a fee, punish betrayals of trust, and do not tamper with natural processes for biological reproduction. These moral heuristics are different from the cognitive ones. As the name suggests, moral intuitions bear moral implications while cognitive heuristics do not. Facts and simple logic can be a good test of whether a cognitive heuristic is at work. It is more difficult to demonstrate that a moral heuristic is at work due to the fact that it is more difficult to agree on what constitutes a moral error. In addition, assessment of accuracy for moral heuristics requires social consensus,

while assessment of accuracy for heuristics about objective facts do not. It is important to keep in mind that moral heuristics provide an explanation of actual behavior, and they are not normative ideals. Furthermore, if moral actions can be based on heuristics, it may conflict with traditional standards of morality. Heuristics have little in common with consequentialist views that assume that people should make an exhaustive analysis of the consequences of each action. They do not share common ground with the striving for purity of heart that Kant considered to be an absolute obligation. They do not fit easily into virtue theory or Kohlberg's theory of moral development.

Chapter two outlined several moral heuristics that may be relevant to the process of decision-making in critical care, especially when it comes to end-of-life decisions. First is commission/omission distinction that focuses on the goodness of action. People tend to judge the outcomes from commission as worse than those resulting from omissions. Omissions may be a result of ignorance, but commissions are usually not. Additionally, commissions may involve more malicious intent than omissions; commissions require more effort, that in itself being a sign of strong intentions. Nevertheless, there are many cases that do not involve these distinctions and should be judged equally. In the realm of critical care, withholding and withdrawing care can be used as the morally equivalent example of commission/omission distinction. Clinicians are psychologically more comfortable withholding treatments than withdrawing them. The withdrawal of care is often associated with a greater sense of causing the patient's death, responsibility, and even guilt. The second heuristic, means to an end/end in itself, focuses on one's intentions. When judging the necessity of life-sustaining treatment, some clinicians may perceive it as a "bridge to something" and means to an end (recovery). These physicians would not initiate aggressive care without having a clear endpoint. Some other intensivists have a rather



open-ended approach to the use of life-sustaining treatment. Instead of being viewed as a means to achieve an end (recovery), this treatment is often considered as an end in itself.

The third heuristic focuses on time and connects timing of end-of-life conversations with judgements of fairness. The outcome of moral decisions often varies a great deal depending on the time that is available for their consideration. Near future events are more emotionally arousing than the distant ones. Because perceptions of fairness and morality tend to be based on these emotional reactions, the chapter suggests that such judgments will be more extreme for events set in the near future than for events set in the distant future.<sup>609</sup> In the context of ICU decision-making, timing of end-of-life conversations can affect judgements about the morality of resulting decisions. The vast majority of patients with incurable cancer talk with a physician about their options for care at the end of life, but often not until late in the course of their illness. These belated conversations tend to occur under particularly stressful conditions - when patients have been admitted to a hospital for critical care. This deprives patients of the opportunity for deliberation that would have been possible months earlier, when the conversation could have occurred under less trying and hectic conditions.

The fourth heuristic focuses on identifiability, and it is called rule of rescue. People often have a strong intuitive sense that we ought to rescue those in serious need, even in cases where we could produce better outcomes by acting in other ways. This moral urgency is the reason why we mount expensive searchers — for sailors lost at sea, for example—when there is little chance of finding those who are missing. This rescue heuristic is also the reason why some patients receive a second or third heart or liver transplant even though first-time recipients have a higher one-year survival rate. Jones coined the term “rule of rescue” to describe the imperative we feel to rescue identifiable individuals facing avoidable death, without giving too much thought to the

opportunity cost of doing so. The fifth heuristic focuses on the naturalness of a decision, and it explains preference for natural death. People tend to associate naturalness with reduced risk. For instance, obstetricians and gynecologists who showed preference for natural over identical synthetic hormones also held more negative attitudes toward hormone replacement therapy, considering it an “unnatural” intervention whose overall benefits outweigh risks. Many end-of-life disputes and disagreements arise from the determination about those responsible for causing death when medical treatment is unsuccessful, which makes it an important moral issue. There is a tension between the concept of natural death, which attributes death to patients’ bodies, and hastening death through withholding or withdrawing treatment, which attributes death to intensivists. Therefore, natural death becomes a moral heuristic, determining causation and attribution in end-of-life choices.

Finally, the last heuristic focuses on agency and discusses ownership of decisions. When a physician has a sense of decision ownership, they then become personally invested in clinical decisions made for their patients. Decision ownership is the cognitive-affective phenomenon in which a medical practitioner develops a sense of responsibility over decisions about care for a particular patient and personal investment in this decision-making process. The more a physician invests herself into a clinical case by investing her time, ideas, psychological/intellectual energy, the more she feels ownership over decisions resulting from this investment. Unfortunately, the opportunity to foster ownership of decisions in patient care is not readily available in the context of ICU care due to the shortage of intensivists and resulting shiftwork. Lack of ownership induced by the shiftwork mentality in critical care may foster diffusion of responsibility. Diffusion of responsibility refers to the observation that the mere presence of other people in a situation makes one feel less personally responsible for the events that occur in that situation.

Decreased ownership may also lead providers to focus on short-term benefits and disregard future losses. The presence of this heuristic described in chapter two can be tied to particular features of a hospital.

**Chapter three** starts with the importance of shared decision-making and ways of communicating risks and benefits of an intervention in this context. The goal of shared decision-making is to improve patients' decision-making process, and to match patients' intervention choices with their preferences for the benefits and harms of intervention options. Clinical guidelines suggest that shared decision-making is essential when there are no clear standards of care for patients' treatment decisions and when patients' preferences for risks and benefits of interventions influence choices. Most medical decisions are complicated by uncertain or unknown evidence about risk/benefit information. However, little is known about how to communicate this scientific uncertainty (the quality of risk information) to patients, including uncertainty about statistical risk (e.g., wide confidence intervals) and uncertainty about the strength and quality of available evidence used to make health decisions. Physicians are often hesitant to communicate uncertainty to patients, despite the prevalence of uncertainty in medical decisions. Some physicians have been trained to accept and manage uncertainty internally and provide a confident recommendation to patients as they guide them in clinical decisions. Physicians may also believe that communicating the complexity of uncertainty will overwhelm and confuse patients. Full disclosure of scientific uncertainty in addition to discussion of options could actually impair patients' ability to make informed decisions. Some patients also avoid statistical uncertainty ("ambiguity aversion") and defer or reject decision-making as a result. Therefore, is there an ethical imperative to disclose ambiguity in risks of a treatment?

Chapter three focuses on ambiguity as a special kind of uncertainty and differentiates it from risk or complexity. Under risk, the consequences of possible outcomes for a given decision are not certain, but the probabilities of different outcomes can be estimated. Complexity occurs when providers may know the probabilities of an outcome yet still be uncertain about the severity of this outcome and its scope or timing. Under both risk and complexity, the probabilities of different outcomes can be estimated, whereas under ambiguity, even these probabilities are not known. Ambiguity is defined as “uncertainty about uncertainty” or uncertainty about the strength or validity of evidence about risk. Ambiguous situations are specifically problematic because the information available to inform a decision is inconsistent or contested. Ambiguity is present in many decisions about treatments. Knowledge about treatment effects, in specific rare but serious side effects, is nearly always less precise, as some newer treatments may have been studied for only a few years. A number of ethical issues arise in deciding whether ambiguity needs to be disclosed by providers. Disclosure of ambiguity may harm the patient by provoking anxiety or causing a nocebo effect when a side-effect is produced by negative expectations rather than by the drug itself. Furthermore, it is not clear how much risk should be disclosed. Maybe this is the case of too much information? When we recognize that the possession of information carries trade-offs, maybe this is the situation when the “totality of evidence” may increase patient’s autonomy but reduce her welfare?

There are three arguments, presented in chapter three, that point out to the ethical obligation of disclosing ambiguity in decisions about treatments. While physicians may feel an impulse to reduce worry and decisional conflict when describing treatment options to patients, bioethics literature suggests that ambiguity in risk information should be communicated to patients to avoid an artificial sense of certainty. If patients are informed about ambiguous risks,

they can, in turn, alert their provider early on in case they see the signs of adverse effects. Furthermore, anxiety and uncertainty arising from ambiguity can be interpreted as indicators that patients truly understand information and can engage in shared decision-making. Patients' anxiety does not always translate into harm for the purpose of nondisclosure. Deliberate withholding of information from a competent patient, thereby disempowering this patient, requires greater justification than the reference to anxiety, distress, and inability to make rational choices. Second, the limited disclosure of ambiguous risks can be considered paternalistic. The presence of paternalism can be explained by the fact that the patient does not even know that a decision to withhold information has been made, and thus makes a treatment decision believing it to be based on all material information when it is not. When a provider avoids disclosure of certain information because it will upset the patient, this implies that the doctor has a highly developed predictive skill regarding decision-making of individual patients, which is rarely true. Finally, it can be argued that in certain cases, nondisclosure and lying can be viewed as morally equal.

**Chapter four** builds on the observations made in previous chapters that patients and their families often make irrational decisions in critical care, giving preference to a choice involving inaction even though this choice may cause greater harm than adopting a particular course of action. They often prioritize short-term benefits over long-term consequences, choosing interventions out of fear even when the consequences can be serious. A good decision in the context of critical care assumes the provision and understanding of relevant information. The type of information most often communicated in the intensive care unit (ICU) setting is risk information. Comprehension of this information is a precondition of a rational and informed decision. Because of the inherent uncertainty in medical practice, this risk information often

must be expressed in numbers and percentages. People often misunderstand this information.

Can persuasion serve as a positive tool in provider–patient communication when patients or their loved ones clearly misunderstand risks or make decisions that contradict their long-term goals?

Rational appeals in critical care fail to move patients or surrogates to a better course of action.

Appeals to their emotions are considered illegitimate because they may preclude autonomous choice. The goal of this chapter was to discuss whether it is always unethical to change

someone’s beliefs, whether persuasive communication is inherently harmful, and whether it

leaves no space for voluntariness. To answer these questions, the chapter relied on Aristotle’s work, *Rhetoric*.

In considering whether there is a place for emotionally charged messages in a patient–provider relationship, the chapter attempted to delineate the nature of this relationship and describe the duties this relationship implies. The chapter offered examples of persuasive communication used in critical care and discussed whether providers may have a duty to persuade patients. The opening sections surveyed a number of definitions found in relevant literature and outlined some of the concepts included in the proposed definition. The chapter defined persuasion as a form of influence wherein one person intends to produce a change in the behavior or opinions of another using words to convey information, feelings, or reasoning, or a combination thereof, while leaving enough freedom to choose otherwise. This definition helps to distinguish instances of persuasion from cases of manipulation, coercion, and deception.

Considering the fact that patients and families often make irrational decisions and the fact that doctors inadvertently influence their choices, the chapter suggested that persuasion can be a positive tool in medical communication. Some may consider the shared decision-making model as a better choice over persuasion. However, this chapter showed that this model is limited.

Doctors often fail to solicit values. Even when they do, the values employed to navigate difficult decisions in critical care raise difficult questions. Due to the fact that these values reflect a hard reality to face and difficult trade-offs that need to be made, they are rarely thought of in advance. This reality significantly limits often unrealistic understanding of autonomous choice and shared decision-making.

This reality also points to the fact that the process of shaping patients' or families' decisions is an inescapable reality. The way doctors frame their questions or present relevant medical information will inevitably shape preferences. This reality supports the applicability of persuasion in clinical decision-making. Doctors should assume responsibility in recognizing the previously mentioned contextual influences that may hamper the ability of surrogates to achieve their goals. They should attempt to modify these contextual factors and biases in a way that would assist surrogates in reaching the desired outcomes. In cases where there is one treatment that provides a greater measure of comfort or leads to improved clinical outcomes, doctors should attempt to influence or steer decision-making processes to help surrogates or patients choose that particular intervention. Chapter four also identified some of the strategies of influence in medical communication. One example is framing of "do not resuscitate" conversations as heroic measures and invasive treatment. The power of video consent was given as another example of persuasion. Video materials are associated with a significant and dramatic change in subjects' preferences for medical care and an improved understanding of disease. Use of defaults in advance directives and use of analogous language are given as examples of persuasive techniques. The chapter concludes with the suggestion that when patients or families clearly do not understand risks or make decisions that contradict their long-term goals, persuasion can be used as a positive influence.

**Chapter five** continues the discussion of persuasion from the perspective of autonomy. If the process of shaping patients' or surrogates' decisions is an inescapable reality, where does this leave our understanding of autonomy? If the process of decision-making is heavily influenced by subconscious processes such as heuristics and biases, how does this understanding modify the traditional notion of autonomy? Most of the answers proposed so far have been focused on minimizing the influence of heuristics and biases by either alerting people about these influences or framing things in a variety of ways to reduce the pull of a potential frame. For instance, a physician going through the decision-making and consent process with a patient should provide this patient with the frame of both survival and mortality. However, this physician should also pair these frames in such a way that survival would be first in one set and then mortality would be first in the second set in order to avoid anchoring bias. Survival and mortality rates should be presented in both percentages and frequencies to avoid the frequency/percentage bias. This list can go on.

This reality may lead some to argue for the applicability of nonargumentative forms of influence in the process of decision-making. Being grounded in the principles of behavioral economics, this "soft paternalistic" model makes use of interventions aimed at suggesting one choice over another by gently steering individual choices and enhancing directions, yet without imposing any significant limit on available choices. This model proposes to organize the context in which surrogates make decisions and minimize the negative impact of cognitive biases against potentially beneficial choices and outcomes. Physicians should assume responsibility in recognizing the previously mentioned contextual influences that may hamper the ability of surrogates to achieve their goals. Furthermore, they should modify these contextual factors and biases in a way that would assist surrogates in reaching the desired outcomes. In cases where



there is one treatment that provides a greater measure of comfort or leads to improved clinical outcomes, physicians should attempt to influence or steer decision-making processes to help surrogates or patients choose that particular intervention. For instance, when a young patient who has lost limbs in recovery from sepsis refuses to continue treatment because of not being able to imagine life without the ability to move around, it might be ethically justifiable to persuade him to go on with the treatment by focusing his attention on the number of things he will be able to do afterward.

This approach aiming at influencing choice without restricting it is obviously questionable due to a number of considerations. Physicians may influence choices to serve their own interests. Their authority in interfering with value-laden decisions can be objectionable. Most of the objections pertain to the ideals of clinical autonomy and decision-making, but their practical application is plausible under the condition of certainty. However, confidence is not achievable in the context of the ICU as none of the factors that may influence surrogates' decisions can be known with certainty. Most ICU patients suffer from a number of co-existing acute and aggressive conditions, making the prognostication efforts extremely difficult. Some of them are admitted to the ICU with rare conditions for which there is little known in terms of outcomes. Whether the patient's past experiences of treatment or the clinician's experience of treating other patients with similar symptoms is the basis for judgment about the likely effects of an intervention, there is no escape from the reality of uncertainty about the outcomes. Uncertainty about the utility of most ICU interventions is inevitable. Under the conditions of uncertainty, surrogates will take their decisional cues from the attending intensivist. This uncertainty will inevitably affect the way intensivists present options and communicate with the family.

The fifth chapter questioned the traditional paradigm of using autonomy as the central decision-making priority for incapacitated patients in the ICU context. While many clinicians may believe that they have a duty to reduce personal influences on their patients' decisions, chapter five suggested that removing clinicians' influence from the decision-making process is neither possible nor desirable. Knowledge of relevant medical information about risks and benefits is believed to foster the rational aspect of surrogate decision-making. Chapter five highlighted many cognitive difficulties in processing risk information, questioning the ability of surrogates to have an operational level of knowledge. Finally, the ability of advance directives to secure the intentionality of patients' decisions and guard them from undue influence was questioned on the grounds of research in affective forecasting errors. The concept of shared decision-making and the possibility of shaping patients' decisions were suggested as possible remedies for gaps in substituted judgment.

**Chapter six** gave a more detailed overview regarding ways of using nonargumentative influence in clinical decision-making. This chapter argued for the need to implement behavioral interventions or nudges in critical care. It has unpacked the concept of nudge and looked at some ethical implications of using this strategy in the context of healthcare. It has considered potential benefits of using nudges in healthcare and has suggested several strategies that may persuade providers and patients to make better decisions in the context of critical care. The first suggestion made in this chapter was that critical care has a dire need to find ways of improving communication between providers and patients or their families and that many traditional approaches were not able to fulfill this need. The traditional approaches rarely incorporate the influence of heuristics on decision-making, while approaches rooted in behavioral economics are designed to rely on the more realistic way people make decisions. These approaches are called

nudges, and they were first introduced in the book with the same title authored by Thaler and Sunstein. The authors start from the proposition that “individuals make pretty bad decisions - decisions they would not have made if they had paid full attention and possessed complete information, unlimited cognitive abilities, and complete self-control.” Because of these limitations of human decision-making, there is a role for what Thaler and Sunstein call a choice architect, someone who “has the responsibility for organizing the context in which people make decisions.” Thaler and Sunstein have invented this term, but they claim that the corresponding job description already exists – for example, a doctor who has to describe alternative treatments to a patient is acting as a choice architect. The choice architects are supposed to rearrange the physical and social environment in order to make people change behavior to “make the choosers better off, as judged by themselves.”

The methods a choice architect can use are multiple. They might arrange the options presented to people so that the better choice becomes default, whereas making suboptimal choices requires active decision-making. The example used in this chapter is default option in advance directives where active decision-making is required for choices of aggressive care at the end of life. Another method is to change the environment to encourage desired behavior. This chapter suggests altering the way in which providers place orders to require accountable justification for delaying palliative care orders in patient electronic records. These are examples of nudges or liberty-preserving approaches that steer people in particular directions but that also allow them to go their own way. There are many benefits to using nudges in healthcare. Nudges are cost-efficient. A recent study of nudge interventions reported that the cost-effectiveness of nudging can be 100, and even 1,000, times greater than more traditional interventions, such as educational campaigns. Nudges are often inspired by laboratory experiments, and these

interventions are built on empirical evidence. Finally, nudges are the best strategy in cases when patients refuse to make an active choice. When faced with difficult decisions involving choice of treatment or intervention, patients or families may be aware of their lack of information. They can be afraid to make a wrong decision because the amount of information coming at them is often confusing, and the choices presented to them can be painful. They may not want to take responsibility for potentially bad outcomes for themselves. They may be under stress, lack the capacity to process the required amount of information, and, therefore, would prefer some kind of nudge or default choice or strong suggestion. This fact can also be one of the reasons why nudges are not only effective but also ethical strategies.

Decision-making in critical care is often very complex and, therefore, enhancing patients' capacity to make better choices has an intrinsic value in itself. While there can be a concern that nudges represent a form of manipulation due to bypassing the deliberative properties of a patient, chapter six suggested that most nudges are effective because they are designed to inform people. Some others work because they make certain choices easier, and people often choose the path of least resistance. Some such nudges, like defaults, work because of the power of inertia and procrastination. Some nudges work because they make some fact or option or risk salient when it previously was not (reminders to take medications). In other words, nudges help patients to find the best means for achieving their goals. Additionally, in many cases nudges or choice architecture is an inescapable reality. Chapter six suggested several nudge strategies that can be applied in the context of critical care. On the part of the provider, it reviewed the potential of reimbursing them for advance care planning, use of various frames in discussions about CPR, the use of accountable justifications for palliative care orders embedded into electronic records, and framing of palliative care as a therapy instead of doing nothing. On

the part of patients, this chapter suggested the use of defaults in advance directives, incentivizing completion of advance directives, the use of order effect in conversation about futile treatments, and the use of informed assent in discussions about CPR.

- 
- <sup>1</sup> John Rossi and Michael Yudell, "Value-ladenness and rationality in health communication," *The American Journal of Bioethics* 12, no. 2 (2012): 20-22.
- <sup>2</sup> Gidon Felsen and Peter B. Reiner, "How the neuroscience of decision making informs our conception of autonomy," *AJOB Neuroscience* 2, no. 3 (2011): 3-14.
- <sup>3</sup> Deborah Lupton, "Risk and emotion: towards an alternative theoretical perspective," *Health, Risk & Society* 15, no. 8 (2013): 634-647.
- <sup>4</sup> Peter H. Ditto, et al., "Context changes choices: a prospective study of the effects of hospitalization on life-sustaining treatment preferences," *Medical Decision Making* 26, no. 4 (2006): 313-322.
- <sup>5</sup> Scott D. Halpern, et al., "Default options in advance directives influence how patients set goals for end-of-life care," *Health Affairs* 32, no. 2 (2013): 408-417.
- <sup>6</sup> Douglas E. Hough, *Irrationality in Health Care: What Behavioral Economics Reveals about What We Do and Why* (Stanford University Press, 2013), 1-15.
- <sup>7</sup> Barbara J. McNeil, Stephen G. Pauker, and Amos Tversky, "On the framing of medical decisions," (1988).
- <sup>8</sup> Robyn M. Dawes, *Rational Choice in an Uncertain World: The Psychology of Judgement and Decision Making* (Sage Publications, 2001).
- <sup>9</sup> Daniel Kahneman, "Maps of bounded rationality: A perspective on intuitive judgment and choice," *Nobel Prize Lecture* 8 (2002): 351-401.
- <sup>10</sup> Gerd Gigerenzer, "Fast and frugal heuristics: The tools of bounded rationality," *Blackwell Handbook of Judgment and Decision Making* 62 (2004): 88.
- <sup>11</sup> Jennifer S. Lerner and Dacher Keltner, "Fear, anger, and risk," *Journal of Personality and Social Psychology* 81, no. 1 (2001): 146.
- <sup>12</sup> Derek C. Angus, et al., "Use of intensive care at the end of life in the United States: an epidemiologic study," *Critical Care Medicine* 32, no. 3 (2004): 638-643.
- <sup>13</sup> Thanh N. Huynh, et al., "The frequency and cost of treatment perceived to be futile in critical care," *JAMA Internal Medicine* 173, no. 20 (2013): 1887-1894.
- <sup>14</sup> Thanh N. Huynh, et al., "The opportunity cost of futile treatment in the intensive care unit," *Critical Care Medicine* 42, no. 9 (2014): 1977.
- <sup>15</sup> Bert Molewijk, Dick Kleinlugtenbelt, and Guy Widdershoven, "The role of emotions in moral case deliberation: Theory, practice, and methodology," *Bioethics* 25, no. 7 (2011): 383-393.
- <sup>16</sup> Lawrence Kohlberg, "The development of children's orientations toward a moral order," *Human Development* 51, no. 1 (2008): 8-20.
- <sup>17</sup> Jonathan Haidt, "Morality," *Perspectives on Psychological Science* 3, no. 1 (2008): 65-72.
- <sup>18</sup> Jonathan Haidt and Fredrik Bjorklund, "Social intuitionists answer six questions about morality," (2008).
- <sup>19</sup> Jonathan Haidt, "The emotional dog and its rational tail: a social intuitionist approach to moral judgment," *Psychological Review* 108, no. 4 (2001): 814.
- <sup>20</sup> Jonathan Haidt, Silvia Helena Koller, and Maria G. Dias, "Affect, culture, and morality, or is it wrong to eat your dog?" *Journal of Personality and Social Psychology* 65, no. 4 (1993): 613.
- <sup>21</sup> Jesse Graham, Jonathan Haidt, and Brian A. Nosek, "Liberals and conservatives rely on different sets of moral foundations," *Journal of Personality and Social Psychology* 96, no. 5 (2009): 1029.

- 
- <sup>22</sup> Jonathan Haidt, Fredrik Bjorklund, and Scott Murphy, "Moral dumbfounding: When intuition finds no reason," Unpublished manuscript. University of Virginia, 2000.
- <sup>23</sup> Atul Gawande, *Complications: A Surgeon's Notes on an Imperfect Science* (Profile Books, 2010), 229.
- <sup>24</sup> John E. Wennberg, et al., "Tracking the care of patients with severe chronic illness," *The Dartmouth Atlas of Health Care* (The Dartmouth Institute for Health Policy & Clinical Practice, 2008), 1-174.
- <sup>25</sup> Institute of Medicine, *Dying in America: Improving Quality and Honoring Individual Preferences Near the End of Life* (Washington, DC: National Academies Press, 2014).
- <sup>26</sup> National Institutes of Health, "Meeting Summary," *NIH Science of Behavior Change*. (Bethesda, Maryland, 2009).
- <sup>27</sup> P. Dolan, et al., "MINDSPACE: Influencing behaviour through public policy. 2010," *Cabinet Office and Institute for Government*. London, UK.
- <sup>28</sup> Michael J. Barry and Susan Edgman-Levitan, "Shared decision making—the pinnacle of patient-centered care," *The New England Journal of Medicine* 366, no. 9 (2012): 780-781.
- <sup>29</sup> Richard G. Frank, "Behavioral Economics and Health Economics," No. w10881. *National Bureau of Economic Research* (2004).
- <sup>30</sup> Laura M. Kressel, Gretchen B. Chapman, and Elaine Leventhal, "The influence of default options on the expression of end-of-life treatment preferences in advance directives," *Journal of General Internal Medicine* 22, no. 7 (2007): 1007-1010.
- <sup>31</sup> George L. Anesi and Scott D. Halpern, "Choice architecture in code status discussions with terminally ill patients and their families," *Intensive Care Medicine* 42, no. 6 (2016): 1065-1067.
- <sup>32</sup> Jonathan St. B.T. Evans, "In two minds: dual-process accounts of reasoning," *Trends in Cognitive Sciences* 7, no. 10 (2003): 454-459.
- <sup>33</sup> Gerd Gigerenzer and Wolfgang Gaissmaier, "Heuristic decision making," *Annual Review of Psychology* 62 (2011): 451-482.
- <sup>34</sup> Caroline M. Quill, et al., "Variation in decisions to forgo life-sustaining therapies in US ICUs," *CHEST Journal* 146, no. 3 (2014): 573-582.
- <sup>35</sup> Amélie Rorty, ed. *Essays on Aristotle's Rhetoric*. Vol. 6. (Univ. of California Press, 1996).
- <sup>36</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008).
- <sup>37</sup> Eta S. Berner and Mark L. Graber, "Overconfidence as a cause of diagnostic error in medicine," *The American Journal of Medicine* 121, no. 5 (2008): S2-S23.
- <sup>38</sup> Pat Croskerry, "From mindless to mindful practice—cognitive bias and clinical decision making," *The New England Journal of Medicine* 368, no. 26 (2013): 2445-8.
- <sup>39</sup> Yoel Donchin, et al., "A look into the nature and causes of human errors in the intensive care unit," *Critical Care Medicine* 23, no. 2 (1995): 294-300.
- <sup>40</sup> Peter J. Pronovost, et al., "Defining and measuring patient safety," *Critical Care Clinics* 21, no. 1 (2005): 1-19.
- <sup>41</sup> Loes Cg Van Den Einden, et al., "Interobserver variability and the effect of education in the histopathological diagnosis of differentiated vulvar intraepithelial neoplasia," *Modern Pathology* 26, no. 6 (2013): 874.
- <sup>42</sup> C. Arianne Buchan, Andrea Bravi, and Andrew JE Seely, "Variability analysis and the diagnosis, management, and treatment of sepsis," *Current Infectious Disease Reports* 14, no. 5 (2012): 512-521.

- 
- <sup>43</sup> Mark L. Graber, Nancy Franklin, and Ruthanna Gordon, "Diagnostic error in internal medicine," *Archives of Internal Medicine* 165, no. 13 (2005): 1493-1499.
- <sup>44</sup> Herbert Alexander Simon, *Models of Bounded Rationality: Empirically Grounded Economic Reason*, Vol. 3 (MIT Press, 1982).
- <sup>45</sup> Hillel D. Braude, *Intuition in Medicine: A Philosophical Defense of Clinical Reasoning* (University of Chicago Press, 2012), 10.
- <sup>46</sup> Mark LeBar, "Prichard vs. Plato: Intuition vs. reflection," *Canadian Journal of Philosophy* 37, suppl (2007): 1-32.
- <sup>47</sup> Richard D. McKirahan, "On Intuition and Discursive Reasoning in Aristotle," *Ancient Philosophy* 11, no. 1 (1991): 183-187.
- <sup>48</sup> Anthony Kenny, *The Philosophical Writings of Descartes*, Vol. 2 (Cambridge: Cambridge University Press, 1985), 132.
- <sup>49</sup> Anthony Kenny, *The Philosophical Writings of Descartes*, Vol. 2 (Cambridge: Cambridge University Press, 1985), 137.
- <sup>50</sup> Anthony Kenny, *The Philosophical Writings of Descartes*, Vol. 2 (Cambridge: Cambridge University Press, 1985), 145.
- <sup>51</sup> Don Garrett, ed., *The Cambridge Companion to Spinoza* (Cambridge University Press, 1996), 117.
- <sup>52</sup> Don Garrett, ed., *The Cambridge Companion to Spinoza* (Cambridge University Press, 1996), 122.
- <sup>53</sup> Don Garrett, ed., *The Cambridge Companion to Spinoza* (Cambridge University Press, 1996), 135.
- <sup>54</sup> Immanuel Kant, *Immanuel Kant's Critique of Pure Reason* (Read Books Ltd, 2013), 47.
- <sup>55</sup> Immanuel Kant, *Immanuel Kant's Critique of Pure Reason* (Read Books Ltd, 2013), 64.
- <sup>56</sup> Emmanuel Levinas, *The Theory of Intuition in Husserl's Phenomenology* (Northwestern University Press, 1995), 84.
- <sup>57</sup> Emmanuel Levinas, *The Theory of Intuition in Husserl's Phenomenology* (Northwestern University Press, 1995), 108.
- <sup>58</sup> Daniel C. Dennett, "Two contrasts: Folk craft versus folk science, and belief versus opinion," *The Future of Folk Psychology: Intentionality and Cognitive Science* (1991): 135-148.
- <sup>59</sup> L. Jonathan Cohen, "Belief and acceptance," *Mind* 98, no. 391 (1989): 367-389.
- <sup>60</sup> Frankish, Keith. "Dual-process and dual-system theories of reasoning," *Philosophy Compass* 5, no. 10 (2010): 914-926.
- <sup>61</sup> Sigmund Freud, *The Interpretation of Dreams* (Read Books Ltd, 2013), 56.
- <sup>62</sup> Nathalie Pilard, *Jung and Intuition: On the Centrality and Variety of Forms of Intuition in Jung and Post-Jungians* (Karnac Books, 2015), 95.
- <sup>63</sup> Nathalie Pilard, *Jung and Intuition: On the Centrality and Variety of Forms of Intuition in Jung and Post-Jungians* (Karnac Books, 2015), 155.
- <sup>64</sup> Herbert A. Simon, "Theories of bounded rationality," *Decision and Organization* 1, no. 1 (1972): 161-176.
- <sup>65</sup> Herbert A. Simon, "Bounded rationality," *Utility and Probability*. (Palgrave Macmillan UK, 1990), 15-18.
- <sup>66</sup> Herbert A. Simon, "Theories of bounded rationality," *Decision and Organization* 1, no. 1 (1972): 161-176.
- <sup>67</sup> Daniel Kahneman, "Maps of bounded rationality: A perspective on intuitive judgment and choice," *Nobel Prize Lecture* 8 (2002): 351-401.



- 
- <sup>68</sup> Amos Tversky and Daniel Kahneman, "Extensional versus intuitive reasoning: The conjunction fallacy in probability judgment," *Psychological Review* 90, no. 4 (1983): 293.
- <sup>69</sup> Amos Tversky and Daniel Kahneman, "Judgment under uncertainty: Heuristics and biases," *Utility, Probability, and Human Decision Making*. (Springer Netherlands, 1975), 141-162.
- <sup>70</sup> Daniel Kahneman and Shane Frederick, "A model of heuristic judgment," *The Cambridge Handbook of Thinking and Reasoning* (2005): 267-293.
- <sup>71</sup> Paul Slovic, et al., "The affect heuristic," *European Journal of Operational Research* 177, no. 3 (2007): 1333-1352.
- <sup>72</sup> Melissa L. Finucane, et al., "The affect heuristic in judgments of risks and benefits," *Journal of Behavioral Decision Making* 13, no. 1 (2000): 1.
- <sup>73</sup> Paul Slovic, et al., "Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk, and rationality," *Risk analysis* 24, no. 2 (2004): 311-322.
- <sup>74</sup> Seymour Epstein, "Intuition from the perspective of cognitive-experiential self-theory," *Intuition in Judgment and Decision Making* 23 (2008): 37.
- <sup>75</sup> Erik Dane and Michael G. Pratt, "Exploring intuition and its role in managerial decision making," *Academy of Management Review* 32, no. 1 (2007): 33-54.
- <sup>76</sup> Katharine Winifred Wild, *Intuition* (Cambridge University Press, 2014), 12.
- <sup>77</sup> Jerome Seymour Bruner, *On Knowing: Essays for the Left Hand* (Harvard University Press, 1979), 102.
- <sup>78</sup> Debbie A. Shirley and Janice Langan-Fox, "Intuition: A review of the literature," *Psychological Reports* 79, no. 2 (1996): 563-584.
- <sup>79</sup> Robin M. Hogarth, *Educating Intuition* (University of Chicago Press, 2001), 74.
- <sup>80</sup> Stewart Shapiro and Mark T. Spence, "Managerial intuition: A conceptual and operational framework," *Business Horizons* 40, no. 1 (1997): 63-68.
- <sup>81</sup> Lynn Rew, "Acknowledging intuition in clinical decision making," *Journal of Holistic Nursing* 18, no. 2 (2000): 94-108.
- <sup>82</sup> Maggi Banning, "A review of clinical decision making: models and current research," *Journal of Clinical Nursing* 17, no. 2 (2008): 187-195.
- <sup>83</sup> Zbigniew Kotowicz, "The strange case of Phineas Gage," *History of the Human Sciences* 20, no. 1 (2007): 115-131.
- <sup>84</sup> Jane Cioffi, "Heuristics, servants to intuition, in clinical decision-making," *Journal of Advanced Nursing* 26, no. 1 (1997): 203-208.
- <sup>85</sup> Marieke de Vries, et al., "Combining deliberation and intuition in patient decision support," *Patient Education and Counseling* 91, no. 2 (2013): 154-160.
- <sup>86</sup> Jill G. Klein, "Five pitfalls in decisions about diagnosis and prescribing," *BMJ: British Medical Journal* 330, no. 7494 (2005): 781.
- <sup>87</sup> Jonathan St. B.T. Evans, "In two minds: dual-process accounts of reasoning," *Trends in Cognitive Sciences* 7, no. 10 (2003): 454-459.
- <sup>88</sup> Peter C. Wason and Jonathan St. B.T. Evans, "Dual processes in reasoning?" *Cognition* 3, no. 2 (1974): 141-154.
- <sup>89</sup> Jonathan St. B.T. Evans, "Dual-processing accounts of reasoning, judgment, and social cognition," *Annu. Rev. Psychol.* 59 (2008): 255-278.
- <sup>90</sup> Daniel Kahneman, "Maps of bounded rationality: Psychology for behavioral economics," *The American Economic Review* 93, no. 5 (2003): 1449-1475.

- 
- <sup>91</sup> Daniel Kahneman and Amos Tversky, "On the psychology of prediction," *Psychological Review* 80, no. 4 (1973): 237.
- <sup>92</sup> Shane Frederick, "Cognitive reflection and decision making," *The Journal of Economic Perspectives* 19, no. 4 (2005): 25-42.
- <sup>93</sup> Daniel Kahneman and Shane Frederick, "Representativeness revisited: Attribute substitution in intuitive judgment," *Heuristics and Biases: The Psychology of Intuitive Judgment* 49 (2002): 49-81.
- <sup>94</sup> Shane Frederick, "Cognitive reflection and decision making," *The Journal of Economic Perspectives* 19, no. 4 (2005): 25-42.
- <sup>95</sup> Daniel Kahneman, *Thinking, Fast and Slow* (Macmillan, 2011), 21-25.
- <sup>96</sup> Daniel Kahneman, *Thinking, Fast and Slow* (Macmillan, 2011), 25-30.
- <sup>97</sup> Valerie F. Reyna, "A theory of medical decision making and health: fuzzy trace theory," *Medical Decision Making* 28, no. 6 (2008): 850-865.
- <sup>98</sup> Valerie F. Reyna and Charles J. Brainerd, "Fuzzy-trace theory: An interim synthesis," *Learning and Individual Differences* 7, no. 1 (1995): 1-75.
- <sup>99</sup> Laura D. Scherer, et al., "Trust in deliberation: The consequences of deliberative decision strategies for medical decisions," *Health Psychology* 34, no. 11 (2015): 1090.
- <sup>100</sup> Jonathan St. B.T. Evans and Keith E. Stanovich, "Dual-process theories of higher cognition: Advancing the debate," *Perspectives on Psychological Science* 8, no. 3 (2013): 223-241.
- <sup>101</sup> Ap Dijksterhuis, et al., "The unconscious consumer: Effects of environment on consumer behavior," *Journal of Consumer Psychology* 15, no. 3 (2005): 193-202.
- <sup>102</sup> Paul Rozin, Linda Millman, and Carol Nemeroff, "Operation of the laws of sympathetic magic in disgust and other domains," *Journal of Personality and Social Psychology* 50, no. 4 (1986): 703.
- <sup>103</sup> Arne Öhman and Joaquim JF Soares, "Emotional conditioning to masked stimuli: expectancies for aversive outcomes following nonrecognized fear-relevant stimuli," *Journal of Experimental Psychology: General* 127, no. 1 (1998): 69.
- <sup>104</sup> Shelly Chaiken and Yaacov Trope, eds. *Dual-Process Theories in Social Psychology* (Guilford Press, 1999), 143.
- <sup>105</sup> Yoel Donchin, et al., "A look into the nature and causes of human errors in the intensive care unit," *Critical Care Medicine* 23, no. 2 (1995): 294-300.
- <sup>106</sup> Dennis Boyle, et al., "Disclosing errors and adverse events in the intensive care unit," *Critical Care Medicine* 34, no. 5 (2006): 1532-1537.
- <sup>107</sup> Juliane Kause, et al., "A comparison of antecedents to cardiac arrests, deaths and emergency intensive care admissions in Australia and New Zealand, and the United Kingdom—the ACADEMIA study," *Resuscitation* 62, no. 3 (2004): 275-282.
- <sup>108</sup> Lucian L. Leape, "Reporting of adverse events," *The New England Journal of Medicine* 347, no. 20 (2002): 1633.
- <sup>109</sup> Gerd Gigerenzer and Wolfgang Gaissmaier, "Heuristic decision making," *Annual Review of Psychology* 62 (2011): 451-482.
- <sup>110</sup> Albert Einstein, "On a heuristic point of view about the creation and conversion of light," *On a Heuristic Point of View about the Creation and Conversion of Light...* (1905): 1.
- <sup>111</sup> Anuj K. Shah and Daniel M. Oppenheimer, "Heuristics made easy: an effort-reduction framework," *Psychological Bulletin* 134, no. 2 (2008): 207.
- <sup>112</sup> Cass R. Sunstein, "Hazardous heuristics," (2003): 751-782.

- 
- <sup>113</sup> Daniel Kahneman and Shane Frederick, "A model of heuristic judgment," *The Cambridge Handbook of Thinking and Reasoning* (2005): 267-293.
- <sup>114</sup> Gerd Gigerenzer and Wolfgang Gaissmaier, "Heuristic decision making," *Annual Review of Psychology* 62 (2011): 451-482.
- <sup>115</sup> Amos Tversky and Daniel Kahneman, "Availability: A heuristic for judging frequency and probability," *Cognitive Psychology* 5, no. 2 (1973): 207-232.
- <sup>116</sup> Norbert Schwarz, et al., "Ease of retrieval as information: Another look at the availability heuristic," *Journal of Personality and Social Psychology* 61, no. 2 (1991): 195.
- <sup>117</sup> Timothy D. Wilson and Daniel T. Gilbert, "Affective forecasting," *Advances in Experimental Social Psychology* 35 (2003): 345-411.
- <sup>118</sup> Paul W. Eastwick, et al., "Mispredicting distress following romantic breakup: Revealing the time course of the affective forecasting error," *Journal of Experimental Social Psychology* 44, no. 3 (2008): 800-807.
- <sup>119</sup> Ibrahim Senay and Kimberly A. Kaphingst, "Anchoring-and-adjustment bias in communication of disease risk," *Medical Decision Making* 29, no. 2 (2009): 193-201.
- <sup>120</sup> Itamar Simonson and Aimee Drolet, "Anchoring effects on consumers' willingness-to-pay and willingness-to-accept," *Journal of Consumer Research* 31, no. 3 (2004): 681-690.
- <sup>121</sup> Fritz Strack and Thomas Mussweiler, "Explaining the enigmatic anchoring effect: Mechanisms of selective accessibility," *Journal of Personality and Social Psychology* 73, no. 3 (1997): 437.
- <sup>122</sup> Ellen Peters, et al., "A heuristics approach to understanding cancer risk perception: contributions from judgment and decision-making research," *Annals of Behavioral Medicine* 31, no. 1 (2006): 45-52.
- <sup>123</sup> Daniel Kahneman and Amos Tversky, "On the psychology of prediction," *Psychological Review* 80, no. 4 (1973): 237.
- <sup>124</sup> Laura A. Brannon and Kimi L. Carson, "The representativeness heuristic: influence on nurses' decision making," *Applied Nursing Research* 16, no. 3 (2003): 201-204.
- <sup>125</sup> Richard Thaler, "Toward a positive theory of consumer choice," *Journal of Economic Behavior & Organization* 1, no. 1 (1980): 39-60.
- <sup>126</sup> Raymond S. Nickerson, "Confirmation bias: A ubiquitous phenomenon in many guises," *Review of General Psychology* 2, no. 2 (1998): 175.
- <sup>127</sup> M. R. Nott, "Misidentification, in-filling and confirmation bias," *Anaesthesia* 56, no. 9 (2001): 906-924.
- <sup>128</sup> Maret G. Traber, "Does vitamin E decrease heart attack risk? Summary and implications with respect to dietary recommendations," *The Journal of Nutrition* 131, no. 2 (2001): 395S-397S.
- <sup>129</sup> Scott D. Halpern, Peter A. Ubel, and David A. Asch, "Harnessing the power of default options to improve health care," *The New England Journal of Medicine* 357, no. 13 (2007): 1340.
- <sup>130</sup> Eric J. Johnson and Daniel Goldstein. "Do defaults save lives?" (2003): 1338-1339.
- <sup>131</sup> Scott D. Halpern, et al., "Default options in advance directives influence how patients set goals for end-of-life care," *Health Affairs* 32, no. 2 (2013): 408-417.
- <sup>132</sup> Anton Kühberger, "The influence of framing on risky decisions: A meta-analysis," *Organizational Behavior and Human Decision Processes* 75, no. 1 (1998): 23-55.
- <sup>133</sup> Barbara J. McNeil, Stephen G. Pauker, and Amos Tversky, "On the framing of medical decisions," (1988).

- 
- <sup>134</sup> Amos Tversky and Daniel Kahneman, "Loss aversion in riskless choice: A reference-dependent model," *The Quarterly Journal of Economics* 106, no. 4 (1991): 1039-1061.
- <sup>135</sup> Daniel Ellsberg, "Risk, ambiguity, and the Savage axioms," *The Quarterly Journal of Economics* (1961): 643-669.
- <sup>136</sup> Sunita Sah, Pierre Elias, and Dan Ariely, "Investigation momentum: the relentless pursuit to resolve uncertainty," *JAMA Internal Medicine* 173, no. 10 (2013): 932-933.
- <sup>137</sup> Tali Sharot, "The optimism bias," *Current Biology* 21, no. 23 (2011): R941-R945.
- <sup>138</sup> Lucas S. Zier, et al., "Surrogate Decision Makers' Interpretation of Prognostic Information: A Mixed-Methods Study," *Annals of Internal Medicine* 156, no. 5 (2012): 360-366.
- <sup>139</sup> Jonathan Baron and John C. Hershey, "Outcome bias in decision evaluation," *Journal of Personality and Social Psychology* 54, no. 4 (1988): 569.
- <sup>140</sup> Robert A. Caplan, et al., "Adverse respiratory events in anesthesia: a closed claims analysis," *Anesthesiology* 72, no. 5 (1990): 828-833.
- <sup>141</sup> Cass R. Sunstein, "Moral heuristics," *Behavioral and Brain Sciences* 28, no. 4 (2005): 531-541.
- <sup>142</sup> Amos Tversky and Daniel Kahneman, "Judgment under uncertainty: Heuristics and biases," *Utility, Probability, and Human Decision Making*. (Springer Netherlands, 1975), 141-162.
- <sup>143</sup> Amos Tversky and Daniel Kahneman, "Availability: A heuristic for judging frequency and probability," *Cognitive Psychology* 5, no. 2 (1973): 207-232.
- <sup>144</sup> Brian H. Bornstein, A. Christine Emler, and Gretchen B. Chapman, "Rationality in medical treatment decisions: is there a sunk-cost effect?" *Social Science & Medicine* 49, no. 2 (1999): 215-222.
- <sup>145</sup> Herbert A. Simon, "Invariants of human behavior," *Annual Review of Psychology* 41, no. 1 (1990): 1-20.
- <sup>146</sup> Daniel Kahneman and Shane Frederick, "Representativeness revisited: Attribute substitution in intuitive judgment," *Heuristics and biases: The psychology of intuitive judgment* 49 (2002): 49-81.
- <sup>147</sup> Shane Frederick, "Cognitive reflection and decision making," *The Journal of Economic Perspectives* 19, no. 4 (2005): 25-42.
- <sup>148</sup> Jesse Graham, et al. "Moral foundations theory: The pragmatic validity of moral pluralism," *Advances in Experimental Social Psychology*, Forthcoming (2012).
- <sup>149</sup> Joshua Greene and Jonathan Haidt, "How (and where) does moral judgment work?" *Trends in Cognitive Sciences* 6, no. 12 (2002): 517-523.
- <sup>150</sup> Jonathan Haidt, "The emotional dog and its rational tail: a social intuitionist approach to moral judgment," *Psychological Review* 108, no. 4 (2001): 814.
- <sup>151</sup> Jonathan Haidt, "The new synthesis in moral psychology," *Science* 316, no. 5827 (2007): 998-1002.
- <sup>152</sup> Jonathan Baron, "Nonconsequentialist decisions," *Behavioral and Brain Sciences* 17, no. 1 (1994): 1-10.
- <sup>153</sup> Mark Spranca, Elisa Minsk, and Jonathan Baron, "Omission and commission in judgment and choice," *Journal of Experimental Social Psychology* 27, no. 1 (1991): 76-105.
- <sup>154</sup> Jonathan Baron and John C. Hershey, "Outcome bias in decision evaluation," *Journal of Personality and Social Psychology* 54, no. 4 (1988): 569.
- <sup>155</sup> Cass R. Sunstein, "Moral heuristics and moral framing," *Minn. L. Rev.* 88 (2003): 1556.

- 
- <sup>156</sup> Roy M. Poses, et al., "What Difference Do Two Days Make? The Inertia of Physicians' Sequential Prognostic Judgments for Critically Ill Patients," *Medical Decision Making* 10, no. 1 (1990): 6-14.
- <sup>157</sup> Michael D. Hurd, et al., "Monetary costs of dementia in the United States," *New England Journal of Medicine* 368, no. 14 (2013): 1326-1334.
- <sup>158</sup> John D. Arras, "The severely demented, minimally functional patient: an ethical analysis," *Journal of the American Geriatrics Society* 36, no. 10 (1988): 938-944.
- <sup>159</sup> Sharon M. Weinstein, et al., "Physicians' attitudes toward pain and the use of opioid analgesics: results of a survey from the Texas Cancer Pain Initiative," *Southern Medical Journal* 93, no. 5 (2000): 479-487.
- <sup>160</sup> Thomas S. Wallsten, "Physician and medical student bias in evaluating diagnostic information," *Medical Decision Making* 1, no. 2 (1981): 145-164.
- <sup>161</sup> Brian H. Bornstein and A. Christine Emler, "Rationality in medical decision making: a review of the literature on doctors' decision-making biases," *Journal of Evaluation in Clinical Practice* 7, no. 2 (2001): 97-107.
- <sup>162</sup> Derek C. Angus, et al., "Use of intensive care at the end of life in the United States: an epidemiologic study," *Critical Care Medicine* 32, no. 3 (2004): 638-643.
- <sup>163</sup> Caroline M. Quill, et al., "Variation in decisions to forgo life-sustaining therapies in US ICUs," *Chest* 146, no. 3 (2014): 573-582.
- <sup>164</sup> Elizabeth Dzeng, et al., "Influence of institutional culture and policies on do-not-resuscitate decision making at the end of life," *JAMA Internal Medicine* 175, no. 5 (2015): 812-819.
- <sup>165</sup> Amber E. Barnato, et al., "Norms of decision making in the ICU: a case study of two academic medical centers at the extremes of end-of-life treatment intensity," *Intensive Care Medicine* 38, no. 11 (2012): 1886-1896.
- <sup>166</sup> Ryan M. Antiel, et al., "The moral psychology of rationing among physicians: the role of harm and fairness intuitions in physician objections to cost-effectiveness and cost-containment," *Philosophy, Ethics, and Humanities in Medicine* 8, no. 1 (2013): 13.
- <sup>167</sup> Jonathan Baron and Ilana Ritov, "Omission bias, individual differences, and normality," *Organizational Behavior and Human Decision Processes* 94, no. 2 (2004): 74-85.
- <sup>168</sup> David C. Wheeler, et al., "Applying strategies from libertarian paternalism to decision making for prostate specific antigen (PSA) screening," *BMC Cancer* 11, no. 1 (2011): 148.
- <sup>169</sup> Nananda F. Col, et al., "Patient-specific decisions about hormone replacement therapy in postmenopausal women," *JAMA* 277, no. 14 (1997): 1140-1147.
- <sup>170</sup> Abigail L. Wroe and Paul M. Salkovskis, "Causing harm and allowing harm: A study of beliefs in obsessional problems," *Behaviour Research and Therapy* 38, no. 12 (2000): 1141-1162.
- <sup>171</sup> Dominic Wilkinson and Julian Savulescu, "A costly separation between withdrawing and withholding treatment in intensive care," *Bioethics* 28, no. 3 (2014): 127-137.
- <sup>172</sup> David Katz, "Omission Commission and Medical Outcomes: PSA and Sin Selection," *Huffington Post*, December 11, 2011. [http://www.huffingtonpost.com/david-katz-md/psa-screening\\_b\\_1002232.html/](http://www.huffingtonpost.com/david-katz-md/psa-screening_b_1002232.html/).
- <sup>173</sup> Kenneth E. Covinsky, et al., "Communication and Decision-Making in Seriously Ill Patients: Findings of the SUPPORT Project," *Journal of the American Geriatrics Society* 48, no. S1 (2000).

- 
- <sup>174</sup> Amber E. Barnato, et al., "Norms of decision making in the ICU: a case study of two academic medical centers at the extremes of end-of-life treatment intensity," *Intensive Care Medicine* 38, no. 11 (2012): 1886-1896.
- <sup>175</sup> Thanh N. Huynh, et al., "The frequency and cost of treatment perceived to be futile in critical care," *JAMA Internal Medicine* 173, no. 20 (2013): 1887-1894.
- <sup>176</sup> Valerie A. Palda, et al., "'Futile' care: Do we provide it? Why? A semistructured, Canada-wide survey of intensive care unit doctors and nurses," *Journal of Critical Care* 20, no. 3 (2005): 207-213.
- <sup>177</sup> Amber E. Barnato, et al., "Norms of decision making in the ICU: a case study of two academic medical centers at the extremes of end-of-life treatment intensity," *Intensive Care Medicine* 38, no. 11 (2012): 1886-1896.
- <sup>178</sup> Onora O'Neill, "Kantian ethics," *A Companion to Ethics* 29 (1993): 175-85.
- <sup>179</sup> Nancy Johnson, et al., "Towards a 'Good' Death: End-of-Life Narratives Constructed in An Intensive Care Unit," *Culture, Medicine and Psychiatry* 24, no. 3 (2000): 275-295.
- <sup>180</sup> Cara Buckley, "Man is rescued by stranger on subway tracks," *The New York Times* 3, no. 1 (2007).
- <sup>181</sup> Bruno S. Frey, David A. Savage, and Benno Torgler, "Surviving the Titanic disaster: economic, natural and social determinants," (2009).
- <sup>182</sup> Renata S. Suter and Ralph Hertwig, "Time and moral judgment," *Cognition* 119, no. 3 (2011): 454-458.
- <sup>183</sup> Paul Conway and Bertram Gawronski, "Deontological and utilitarian inclinations in moral decision making: a process dissociation approach," *Journal of Personality and Social Psychology* 104, no. 2 (2013): 216.
- <sup>184</sup> Joshua D. Greene, et al., "Cognitive load selectively interferes with utilitarian moral judgment," *Cognition* 107, no. 3 (2008): 1144-1154.
- <sup>185</sup> Joseph M. Paxton, Leo Ungar, and Joshua D. Greene, "Reflection and reasoning in moral judgment," *Cognitive Science* 36, no. 1 (2012): 163-177.
- <sup>186</sup> Jennifer W. Mack, et al., "End-of-Life Care Discussions Among Patients With Advanced Cancer A Cohort Study," *Annals of Internal Medicine* 156, no. 3 (2012): 204-210.
- <sup>187</sup> Nancy L. Keating, et al., "Physician factors associated with discussions about end-of-life care," *Cancer* 116, no. 4 (2010): 998-1006.
- <sup>188</sup> John McKie and Jeff Richardson, "The rule of rescue," *Social Science & Medicine* 56, no. 12 (2003): 2407-2419.
- <sup>189</sup> Albert R. Jonsen, "3. Bentham in a box: Technology assessment and health care allocation," *Law, Medicine and Health Care* 14, no. 3-4 (1986): 172-174.
- <sup>190</sup> Tehila Kogut and Ilana Ritov, "The 'identified victim' effect: An identified group, or just a single individual?" *Journal of Behavioral Decision Making* 18, no. 3 (2005): 157-167.
- <sup>191</sup> Bernadette Weaver-Catalana, "The Battle for Baby Jessica: A Conflict of Best Interests," *Buff. L. Rev.* 43 (1995): 583.
- <sup>192</sup> Karen Wells, "Narratives of liberation and narratives of innocent suffering: The rhetorical uses of images of Iraqi children in the British press," *Visual Communication* 6, no. 1 (2007): 55-71.
- <sup>193</sup> J. Song, "Every dog has its day—but at what price," *The Register Guard* A 15 (2002).
- <sup>194</sup> Deborah A. Small, George Loewenstein, and Paul Slovic, "Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims," *Organizational Behavior and Human Decision Processes* 102, no. 2 (2007): 143-153.

- 
- <sup>195</sup> T. C. Schelling, "The Life You Save May Be Your Own," in *Problems in Public Expenditure Analysis*, edited by Samuel Chase (Washington, DC: The Brookings Institute, 1968).
- <sup>196</sup> Karen Jenni and George Loewenstein, "Explaining the identifiable victim effect," *Journal of Risk and Uncertainty* 14, no. 3 (1997): 235-257.
- <sup>197</sup> Carolyn Dimitri and Catherine Greene, "Recent growth patterns in the US organic foods market," *Agriculture Information Bulletin* 777 (2000).
- <sup>198</sup> Marco daCosta DiBonaventura and Gretchen B. Chapman, "Do decision biases predict bad decisions? Omission bias, naturalness bias, and influenza vaccination," *Medical Decision Making* 28, no. 4 (2008): 532-539.
- <sup>199</sup> Paul Rozin, et al., "Preference for natural: instrumental and ideational/moral motivations, and the contrast between foods and medicines," *Appetite* 43, no. 2 (2004): 147-154.
- <sup>200</sup> George F. Loewenstein, et al., "Risk as feelings," *Psychological Bulletin* 127, no. 2 (2001): 267.
- <sup>201</sup> Steven C. Currall, et al. "What drives public acceptance of nanotechnology?" *Nature Nanotechnology* 1, no. 3 (2006): 153-155.
- <sup>202</sup> Paul Slovic, Howard Kunreuther, and Gilbert F. White, "Decision processes, rationality and adjustment to natural hazards," (Earthscan Publications, 1974).
- <sup>203</sup> Shan Mohammed and Elizabeth Peter, "Rituals, death and the moral practice of medical futility," *Nursing Ethics* 16, no. 3 (2009): 292-302.
- <sup>204</sup> Stefan Timmermans, "Death brokering: constructing culturally appropriate deaths," *Sociology of Health & Illness* 27, no. 7 (2005): 993-1013.
- <sup>205</sup> S. S. Venneman, et al., "'Allow natural death' versus 'do not resuscitate': three words that can change a life," *Journal of Medical Ethics* 34, no. 1 (2008): 2-6.
- <sup>206</sup> Jon L. Pierce, Tatiana Kostova, and Kurt T. Dirks, "Toward a theory of psychological ownership in organizations," *Academy of Management Review* 26, no. 2 (2001): 298-310.
- <sup>207</sup> Jon L. Pierce, Tatiana Kostova, and Kurt T. Dirks, "The state of psychological ownership: Integrating and extending a century of research," *Review of General Psychology* 7, no. 1 (2003): 84.
- <sup>208</sup> Alex Dubov, Liana Fraenkel, and Elizabeth Seng, "The importance of fostering ownership during medical training," *The American Journal of Bioethics* 16, no. 9 (2016): 3-12.
- <sup>209</sup> James B. Avey, et al., "Psychological ownership: Theoretical extensions, measurement and relation to work outcomes," *Journal of Organizational Behavior* 30, no. 2 (2009): 173-191.
- <sup>210</sup> Jon L. Pierce, Tatiana Kostova, and Kurt T. Dirks, "Toward a theory of psychological ownership in organizations," *Academy of Management Review* 26, no. 2 (2001): 298-310.
- <sup>211</sup> Gary W. Ewart, et al., "The critical care medicine crisis: a call for federal action: a white paper from the critical care professional societies," *Chest* 125, no. 4 (2004): 1518-1521.
- <sup>212</sup> Ognjen Gajic, et al., "Effect of 24-hour mandatory versus on-demand critical care specialist presence on quality of care and family and provider satisfaction in the intensive care unit of a teaching hospital," *Critical Care Medicine* 36, no. 1 (2008): 36-44.
- <sup>213</sup> Jack E. Zimmerman, et al., "Evaluation of acute physiology and chronic health evaluation III predictions of hospital mortality in an independent database," *Critical Care Medicine* 26, no. 8 (1998): 1317-1326.
- <sup>214</sup> Aung K. Lwin and Donald S. Shepard, "Estimating lives and dollars saved from universal adoption of the Leapfrog safety and quality standards: 2008 update," *The Leapfrog Group*. (Washington, DC, 2008).

- 
- <sup>215</sup> Derek C. Angus, et al., "Critical care delivery in the United States: distribution of services and compliance with Leapfrog recommendations," *Critical Care Medicine* 34, no. 4 (2006): 1016-1024.
- <sup>216</sup> John M. Darley and Bibb Latane, "Bystander intervention in emergencies: diffusion of responsibility," *Journal of Personality and Social Psychology* 8, no. 4p1 (1968): 377.
- <sup>217</sup> George Loewenstein and Richard H. Thaler, "Anomalies: intertemporal choice," *The Journal of Economic Perspectives* 3, no. 4 (1989): 181-193.
- <sup>218</sup> Jonathan Haidt and Craig Joseph, "Intuitive ethics: How innately prepared intuitions generate culturally variable virtues," *Daedalus* 133, no. 4 (2004): 55-66.
- <sup>219</sup> Jonathan Haidt, Fredrik Bjorklund, and Scott Murphy, "Moral dumbfounding: When intuition finds no reason," Unpublished manuscript. University of Virginia, 2000.
- <sup>220</sup> Amber E. Barnato, et al., "Norms of decision making in the ICU: a case study of two academic medical centers at the extremes of end-of-life treatment intensity," *Intensive Care Medicine* 38, no. 11 (2012): 1886-1896.
- <sup>221</sup> Joshua D. Greene, et al., "Cognitive load selectively interferes with utilitarian moral judgment," *Cognition* 107, no. 3 (2008): 1144-1154.
- <sup>222</sup> John W. Beasley, et al., "How many problems do family physicians manage at each encounter? A WReN study," *The Annals of Family Medicine* 2, no. 5 (2004): 405-410.
- <sup>223</sup> Guilherme Del Fiol, T. Elizabeth Workman, and Paul N. Gorman, "Clinical questions raised by clinicians at the point of care: a systematic review," *JAMA Internal Medicine* 174, no. 5 (2014): 710-718.
- <sup>224</sup> Archana Laxmisan, et al., "The multitasking clinician: decision-making and cognitive demand during and after team handoffs in emergency care," *International Journal of Medical Informatics* 76, no. 11 (2007): 801-811.
- <sup>225</sup> Danielle E. Warren and Kristin Smith-Crowe, "Deciding what's right: The role of external sanctions and embarrassment in shaping moral judgments in the workplace," *Research in Organizational Behavior* 28 (2008): 81-105.
- <sup>226</sup> David T. Duensing and Robert E. Bolinger, "Estimating case complexity: measuring physicians' cognitive work," *Proceedings of the Annual Symposium on Computer Application in Medical Care*. (American Medical Informatics Association, 1989).
- <sup>227</sup> Robert E. Wood, "Task complexity: Definition of the construct," *Organizational Behavior and Human Decision Processes* 37, no. 1 (1986): 60-82.
- <sup>228</sup> Hal E. Hershfield, Taya R. Cohen, and Leigh Thompson, "Short horizons and tempting situations: Lack of continuity to our future selves leads to unethical decision making and behavior," *Organizational Behavior and Human Decision Processes* 117, no. 2 (2012): 298-310.
- <sup>229</sup> Douglas H. Hershfield and Ulf Böckenholt, "Contemplating single versus multiple encounters of a risky prospect," *The American Journal of Psychology* (1994): 499-518.
- <sup>230</sup> B. Sonny Bal and Theodore J. Choma, "What to disclose? Revisiting informed consent," *Clinical Orthopaedics and Related Research* 470, no. 5 (2012): 1346-1356.
- <sup>231</sup> *Cobbs v. Grant*, 8 Cal 3d 229; 502P: 2d 1, 1972.
- <sup>232</sup> Paul KJ Han, et al., "Predictors of perceived ambiguity about cancer prevention recommendations: Sociodemographic factors and mass media exposures," *Health communication* 24, no. 8 (2009): 764-772.
- <sup>233</sup> Nora Moumjid, et al., "Shared decision making in the medical encounter: are we all talking about the same thing?" *Medical Decision Making* 27, no. 5 (2007): 539-546.



- 
- <sup>234</sup> Dennis J. Mazur, "Information disclosure and beyond: how do patients understand and use the information they report they want?" (2000): 132-134.
- <sup>235</sup> Sidney T. Bogardus Jr, Eric Holmboe, and James F. Jekel, "Perils, pitfalls, and possibilities in talking about medical risk," *JAMA* 281, no. 11 (1999): 1037-1041.
- <sup>236</sup> *Arato v Avedon*, 5 Cal 4th 1172, 858 P: 2d 598, 1993.
- <sup>237</sup> Cathy Charles, Amiram Gafni, and Tim Whelan, "Decision-making in the physician–patient encounter: revisiting the shared treatment decision-making model," *Social Science & Medicine* 49, no. 5 (1999): 651-661.
- <sup>238</sup> Glyn Elwyn, et al., "Shared decision making: a model for clinical practice," *Journal of general internal medicine* 27, no. 10 (2012): 1361-1367.
- <sup>239</sup> David B. Portnoy, et al., "Physicians' attitudes about communicating and managing scientific uncertainty differ by perceived ambiguity aversion of their patients," *Health Expectations* 16, no. 4 (2013): 362-372.
- <sup>240</sup> Vera F. Irurita, "The problem of patient vulnerability," *Collegian* 6, no. 1 (1999): 10-15.
- <sup>241</sup> "BMJ Clinical Evidence." *BMJ Publishing Group Limited*.  
<http://www.clinicalevidence.com/ceweb/about/guide.jsp/>. (Accessed June 7, 2017).
- <sup>242</sup> Clarence H. Braddock III, et al., "Informed decision making in outpatient practice: time to get back to basics," *JAMA* 282, no. 24 (1999): 2313-2320.
- <sup>243</sup> Mary C. Politi, Paul KJ Han, and Nananda F. Col., "Communicating the uncertainty of harms and benefits of medical interventions," *Medical Decision Making* 27., no. 5 (2007): 681-695.
- <sup>244</sup> Gordon H. Guyatt, et al., "Rating quality of evidence and strength of recommendations: GRADE: an emerging consensus on rating quality of evidence and strength of recommendations," *BMJ: British Medical Journal* 336, no. 7650 (2008): 924.
- <sup>245</sup> Michael S. Henry, "Uncertainty, responsibility, and the evolution of the physician/patient relationship," *Journal of Medical Ethics* 32, no. 6 (2006): 321-323.
- <sup>246</sup> Marcela Brugnach, et al., "Toward a relational concept of uncertainty: about knowing too little, knowing too differently, and accepting not to know," *Ecology and Society* 13, no. 2 (2008).
- <sup>247</sup> Uzi Segal, "The Ellsberg paradox and risk aversion: An anticipated utility approach," *International Economic Review* (1987): 175-202.
- <sup>248</sup> Paul KJ Han, et al., "Aversion to ambiguity regarding medical tests and treatments: measurement, prevalence, and relationship to sociodemographic factors," *Journal of health communication* 14, no. 6 (2009): 556-572.
- <sup>249</sup> Sunita Sah, Pierre Elias, and Dan Ariely, "Investigation momentum: the relentless pursuit to resolve uncertainty," *JAMA Internal Medicine* 173, no. 10 (2013): 932-933.
- <sup>250</sup> Stefan T. Trautmann, Ferdinand M. Vieider, and Peter P. Wakker, "Causes of ambiguity aversion: Known versus unknown preferences," *Journal of Risk and Uncertainty* 36, no. 3 (2008): 225-243.
- <sup>251</sup> William MP Klein, et al., "Ability, chance, and ambiguity aversion: Revisiting the competence hypothesis," *Judgment and Decision Making* 5, no. 3 (2010): 192.
- <sup>252</sup> Paul KJ Han, et al., "Laypersons' responses to the communication of uncertainty regarding cancer risk estimates," *Medical Decision Making* 29, no. 3 (2009): 391-403.
- <sup>253</sup> George Loewenstein, "The psychology of curiosity: A review and reinterpretation," *Psychological Bulletin* 116, no. 1 (1994): 75.
- <sup>254</sup> Guoyu Tao, et al., "Rates of receiving HIV test results: data from the US National Health Interview Survey for 1994 and 1995," *JAIDS Journal of Acquired Immune Deficiency Syndromes* 22, no. 4 (1999): 395-400.

- 
- <sup>255</sup> Terri D. Conley, et al., "Psychological sequelae of avoiding HIV-serostatus information," *Basic and Applied Social Psychology* 21, no. 2 (1999): 81-90.
- <sup>256</sup> Mary C. Politi, et al., "Communicating uncertainty can lead to less decision satisfaction: a necessary cost of involving patients in shared decision making?" *Health Expectations* 14, no. 1 (2011): 84-91.
- <sup>257</sup> Terry Connolly and Jochen Reb, "Regret in cancer-related decisions," *Health Psychology* 24, no. 4S (2005): S29.
- <sup>258</sup> "Uncertainty," *Merriam-Webster Online Dictionary*, <http://www.merriam-webster.com/uncertainty/> (Accessed June 7, 2017).
- <sup>259</sup> Merle H. Mishel, "Uncertainty in illness," *Journal of Nursing Scholarship* 20, no. 4 (1988): 225-232.
- <sup>260</sup> Eric B. Beresford, "Uncertainty and the shaping of medical decisions," *Hastings Center Report* 21, no. 4 (1991): 6-11.
- <sup>261</sup> Atul Gawande, *Complications: A Surgeon's Notes on an Imperfect Science* (Profile Books, 2010), 229
- <sup>262</sup> Paul KJ Han, William MP Klein, and Neeraj K. Arora, "Varieties of uncertainty in health care: a conceptual taxonomy," *Medical Decision Making* 31, no. 6 (2011): 828-838.
- <sup>263</sup> Daniel Ellsberg, "Risk, ambiguity, and the Savage axioms," *The Quarterly Journal of Economics* (1961): 643-669.
- <sup>264</sup> Colin Camerer and Martin Weber, "Recent developments in modeling preferences: Uncertainty and ambiguity," *Journal of Risk and Uncertainty* 5, no. 4 (1992): 325-370.
- <sup>265</sup> Chip Heath and Amos Tversky, "Preference and belief: Ambiguity and competence in choice under uncertainty," *Journal of Risk and Uncertainty* 4, no. 1 (1991): 5-28.
- <sup>266</sup> Craig R. Fox and Amos Tversky, "Ambiguity aversion and comparative ignorance," *The Quarterly Journal of Economics* 110, no. 3 (1995): 585-603.
- <sup>267</sup> Ming Hsu, et al., "Neural systems responding to degrees of uncertainty in human decision-making," *Science* 310, no. 5754 (2005): 1680-1683.
- <sup>268</sup> Immanuel Kant, "On a supposed right to lie from altruistic motives," *Critical of Practical Reason and Other Writings* (1949), 346-350.
- <sup>269</sup> Robert M. Veatch, "Doctor does not know best: why in the new century physicians must stop trying to benefit patients," *The Journal of Medicine and Philosophy* 25, no. 6 (2000): 701-721.
- <sup>270</sup> JS Mill, *On Liberty (1859)* (Amherst, NY: Prometheus Books, 1986), 16.
- <sup>271</sup> Alan Meisel and Mark Kuczewski, "Legal and ethical myths about informed consent," *Archives of Internal Medicine* 156, no. 22 (1996): 2521-2526.
- <sup>272</sup> Arthur J. Barsky, et al., "Nonspecific medication side effects and the nocebo phenomenon," *JAMA* 287, no. 5 (2002): 622-627.
- <sup>273</sup> Edmund D. Pellegrino, "For the patient's good: The restoration of beneficence in health care," (1988).
- <sup>274</sup> Lawrence J. Markson, et al., "Physician assessment of patient competence," *Journal of the American Geriatrics Society* 42, no. 10 (1994): 1074-1080.
- <sup>275</sup> Loane Skene and Richard Smallwood, "Informed consent: lessons from Australia," *BMJ: British Medical Journal* 324, no. 7328 (2002): 39.
- <sup>276</sup> Paul Slovic, Baruch Fischhoff, and Sarah Lichtenstein, "Characterizing perceived risk," (1985).

- 
- <sup>277</sup> LJ O'Donovan, "A profession of trust: reflections on a fundamental virtue," In *The Health Care Professional as Friend and Healer*, edited by DC Thomasma, and JL Kissell (Washington: Georgetown University Press, 2000), 1–9.
- <sup>278</sup> Marek Marzanski, "Would you like to know what is wrong with you? On telling the truth to patients with dementia," *Journal of Medical Ethics* 26, no. 2 (2000): 108-113.
- <sup>279</sup> Dennis H. Novack, et al., "Changes in physicians' attitudes toward telling the cancer patient," *JAMA* 241, no. 9 (1979): 897-900.
- <sup>280</sup> Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics*, 7th ed. (Oxford: Oxford University Press, 2014), 395-461.
- <sup>281</sup> Jay Katz, *The Silent World of Doctor and Patient* (JHU Press, 2002), 217
- <sup>282</sup> Alan Meisel, "The exceptions to the informed consent doctrine: striking a balance between competing values in medical decisionmaking," *Wis. L. Rev.* (1979): 413.
- <sup>283</sup> Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics* (Oxford University Press, USA, 2001), 178
- <sup>284</sup> A. K. Edwin, "Don't Lie but Don't Tell the Whole Truth: The Therapeutic Privilege-Is it Ever Justified?" *Ghana Medical Journal* 42, no. 4 (2008): 156.
- <sup>285</sup> David B. Portnoy, et al., "Physicians' attitudes about communicating and managing scientific uncertainty differ by perceived ambiguity aversion of their patients," *Health Expectations* 16, no. 4 (2013): 362-372.
- <sup>286</sup> Jonathan Baron and John C. Hershey, "Outcome bias in decision evaluation," *Journal of Personality and Social Psychology* 54, no. 4 (1988): 569.
- <sup>287</sup> Hal R. Arkes, et al., "Hindsight bias among physicians weighing the likelihood of diagnoses," *Journal of Applied Psychology* 66, no. 2 (1981): 252.
- <sup>288</sup> Carolyn Johnston and Genevieve Holt, "The legal and ethical implications of therapeutic privilege-is it ever justified to withhold treatment information from a competent patient?" *Clinical Ethics* 1, no. 3 (2006): 146-151.
- <sup>289</sup> Caitriona L. Cox and Zoe Fritz, "Should non-disclosures be considered as morally equivalent to lies within the doctor–patient relationship?" *Journal of Medical Ethics* (2016): medethics-2015.
- <sup>290</sup> Aristotle, *Nicomachean Ethics*, 1113b 20-21
- <sup>291</sup> James J. Murphy, Richard A. Katula, Forbes I. Hill, and Donovan J. Ochs, *A Synoptic History of Classical Rhetoric* (Routledge, 2003), 37.
- <sup>292</sup> Friedrich Solmsen, ed. *Rhetoric* (Random House, 1954), 24-25.
- <sup>293</sup> Richard M. Perloff, *The Dynamics of Persuasion: Communication and Attitudes in the Twenty-First Century* (Routledge, 2010), 27.
- <sup>294</sup> Herbert W. Simons, *Persuasion* (Addison-Wesley, 1976), 21.
- <sup>295</sup> Erwin P. Bettinghaus and Michael J. Cody, *Persuasive Communication* (Holt, Rinehart and Winston Inc., 1987), 3.
- <sup>296</sup> Mary John Smith, *Persuasion and Human Action: A Review and Critique of Social Influence Theories* (Belmont, California: Wadsworth Publishing Company, 1982), 7.
- <sup>297</sup> Daniel J. O'Keefe, *Persuasion: Theory and Research*, vol. 2. (SAGE Publications, Incorporated, 2002), 17
- <sup>298</sup> Sally M. Dunlop, Melanie Wakefield, and Yoshihisa Kashima, "Pathways to persuasion: Cognitive and experiential responses to health-promoting mass media messages," *Communication Research* 37, no. 1 (2010): 133-164.

- 
- <sup>299</sup> Penny Powers, "Persuasion and coercion: a critical review of philosophical and empirical approaches," In *HEC Forum*, vol. 19, no. 2, pp. 125-143.
- <sup>300</sup> Daniel J. O'Keefe, "Conviction, Persuasion, and Argumentation: Untangling the Ends and Means of Influence," *Argumentation* 26, no. 1 (2012): 19-32.
- <sup>301</sup> Mary John Smith, *Persuasion and Human Action: A Review and Critique of Social Influence Theories* (Belmont, California: Wadsworth Publishing Company, 1982), 32.
- <sup>302</sup> Cindy Diamond Zolnierak, "Coercion and the mentally ill: Ethical perspectives," *Journal of the American Psychiatric Nurses Association* 13, no. 2 (2007): 101-108.
- <sup>303</sup> Sherry Baker and David L. Martinson, "The TARES test: Five principles for ethical persuasion," *Journal of Mass Media Ethics* 16, no. 2-3 (2001): 148-175.
- <sup>304</sup> Immanuel Kant, *Critique of Judgment, 1790*, translated by J.H. Bernard (New York: Prometheus, 2000), 207.
- <sup>305</sup> C. Mackenzie and N. Stoljar, "Introduction: Autonomy refigured," In *Relational Autonomy: Feminist Perspectives on Autonomy, Agency, and the Social Self* (New York: Oxford University Press, 2000), 3-31.
- <sup>306</sup> John Christman, "Constructing the inner citadel: Recent work on the concept of autonomy," *Ethics* 99, no. 1 (1988): 109-124.
- <sup>307</sup> Gidon Felsen and Peter B. Reiner, "How the neuroscience of decision making informs our conception of autonomy," *AJOB Neuroscience* 2, no. 3 (2011): 3-14.
- <sup>308</sup> Tom L. Beauchamp and James F. Childress, *Principles of biomedical ethics*. (Oxford University Press, USA, 2001), 50.
- <sup>309</sup> Onora O'Neill, "Kantian ethics," *Principles of Health Care Ethics, Second Edition* (2007): 73-77.
- <sup>310</sup> H. Frankfurt, "Freedom of the will and the concept of a person," *Journal of Philosophy* 68, no. 1 (1971): 5-20; G. Dworkin, *The Theory and Practice of Autonomy* (Cambridge: Cambridge University Press, 1988)
- <sup>311</sup> J. Christman, "Autonomy and personal history," *Canadian Journal of Philosophy* 21, no. 1 (1991): 1-24.
- <sup>312</sup> G. Dworkin, "Autonomy and behavior control," *Hastings Center Report* 6, no. 1 (1976): 23-28.
- <sup>313</sup> René Descartes, *The Philosophical Writings of Descartes*, vol. 2 (Cambridge University Press, 1985), 1:114, AT 7.
- <sup>314</sup> John Locke, *An Essay Concerning Human Understanding* (T. Tegg and Son, 1836), 376.
- <sup>315</sup> J. F. M. Hunter, "The possibility of a rational strategy of moral persuasion," *Ethics* 84, no. 3 (1974): 185-200.
- <sup>316</sup> Smith Michael, "Desires, Values, Reasons, and the Dualism of Practical Reason," In *Ratio Special Issue: Parfit's On What Matters*, edited by John Cottingham and Jussi Suikkanen 22 (2009): 98-125.
- <sup>317</sup> John Dunn, "Consent in the political theory of John Locke," *The Historical Journal* 10, no. 2 (1967): 153-182.
- <sup>318</sup> Jerry Kirkpatrick, "A philosophic defense of advertising," *Journal of Advertising* 15, no. 2 (1986): 42-64.
- <sup>319</sup> Nurit Guttman, "Ethical dilemmas in health campaigns," *Health Communication* 9, no. 2 (1997): 155-190.
- <sup>320</sup> Nurit Guttman and Charles T. Salmon, "Guilt, fear, stigma and knowledge gaps: ethical issues in public health communication interventions," *Bioethics* 18, no. 6 (2004): 531-552.

- 
- <sup>321</sup> Ronald Bayer, "Stigma and the ethics of public health: not can we but should we," *Social science & medicine* 67, no. 3 (2008): 463-472.
- <sup>322</sup> Ross Buck and Whitney A. Davis, "Marketing risk: Emotional appeals can promote the mindless acceptance of risk," In *Emotions and Risky Technologies*, edited by Sabine Roeser (Springer, 2010), 61-80.
- <sup>323</sup> John Locke, *An Essay Concerning Human Understanding* (W. Tegg, 1849), 170.
- <sup>324</sup> Immanuel Kant, *Groundwork for the Metaphysics of Morals* (Yale University Press, 2002), 26, AK 416.
- <sup>325</sup> Immanuel Kant, *Groundwork for the Metaphysics of Morals* (Yale University Press, 2002), 41, AK 35.
- <sup>326</sup> Thomas M. Scanlon, *What We Owe to Each Other* (Harvard University Press, 1998), 255.
- <sup>327</sup> Keith Dowding and Peter John, "The value of choice in public policy," *Public Administration* 87, no. 2 (2009): 219-233.
- <sup>328</sup> Y. Michael Barilan and Moshe Weintraub, "Persuasion as respect for persons: an alternative view of autonomy and of the limits of discourse," *The Journal of Medicine and Philosophy* 26, no. 1 (2001): 13-34.
- <sup>329</sup> National Research Council, *Improving risk communication* (National Academies, 1989), 28.
- <sup>330</sup> Luca Maria Scarantino, "Persuasion, Rhetoric and Authority," *Diogenes* 55, no. 1 (2008): 22-36.
- <sup>331</sup> John Locke, *Some Thoughts Concerning Education* (Barron's Educational Series, 1964), sec. 45.
- <sup>332</sup> John Locke, . *Some Thoughts Concerning Education* (Barron's Educational Series, 1964), sec. 107.
- <sup>333</sup> John Locke, *Some Thoughts Concerning Education* (Barron's Educational Series, 1964), sec. 53.
- <sup>334</sup> John Locke, *Some Thoughts Concerning Education* (Barron's Educational Series, 1964), sec. 36.
- <sup>335</sup> John W. Yolton, *John Locke & Education* (New York: Random House, 1971), 131.
- <sup>336</sup> Nancy Sherman, *Making a Necessity of Virtue: Aristotle and Kant on Virtue* (Cambridge University Press, 1997), 296.
- <sup>337</sup> Raphaël Micheli, "Emotions as objects of argumentative constructions," *Argumentation* 24, no. 1 (2010): 1-17.
- <sup>338</sup> Aristotle, *Nicomachean Ethics*, 1139a 35-b1.
- <sup>339</sup> Aristotle, *Rhetoric*, 1378a 22-24.
- <sup>340</sup> Aristotle, *Rhetoric*, 1356a 14-17.
- <sup>341</sup> Aristotle, *Rhetoric*, 1378a 1-5.
- <sup>342</sup> Gregory E. Kaebnick, "Reasons of the Heart: Emotion, Rationality, and the 'Wisdom of Repugnance,'" *Hastings Center Report* 38, no. 4 (2008): 36-45.
- <sup>343</sup> Amélie Rorty, "Aristotle on the Virtues of Rhetoric," *The Review of Metaphysics* 64, no. 4 (2011): 715-733.
- <sup>344</sup> Aristotle, *Nicomachean Ethics*, 1113b 20-21
- <sup>345</sup> Aristotle, *Nicomachean Ethics*, 1135a 31-b2
- <sup>346</sup> Alex John London, "Amenable to reason: Aristotle's rhetoric and the moral psychology of practical ethics," *Kennedy Institute of Ethics Journal* 10, no. 4 (2000): 287-305.
- <sup>347</sup> Aristotle, *Nicomachean Ethics*, 1113b 22-29
- <sup>348</sup> Aristotle, *Nicomachean Ethics*, 1110b 9-15

- 
- <sup>349</sup> Aristotle, *Nicomachean Ethics*, 1114b 2-3
- <sup>350</sup> Aristotle, *Nicomachean Ethics*, 1382b 30-32
- <sup>351</sup> Aristotle, *Nicomachean Ethics*, 1382b 32
- <sup>352</sup> Aristotle, *Nicomachean Ethics*, 1106b 18-22
- <sup>353</sup> Aristotle, *Nicomachean Ethics*, IV 11
- <sup>354</sup> Allen Speight, "'Listening to Reason': The Role of Persuasion in Aristotle's Account of Praise, Blame, and the Voluntary," *Philosophy and Rhetoric* 38, no. 3 (2005): 213-225.
- <sup>355</sup> Aristotle, *Nicomachean Ethics*, 1098a 15-18
- <sup>356</sup> Aristotle, *Nicomachean Ethics*, 1107a 1-2
- <sup>357</sup> Antonio Damasio, *Descartes' Error: Emotion, Reason, and the Human Brain* (Penguin, 2005).
- <sup>358</sup> Alisa L. Carse, "The 'voice of care': Implications for bioethical education," *Journal of Medicine and Philosophy* 16, no. 1 (1991): 5-28.
- <sup>359</sup> Annette Baier, "The need for more than justice," *Canadian Journal of Philosophy* 13, no. Suppl (1987): 41-56.
- <sup>360</sup> Catriona Mackenzie and Natalie Stoljar, *Relational Autonomy: Feminist Perspectives on Autonomy, Agency and the Social Self* (New York: Oxford University Press, 2000), 4.
- <sup>361</sup> Aristotle, *Nicomachean Ethics*, 1152a1-5
- <sup>362</sup> Aristotle, *Nicomachean Ethics*, 1156b10-11
- <sup>363</sup> Harry R. Moody, "From informed consent to negotiated consent," *The Gerontologist* 28, no. Suppl (1988): 64-70.
- <sup>364</sup> Marian Verkerk, "A Care Perspective on Coercion and Autonomy," *Bioethics* 13, no. 3-4 (1999): 358-368.
- <sup>365</sup> Valerie F. Reyna, Wendy L. Nelson, Paul K. Han, and Nathan F. Dieckmann, "How numeracy influences risk comprehension and medical decision making," *Psychological Bulletin* 135, no. 6 (2009): 943.
- <sup>366</sup> Wendy Nelson, et al., "Clinical implications of numeracy: theory and practice," *Annals of Behavioral Medicine* 35, no. 3 (2008): 261-274.
- <sup>367</sup> Carmen Keller and Michael Siegrist, "Effect of risk communication formats on risk perception depending on numeracy," *Medical Decision Making* 29, no. 4 (2009): 483-490.
- <sup>368</sup> J. S. Swindell, Amy L. McGuire, and Scott D. Halpern, "Beneficent persuasion: techniques and ethical guidelines to improve patients' decisions," *The Annals of Family Medicine* 8, no. 3 (2010): 260-264.
- <sup>369</sup> Ruth R. Faden, Tom L. Beauchamp, and Nancy MP King, "A history and theory of informed consent," (1986): 347
- <sup>370</sup> C. M. Culver and B. Gert, "Valid consent and competence," In *Philosophy in Medicine*, edited by C.M. Culver and B. Gert (New York: Oxford University Press, 1982).
- <sup>371</sup> D. Shaw and B. Elger, "Evidence-Based Persuasion: An Ethical Imperative," *JAMA* 309, no. 16 (2013): 1689-1690.
- <sup>372</sup> Orit Karnieli-Miller and Zvi Eisikovits, "Physician as partner or salesman? Shared decision-making in real-time encounters," *Social Science & Medicine* 69, no. 1 (2009): 1-8.
- <sup>373</sup> Jennifer S. Needle, Richard A. Mularski, Thuan Nguyen, and Erik K. Fromme, "Influence of personal preferences for life-sustaining treatment on medical decision making among pediatric intensivists," *Critical Care Medicine* 40, no. 8 (2012): 2464-2469.
- <sup>374</sup> James N. Druckman, "On the limits of framing effects: who can frame?" *Journal of Politics* 63, no. 4 (2001): 1041-1066.

- 
- <sup>375</sup> Irwin P. Levin, Sandra L. Schneider, and Gary J. Gaeth, "All frames are not created equal: A typology and critical analysis of framing effects," *Organizational Behavior and Human Decision Processes* 76, no. 2 (1998): 149-188.
- <sup>376</sup> J. S. Blumenthal-Barby, "Between reason and coercion: Ethically permissible influence in health care and health policy contexts," *Kennedy Institute of Ethics Journal* 22, no. 4 (2012): 345-366.
- <sup>377</sup> G. Lakoff and M. Johnson, *Metaphors We Live By*. (Chicago, IL, University of Chicago Press, 1980).
- <sup>378</sup> C.E. Mabeck and F. Olesen, "Metaphors and Understanding of Disease," *Ugeskr Laeger* 158, no. 51 (1996): 7384-7387.
- <sup>379</sup> Gary M. Reisfield and George R. Wilson, "Use of metaphor in the discourse on cancer," *Journal of Clinical Oncology* 22, no. 19 (2004): 4024-4027.
- <sup>380</sup> Aristotle, *Rhetoric*, 1394a
- <sup>381</sup> Aristotle, *Poetics* XXII, 1459a
- <sup>382</sup> Aristotle, *Rhetoric*, 1411b-1412a
- <sup>383</sup> Aristotle, *Rhetoric*, 1411b-1412a
- <sup>384</sup> Bryan B. Whaley and Austin S. Babrow, "Analogy in persuasion: Translator's dictionary or art?" *Communication Studies* 44, no. 3-4 (1993): 239-253.
- <sup>385</sup> Kenneth Burke, "A rhetoric of motives," New York (1950), 55.
- <sup>386</sup> Kenneth Burke, "A rhetoric of motives," New York (1950), 50.
- <sup>387</sup> Rose G. Campbell and Austin S. Babrow, "The role of empathy in responses to persuasive risk communication: Overcoming resistance to HIV prevention messages," *Health Communication* 16, no. 2 (2004): 159-182.
- <sup>388</sup> Aarti Iyer and Julian Oldmeadow, "Picture this: Emotional and political responses to photographs of the Kenneth Bigley kidnapping," *European journal of social psychology* 36, no. 5 (2006): 635-647.
- <sup>389</sup> Richard E. Mayer and Valerie K. Sims, "For whom is a picture worth a thousand words? Extensions of a dual-coding theory of multimedia learning," *Journal of educational psychology* 86, no. 3 (1994): 389.
- <sup>390</sup> Angelo E. Volandes, Michael J. Barry, Yuchiao Chang, and Michael K. Paasche-Orlow, "Improving decision making at the end of life with video images," *Medical Decision Making* 30, no. 1 (2010): 29-34.
- <sup>391</sup> Angelo E. Volandes, et al., "Video decision support tool for advance care planning in dementia: randomised controlled trial," *BMJ: British Medical Journal* 338 (2009).
- <sup>392</sup> W. D. Ross, *The Foundations of Ethics* (Oxford: Clarendon Press, 1939).
- <sup>393</sup> Mark Siegler, "Critical illness: the limits of autonomy," *Hastings Center Report* 7, no. 5 (1977): 12-15.
- <sup>394</sup> Alan Goldman, "The refutation of medical paternalism," *The Moral Foundations of Professional Ethics* (1980), 89.
- <sup>395</sup> Mark Siegler, "The progression of medicine: from physician paternalism to patient autonomy to bureaucratic parsimony," *Archives of Internal Medicine* 145, no. 4 (1985): 713-715.
- <sup>396</sup> Paul Root Wolpe, "The triumph of autonomy in American bioethics: a sociological view," *Bioethics and Society: Constructing the Ethical Enterprise* (1998): 38-59.

- 
- <sup>397</sup> Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics* (Oxford University Press, USA, 2001), 56.
- <sup>398</sup> Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics* (Oxford University Press, USA, 2001), 135.
- <sup>399</sup> Joel Feinberg, In *The Inner Citadel: Essays on Individual Autonomy*, edited by John Philip Christman (Oxford University Press, 1989), 27-53.
- <sup>400</sup> Nomy Arpaly, "Which Autonomy?" *Freedom and Determinism* (2004): 173.
- <sup>401</sup> Ruth R. Faden and Tom L. Beauchamp, *A History and Theory of Informed Consent* (Oxford University Press, 1986), 227.
- <sup>402</sup> Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics* (Oxford University Press, USA, 2001), 58.
- <sup>403</sup> Barry Schwartz, "Self-determination: The tyranny of freedom," *American Psychologist* 55, no. 1 (2000): 79.
- <sup>404</sup> Herbert A. Simon, "Theories of bounded rationality." *Decision and Organization* 1, no. 1 (1972): 161-176.
- <sup>405</sup> Gerd Gigerenzer and Wolfgang Gaissmaier, "Heuristic decision making," *Annual Review of Psychology* 62 (2011): 451-482.
- <sup>406</sup> Julian N. Marewski and Gerd Gigerenzer, "Heuristic decision making in medicine," *Dialogues in Clinical Neuroscience* 14, no. 1 (2012): 77.
- <sup>407</sup> Carl Schneider, *The Practice of Autonomy: Patients, Doctors, and Medical Decisions* (Oxford University Press on Demand, 1998), 63.
- <sup>408</sup> Dan W. Brock, "The ideal of shared decision making between physicians and patients." *Kennedy Institute of Ethics Journal* 1, no. 1 (1991): 28-47.
- <sup>409</sup> Lee Clarke, "Context dependency and risk decision making," *Organizations, Uncertainties, and Risk* (1992): 27-38.
- <sup>410</sup> Marion Danis, et al., "Stability of choices about life-sustaining treatments," *Annals of Internal Medicine* 120, no. 7 (1994): 567-573.
- <sup>411</sup> Marion Danis, et al., "Stability of choices about life-sustaining treatments," *Annals of Internal Medicine* 120, no. 7 (1994): 567-573.
- <sup>412</sup> Linda L. Emanuel et al., "Advance directives: stability of patients' treatment choices," *Archives of Internal Medicine* 154, no. 2 (1994): 209-217.
- <sup>413</sup> R. J. Adams, B. J. Smith, and R. E. Ruffin, "Patient preferences for autonomy in decision making in asthma management," *Thorax* 56, no. 2 (2001): 126-132.
- <sup>414</sup> Daren K. Heyland, et al., "Decision-making in the ICU: perspectives of the substitute decision-maker," *Intensive Care Medicine* 29, no. 1 (2003): 75-82.
- <sup>415</sup> Ellen Peters, et al, "Numeracy and decision making," *Psychological Science* 17, no. 5 (2006): 407-413.
- <sup>416</sup> Valerie F. Reyna, et al., "How numeracy influences risk comprehension and medical decision making," *Psychological Bulletin* 135, no. 6 (2009): 943.
- <sup>417</sup> Isaac M. Lipkus, Greg Samsa, and Barbara K. Rimer, "General performance on a numeracy scale among highly educated samples," *Medical Decision Making* 21, no. 1 (2001): 37-44.
- <sup>418</sup> Valerie F. Reyna and Charles J. Brainerd, "The importance of mathematics in health and human judgment: Numeracy, risk communication, and medical decision making," *Learning and Individual Differences* 17, no. 2 (2007): 147-159.



- 
- <sup>419</sup> Veronika Denes-Raj and Seymour Epstein, "Conflict between intuitive and rational processing: when people behave against their better judgment," *Journal of Personality and Social Psychology* 66, no. 5 (1994): 819.
- <sup>420</sup> Paul Slovic, John Monahan, and Donald G. MacGregor, "Violence risk assessment and risk communication: the effects of using actual cases, providing instruction, and employing probability versus frequency formats," *Law and Human Behavior* 24, no. 3 (2000): 271.
- <sup>421</sup> Angela Fagerlin, et al., "Making numbers matter: present and future research in risk communication," *American Journal of Health Behavior* 31, no. 1 (2007): S47-S56.
- <sup>422</sup> Paul Slovic and Ellen Peters, "Risk perception and affect," *Current Directions in Psychological Science* 15, no. 6 (2006): 322-325.
- <sup>423</sup> Paul Slovic, et al., "The affect heuristic," *European Journal of Operational Research* 177, no. 3 (2007): 1333-1352.
- <sup>424</sup> Melissa L. Finucane, et al., "The affect heuristic in judgments of risks and benefits," *Journal of Behavioral Decision Making* 13, no. 1 (2000): 1.
- <sup>425</sup> Paul Slovic, et al., "Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk, and rationality," *Risk Analysis* 24, no. 2 (2004): 311-322.
- <sup>426</sup> George F. Loewenstein, et al., "Risk as feelings," *Psychological Bulletin* 127, no. 2 (2001): 267.
- <sup>427</sup> Sara M. Banks, et al., "The effects of message framing on mammography utilization," *Health Psychology* 14, no. 2 (1995): 178.
- <sup>428</sup> Barbara J. McNeil, Stephen G. Pauker, and Amos Tversky, "On the framing of medical decisions," (1988).
- <sup>429</sup> Lucas S. Zier, et al., "Surrogate Decision Makers' Interpretation of Prognostic Information: A Mixed-Methods Study," *Annals of Internal Medicine* 156, no. 5 (2012): 360-366.
- <sup>430</sup> MedPAC, "Report to the Congress: Aligning incentives in Medicare," (2010): 195. [http://www.medpac.gov/documents/jun10\\_entirereport.pdf/](http://www.medpac.gov/documents/jun10_entirereport.pdf/).
- <sup>431</sup> Annette M. O'Connor and Adrian Edwards, "The role of decision aids in promoting evidence-based patient choice," *Shared Decision-Making in Health Care: Achieving Evidence-Based Patient Choice* (2009): 191-200.
- <sup>432</sup> Angelo E. Volandes, et al., "Randomized controlled trial of a video decision support tool for cardiopulmonary resuscitation decision making in advanced cancer," *Journal of Clinical Oncology* 31, no. 3 (2012): 380-386.
- <sup>433</sup> Ruth R. Faden and Tom L. Beauchamp, *A History and Theory of Informed Consent* (Oxford University Press, 1986), 243.
- <sup>434</sup> Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics* (Oxford University Press, USA, 2001), 172.
- <sup>435</sup> Joshua Knobe, "Intentional action and side effects in ordinary language," *Analysis* 63, no. 279 (2003): 190-194.
- <sup>436</sup> Ronald J. Butler, "Report on Analysis Problem no 16," *Analysis Oxford* 38, no. 3 (1978): 113-114.
- <sup>437</sup> Richard H. Thaler and Shlomo Benartzi, "Save more tomorrow™: Using behavioral economics to increase employee saving," *Journal of Political Economy* 112, no. S1 (2004): S164-S187.
- <sup>438</sup> Eric J. Johnson and Daniel Goldstein, "Do defaults save lives?" (2003): 1338-1339.
- <sup>439</sup> Scott D. Halpern, et al., "Default options in advance directives influence how patients set goals for end-of-life care," *Health Affairs* 32, no. 2 (2013): 408-417.

- 
- <sup>440</sup> Peter A. Ubel, "Beyond costs and benefits: understanding how patients make health care decisions," *The Oncologist* 15, Supplement 1 (2010): 5-10.
- <sup>441</sup> Angela Fagerlin, Brian J. Zikmund-Fisher, and Peter A. Ubel, "Cure me even if it kills me: preferences for invasive cancer treatment," *Medical Decision Making* 25, no. 6 (2005): 614-619.
- <sup>442</sup> Alexander A. Kon, et al., "Shared decision making in ICUs: an American College of Critical Care Medicine and American Thoracic Society policy statement," *Critical Care Medicine* 44, no. 1 (2016): 188-201.
- <sup>443</sup> Glyn Elwyn, et al., "Shared decision making: a model for clinical practice," *Journal of General Internal Medicine* 27, no. 10 (2012): 1361-1367.
- <sup>444</sup> Gerald Dworkin, "The concept of autonomy," *Grazer Philosophische Studien* 12 (1981): 203-213.
- <sup>445</sup> Harry G. Frankfurt, "Freedom of the Will and the Concept of a Person," *The Journal of Philosophy* 68, no. 1 (1971): 5-20.
- <sup>446</sup> Harry G. Frankfurt, "Freedom of the Will and the Concept of a Person," *What is a Person?* (Humana Press, 1988), 127-144.
- <sup>447</sup> Harry G. Frankfurt, "Freedom of the Will and the Concept of a Person," *The Journal of Philosophy* 68, no. 1 (1971): 5-20.
- <sup>448</sup> Gerald Dworkin, *The Theory and Practice of Autonomy* (Cambridge University Press, 1988).
- <sup>449</sup> John Philip Christman, "The inner citadel: Essays on individual autonomy," (1989).
- <sup>450</sup> John Christman, "Relational autonomy, liberal individualism, and the social constitution of selves," *Philosophical Studies* 117, no. 1 (2004): 143-164.
- <sup>451</sup> John Christman, "Autonomy and personal history," *Canadian Journal of Philosophy* 21, no. 1 (1991): 1-24.
- <sup>452</sup> Atul Gawande, *Being Mortal: Medicine and What Matters in the End* (Metropolitan Books, 2014), 35.
- <sup>453</sup> Jodi Halpern and Robert M. Arnold, "Affective forecasting: an unrecognized challenge in making serious health decisions," *Journal of General Internal Medicine* 23, no. 10 (2008): 1708-1712.
- <sup>454</sup> George Loewenstein, "Hot-cold empathy gaps and medical decision making," *Health Psychology* 24, no. 4S (2005): S49.
- <sup>455</sup> George Loewenstein, "Hot-cold empathy gaps and medical decision making," *Health Psychology* 24, no. 4S (2005): S49.
- <sup>456</sup> What Behavioral Economics Tries To Do, "Behavioral economics: Past, present, future," *Advances in Behavioral Economics* (2011): 1.
- <sup>457</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 33.
- <sup>458</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 1-3.
- <sup>459</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 232.
- <sup>460</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 169.
- <sup>461</sup> "The behavioral backdrop to financial incentives," *The Nudge*, March 16, 2011, <http://nudges.org/2011/03/16/the-behavioral-backdrop-to-financial-incentives/>.
- <sup>462</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 68.

- 
- <sup>463</sup> “A little healthy parental competition can lead to healthier kids,” *The Nudge*, January 27, 2009, <http://nudges.org/a-little-healthy-parental-competition-can-lead-to-healthier-kids/>.
- <sup>464</sup> Jennifer M. Ortman and Christine E. Guarneri, "United States population projections: 2000 to 2050," *United States Census Bureau* (2009): 1-19.
- <sup>465</sup> Brian W. Ward and Jeannine S. Schiller, "Peer Reviewed: Prevalence of Multiple Chronic Conditions Among US Adults: Estimates From the National Health Interview Survey, 2010," *Preventing Chronic Disease* 10 (2013).
- <sup>466</sup> Gerald F. Riley and James D. Lubitz, "Long-term trends in medicare payments in the last year of life," *Health Services Research* 45, no. 2 (2010): 565-576.
- <sup>467</sup> John E. Wennberg, et al., "Tracking the care of patients with severe chronic illness," *The Dartmouth Atlas of Health Care* (The Dartmouth Institute for Health Policy & Clinical Practice, 2008), 1-174.
- <sup>468</sup> John E. Wennberg, et al., "Use of hospitals, physician visits, and hospice care during last six months of life among cohorts loyal to highly respected hospitals in the United States," *BMJ: British Medical Journal* 328, no. 7440 (2004): 607.
- <sup>469</sup> John E. Wennberg, et al., "Tracking the care of patients with severe chronic illness," *The Dartmouth Atlas of Health Care* (The Dartmouth Institute for Health Policy & Clinical Practice, 2008), 1-174.
- <sup>470</sup> Thanh N. Huynh, et al., "The opportunity cost of futile treatment in the intensive care unit," *Critical Care Medicine* 42, no. 9 (2014): 1977.
- <sup>471</sup> Neil A. Halpern and Stephen M. Pastores, "Critical care medicine in the United States 2000–2005: an analysis of bed numbers, occupancy rates, payer mix, and costs," *Critical Care Medicine* 38, no. 1 (2010): 65-71.
- <sup>472</sup> Nita Khandelwal and J. Randall Curtis, "Economic implications of end-of-life care in the ICU," *Current Opinion in Critical Care* 20, no. 6 (2014): 656.
- <sup>473</sup> Derek C. Angus, et al., "Use of intensive care at the end of life in the United States: an epidemiologic study," *Critical Care Medicine* 32, no. 3 (2004): 638-643.
- <sup>474</sup> Derek C. Angus, et al., "Use of intensive care at the end of life in the United States: an epidemiologic study," *Critical Care Medicine* 32, no. 3 (2004): 638-643.
- <sup>475</sup> Institute of Medicine, *Dying in America: Improving Quality and Honoring Individual Preferences Near the End of Life* (Washington, DC: National Academies Press; 2014).
- <sup>476</sup> Craig D. Blinderman, Eric L. Krakauer, and Mildred Z. Solomon, "Time to revise the approach to determining cardiopulmonary resuscitation status," *JAMA* 307, no. 9 (2012): 917-918.
- <sup>477</sup> Joan M. Teno, et al., "Does feeding tube insertion and its timing improve survival?" *Journal of the American Geriatrics Society* 60, no. 10 (2012): 1918-1921.
- <sup>478</sup> Barbara Gomes, et al., "Heterogeneity and changes in preferences for dying at home: a systematic review," *BMC Palliative Care* 12, no. 1 (2013): 7.
- <sup>479</sup> Margaret Jean Hall, Shaleah Levant, and Carol J. DeFrances, "Trends in inpatient hospital deaths: national hospital discharge survey, 2000-2010," No. 118, US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics (2013).
- <sup>480</sup> David C. Goodman, et al., "Quality of end-of-life cancer care for medicare beneficiaries regional and hospital-specific analyses," *The Dartmouth Institute for Health Policy & Clinical Practice* (2010).

- 
- <sup>481</sup> Karl A. Lorenz, et al., "Evidence for improving palliative care at the end of life: a systematic review," *Annals of Internal Medicine* 148, no. 2 (2008): 147.
- <sup>482</sup> Stephen R. Connor, et al., "Comparing hospice and nonhospice patient survival among patients who die within a three-year window," *Journal of Pain and Symptom Management* 33, no. 3 (2007): 238-246.
- <sup>483</sup> Amy S. Kelley, et al., "Out-of-pocket spending in the last five years of life," *Journal of General Internal Medicine* 28, no. 2 (2013): 304-309.
- <sup>484</sup> Lake Research Partners, "Final chapter: Californians' attitudes and experiences with death and dying," *The Coalition for Compassionate Care of California* (Oakland, CA: California Health Care Foundation, 2012), <http://www.chcf.org/~media/MEDIA%20LIBRARY%20Files/PDF/F/PDF%20FinalChapterDeathDying.pdf/> (Accessed June 20, 2017).
- <sup>485</sup> Kuldeep N. Yadav, et al., "Approximately One In Three US Adults Completes Any Type Of Advance Directive For End-Of-Life Care," *Health Affairs* 36, no. 7 (2017): 1244-1251.
- <sup>486</sup> W. F. Benson and N. Aldrich, "Advance care planning: Ensuring your wishes are known and honored if you are unable to speak for yourself," *Critical Issue Brief, Centers for Disease Control and Prevention* (2012).
- <sup>487</sup> Sarah Palin, "Statement on the current health care debate," August 7 2009.
- <sup>488</sup> Dominic King, et al., "Approaches based on behavioral economics could help nudge patients and providers toward lower health spending growth," *Health Affairs* 32, no. 4 (2013): 661-668.
- <sup>489</sup> Daniel Kahneman, "Maps of bounded rationality: Psychology for behavioral economics," *The American Economic Review* 93, no. 5 (2003): 1449-1475.
- <sup>490</sup> Kevin G. Volpp and David A. Asch, "Make the healthy choice the easy choice: using behavioral economics to advance a culture of health," *QJM: An International Journal of Medicine* 110, no. 5 (2017): 271-275.
- <sup>491</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 25.
- <sup>492</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 33.
- <sup>493</sup> Richard H. Thaler and Shlomo Benartzi, "Save more tomorrow™: Using behavioral economics to increase employee saving," *Journal of political Economy* 112, no. S1 (2004): S164-S187.
- <sup>494</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 38.
- <sup>495</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 41.
- <sup>496</sup> Cass R. Sunstein and Richard H. Thaler, "Libertarian paternalism is not an oxymoron," *The University of Chicago Law Review* (2003): 1159-1202.
- <sup>497</sup> Richard H. Thaler and Cass R. Sunstein, "Libertarian paternalism," *The American Economic Review* 93, no. 2 (2003): 175-179.
- <sup>498</sup> Richard H. Thaler and Cass R. Sunstein, "Libertarian paternalism," *The American Economic Review* 93, no. 2 (2003): 175-179.
- <sup>499</sup> Riccardo Rebonato, "A critical assessment of libertarian paternalism," *Journal of Consumer Policy* 37, no. 3 (2014): 357-396.
- <sup>500</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 48.

- 
- <sup>501</sup> Cass R. Sunstein and Richard H. Thaler, "Libertarian paternalism is not an oxymoron," *The University of Chicago Law Review* (2003): 1159-1202.
- <sup>502</sup> Cass R. Sunstein and Richard H. Thaler, "Libertarian paternalism is not an oxymoron," *The University of Chicago Law Review* (2003): 1159-1202.
- <sup>503</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 51.
- <sup>504</sup> J. S. Swindell, Amy L. McGuire, and Scott D. Halpern, "Beneficent persuasion: techniques and ethical guidelines to improve patients' decisions," *The Annals of Family Medicine* 8, no. 3 (2010): 260-264.
- <sup>505</sup> George Loewenstein, "Hot-cold empathy gaps and medical decision making," *Health Psychology* 24, no. 4S (2005): S49.
- <sup>506</sup> Cass R. Sunstein, "Choosing not to choose," *Duke LJ* 64 (2014): 1.
- <sup>507</sup> Cass R. Sunstein, "Forcing People To Choose Is Paternalistic," *Missouri Law Review, Symposium on Libertarian Paternalism* (Forthcoming), <http://dx.doi.org/10.2139/ssrn.2862694/>.
- <sup>508</sup> George Loewenstein and Drazen Prelec, "Anomalies in intertemporal choice: Evidence and an interpretation," *The Quarterly Journal of Economics* 107, no. 2 (1992): 573-597.
- <sup>509</sup> Rosamond Rhodes and James J. Strain, "Affective forecasting and its implications for medical ethics," *Cambridge Quarterly of Healthcare Ethics* 17, no. 1 (2008): 54-65.
- <sup>510</sup> George Loewenstein, et al., "Can behavioural economics make us healthier?" *BMJ: British Medical Journal (Online)* 344 (2012).
- <sup>511</sup> Uri Gneezy and Aldo Rustichini, "A fine is a price," *The Journal of Legal Studies* 29, no. 1 (2000): 1-17.
- <sup>512</sup> Bruno S. Frey and Felix Oberholzer-Gee, "The cost of price incentives: An empirical analysis of motivation crowding-out," *The American Economic Review* 87, no. 4 (1997): 746-755.
- <sup>513</sup> Dan Ariely, Anat Bracha, and Stephan Meier, "Doing good or doing well? Image motivation and monetary incentives in behaving prosocially," (2007).
- <sup>514</sup> On Amir and Orly Lobel, "Stumble, predict, nudge: How behavioral economics informs law and policy," *Columbia Law Review* (2008): 2098-2137.
- <sup>515</sup> Muireann Quigley, "Nudging for health: on public policy and designing choice architecture," *Medical Law Review* 21, no. 4 (2013): 588-621.
- <sup>516</sup> Shlomo Benartzi, et al., "Should Governments Invest More in Nudging?" *Psychological Science* (2017): 0956797617702501.
- <sup>517</sup> Shlomo, Benartzi, et al., "Should Governments Invest More in Nudging?" *Psychological Science* (2017): 0956797617702501.
- <sup>518</sup> Jennifer Swindell Blumenthal-Barby and Hadley Burroughs, "Seeking better health care outcomes: the ethics of using the 'nudge,'" *The American Journal of Bioethics* 12, no. 2 (2012): 1-10.
- <sup>519</sup> Evan Selinger and Kyle Whyte, "Is there a right way to nudge? The practice and ethics of choice architecture," *Sociology Compass* 5, no. 10 (2011): 923-935.
- <sup>520</sup> Shlomo Cohen, "Nudging and informed consent," *The American Journal of Bioethics* 13, no. 6 (2013): 3-11.
- <sup>521</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 121.
- <sup>522</sup> Cass R. Sunstein, "Nudges do not undermine human agency," *Journal of Consumer Policy* 38, no. 3 (2015): 207-210.
- <sup>523</sup> Cass R. Sunstein, "Nudging and choice architecture: ethical considerations," (2015).

- 
- <sup>524</sup> Yashar Saghai, "Salvaging the concept of nudge," *Journal of Medical Ethics* 39, no. 8 (2013): 487-493.
- <sup>525</sup> Luc Bovens, "The ethics of nudge," *Preference Change* (Springer Netherlands, 2009), 207-219.
- <sup>526</sup> Cass R. Sustein, "The ethics of nudging," *Yale J. on Reg.* 32 (2015): 413.
- <sup>527</sup> Douglas MacKay and Alexandra Robinson, "The ethics of organ donor registration policies: Nudges and respect for autonomy," *The American Journal of Bioethics* 16, no. 11 (2016): 3-12.
- <sup>528</sup> T. Martin. Wilkinson, "Nudging and manipulation," *Political Studies* 61, no. 2 (2013): 341-355.
- <sup>529</sup> Pelle Guldborg Hansen and Andreas Maaløe Jespersen, "Nudge and the manipulation of choice: A framework for the responsible use of the nudge approach to behaviour change in public policy," *European Journal of Risk Regulation* 4, no. 1 (2013): 3-28.
- <sup>530</sup> Cass R. Sunstein, "Fifty shades of manipulation," (2015).
- <sup>531</sup> Jennifer Swindell Blumenthal-Barby and Hadley Burroughs, "Seeking better health care outcomes: the ethics of using the 'nudge,'" *The American Journal of Bioethics* 12, no. 2 (2012): 1-10.
- <sup>532</sup> P. A. Pizzo, D. M. Walker, and P. A. Bomba, "Dying in America: Improving quality and honoring individual preferences near the end of life," (Washington, DC: Institute of Medicine, 2015).
- <sup>533</sup> Scott D. Halpern and Ezekiel J. Emanuel, "Can the United States Buy Better Advance Care Planning? Can the United States Buy Better Advance Care Planning?" *Annals of Internal Medicine* 162, no. 3 (2015): 224-225.
- <sup>534</sup> Bianca DiJulio, Jamie Firth, and Mollyann Brodie, "Kaiser Health Tracking Poll: September 2015," *Kaiser Family Foundation* (Menlo Park, CA: 2015).
- <sup>535</sup> Personalize Your Care Act, H.R. 1173, 113th Cong., 1st Sess. 2013
- <sup>536</sup> Care Planning Act, S. 1549, 114th Cong., 1st Sess. 2015
- <sup>537</sup> Centers for Medicare & Medicaid Services (US), "Revisions to payment policies under the physician fee schedule and other revisions to Part B for CY 2016," Proposed Rule. Fed Regist. 2015, 80(220): 41686-4966.
- <sup>538</sup> R. Pear, "New Medicare rule authorizes 'end-of-life' consultations," *The New York Times*, October 31, 2015.
- <sup>539</sup> David Tuller, "Medicare Coverage For Advance Care Planning: Just The First Step," *Health Affairs* 35, no. 3 (2016): 390.
- <sup>540</sup> M. Tai-Seale, et al., "EARLY UPTAKE OF NEW US CENTER FOR MEDICARE AND MEDICAID SERVICES' ADVANCE CARE PLANNING PAYMENT," *Innovation in Aging* 1, suppl (2017): 112.
- <sup>541</sup> Gawin Tsai and Donald H. Taylor, "Advance care planning in Medicare: an early look at the impact of new reimbursement on billing and clinical practice," *BMJ Supportive & Palliative Care* (2017): bmjspcare-2016.
- <sup>542</sup> Bruce H Cohen and Peter D. Donofrio, "Coding for Dementia," *CONTINUUM: Lifelong Learning in Neurology* 22, no. 2, Dementia (2016): 626-636.
- <sup>543</sup> Gale Pryor and Anna Zink, "Lifting the Barriers to End-of-Life conversations," *AetnaHealth Insights*, November 10, 2016, <https://insight.athenahealth.com/end-life-conversations/>.
- <sup>544</sup> J. Brokaw, "Medicare's move to pay doctors for end-of-life planning falls short," *Time*, November 10, 2015, <http://www.time.com/4098989/medicare-advance-care-planning/>.

- 
- <sup>545</sup> Catherine L. Auriemma, et al., "Public opinion regarding financial incentives to engage in advance care planning and complete advance directives," *American Journal of Hospice and Palliative Medicine* (2016): 1049909116652608.
- <sup>546</sup> William A. Knaus, et al., "Do objective Estimates of chances for Survival Influence Decisions to Withhold or Withdraw Treatment?" *Medical Decision Making* 10, no. 3 (1990): 163-171.
- <sup>547</sup> Elizabeth A. Boyd, et al., "'It's not just what the doctor tells me.'" Factors that influence surrogate decision-makers' perceptions of prognosis," *Critical Care Medicine* 38, no. 5 (2010): 1270.
- <sup>548</sup> Lucas S. Zier, et al., "Surrogate Decision Makers' Interpretation of Prognostic Information: A Mixed-Methods Study," *Annals of Internal Medicine* 156, no. 5 (2012): 360-366.
- <sup>549</sup> Frank P. McKenna, David M. Warburton, and Mark Winwood, "Exploring the limits of optimism: The case of smokers' decision making," *British Journal of Psychology* 84, no. 3 (1993): 389-394.
- <sup>550</sup> Anton Kühberger, "The influence of framing on risky decisions: A meta-analysis," *Organizational behavior and human decision processes* 75, no. 1 (1998): 23-55.
- <sup>551</sup> Amber E. Barnato and Robert M. Arnold, "The effect of emotion and physician communication behaviors on surrogates' life-sustaining treatment decisions: a randomized simulation experiment," *Critical Care Medicine* 41, no. 7 (2013): 1686.
- <sup>552</sup> Miloš D. Miljković, et al., "'Allow Natural Death' versus 'Do Not Resuscitate': What Do Patients with Advanced Cancer Choose?" *Journal of Palliative Medicine* 18, no. 5 (2015): 457-460.
- <sup>553</sup> Brian J. Zikmund-Fisher, et al., "'I'll do what they did': Social norm information and cancer treatment decisions," *Patient Education and Counseling* 85, no. 2 (2011): 225-229.
- <sup>554</sup> Angela Fagerlin, et al., "Projection in surrogate decisions about life-sustaining medical treatments," *Health Psychology* 20, no. 3 (2001): 166.
- <sup>555</sup> Derek Hibbert, et al., "Negotiating palliative care expertise in the medical world," *Social Science & Medicine* 57, no. 2 (2003): 277-288.
- <sup>556</sup> Alex Broom, et al., "The art of letting go: Referral to palliative care and its discontents," *Social Science & Medicine* 78 (2013): 9-16.
- <sup>557</sup> Jonathan R. Treadwell and Leslie A. Lenert, "Health values and prospect theory." *Medical Decision Making* 19, no. 3 (1999): 344-352.
- <sup>558</sup> Laraine Winter and Barbara Parker, "Current health and preferences for life-prolonging treatments: An application of prospect theory to end-of-life decision making," *Social Science & Medicine* 65, no. 8 (2007): 1695-1707.
- <sup>559</sup> Annie Lu, et al., "The language of end-of-life decision making: a simulation study," *Journal of palliative medicine* 18, no. 9 (2015): 740-746.
- <sup>560</sup> Annie Lu, et al., "The language of end-of-life decision making: a simulation study," *Journal of palliative medicine* 18, no. 9 (2015): 740-746.
- <sup>561</sup> Annie Lu, et al., "The language of end-of-life decision making: a simulation study," *Journal of palliative medicine* 18, no. 9 (2015): 740-746..
- <sup>562</sup> Fernanda C. Lessa, et al., "Burden of Clostridium difficile infection in the United States," *New England Journal of Medicine* 372, no. 9 (2015): 825-834.
- <sup>563</sup> Daniella Meecker, et al., "Effect of behavioral interventions on inappropriate antibiotic prescribing among primary care practices: a randomized clinical trial," *JAMA* 315, no. 6 (2016): 562-570.

- 
- <sup>564</sup> Daniella Meeker, et al., "Effect of behavioral interventions on inappropriate antibiotic prescribing among primary care practices: a randomized clinical trial," *JAMA* 315, no. 6 (2016): 562-570.
- <sup>565</sup> Robert B. Cialdini, Raymond R. Reno, and Carl A. Kallgren, "A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places," *Journal of Personality and Social Psychology* 58, no. 6 (1990): 1015.
- <sup>566</sup> Jennifer S. Lerner and Philip E. Tetlock, "Accounting for the effects of accountability," *Psychological Bulletin* 125, no. 2 (1999): 255.
- <sup>567</sup> Stephen D. Persell, et al., "Use of behavioral economics and social psychology to improve treatment of acute respiratory infections (BEARI): rationale and design of a cluster randomized controlled trial [1RC4AG039115-01]-study protocol and baseline practice and provider characteristics," *BMC Infectious Diseases* 13, no. 1 (2013): 290.
- <sup>568</sup> Angelina Buerck and Julie Such, "Default palliative care consult order: Implementation of palliative care in the heart failure population," *Heart & Lung: The Journal of Acute and Critical Care* 44, no. 6 (2015): 553-554.
- <sup>569</sup> Elizabeth B. Gay, Stefanie P. Weiss, and Judith E. Nelson, "Integrating palliative care with intensive care for critically ill patients with lung cancer," *Annals of Intensive Care* 2, no. 1 (2012): 3.
- <sup>570</sup> Towey, Jim, "Five wishes," 1997, <http://www.agingwithdignity.org/forms/5wishes.pdf/>.
- <sup>571</sup> Laura M. Kressel and Gretchen B. Chapman, "The default effect in end-of-life medical treatment preferences," *Medical Decision Making* 27, no. 3 (2007): 299-310.
- <sup>572</sup> Laura M. Kressel, Gretchen B. Chapman, and Elaine Leventhal, "The influence of default options on the expression of end-of-life treatment preferences in advance directives," *Journal of General Internal Medicine* 22, no. 7 (2007): 1007-1010.
- <sup>573</sup> Scott D. Halpern, "Shaping end-of-life care: behavioral economics and advance directives," *Seminars in Respiratory and Critical Care Medicine* 33, no. 4 (Thieme Medical Publishers, 2012).
- <sup>574</sup> Scott D. Halpern, Peter A. Ubel, and David A. Asch, "Harnessing the power of default options to improve health care," *The New England Journal of Medicine* 357, no. 13 (2007): 1340.
- <sup>575</sup> Eric J. Johnson and Daniel Goldstein, "Do defaults save lives?" (2003): 1338-1339.
- <sup>576</sup> Scott D. Halpern, et al., "Default options in advance directives influence how patients set goals for end-of-life care," *Health Affairs* 32, no. 2 (2013): 408-417.
- <sup>577</sup> Kathryn Anne Paez, Lan Zhao, and Wenke Hwang, "Rising out-of-pocket spending for chronic conditions: a ten-year trend," *Health Affairs* 28, no. 1 (2009): 15-25.
- <sup>578</sup> Pew Research Social and Demographic Trends, "End-of-life decisions: how Americans cope," *Pew Research Center*, 2009, <http://www.pewsocialtrends.org/2009/08/20/end-of-life-decisions-how-americans-cope/>.
- <sup>579</sup> "Large majorities support doctor assisted suicide for terminally ill patients in great pain; most people over 65 now have end of life directives," *Harris Interactive*, 2011, <http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/677/ctl/ReadCustom%20Default/Default.aspx/>.
- <sup>580</sup> BL Kass-Bartelmes, U.S. Agency for Healthcare Research and Quality, "Advance Care Planning: Preferences for Care at the End of Life," *Research in Action* 12 (2003) <http://www.ahrq.gov/research/endliferia/endria.htm/>.
- <sup>581</sup> Jaya K. Rao, et al., "Completion of advance directives among US consumers," *American Journal of Preventive Medicine* 46, no. 1 (2014): 65-70.



- 
- <sup>582</sup> Gretchen B. Chapman and Arthur S. Elstein, "Valuing the future: Temporal discounting of health and money," *Medical Decision Making* 15, no. 4 (1995): 373-386.
- <sup>583</sup> Kevin G. Volpp, et al., "A randomized, controlled trial of financial incentives for smoking cessation," *New England Journal of Medicine* 360, no. 7 (2009): 699-709.
- <sup>584</sup> Kevin G. Volpp, et al., "Financial incentive-based approaches for weight loss: a randomized trial," *JAMA* 300, no. 22 (2008): 2631-2637.
- <sup>585</sup> Thaddeus M. Pope, "Legal briefing: Medicare coverage of advance care planning," *The Journal of Clinical Ethics* 26, no. 4 (2014): 361-367.
- <sup>586</sup> Amber E. Barnato, et al., "Financial Incentives to Increase Advance Care Planning Among Medicaid Beneficiaries: Lessons Learned from Two Pragmatic Randomized Trials," *Journal of Pain and Symptom Management* 54, no. 1 (2017): 85-95.
- <sup>587</sup> D. Bayard, et al., "An active choice intervention increases rates of advance direction completion," In preparation, 2015.
- <sup>588</sup> Derek C. Angus, et al., "Use of intensive care at the end of life in the United States: an epidemiologic study," *Critical Care Medicine* 32, no. 3 (2004): 638-643.
- <sup>589</sup> Daren K. Heyland, et al., "Decision-making in the ICU: perspectives of the substitute decision-maker," *Intensive Care Medicine* 29, no. 1 (2003): 75-82.
- <sup>590</sup> J. Randall Curtis and Robert A. Burt, "Point: the ethics of unilateral 'do not resuscitate' orders: the role of 'informed assent,'" *CHEST Journal* 132, no. 3 (2007): 748-751.
- <sup>591</sup> Mohamed Y. Rady, Joseph L. Verheijde, and Joan L. McGregor, "Cardiopulmonary Resuscitation at the End of Life Without Patient Consent: An Ethical Challenge to Autonomy and Self-Determination," *CHEST Journal* 133, no. 1 (2008): 320-320.
- <sup>592</sup> Constantine A. Mantous, "Counterpoint: is it ethical to order 'do not resuscitate' without patient consent?" *CHEST Journal* 132, no. 3 (2007): 751-754.
- <sup>593</sup> Alexander A. Kon, "Informed Nondissent Rather Than Informed Assent Response," *CHEST Journal* 133, no. 1 (2008): 320-321.
- <sup>594</sup> Robin M. Hogarth and Hillel J. Einhorn, "Order effects in belief updating: The belief-adjustment model," *Cognitive Psychology* 24, no. 1 (1992): 1-55.
- <sup>595</sup> Vernon A. Stone, "A Primacy Effect in Decision-Making by Jurors," *Journal of Communication* 19, no. 3 (1969): 239-247.
- <sup>596</sup> George R. Bergus, Irwin P. Levin, and Arthur S. Elstein, "Presenting risks and benefits to patients," *Journal of General Internal Medicine* 17, no. 8 (2002): 612-617.
- <sup>597</sup> Shawn P. Curley, et al., "Primacy effects in clinical judgments of contingency," *Medical Decision Making* 8, no. 3 (1988): 216-222.
- <sup>598</sup> Gretchen B. Chapman, George R. Bergus, and Arthur S. Elstein, "Order of information affects clinical judgment," *Journal of Behavioral Decision Making* 9, no. 3 (1996): 201-211.
- <sup>599</sup> George R. Bergus, et al., "Clinical diagnosis and the order of information," *Medical Decision Making* 18, no. 4 (1998): 412-417.
- <sup>600</sup> Nick Bansback, et al., "Exploiting order effects to improve the quality of decisions," *Patient Education and Counseling* 96, no. 2 (2014): 197-203.
- <sup>601</sup> George R. Bergus, Irwin P. Levin, and Arthur S. Elstein, "Presenting risks and benefits to patients," *Journal of General Internal Medicine* 17, no. 8 (2002): 612-617.
- <sup>602</sup> Derek C. Angus, et al., "Use of intensive care at the end of life in the United States: an epidemiologic study," *Critical Care Medicine* 32, no. 3 (2004): 638-643.

---

<sup>603</sup> Robert D. Truog, et al., "Recommendations for end-of-life care in the intensive care unit: a consensus statement by the American College of Critical Care Medicine," *Critical Care Medicine* 36, no. 3 (2008): 953-963.

<sup>604</sup> Richard H. Thaler and Cass R. Sunstein, "Nudge: Improving decisions about health, wealth, and happiness," (2008), 33.

<sup>605</sup> Shlomo Benartzi, et al., "Should Governments Invest More in Nudging?" *Psychological Science* (2017): 0956797617702501.

<sup>606</sup> Derek C. Angus, et al., "Use of intensive care at the end of life in the United States: an epidemiologic study," *Critical Care Medicine* 32, no. 3 (2004): 638-643.

<sup>607</sup> Thanh N. Huynh, et al., "The frequency and cost of treatment perceived to be futile in critical care," *JAMA Internal Medicine* 173, no. 20 (2013): 1887-1894.

<sup>608</sup> Thanh N. Huynh, et al., "The opportunity cost of futile treatment in the intensive care unit," *Critical Care Medicine* 42, no. 9 (2014): 1977.

<sup>609</sup> Paul Conway and Bertram Gawronski, "Deontological and utilitarian inclinations in moral decision making: a process dissociation approach," *Journal of Personality and Social Psychology* 104, no. 2 (2013): 216.

## BIBLIOGRAPHY

- “A little healthy parental competition can lead to healthier kids.” *The Nudge*, January 27, 2009, <http://nudges.org/a-little-healthy-parental-competition-can-lead-to-healthier-kids/>.
- Adams, R. J., B. J. Smith, and R. E. Ruffin. "Patient preferences for autonomy in decision making in asthma management." *Thorax* 56, no. 2 (2001): 126-132.
- Amir, On, and Orly Lobel. "Stumble, predict, nudge: How behavioral economics informs law and policy." *Columbia Law Review* (2008): 2098-2137.
- Anesi, George L., and Scott D. Halpern. "Choice architecture in code status discussions with terminally ill patients and their families." *Intensive Care Medicine* 42, no. 6 (2016): 1065-1067.
- Angus, Derek C., Andrew F. Shorr, Alan White, Tony T. Dremsizov, Robert J. Schmitz, and Mark A. Kelley. "Critical care delivery in the United States: distribution of services and compliance with Leapfrog recommendations." *Critical Care Medicine* 34, no. 4 (2006): 1016-1024.
- Angus, Derek C., Amber E. Barnato, Walter T. Linde-Zwirble, and Gordon D. Rubenfeld. "Use of intensive care at the end of life in the United States: an epidemiologic study." *Critical Care Medicine* 32, no. 3 (2004): 638-643.
- Antiel, Ryan M., Farr A. Curlin, Katherine M. James, and Jon C. Tilburt. "The moral psychology of rationing among physicians: the role of harm and fairness intuitions in physician objections to cost-effectiveness and cost-containment." *Philosophy, Ethics, and Humanities in Medicine* 8, no. 1 (2013): 13.
- Arato v Avedon, 5 Cal 4th 1172, 858 P: 2d 598, 1993.
- Ariely, Dan, Anat Bracha, and Stephan Meier. "Doing good or doing well? Image motivation and monetary incentives in behaving prosocially." (2007).
- Aristotle. *Nicomachean Ethics*. Edited by Roger Crisp. Cambridge Texts in the History of Philosophy. Cambridge: Cambridge University Press, 2000.
- Aristotle. *Rhetoric*. Edited by Cope, Edward Meredith, and John Edwin Sandys. Cambridge Library Collection - Classics. Cambridge: Cambridge University Press, 2010.
- Arkes, Hal R., Robert L. Wortmann, Paul D. Sville, and Allan R. Harkness. "Hindsight bias among physicians weighing the likelihood of diagnoses." *Journal of Applied Psychology* 66, no. 2 (1981): 252.

- Arpaly, Nomy. "Which Autonomy?" *Freedom and Determinism* (2004): 173.
- Arras, John D. "The severely demented, minimally functional patient: an ethical analysis." *Journal of the American Geriatrics Society* 36, no. 10 (1988): 938-944.
- Auriemma, Catherine L., Lucy Chen, Michael Olorunnisola, Aaron Delman, Christine A. Nguyen, Elizabeth Cooney, Nicole B. Gabler, and Scott D. Halpern. "Public opinion regarding financial incentives to engage in advance care planning and complete advance directives." *American Journal of Hospice and Palliative Medicine* (2016): 1049909116652608.
- Avey, James B., Bruce Avolio, Craig Crossley, and Fred Luthans. "Psychological ownership: Theoretical extensions, measurement and relation to work outcomes." *Journal of Organizational Behavior* 30, no. 2 (2009): 173-191.
- Baier, Annette. "The need for more than justice." *Canadian Journal of Philosophy* 13, no. Suppl (1987): 41-56.
- Baker, Sherry, and David L. Martinson. "The TARES test: Five principles for ethical persuasion." *Journal of Mass Media Ethics* 16, no. 2-3 (2001): 148-175.
- Bal, B. Sonny, and Theodore J. Choma. "What to disclose? Revisiting informed consent." *Clinical Orthopaedics and Related Research* 470, no. 5 (2012): 1346-1356.
- Banks, Sara M., Peter Salovey, Susan Greener, Alexander J. Rothman, Anne Moyer, John Beauvais, and Elissa Epel. "The effects of message framing on mammography utilization." *Health Psychology* 14, no. 2 (1995): 178.
- Banning, Maggi. "A review of clinical decision making: models and current research." *Journal of Clinical Nursing* 17.2 (2008): 187-195.
- Bansback, Nick, Linda C. Li, Larry Lynd, and Stirling Bryan. "Exploiting order effects to improve the quality of decisions." *Patient Education and Counseling* 96, no. 2 (2014): 197-203.
- Barilan, Y. Michael, and Moshe Weintraub. "Persuasion as respect for persons: an alternative view of autonomy and of the limits of discourse." *The Journal of Medicine and Philosophy* 26, no. 1 (2001): 13-34.
- Barnato, Amber E., and Robert M. Arnold. "The effect of emotion and physician communication behaviors on surrogates' life-sustaining treatment decisions: a randomized simulation experiment." *Critical Care Medicine* 41, no. 7 (2013): 1686.
- Barnato, Amber E., Robert Moore, Charity G. Moore, Neal D. Kohatsu, and Rebecca L. Sudore. "Financial Incentives to Increase Advance Care Planning Among Medicaid Beneficiaries: Lessons Learned from Two Pragmatic Randomized Trials." *Journal of Pain and*

*Symptom Management* 54, no. 1 (2017): 85-95.

- Barnato, Amber E., Judith A. Tate, Keri L. Rodriguez, Susan L. Zickmund, and Robert M. Arnold. "Norms of decision making in the ICU: a case study of two academic medical centers at the extremes of end-of-life treatment intensity." *Intensive Care Medicine* 38, no. 11 (2012): 1886-1896.
- Baron, Jonathan, and Ilana Ritov. "Omission bias, individual differences, and normality." *Organizational Behavior and Human Decision Processes* 94, no. 2 (2004): 74-85.
- Baron, Jonathan, and John C. Hershey. "Outcome bias in decision evaluation." *Journal of Personality and Social Psychology* 54, no. 4 (1988): 569.
- Baron, Jonathan. "Nonconsequentialist decisions." *Behavioral and Brain Sciences* 17, no. 1 (1994): 1-10.
- Barry, Michael J., and Susan Edgman-Levitan. "Shared decision making—the pinnacle of patient-centered care." *The New England Journal of Medicine* 366, no. 9 (2012): 780-781.
- Barsky, Arthur J., Ralph Saintfort, Malcolm P. Roger, and Jonathan F. Borus. "Nonspecific medication side effects and the nocebo phenomenon." *JAMA* 287, no. 5 (2002): 622-627.
- Bayard, D., Josephs, M., Cooney, E., Gabler, N., & Halpern, S. D. "An active choice intervention increases rates of advance direction completion." In preparation. 2015.
- Bayer, Ronald. "Stigma and the ethics of public health: not can we but should we." *Social Science & Medicine* 67, no. 3 (2008): 463-472.
- Beasley, John W., Terry H. Hankey, Rodney Erickson, Kurt C. Strange, Marlon Mundt, Marguerite Elliott, Pamela Wiesen, and James Bobula. "How many problems do family physicians manage at each encounter? A WReN study." *The Annals of Family Medicine* 2, no. 5 (2004): 405-410.
- Beauchamp, Tom L., and James F. Childress. *Principles of Biomedical Ethics*. 7th ed. Oxford: Oxford University Press, 2014.
- Benartzi, Shlomo, John Beshears, Katherine L. Milkman, Cass R. Sunstein, Richard H. Thaler, Maya Shankar, Will Tucker-Ray, William J. Congdon, and Steven Galing. "Should Governments Invest More in Nudging?" *Psychological Science* (2017): 0956797617702501.
- Benson, W. F., and N. Aldrich. "Advance care planning: Ensuring your wishes are known and honored if you are unable to speak for yourself." Critical Issue Brief, *Centers for Disease Control and Prevention* (2012).

- Beresford, Eric B. "Uncertainty and the shaping of medical decisions." *Hastings Center Report* 21, no. 4 (1991): 6-11.
- Bergus, George R., Gretchen B. Chapman, Barcey T. Levy, John W. Ely, and Robert A. Oppliger. "Clinical diagnosis and the order of information." *Medical Decision Making* 18, no. 4 (1998): 412-417.
- Bergus, George R., Irwin P. Levin, and Arthur S. Elstein. "Presenting risks and benefits to patients." *Journal of General Internal Medicine* 17, no. 8 (2002): 612-617.
- Berner, Eta S., and Mark L. Graber. "Overconfidence as a cause of diagnostic error in medicine." *The American Journal of Medicine* 121, no. 5 (2008): S2-S23.
- Bettinghaus, Erwin P., and Michael J. Cody. *Persuasive Communication*. Holt, Rinehart and Winston, Inc., 1987.
- Blinderman, Craig D., Eric L. Krakauer, and Mildred Z. Solomon. "Time to revise the approach to determining cardiopulmonary resuscitation status." *JAMA* 307, no. 9 (2012): 917-918.
- Blumenthal-Barby, J. S. "Between reason and coercion: Ethically permissible influence in health care and health policy contexts." *Kennedy Institute of Ethics Journal* 22, no. 4 (2012): 345-366.
- Blumenthal-Barby, Jennifer Swindell, and Hadley Burroughs. "Seeking better health care outcomes: the ethics of using the "nudge"." *The American Journal of Bioethics* 12, no. 2 (2012): 1-10.
- "BMJ Clinical Evidence." *BMJ Publishing Group Limited*.  
<http://www.clinicalevidence.com/ceweb/about/guide.jsp>. (Accessed June 7, 2017).
- Bogardus Jr, Sidney T., Eric Holmboe, and James F. Jekel. "Perils, pitfalls, and possibilities in talking about medical risk." *JAMA* 281, no. 11 (1999): 1037-1041.
- Bornstein, Brian H., A. Christine Emler, and Gretchen B. Chapman. "Rationality in medical treatment decisions: is there a sunk-cost effect?" *Social Science & Medicine* 49, no. 2 (1999): 215-222.
- Bovens, Luc. "The ethics of nudge." *Preference Change*. Springer Netherlands, 2009.
- Boyd, Elizabeth A., Bernard Lo, Leah R. Evans, and Douglas B White. "'It's not just what the doctor tells me:' Factors that influence surrogate decision-makers' perceptions of prognosis." *Critical Care Medicine* 38, no. 5 (2010): 1270.
- Boyle, Dennis, Daniel O'Connell, Frederic W. Platt, and Richard K. Albert. "Disclosing errors and adverse events in the intensive care unit." *Critical Care Medicine* 34, no. 5 (2006): 1532-1537.

- Braddock III, Clarence H., Kelly A. Edwards, Nicole M. Hasenberg, Tracy L. Laidley, and Wendy Levinson. "Informed decision making in outpatient practice: time to get back to basics." *JAMA* 282, no. 24 (1999): 2313-2320.
- Brannon, Laura A., and Kimi L. Carson. "The representativeness heuristic: influence on nurses' decision making." *Applied Nursing Research* 16, no. 3 (2003): 201-204.
- Braude, Hillel D. *Intuition in Medicine: A Philosophical Defense of Clinical Reasoning*. University of Chicago Press, 2012.
- Brock, Dan W. "The ideal of shared decision making between physicians and patients." *Kennedy Institute of Ethics Journal* 1, no. 1 (1991): 28-47.
- Brokaw, J. "Medicare's move to pay doctors for end-of-life planning falls short." *Time*, November 10, 2015, [http://www/time.com/4098989/medicare-advance-care-planning/](http://www.time.com/4098989/medicare-advance-care-planning/).
- Broom, Alex, Emma R. Kirby, Phillip Good, Julia Wootton, and Jon Adams. "The art of letting go: Referral to palliative care and its discontents." *Social Science & Medicine* 78 (2013): 9-16.
- Bruognach, Marcela, Art Dewulf, Claudia Pahl-Wostl, and Tharsi Taillieu. "Toward a relational concept of uncertainty: about knowing too little, knowing too differently, and accepting not to know." *Ecology and Society* 13, no. 2 (2008).
- Bruner, Jerome Seymour. *On Knowing: Essays for the Left Hand*. Harvard University Press, 1979.
- Buchan, C. Arianne, Andrea Bravi, and Andrew JE Seely. "Variability analysis and the diagnosis, management, and treatment of sepsis." *Current Infectious Disease Reports* 14, no. 5 (2012): 512-521.
- Buck, Ross, and Whitney A. Davis. "Marketing risk: Emotional appeals can promote the mindless acceptance of risk." In *Emotions and Risky Technologies*, edited by Sabine Roeser. Springer, 2010.
- Buckley, Cara. "Man is rescued by stranger on subway tracks." *The New York Times* 3, no. 1 (2007).
- Buerck, Angelina, and Julie Such. "Default palliative care consult order: Implementation of palliative care in the heart failure population." *Heart & Lung: The Journal of Acute and Critical Care* 44, no. 6 (2015): 553-554.
- Burke, Kenneth. "A rhetoric of motives." *New York* (1950), 50.
- Butler, Ronald J. "Report on Analysis Problem no16." *Analysis Oxford* 38, no. 3 (1978).

- Camerer, Colin, and Martin Weber. "Recent developments in modeling preferences: Uncertainty and ambiguity." *Journal of Risk and Uncertainty* 5, no. 4 (1992): 325-370.
- Campbell, Rose G., and Austin S. Babrow. "The role of empathy in responses to persuasive risk communication: Overcoming resistance to HIV prevention messages." *Health Communication* 16, no. 2 (2004): 159-182.
- Caplan, Robert A., Karen L. Posner, Richard J. Ward, and Frederick W. Cheney. "Adverse respiratory events in anesthesia: a closed claims analysis." *Anesthesiology* 72, no. 5 (1990): 828-833.
- Care Planning Act, S. 1549, 114th Cong., 1st Sess. 2015.
- Carse, Alisa L. "The 'voice of care': Implications for bioethical education." *Journal of Medicine and Philosophy* 16, no. 1 (1991): 5-28.
- Catriona Mackenzie and Natalie Stoljar. *Relational Autonomy: Feminist Perspectives on Autonomy, Agency and the Social Self*. New York: Oxford University Press, 2000.
- Centers for Medicare & Medicaid Services (US). "Revisions to payment policies under the physician fee schedule and other revisions to Part B for CY 2016." Proposed Rule. Fed Regist. 2015; 80(220): 41686-4966.
- Chaiken, Shelly, and Yaacov Trope, eds. *Dual-Process Theories in Social Psychology*. Guilford Press, 1999.
- Chapman, Gretchen B., and Arthur S. Elstein. "Valuing the future: Temporal discounting of health and money." *Medical Decision Making* 15, no. 4 (1995): 373-386.
- Chapman, Gretchen B., George R. Bergus, and Arthur S. Elstein. "Order of information affects clinical judgment." *Journal of Behavioral Decision Making* 9, no. 3 (1996): 201-211.
- Charles, Cathy, Amiram Gafni, and Tim Whelan. "Decision-making in the physician-patient encounter: revisiting the shared treatment decision-making model." *Social Science & Medicine* 49, no. 5 (1999): 651-661.
- Christman, J. "Autonomy and personal history." *Canadian Journal of Philosophy* 21, no. 1 (1991): 1-24.
- Christman, John Philip. *The Inner Citadel: Essays on Individual Autonomy*. 1989.
- Christman, John. "Constructing the inner citadel: Recent work on the concept of autonomy." *Ethics* 99, no. 1 (1988): 109-124.
- Christman, John. "Relational autonomy, liberal individualism, and the social constitution of



- selves." *Philosophical Studies* 117, no. 1 (2004): 143-164.
- Cialdini, Robert B., Raymond R. Reno, and Carl A. Kallgren. "A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places." *Journal of Personality and Social Psychology* 58, no. 6 (1990): 1015.
- Cioffi, Jane. "Heuristics, servants to intuition, in clinical decision- making." *Journal of Advanced Nursing* 26, no. 1 (1997): 203-208.
- Clarke, Lee. "Context dependency and risk decision making." *Organizations, Uncertainties, and Risk* (1992): 27-38.
- Cobbs v. Grant, 8 Cal 3d 229; 502P: 2d 1, 1972.
- Cohen, Bruce H., and Peter D. Donofrio. "Coding for Dementia." *CONTINUUM: Lifelong Learning in Neurology* 22, no. 2, Dementia (2016): 626-636.
- Cohen, L. Jonathan. "Belief and acceptance." *Mind* 98, no. 391 (1989): 367-389.
- Cohen, Shlomo. "Nudging and informed consent." *The American Journal of Bioethics* 13, no. 6 (2013): 3-11.
- Col, Nananda F., Mark H. Eckman, Richard H. Karas, and John B. Wong. "Patient-specific decisions about hormone replacement therapy in postmenopausal women." *JAMA* 277, no. 14 (1997): 1140-1147.
- Conley, Terri D., Shelley E. Taylor, Margaret E. Kemeny, Steve W. Cole, and Barbara Visscher. "Psychological sequelae of avoiding HIV-serostatus information." *Basic and Applied Social Psychology* 21, no. 2 (1999): 81-90.
- Connolly, Terry, and Jochen Reb. "Regret in cancer-related decisions." *Health Psychology* 24, no. 4S (2005): S29.
- Connor, Stephen R., Bruce Pyenson, Kathryn Fitch, Carol Spence, and Kosuke Iwasaki. "Comparing hospice and nonhospice patient survival among patients who die within a three-year window." *Journal of Pain and Symptom Management* 33, no. 3 (2007): 238-246.
- Conway, Paul, and Bertram Gawronski. "Deontological and utilitarian inclinations in moral decision making: a process dissociation approach." *Journal of Personality and Social Psychology* 104, no. 2 (2013): 216.
- Covinsky, Kenneth E., Jon D. Fuller, Kristine Yaffe, and Russell S. Phillips. "Communication and Decision- Making in Seriously Ill Patients: Findings of the SUPPORT Project." *Journal of the American Geriatrics Society* 48, no. S1 (2000).

- Cox, Caitriona L., and Zoe Fritz. "Should non-disclosures be considered as morally equivalent to lies within the doctor–patient relationship?" *Journal of Medical Ethics* (2016): medethics-2015.
- Croskerry, Pat. "From mindless to mindful practice—cognitive bias and clinical decision making." *The New England Journal of Medicine* 368, no. 26 (2013): 2445-8.
- Culver, C. M., and B. Gert. "Valid consent and competence." In *Philosophy in Medicine*, edited by C.M. Culver and B. Gert. New York: Oxford University Press, 1982.
- Curley, Shawn P., Mark J. Young, Margaret J. Kingry, and J. Frank Yates. "Primacy effects in clinical judgments of contingency." *Medical Decision Making* 8, no. 3 (1988): 216-222.
- Currall, Steven C., Eden B. King, Neal Lane, Juan Madera, and Stacy Turner. "What drives public acceptance of nanotechnology?" *Nature Nanotechnology* 1, no. 3 (2006): 153-155.
- Curtis, J. Randall, and Robert A. Burt. "Point: the ethics of unilateral “do not resuscitate” orders: the role of “informed assent”." *CHEST Journal* 132, no. 3 (2007): 748-751.
- Damasio, Antonio. *Descartes' Error: Emotion, Reason, and the Human Brain*. Penguin, 2005.
- Dane, Erik, and Michael G. Pratt. "Exploring intuition and its role in managerial decision making." *Academy of Management Review* 32, no. 1 (2007): 33-54.
- Danis, Marion, Joanne Garrett, Russell Harris, and Donald L. Patrick. "Stability of choices about life-sustaining treatments." *Annals of Internal Medicine* 120, no. 7 (1994): 567-573.
- Darley, John M., and Bibb Latane. "Bystander intervention in emergencies: diffusion of responsibility." *Journal of Personality and Social Psychology* 8, no. 4p1 (1968): 377.
- Katz, David. "Omission Commission and Medical Outcomes: PSA and Sin Selection." *Huffington Post*, December 11, 2011. [http://www.huffingtonpost.com/david-katz-md/psa-screening\\_b\\_1002232.html/](http://www.huffingtonpost.com/david-katz-md/psa-screening_b_1002232.html/)
- Dawes, Robyn M. *Rational choice in an Uncertain World: The Psychology of Judgement and Decision Making*. Sage Publications, 2001.
- de Vries, Marieke, Angela Fagerlin, Holly O. Witteman, and Laura D. Scherer. "Combining deliberation and intuition in patient decision support." *Patient Education and Counseling* 91, no. 2 (2013): 154-160.
- Del Fiol, Guilherme, T. Elizabeth Workman, and Paul N. Gorman. "Clinical questions raised by clinicians at the point of care: a systematic review." *JAMA Internal Medicine* 174, no. 5 (2014): 710-718.

- Denes-Raj, Veronika, and Seymour Epstein. "Conflict between intuitive and rational processing: when people behave against their better judgment." *Journal of Personality and Social Psychology* 66, no. 5 (1994): 819.
- Dennett, Daniel C. "Two contrasts: Folk craft versus folk science, and belief versus opinion." *The Future of Folk Psychology: Intentionality and Cognitive Science*, 1991.
- Descartes, René. *The Philosophical Writings of Descartes*, vol. 2. Cambridge University Press, 1985.
- DiBonaventura, Marco daCosta, and Gretchen B. Chapman. "Do decision biases predict bad decisions? Omission bias, naturalness bias, and influenza vaccination." *Medical Decision Making* 28, no. 4 (2008): 532-539.
- Dijksterhuis, Ap, Pamela K. Smith, Rick B. van Baaren, and Daniel H.J. Wigboldus. "The unconscious consumer: Effects of environment on consumer behavior." *Journal of Consumer Psychology* 15, no. 3 (2005): 193-202.
- DiJulio, Bianca, Jamie Firth, and Mollyann Brodie. "Kaiser Health Tracking Poll: September 2015." *Kaiser Family Foundation*. Menlo Park, CA: 2015.
- Dimitri, Carolyn, and Catherine Greene. "Recent growth patterns in the US organic foods market." *Agriculture Information Bulletin* 777 (2000).
- Ditto, Peter H., Jill A. Jacobson, William D. Smucker, Joseph H. Danks, and Angela Fagerlin. "Context changes choices: a prospective study of the effects of hospitalization on life-sustaining treatment preferences." *Medical Decision Making* 26, no. 4 (2006): 313-322.
- Dolan, P., Michael Hallsworth, David Halpern, Dominic King, and Ivo Vlaev. "MINDSPACE: Influencing behaviour through public policy. 2010." *Cabinet Office and Institute for Government*. London, UK.
- Donchin, Yoel, Daniel Gophe, Miriam Olin, and Shamay Cotev. "A look into the nature and causes of human errors in the intensive care unit." *Critical Care Medicine* 23, no. 2 (1995): 294-300.
- Dowding, Keith, and Peter John. "The value of choice in public policy." *Public Administration* 87, no. 2 (2009): 219-233.
- Druckman, James N. "On the limits of framing effects: who can frame?" *Journal of Politics* 63, no. 4 (2001): 1041-1066.
- Dubov, Alex, Liana Fraenkel, and Elizabeth Seng. "The importance of fostering ownership during medical training." *The American Journal of Bioethics* 16, no. 9 (2016): 3-12.
- Duensing, David T., and Robert E. Bolinger. "Estimating case complexity: measuring physicians'

- cognitive work." *Proceedings of the Annual Symposium on Computer Application in Medical Care*. American Medical Informatics Association, 1989.
- Dunlop, Sally M., Melanie Wakefield, and Yoshihisa Kashima. "Pathways to persuasion: Cognitive and experiential responses to health-promoting mass media messages." *Communication Research* 37, no. 1 (2010): 133-164.
- Dunn, John. "Consent in the political theory of John Locke." *The Historical Journal* 10, no. 2 (1967): 153-182.
- Dworkin, G. "Autonomy and behavior control." *Hastings Center Report* 6, no. 1 (1976): 23–28.
- Dworkin, Gerald. "The concept of autonomy." *Grazer Philosophische Studien* 12 (1981): 203-213.
- Dworkin, Gerald. *The Theory and Practice of Autonomy*. Cambridge University Press, 1988.
- Dzeng, Elizabeth, Alessandra Colalanni, Martin Roland, Geetanjali Chander, Thomas J. Smith, Michael P. Kelly, Stephen Barclay, and David Levine. "Influence of institutional culture and policies on do-not-resuscitate decision making at the end of life." *JAMA Internal Medicine* 175, no. 5 (2015): 812-819.
- Eastwick, Paul W., Eli J. Finkel, Tamar Krishnamurti, and George Loewenstein. "Mispredicting distress following romantic breakup: Revealing the time course of the affective forecasting error." *Journal of Experimental Social Psychology* 44, no. 3 (2008): 800-807.
- Edwin, A. K. "Don't Lie but Don't Tell the Whole Truth: The Therapeutic Privilege-Is it Ever Justified?" *Ghana Medical Journal* 42, no. 4 (2008): 156.
- Einstein, Albert. "On a heuristic point of view about the creation and conversion of light." *On a Heuristic Point of View about the Creation and Conversion of Light...* (1905): 1.
- Ellsberg, Daniel. "Risk, ambiguity, and the Savage axioms." *The Quarterly Journal of Economics* (1961): 643-669.
- Elwyn, Glyn, Dominick Rosch, Rochard Thomson, Natalie Joseph-Williams, Amy Lloyd, Paul Kinnersley, Emma Cording, et al. "Shared decision making: a model for clinical practice." *Journal of General Internal Medicine* 27, no. 10 (2012): 1361-1367.
- Emanuel, Linda L., Ezekiel J. Emanuel, John D. Stoeckle, Lacinda R. Hummel, and Michael J. Barry. "Advance directives: stability of patients' treatment choices." *Archives of Internal Medicine* 154, no. 2 (1994): 209-217.
- Epstein, Seymour. "Intuition from the perspective of cognitive-experiential self-theory." *Intuition in Judgment and Decision Making* 23 (2008).

- Evans, Jonathan St BT, and Keith E. Stanovich. "Dual-process theories of higher cognition: Advancing the debate." *Perspectives on Psychological Science* 8, vol. 3 (2013): 223-241.
- Evans, Jonathan St BT. "Dual-processing accounts of reasoning, judgment, and social cognition." *Annu. Rev. Psychol.* 59 (2008): 255-278.
- Evans, Jonathan St BT. "In two minds: dual-process accounts of reasoning." *Trends in Cognitive Sciences* 7, no. 10 (2003): 454-459.
- Ewart, Gary W., Lynne Marcus, Michael M. Gaba, Robert H. Bradner, Justine L. Medina, and Eric B. Chandler. "The critical care medicine crisis: a call for federal action: a white paper from the critical care professional societies." *Chest* 125, no. 4 (2004): 1518-1521.
- Faden, Ruth R., and Tom L. Beauchamp. *A History and Theory of Informed Consent*. Oxford University Press, 1986.
- Fagerlin, Angela, Brian J. Zikmund-Fisher, and Peter A. Ubel. "Cure me even if it kills me: preferences for invasive cancer treatment." *Medical Decision Making* 25, no. 6 (2005): 614-619.
- Fagerlin, Angela, Pater A. Ubel, Dylan M. Smith, and Brian J. Zikmund-Fisher. "Making numbers matter: present and future research in risk communication." *American Journal of Health Behavior* 31, no. 1 (2007): S47-S56.
- Fagerlin, Angela, Peter H. Ditto, Joseph H. Danks, Renate M. Houts, and William D. Smucker. "Projection in surrogate decisions about life-sustaining medical treatments." *Health Psychology* 20, no. 3 (2001): 166.
- Felsen, Gidon, and Peter B. Reiner. "How the neuroscience of decision making informs our conception of autonomy." *AJOB Neuroscience* 2, no. 3 (2011): 3-14.
- Joel Feinberg. In *The Inner Citadel: Essays on Individual Autonomy*, edited by John Philip Christman. Oxford University Press, 1989.
- Finucane, Melissa L., Ali Alhakami, Paul Slovic, and Stephen M. Johnson. "The affect heuristic in judgments of risks and benefits." *Journal of Behavioral Decision Making* 13, no. 1 (2000): 1.
- Fox, Craig R., and Amos Tversky. "Ambiguity aversion and comparative ignorance." *The Quarterly Journal of Economics* 110, no. 3 (1995): 585-603.
- Frank, Richard G. "Behavioral economics and health economics." No. w10881. *National Bureau of Economic Research*, 2004.
- Frankfurt, H. "Freedom of the will and the concept of a person." *Journal of Philosophy* 68, no. 1 (1971): 5-20.

- Frankfurt, Harry G. "Freedom of the Will and the Concept of a Person." *What is a person?* Humana Press, 1988.
- Frankish, Keith. "Dual- process and dual- system theories of reasoning." *Philosophy Compass* 5, no. 10 (2010): 914-926.
- Frederick, Shane. "Cognitive reflection and decision making." *The Journal of Economic Perspectives* 19, no. 4 (2005): 25-42.
- Freud, Sigmund. *The Interpretation of Dreams*. Read Books Ltd, 2013.
- Frey, Bruno S., and Felix Oberholzer-Gee. "The cost of price incentives: An empirical analysis of motivation crowding-out." *The American Economic Review* 87, no. 4 (1997): 746-755.
- Frey, Bruno S., David A. Savage, and Benno Torgler. "Surviving the Titanic disaster: economic, natural and social determinants." (2009).
- Gajic, Ognjen, Bekele Afessa, Andrew C. Hanson, and Mark E. Wylam. "Effect of 24-hour mandatory versus on-demand critical care specialist presence on quality of care and family and provider satisfaction in the intensive care unit of a teaching hospital." *Critical Care Medicine* 36, no. 1 (2008): 36-44.
- Garrett, Don, ed. *The Cambridge Companion to Spinoza*. Cambridge University Press, 1996.
- Gawande, Atul. *Being Mortal: Medicine and What Matters in the End*. Metropolitan Books, 2014.
- Gawande, Atul. *Complications: A Surgeon's Notes on an Imperfect Science*. Profile Books, 2010.
- Gay, Elizabeth B., Stefanie P. Weiss, and Judith E. Nelson. "Integrating palliative care with intensive care for critically ill patients with lung cancer." *Annals of Intensive Care* 2, no.1 (2012): 3.
- Gigerenzer, Gerd, and Wolfgang Gaissmaier. "Heuristic decision making." *Annual Review of Psychology* 62 (2011): 451-482.
- Gigerenzer, Gerd. "Fast and frugal heuristics: The tools of bounded rationality." *Blackwell Handbook of Judgment and Decision Making* 62 (2004).
- Gneezy, Uri, and Aldo Rustichini. "A fine is a price." *The Journal of Legal Studies* 29, no. 1 (2000): 1-17.
- Goldman, Alan. "The refutation of medical paternalism." *The Moral Foundations of Professional Ethics* (1980): 89.

- Gomes, Barbara, Natalia Calanzani, Marjolein Gysels, Sue Hall, and Irene J. Higginson. "Heterogeneity and changes in preferences for dying at home: a systematic review." *BMC Palliative Care* 12, no. 1 (2013): 7.
- Goodman, David C., Elliott S. Fisher, Chiang-Hua Chang, Nancy E. Morden, Joseph O. Jacobson, Kimberly Murray, and Susan Miesfeldt. "Quality of end-of-life cancer care for medicare beneficiaries regional and hospital-specific analyses." *The Dartmouth Institute for Health Policy & Clinical Practice* (2010).
- Graber, Mark L., Nancy Franklin, and Ruthanna Gordon. "Diagnostic error in internal medicine." *Archives of Internal Medicine* 165, no.13 (2005): 1493-1499.
- Graham, Jesse, Jonathan Haidt, Sena Koleva, Matt Motyl, Ravi Iyer, Sean P. Wojcik, and Peter H. Ditto. "Moral foundations theory: The pragmatic validity of moral pluralism." *Advances in Experimental Social Psychology*, Forthcoming (2012).
- Graham, Jesse, Jonathan Haidt, and Brian A. Nosek. "Liberals and conservatives rely on different sets of moral foundations." *Journal of Personality and Social Psychology* 96, no. 5 (2009): 1029.
- Greene, Joshua D., Sylvia A. Morelli, Kelly Lowenberg, Leigh E. Nystrom, and Jonathan D. Cohen. "Cognitive load selectively interferes with utilitarian moral judgment." *Cognition* 107, no. 3 (2008): 1144-1154.
- Greene, Joshua, and Jonathan Haidt. "How (and where) does moral judgment work?" *Trends in Cognitive Sciences* 6, no. 12 (2002): 517-523.
- Guttman, Nurit, and Charles T. Salmon. "Guilt, fear, stigma and knowledge gaps: ethical issues in public health communication interventions." *Bioethics* 18, no. 6 (2004): 531-552.
- Guttman, Nurit. "Ethical dilemmas in health campaigns." *Health Communication* 9, no. 2 (1997): 155-190.
- Guyatt, Gordon H., Andrew D. Oxman, Gunn E. Vist, Regina Kunz, Yngve Falck-Ytter, Pablo Alonso-Coello, and Holger J. Schunemann. "Rating quality of evidence and strength of recommendations: GRADE: an emerging consensus on rating quality of evidence and strength of recommendations." *BMJ: British Medical Journal* 336, no. 7650 (2008): 924.
- Haidt, Jonathan, and Craig Joseph. "Intuitive ethics: How innately prepared intuitions generate culturally variable virtues." *Daedalus* 133, no. 4 (2004): 55-66.
- Haidt, Jonathan, and Fredrik Bjorklund. "Social intuitionists answer six questions about morality." (2008).
- Haidt, Jonathan, Fredrik Bjorklund, and Scott Murphy. "Moral dumbfounding: When intuition

- finds no reason." Unpublished manuscript. University of Virginia, 2000.
- Haidt, Jonathan, Silvia Helena Koller, and Maria G. Dias. "Affect, culture, and morality, or is it wrong to eat your dog?" *Journal of Personality and Social Psychology* 65, no. 4 (1993): 613.
- Haidt, Jonathan. "Morality." *Perspectives on Psychological Science* 3, no. 1 (2008): 65-72.
- Haidt, Jonathan. "The emotional dog and its rational tail: a social intuitionist approach to moral judgment." *Psychological Review* 108, no. 4 (2001): 814.
- Haidt, Jonathan. "The new synthesis in moral psychology." *Science* 316, no. 5827 (2007): 998-1002.
- Hall, Margaret Jean, Shaleah Levant, and Carol J. DeFrances. "Trends in inpatient hospital deaths: national hospital discharge survey, 2000-2010." No. 118. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, 2013.
- Halpern, Jodi, and Robert M. Arnold. "Affective forecasting: an unrecognized challenge in making serious health decisions." *Journal of General Internal Medicine* 23, no. 10 (2008): 1708-1712.
- Halpern, Neil A., and Stephen M. Pastores. "Critical care medicine in the United States 2000–2005: an analysis of bed numbers, occupancy rates, payer mix, and costs." *Critical Care Medicine* 38, no. 1 (2010): 65-71.
- Halpern, Scott D. "Shaping end-of-life care: behavioral economics and advance directives." *Seminars in Respiratory and Critical Care Medicine* 33, no. 04. Thieme Medical Publishers (2012).
- Halpern, Scott D., and Ezekiel J. Emanuel. "Can the United States Buy Better Advance Care Planning? Can the United States Buy Better Advance Care Planning?" *Annals of Internal Medicine* 162, no. 3 (2015): 224-225.
- Halpern, Scott D., George Loewenstein, Kevin G. Volpp, Elizabeth Cooney, Kelly Vranas, Caroline M. Quill, and Mary S. Mckenzie. "Default options in advance directives influence how patients set goals for end-of-life care." *Health Affairs* 32, no. 2 (2013): 408-417.
- Halpern, Scott D., Peter A. Ubel, and David A. Asch. "Harnessing the power of default options to improve health care." *The New England Journal of Medicine* 357, no. 13 (2007): 1340.
- Han, Paul KJ, Bryce B. Reeve, Richard P. Moser, and William M.P. Klein. "Aversion to ambiguity regarding medical tests and treatments: measurement, prevalence, and relationship to sociodemographic factors." *Journal of Health Communication* 14, no. 6



- (2009): 556-572.
- Han, Paul K.J., William M.P. Klein, Thomas Lehman, Holly Massett, Simon C. Lee, and Andrew N. Freedman. "Laypersons' responses to the communication of uncertainty regarding cancer risk estimates." *Medical Decision Making* 29, no. 3 (2009): 391-403.
- Han, Paul KJ, Richard P. Moser, William M.P. Klein, Ellen Burke Beckjord, Andrea C. Dunlavy, and Bradford W. Hesse. "Predictors of perceived ambiguity about cancer prevention recommendations: Sociodemographic factors and mass media exposures." *Health Communication* 24, no. 8 (2009): 764-772.
- Han, Paul KJ, William MP Klein, and Neeraj K. Arora. "Varieties of uncertainty in health care: a conceptual taxonomy." *Medical Decision Making* 31, no. 6 (2011): 828-838.
- Hansen, Pelle Guldborg, and Andreas Maaløe Jespersen. "Nudge and the manipulation of choice: A framework for the responsible use of the nudge approach to behaviour change in public policy." *European Journal of Risk Regulation* 4, no. 1 (2013): 3-28.
- "Large majorities support doctor assisted suicide for terminally ill patients in great pain; most people over 65 now have end of life directives." *Harris Interactive*, 2011.  
<http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/mid/1508/articleId/677/ctl/ReadCustom%20Default/Default.aspx/>.
- Heath, Chip, and Amos Tversky. "Preference and belief: Ambiguity and competence in choice under uncertainty." *Journal of Risk and Uncertainty* 4, no. 1 (1991): 5-28.
- Henry, Michael S. "Uncertainty, responsibility, and the evolution of the physician/patient relationship." *Journal of Medical Ethics* 32, no. 6 (2006): 321-323.
- Hershfield, Hal E., Taya R. Cohen, and Leigh Thompson. "Short horizons and tempting situations: Lack of continuity to our future selves leads to unethical decision making and behavior." *Organizational Behavior and Human Decision Processes* 117, no. 2 (2012): 298-310.
- Heyland, Daren K., Deborah J. Cook, Graeme M. Rocker, Peter M. Dodek, Demetrios J. Kutsogiannis, Sharon Peters, Joan E. Tranmer, and Christopher J. O'Callaghan. "Decision-making in the ICU: perspectives of the substitute decision-maker." *Intensive Care Medicine* 29, no. 1 (2003): 75-82.
- Hibbert, Derek, Barbara Hanratty, Carl May, Frances Mair, Andrea Litva, and Simon Capewell. "Negotiating palliative care expertise in the medical world." *Social Science & Medicine* 57, no. 2 (2003): 277-288.
- Hogarth, Robin M. *Educating Intuition*. University of Chicago Press, 2001.
- Hogarth, Robin M., and Hillel J. Einhorn. "Order effects in belief updating: The belief-

- adjustment model." *Cognitive Psychology* 24, no. 1 (1992): 1-55.
- Hough, Douglas E. *Irrationality in Health Care: What Behavioral Economics Reveals about What We Do and Why*. Stanford University Press, 2013.
- Hsu, Ming, Meghana Bhatt, Ralph Adolphs, Daniel Tranel, and Colin F. Camerer. "Neural systems responding to degrees of uncertainty in human decision-making." *Science* 310, no. 5754 (2005): 1680-1683.
- Hunter, J. F. M. "The possibility of a rational strategy of moral persuasion." *Ethics* 84, no. 3 (1974): 185-200.
- Hurd, Michael D., Paco Martorell, Adeline Delavande, Kathleen J. Mullen, and Kenneth M. Langa. "Monetary costs of dementia in the United States." *New England Journal of Medicine* 368, no. 14 (2013): 1326-1334.
- Huynh, Thanh N., Eric C. Klerup, and Joshua F. Wiley. "The frequency and cost of treatment perceived to be futile in critical care." *JAMA Internal Medicine* 173, no. 20 (2013): 1887-1894.
- Huynh, Thanh N., Eric C. Klerup, Prince P. Raj, and Neil S. Wenger. "The opportunity cost of futile treatment in the intensive care unit." *Critical Care Medicine* 42, no. 9 (2014): 1977.
- Institute of Medicine. *Dying in America: Improving Quality and Honoring Individual Preferences Near the End of Life*. Washington, DC: National Academies Press, 2014.
- Irurita, Vera F. "The problem of patient vulnerability." *Collegian* 6, no. 1 (1999): 10-15.
- Iyer, Aarti, and Julian Oldmeadow. "Picture this: Emotional and political responses to photographs of the Kenneth Bigley kidnapping." *European Journal of Social Psychology* 36, no. 5 (2006): 635-647.
- Jenni, Karen, and George Loewenstein. "Explaining the identifiable victim effect." *Journal of Risk and Uncertainty* 14, no. 3 (1997): 235-257.
- Johnson, Eric J., and Daniel Goldstein. "Do defaults save lives?" *NEJM* (2003): 1338-1339.
- Johnson, Nancy, Deborah Cook, Mita Giacomini, and Dennis Willms. "Towards a 'Good' Death: End-of-Life Narratives Constructed in An Intensive Care Unit." *Culture, Medicine and Psychiatry* 24, no. 3 (2000): 275-295.
- Johnston, Carolyn, and Genevieve Holt. "The legal and ethical implications of therapeutic privilege-is it ever justified to withhold treatment information from a competent patient?" *Clinical Ethics* 1, no. 3 (2006): 146-151.
- Jonsen, Albert R. "3. Bentham in a box: Technology assessment and health care allocation."

- Law, Medicine and Health Care* 14, no. 3-4 (1986): 172-174.
- Kaebnick, Gregory E. "Reasons of the Heart: Emotion, Rationality, and the "Wisdom of Repugnance"." *Hastings Center Report* 38, no. 4 (2008): 36-45.
- Kahneman, Daniel, and Amos Tversky. "On the psychology of prediction." *Psychological Review* 80, no. 4 (1973): 237.
- Kahneman, Daniel, and Shane Frederick. "A model of heuristic judgment." *The Cambridge Handbook of Thinking and Reasoning*. 2005.
- Kahneman, Daniel, and Shane Frederick. "Representativeness revisited: Attribute substitution in intuitive judgment." *Heuristics and Biases: The Psychology of Intuitive Judgment* 49 (2002): 49-81.
- Kahneman, Daniel. "Maps of bounded rationality: A perspective on intuitive judgment and choice." *Nobel Prize Lecture* 8 (2002): 351-401.
- Kahneman, Daniel. "Maps of bounded rationality: Psychology for behavioral economics." *The American Economic Review* 93, no. 5 (2003): 1449-1475.
- Kahneman, Daniel. *Thinking, Fast and Slow*. Macmillan, 2011.
- Kant, Immanuel. *Critique of Judgment, 1790*, translated by J.H. Bernard. New York: Prometheus, 2000.
- Kant, Immanuel. *Groundwork for the Metaphysics of Morals*. Yale University Press, 2002.
- Kant, Immanuel. "On a supposed right to lie from altruistic motives." *Critical of Practical Reason and other Writings*. 1949.
- Kant, Immanuel. *Immanuel Kant's Critique of Pure Reason*. Read Books Ltd, 2013.
- Karnieli-Miller, Orit, and Zvi Eisikovits. "Physician as partner or salesman? Shared decision-making in real-time encounters." *Social Science & Medicine* 69, no. 1 (2009): 1-8.
- Kass-Bartelmes BL. U.S. Agency for Healthcare Research and Quality. "Advance Care Planning: Preferences for Care at the End of Life." *Research in Action* 12 (2003). <http://www.ahrq.gov/research/endliferia/endria.htm/>.
- Katz, Jay. *The Silent World of Doctor and Patient*. JHU Press, 2002.
- Kause, Juliane, Gary Smith, David Prytherch, and Ken Hillman. "A comparison of antecedents to cardiac arrests, deaths and emergency intensive care admissions in Australia and New Zealand, and the United Kingdom—the ACADEMIA study." *Resuscitation* 62, no. 3 (2004): 275-282.

- Keating, Nancy L., Mary Beth Landrum, Selwyn O. Rogers, Jr., Susan K. Baum, Beth A. Virnig, Haiden A. Huskamp, Craig C. Earle, and Katherine L. Kahn. "Physician factors associated with discussions about end-of-life care." *Cancer* 116, no. 4 (2010): 998-1006.
- Keller, Carmen, and Michael Siegrist. "Effect of risk communication formats on risk perception depending on numeracy." *Medical Decision Making* 29, no. 4 (2009): 483-490.
- Kelley, Amy S., Kathleen McGarry, Sean Fahle, Samuel M. Marshall, Qingling Du, and Jonathan S. Skinner. "Out-of-pocket spending in the last five years of life." *Journal of General Internal Medicine* 28, no. 2 (2013): 304-309.
- Kenny, Anthony. *The Philosophical Writings of Descartes*. Vol. 2. Cambridge: Cambridge University Press, 1985.
- Khandelwal, Nita, and J. Randall Curtis. "Economic implications of end-of-life care in the ICU." *Current Opinion in Critical Care* 20, no. 6 (2014): 656.
- King, Dominic, Felix Greaves, Ivo Vlaev, and Ara Darzi. "Approaches based on behavioral economics could help nudge patients and providers toward lower health spending growth." *Health Affairs* 32, no. 4 (2013): 661-668.
- Kirkpatrick, Jerry. "A philosophic defense of advertising." *Journal of Advertising* 15, no. 2 (1986): 42-64.
- Klein, Jill G. "Five pitfalls in decisions about diagnosis and prescribing." *BMJ: British Medical Journal* 330, no. 7494 (2005): 781.
- Klein, William M.P., Jennifer L. Cerully, Matthew M. Monin, and Don A. Moore. "Ability, chance, and ambiguity aversion: Revisiting the competence hypothesis." *Judgment and Decision Making* 5, no. 3 (2010): 192.
- Knaus, William A., Alain Rauss, Annick Alperovitch, Philippe Loirat, Elizabeth Patois, and Stephen E. Marcus. "Do objective Estimates of chances for Survival Influence Decisions to Withhold or Withdraw Treatment?" *Medical Decision Making* 10, no. 3 (1990): 163-171.
- Knobe, Joshua. "Intentional action and side effects in ordinary language." *Analysis* 63, no. 279 (2003): 190-194.
- Kogut, Tehila, and Ilana Ritov. "The 'identified victim' effect: An identified group, or just a single individual?" *Journal of Behavioral Decision Making* 18, no. 3 (2005): 157-167.
- Kohlberg, Lawrence. "The development of children's orientations toward a moral order." *Human Development* 51, no. 1 (2008): 8-20.

- Kon, Alexander A. "Informed Nondissent Rather Than Informed Assent Response." *CHEST Journal* 133, no. 1 (2008): 320-321.
- Kon, Alexander A., Judy E. Davidson, Wynne Morrison, Marion Danis, and Douglas B. White. "Shared decision making in ICUs: an American College of Critical Care Medicine and American Thoracic Society policy statement." *Critical Care Medicine* 44, no. 1 (2016): 188-201.
- Kotowicz, Zbigniew. "The strange case of Phineas Gage." *History of the Human Sciences* 20, no. 1 (2007): 115-131.
- Kressel, Laura M., and Gretchen B. Chapman. "The default effect in end-of-life medical treatment preferences." *Medical Decision Making* 27, no. 3 (2007): 299-310.
- Kressel, Laura M., Gretchen B. Chapman, and Elaine Leventhal. "The influence of default options on the expression of end-of-life treatment preferences in advance directives." *Journal of General Internal Medicine* 22, no. 7 (2007): 1007-1010.
- Kühberger, Anton. "The influence of framing on risky decisions: A meta-analysis." *Organizational Behavior and Human Decision Processes* 75, no. 1 (1998): 23-55.
- Lake Research Partners. "Final chapter: Californians' attitudes and experiences with death and dying." *The Coalition for Compassionate Care of California*. Oakland, CA: California Health Care Foundation, 2012. <http://www.chcf.org/~media/MEDIA%20LIBRARY%20Files/PDF/F/PDF%20FinalChapterDeathDying.pdf/>. (accessed June 20, 2017).
- Lakoff G, and Mark Johnson. *Metaphors We Live By*. Chicago, IL: University of Chicago Press, 1980.
- Laxmisan, Archana, Forogh Hakimzada, Osman R. Sayan, Robert A. Green, Jiajie Zhang, and Vimla L. Patel. "The multitasking clinician: decision-making and cognitive demand during and after team handoffs in emergency care." *International Journal of Medical Informatics* 76, no. 11 (2007): 801-811.
- Leape, Lucian L. "Reporting of adverse events." *The New England Journal of Medicine* 347, no. 20 (2002): 1633.
- LeBar, Mark. "Prichard vs. Plato: Intuition vs. reflection." *Canadian Journal of Philosophy* 37, sup1 (2007): 1-32.
- Lerner, Jennifer S., and Dacher Keltner. "Fear, anger, and risk." *Journal of Personality and Social Psychology* 81, no. 1 (2001): 146.
- Lerner, Jennifer S., and Philip E. Tetlock. "Accounting for the effects of accountability."

- Psychological Bulletin* 125, no. 2 (1999): 255.
- Lessa, Fernanda C., Yi Mu, Wendy M. Bamberg, Zintars G. Beldays, Ghinwa K. Dumyati, John R. Dunn, and Monica M. Farley. "Burden of *Clostridium difficile* infection in the United States." *The New England Journal of Medicine* 372, no. 9 (2015): 825-834.
- Levin, Irwin P., Sandra L. Schneider, and Gary J. Gaeth. "All frames are not created equal: A typology and critical analysis of framing effects." *Organizational Behavior and Human Decision Processes* 76, no. 2 (1998): 149-188.
- Levinas, Emmanuel. *The Theory of Intuition in Husserl's Phenomenology*. Northwestern University Press, 1995.
- Lipkus, Isaac M., Greg Samsa, and Barbara K. Rimer. "General performance on a numeracy scale among highly educated samples." *Medical Decision Making* 21, no. 1 (2001): 37-44.
- Locke, John. *An Essay Concerning Human Understanding*. W. Tegg, 1849.
- Locke, John. *Some thoughts concerning education*, sec. 45. Barron's Educational Series, 1964.
- Loewenstein, George F., Elke U. Weber, Christopher K. Hsee, and Ned Welch. "Risk as feelings." *Psychological Bulletin* 127, no. 2 (2001): 267.
- Loewenstein, George, and Drazen Prelec. "Anomalies in intertemporal choice: Evidence and an interpretation." *The Quarterly Journal of Economics* 107, no. 2 (1992): 573-597.
- Loewenstein, George, and Richard H. Thaler. "Anomalies: intertemporal choice." *The Journal of Economic Perspectives* 3, no. 4 (1989): 181-193.
- Loewenstein, George, David A. Asch, Joelle Y. Friedman, Lori A. Melichar, and Levin G. Volpp. "Can behavioural economics make us healthier?" *BMJ: British Medical Journal (Online)* 344 (2012).
- Loewenstein, George. "Hot-cold empathy gaps and medical decision making." *Health Psychology* 24, no. 4S (2005): S49.
- Loewenstein, George. "The psychology of curiosity: A review and reinterpretation." *Psychological bulletin* 116, no. 1 (1994): 75.
- London, Alex John. "Amenable to reason: Aristotle's rhetoric and the moral psychology of practical ethics." *Kennedy Institute of Ethics Journal* 10, no. 4 (2000): 287-305.
- Lorenz, Karl A., Joanne Lynn, Sydney M. Dy, Lisa R. Shugarman, Anne Wilkinson, Richard A. Mularski, Sally C. Morton, et al. "Evidence for improving palliative care at the end of life: a systematic review." *Annals of Internal Medicine* 148, no. 2 (2008): 147.

- Lu, Annie, Deepika Mohan, Stewart C. Alexander, Craig Mescher, and Amber E. Barnato. "The language of end-of-life decision making: a simulation study." *Journal of Palliative Medicine* 18, no. 9 (2015): 740-746.
- Lupton, Deborah. "Risk and emotion: towards an alternative theoretical perspective." *Health, Risk & Society* 15, no. 8 (2013): 634-647.
- Lwin, Aung K., and Donald S. Shepard. "Estimating lives and dollars saved from universal adoption of the Leapfrog safety and quality standards: 2008 update." *The Leapfrog Group*. Washington, DC (2008).
- Mabeck C.E., and F. Olesen. "Metaphors and understanding of disease." *Ugeskr Laeger* 158, no. 51 (1996): 7384-7387.
- Mack, Jennifer W., Angel Cronin, Nathan Taback, Halden A. Huskamp, Nancy L. Keating, Jennifer L. Malin, Craig C. Earle, and Jane C. Weeks. "End-of-Life Care Discussions Among Patients With Advanced Cancer A Cohort Study." *Annals of Internal Medicine* 156, no. 3 (2012): 204-210.
- MacKay, Douglas, and Alexandra Robinson. "The ethics of organ donor registration policies: Nudges and respect for autonomy." *The American Journal of Bioethics* 16, no. 11 (2016): 3-12.
- Mackenzie, C., and N. Stoljar. "Introduction: Autonomy refigured." In *Relational Autonomy: Feminist Perspectives on Autonomy, Agency, and the Social Self*, 3-31. New York: Oxford University Press, 2000.
- Manthous, Constantine A. "Counterpoint: is it ethical to order "do not resuscitate" without patient consent?" *CHEST Journal* 132, no. 3 (2007): 751-754.
- Marewski, Julian N., and Gerd Gigerenzer. "Heuristic decision making in medicine." *Dialogues in Clinical Neuroscience* 14, no. 1 (2012): 77.
- Markson, Lawrence J., Donald C. Kern, George J. Anna, and Leonard H. Glantz. "Physician assessment of patient competence." *Journal of the American Geriatrics Society* 42, no. 10 (1994): 1074-1080.
- Marzanski, Marek. "Would you like to know what is wrong with you? On telling the truth to patients with dementia." *Journal of Medical Ethics* 26, no. 2 (2000): 108-113.
- Mayer, Richard E., and Valerie K. Sims. "For whom is a picture worth a thousand words? Extensions of a dual-coding theory of multimedia learning." *Journal of Educational Psychology* 86, no. 3 (1994): 389.
- Mazur, Dennis J. "Information disclosure and beyond: how do patients understand and use the

- information they report they want?" (2000): 132-134.
- McKenna, Frank P., David M. Warburton, and Mark Winwood. "Exploring the limits of optimism: The case of smokers' decision making." *British Journal of Psychology* 84, no. 3 (1993): 389-394.
- McKie, John, and Jeff Richardson. "The rule of rescue." *Social Science & Medicine* 56, no. 12 (2003): 2407-2419.
- McKirahan, Richard D. "On Intuition and Discursive Reasoning in Aristotle." *Ancient Philosophy* 11, no. 1 (1991): 183-187.
- McNeil, Barbara J., Stephen G. Pauker, and Amos Tversky. "On the framing of medical decisions." (1988).
- MedPAC. "Report to the Congress: Aligning incentives in Medicare." (2010): 195.  
[http://www.medpac.gov/documents/jun10\\_entirereport.pdf/](http://www.medpac.gov/documents/jun10_entirereport.pdf/).
- Meeker, Daniella, Jeffrey A. Linder, Craig R. Fox, Mark W. Friedberg, Stephen D. Persell, Noah J. Goldstein, Tara K. Knight, J.W. Hay, and Jason N. Doctor. "Effect of behavioral interventions on inappropriate antibiotic prescribing among primary care practices: a randomized clinical trial." *JAMA* 315, no. 6 (2016): 562-570.
- Meisel, Alan, and Mark Kuczewski. "Legal and ethical myths about informed consent." *Archives of Internal Medicine* 156, no. 22 (1996): 2521-2526.
- Meisel, Alan. "The exceptions to the informed consent doctrine: striking a balance between competing values in medical decisionmaking." *Wis. L. Rev.* (1979): 413.
- "Uncertainty." *Merriam-Webster Online Dictionary*. <http://www.merriam-webster.com/uncertainty> (Accessed June 7, 2017).
- Micheli, Raphaël. "Emotions as objects of argumentative constructions." *Argumentation* 24, no. 1 (2010): 1-17.
- Miljković, Miloš D., Dannis Emuron, Lori Rhodes, Joseph Abraham, and Kenneth Miller. "'Allow Natural Death' versus 'Do Not Resuscitate': What Do Patients with Advanced Cancer Choose?" *Journal of Palliative Medicine* 18, no. 5 (2015): 457-460.
- Mill, JS. *On Liberty* (1859). Amherst, NY: Prometheus Books, 1986.
- Mishel, Merle H. "Uncertainty in illness." *Journal of Nursing Scholarship* 20, no. 4 (1988): 225-232.
- Mohammed, Shan, and Elizabeth Peter. "Rituals, death and the moral practice of medical futility." *Nursing Ethics* 16, no. 3 (2009): 292-302.



- Molewijk, Bert, Dick Kleinlugtenbelt, and Guy Widdershoven. "The role of emotions in moral case deliberation: Theory, practice, and methodology." *Bioethics* 25, no. 7 (2011): 383-393.
- Moody, Harry R. "From informed consent to negotiated consent." *The Gerontologist* 28, no. Suppl (1988): 64-70.
- Moumjid, Nora, Amiram Gafni, Alain Bremond, and Marie-Odile Carrere. "Shared decision making in the medical encounter: are we all talking about the same thing?" *Medical Decision Making* 27, no. 5 (2007): 539-546.
- Murphy, James J., Richard A. Katula, Forbes I. Hill, and Donovan J. Ochs. *A Synoptic History of Classical Rhetoric*. Routledge, 2003.
- National Institutes of Health. "Meeting Summary." *NIH Science of Behavior Change*. Bethesda, Maryland, 2009.
- National Research Council. *Improving Risk Communication*. National Academies, 1989. 28.
- Needle, Jennifer S., Richard A. Mularski, Thuan Nguyen, and Erik K. Fromme. "Influence of personal preferences for life-sustaining treatment on medical decision making among pediatric intensivists." *Critical Care Medicine* 40, no. 8 (2012): 2464-2469.
- Nelson, Wendy, Valerie F. Reyna, Angela Fagerlin, Isaac Lipkus, and Ellen Peters. "Clinical implications of numeracy: theory and practice." *Annals of Behavioral Medicine* 35, no. 3 (2008): 261-274.
- Nickerson, Raymond S. "Confirmation bias: A ubiquitous phenomenon in many guises." *Review of General Psychology* 2, no. 2 (1998): 175.
- Nott, M. R. "Misidentification, in- filling and confirmation bias." *Anaesthesia* 56, no. 9 (2001): 906-924.
- Novack, Dennis H., Robin Plumer, and Raymond L. Smith. "Changes in physicians' attitudes toward telling the cancer patient." *JAMA* 241, no. 9 (1979): 897-900.
- O'keefe, Daniel J. *Persuasion: Theory and Research*. vol. 2. SAGE Publications, Incorporated, 2002.
- O'Neill, Onora. "Kantian ethics." *Principles of Health Care Ethics*, Second Edition. 2007.
- O'Connor, Annette M., and Adrian Edwards. "The role of decision aids in promoting evidence-based patient choice." *Shared Decision-Making in Health Care: Achieving Evidence-Based Patient Choice* (2009): 191-200.

- O'Donovan LJ. "A profession of trust: reflections on a fundamental virtue." In *The Health Care Professional as Friend and Healer*, edited by DC Thomasma, and JL Kissell. Washington: Georgetown University Press, 2000.
- O'Keefe, Daniel J. "Conviction, Persuasion, and Argumentation: Untangling the Ends and Means of Influence." *Argumentation* 26, no. 1 (2012): 19-32.
- O'Neill, Onora. "Kantian ethics." *A Companion to Ethics* 29 (1993): 175-85.
- Öhman, Arne, and Joaquim JF Soares. "Emotional conditioning to masked stimuli: expectancies for aversive outcomes following nonrecognized fear-relevant stimuli." *Journal of Experimental Psychology: General* 127, no. 1 (1998): 69.
- Ortman, Jennifer M., and Christine E. Guarneri. "United States population projections: 2000 to 2050." *United States Census Bureau* (2009): 1-19.
- Paez, Kathryn Anne, Lan Zhao, and Wenke Hwang. "Rising out-of-pocket spending for chronic conditions: a ten-year trend." *Health Affairs* 28, no. 1 (2009): 15-25.
- Palda, Valerie A., Kerry W. Bowman, Richard F. McLean, and Martin G. Chapman. "'Futile' care: Do we provide it? Why? A semistructured, Canada-wide survey of intensive care unit doctors and nurses." *Journal of Critical Care* 20, no. 3 (2005): 207-213.
- Palin, Sarah. "Statement on the current health care debate." August 7 2009.
- Paxton, Joseph M., Leo Ungar, and Joshua D. Greene. "Reflection and reasoning in moral judgment." *Cognitive Science* 36, no. 1 (2012): 163-177.
- Pear, R. "New Medicare rule authorizes 'end-of-life' consultations." *The New York Times*, October 31, 2015.
- Pellegrino, Edmund D. "For the patient's good: The restoration of beneficence in health care." (1988).
- Perloff, Richard M. *The Dynamics of Persuasion: Communication and Attitudes in the Twenty-First Century*. Routledge, 2010.
- Persell, Stephen D., Mark W. Friedberg, Daniella Meeker, Jeffrey A. Linder, Craig R. Fox, Noah J. Goldstein, Parth D. Shah, Tara K. Knight, and Jason N. Doctor. "Use of behavioral economics and social psychology to improve treatment of acute respiratory infections (BEARI): rationale and design of a cluster randomized controlled trial [1RC4AG039115-01]-study protocol and baseline practice and provider characteristics." *BMC Infectious Diseases* 13, no. 1 (2013): 290.
- Personalize Your Care Act, H.R. 1173, 113th Cong., 1st Sess. 2013.

- Peters, Ellen, Kevin D. McCaul, Michael Stefanek, and Wendy Nelson. "A heuristics approach to understanding cancer risk perception: contributions from judgment and decision-making research." *Annals of Behavioral Medicine* 31, no. 1 (2006): 45-52.
- Peters, Ellen, Daniel Vastfjall, Paul Slovic, C.K. Mertz, Keith Mazzocco, and Stephen Dickert. "Numeracy and decision making." *Psychological Science* 17, no. 5 (2006): 407-413.
- Pew Research Social and Demographic Trends. "End-of-life decisions: how Americans cope." *Pew Research Center*, 2009. <http://www.pewsocialtrends.org/2009/08/20/end-of-life-decisions-how-americans-cope/>.
- Pierce, Jon L., Tatiana Kostova, and Kurt T. Dirks. "The state of psychological ownership: Integrating and extending a century of research." *Review of General Psychology* 7, no. 1 (2003): 84.
- Pierce, Jon L., Tatiana Kostova, and Kurt T. Dirks. "Toward a theory of psychological ownership in organizations." *Academy of Management Review* 26, no. 2 (2001): 298-310.
- Pillard, Nathalie. *Jung and Intuition: On the Centrality and Variety of Forms of Intuition in Jung and Post-Jungians*. Karnac Books, 2015.
- Pizzo, P. A., D. M. Walker, and P. A. Bomba. "Dying in America: Improving quality and honoring individual preferences near the end of life." Washington, DC: Institute of Medicine, 2015.
- Politi, Mary C., Melissa A. Clark, Hernando Ombao, Don Dizon, and Glyn Elwyn. "Communicating uncertainty can lead to less decision satisfaction: a necessary cost of involving patients in shared decision making?" *Health Expectations* 14, no. 1 (2011): 84-91.
- Politi, Mary C., Paul KJ Han, and Nananda F. Col. "Communicating the uncertainty of harms and benefits of medical interventions." *Medical Decision Making* 27, no. 5 (2007): 681-695.
- Pope, Thaddeus M. "Legal briefing: Medicare coverage of advance care planning." *The Journal of Clinical Ethics* 26, no. 4 (2014): 361-367.
- Portnoy, David B., Paul K. J. Han, Rebecca A. Ferrer, William M. P. Klein, and Steven B. Clauser. "Physicians' attitudes about communicating and managing scientific uncertainty differ by perceived ambiguity aversion of their patients." *Health Expectations* 16, no. 4 (2013): 362-372.
- Poses, Roy M., Carolyn Bekes, Fiore J. Copare, and William E. Scott. "What Difference Do Two Days Make? The Inertia of Physicians' Sequential Prognostic Judgments for Critically Ill Patients." *Medical Decision Making* 10, no. 1 (1990): 6-14.

- Powers, Penny. "Persuasion and coercion: a critical review of philosophical and empirical approaches." *HEC Forum* 19, no. 2 (2007): 125-143.
- Pronovost, Peter J., David A. Thompson, Christina G. Holzmüller, Lisa H. Lubomski, and Laura L. Morlock. "Defining and measuring patient safety." *Critical Care Clinics* 21, no. 1 (2005): 1-19.
- Pryor, Gale, and Anna Zink. "Lifting the Barriers to End-of-Life conversations" *AetnaHealth Insights*, November 10, 2016. <https://insight.athenahealth.com/end-life-conversations/>.
- Quigley, Muireann. "Nudging for health: on public policy and designing choice architecture." *Medical Law Review* 21, no. 4 (2013): 588-621.
- Quill, Caroline M., Sarah J. Ratcliffe, Michael O. Harhay, and Scott D. Halpern. "Variation in decisions to forgo life-sustaining therapies in US ICUs." *CHEST Journal* 146, no. 3 (2014): 573-582.
- Rady, Mohamed Y., Joseph L. Verheijde, and Joan L. McGregor. "Cardiopulmonary Resuscitation at the End of Life Without Patient Consent: An Ethical Challenge to Autonomy and Self-Determination." *CHEST Journal* 133, no. 1 (2008): 320-320.
- Rao, Jaya K., Lynda A. Anderson, Feng-Chang Lin, and Jeffrey P Laux. "Completion of advance directives among US consumers." *American Journal of Preventive Medicine* 46, no. 1 (2014): 65-70.
- Rebonato, Riccardo. "A critical assessment of libertarian paternalism." *Journal of Consumer Policy* 37, no. 3 (2014): 357-396.
- Reisfield, Gary M., and George R. Wilson. "Use of metaphor in the discourse on cancer." *Journal of Clinical Oncology* 22, no. 19 (2004): 4024-4027.
- Rew, Lynn. "Acknowledging intuition in clinical decision making." *Journal of Holistic Nursing* 18, no. 2 (2000): 94-108.
- Reyna, Valerie F. "A theory of medical decision making and health: fuzzy trace theory." *Medical Decision Making* 28, no. 6 (2008): 850-865.
- Reyna, Valerie F., and Charles J. Brainerd. "Fuzzy-trace theory: An interim synthesis." *Learning and Individual Differences* 7, no. 1 (1995): 1-75.
- Reyna, Valerie F., and Charles J. Brainerd. "The importance of mathematics in health and human judgment: Numeracy, risk communication, and medical decision making." *Learning and Individual Differences* 17, no. 2 (2007): 147-159.
- Reyna, Valerie F., Wendy L. Nelson, Paul K. Han, and Nathan F. Dieckmann. "How numeracy influences risk comprehension and medical decision making." *Psychological Bulletin*

- 135, no. 6 (2009): 943.
- Rhodes, Rosamond, and James J. Strain. "Affective forecasting and its implications for medical ethics." *Cambridge Quarterly of Healthcare Ethics* 17, no. 1 (2008): 54-65.
- Riley, Gerald F., and James D. Lubitz. "Long- term trends in medicare payments in the last year of life." *Health Services Research* 45, no. 2 (2010): 565-576.
- Rorty, Amélie, ed. *Essays on Aristotle's Rhetoric*. Vol. 6. Univ. of California Press, 1996.
- Rorty, Amélie. "Aristotle on the Virtues of Rhetoric." *The Review of Metaphysics* 64, no. 4 (2011): 715-733.
- Ross, W. D. *The Foundations of Ethics*. Oxford: Clarendon Press, 1939.
- Rossi, John, and Michael Yudell. "Value-ladenness and rationality in health communication." *The American Journal of Bioethics* 12, no. 2 (2012): 20-22.
- Rozin, Paul, Mark Spranca, Zeev Krieger, Ruth Neuhaus, Darlene Surillo, Amy Swerdlin, and Katherine Wood. "Preference for natural: instrumental and ideational/moral motivations, and the contrast between foods and medicines." *Appetite* 43, no. 2 (2004): 147-154.
- Rozin, Paul, Linda Millman, and Carol Nemeroff. "Operation of the laws of sympathetic magic in disgust and other domains." *Journal of Personality and Social Psychology* 50, no. 4 (1986): 703.
- Saghai, Yashar. "Salvaging the concept of nudge." *Journal of Medical Ethics* 39, no. 8 (2013): 487-493.
- Sah, Sunita, Pierre Elias, and Dan Ariely. "Investigation momentum: the relentless pursuit to resolve uncertainty." *JAMA Internal Medicine* 173, no. 10 (2013): 932-933.
- Scanlon, Thomas M. *What We Owe to Each Other*. Harvard University Press, 1998.
- Scarantino, Luca Maria. "Persuasion, Rhetoric and Authority." *Diogenes* 55, no. 1 (2008): 22-36.
- Schelling, T. C. "The Life You Save May Be Your Own," In *Problems in Public Expenditure Analysis*, edited by Samuel Chase. Washington, DC: The Brookings Institute, 1968.
- Scherer, Laura D., Marieke de Vries, Brian J. Zikmund-Fisher, Holly O. Witteman, and Angela Fagerlin. "Trust in deliberation: The consequences of deliberative decision strategies for medical decisions." *Health Psychology* 34, no. 11 (2015): 1090.
- Schneider, Carl. *The Practice of Autonomy: Patients, Doctors, and Medical Decisions*. Oxford University Press on Demand, 1998.

- Schwartz, Barry. "Self-determination: The tyranny of freedom." *American Psychologist* 55, no. 1 (2000): 79.
- Schwarz, Norbert, Herbert Bless, Fritz Strack, Gisela Klumpp, Helga Rittenauer-Schatka, and Annette Simons. "Ease of retrieval as information: Another look at the availability heuristic." *Journal of Personality and Social Psychology* 61, no. 2 (1991): 195.
- Segal, Uzi. "The Ellsberg paradox and risk aversion: An anticipated utility approach." *International Economic Review* (1987): 175-202.
- Selinger, Evan, and Kyle Whyte. "Is there a right way to nudge? The practice and ethics of choice architecture." *Sociology Compass* 5, no. 10 (2011): 923-935.
- Senay, Ibrahim, and Kimberly A. Kaphingst. "Anchoring-and-adjustment bias in communication of disease risk." *Medical Decision Making* 29, no. 2 (2009): 193-201.
- Shah, Anuj K., and Daniel M. Oppenheimer. "Heuristics made easy: an effort-reduction framework." *Psychological Bulletin* 134, vol. 2 (2008): 207.
- Shapiro, Stewart, and Mark T. Spence. "Managerial intuition: A conceptual and operational framework." *Business Horizons* 40, no. 1 (1997): 63-68.
- Sharot, Tali. "The optimism bias." *Current Biology* 21, no. 23 (2011): R941-R945.
- Shaw D., and B. Elger. "Evidence-Based Persuasion: An Ethical Imperative." *JAMA* 309, no. 16 (2013): 1689-1690.
- Sherman, Nancy. *Making a Necessity of Virtue: Aristotle and Kant on Virtue*. Cambridge University Press, 1997).
- Shirley, Debbie A., and Janice Langan-Fox. "Intuition: A review of the literature." *Psychological Reports* 79, no. 2 (1996): 563-584.
- Siegler, Mark. "Critical illness: the limits of autonomy." *Hastings Center Report* 7, no. 5 (1977): 12-15.
- Siegler, Mark. "The progression of medicine: from physician paternalism to patient autonomy to bureaucratic parsimony." *Archives of Internal Medicine* 145, no. 4 (1985): 713-715.
- Simon, Herbert A. "Bounded rationality." *Utility and Probability*. Palgrave Macmillan UK, 1990.
- Simon, Herbert A. "Invariants of human behavior." *Annual Review of Psychology* 41, no. 1 (1990): 1-20.

- Simon, Herbert A. "Theories of bounded rationality." *Decision and Organization* 1, no. 1 (1972): 161-176.
- Simon, Herbert Alexander. *Models of Bounded Rationality: Empirically Grounded Economic Reason*. Vol. 3. MIT Press, 1982.
- Simons, Herbert W. *Persuasion*. Addison-Wesley, 1976.
- Simonson, Itamar, and Aimee Drolet. "Anchoring effects on consumers' willingness-to-pay and willingness-to-accept." *Journal of Consumer Research* 31, no. 3 (2004): 681-690.
- Skene, Loane, and Richard Smallwood. "Informed consent: lessons from Australia." *BMJ: British Medical Journal* 324, no. 7328 (2002): 39.
- Slovic, Paul, and Ellen Peters. "Risk perception and affect." *Current Directions in Psychological Science* 15, no. 6 (2006): 322-325.
- Slovic, Paul, Baruch Fischhoff, and Sarah Lichtenstein. "Characterizing perceived risk." (1985).
- Slovic, Paul, Melissa L. Finucane, Ellen Peters, and Donald G. MacGregor. "Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk, and rationality." *Risk Analysis* 24, no. 2 (2004): 311-322.
- Slovic, Paul, Melissa L. Finucane, Ellen Peters, and Donald G. MacGregor. "The affect heuristic." *European Journal of Operational Research* 177, no. 3 (2007): 1333-1352.
- Slovic, Paul, Howard Kunreuther, and Gilbert F. White. "Decision processes, rationality and adjustment to natural hazards." Earthscan Publications, 1974.
- Slovic, Paul, John Monahan, and Donald G. MacGregor. "Violence risk assessment and risk communication: the effects of using actual cases, providing instruction, and employing probability versus frequency formats." *Law and Human Behavior* 24, no. 3 (2000): 271.
- Small, Deborah A., George Loewenstein, and Paul Slovic. "Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims." *Organizational Behavior and Human Decision Processes* 102, no. 2 (2007): 143-153.
- Smith, Michael. "Desires, Values, Reasons, and the Dualism of Practical Reason" In *Ratio Special Issue: Parfit's On What Matters*, edited by John Cottingham and Jussi Suikkanen. 22 (2009): 98-125.
- Smith, Mary John. *Persuasion and Human Action: A Review and Critique of Social Influence Theories* Belmont, California: Wadsworth Publishing Company, 1982.
- Solmsen, Friedrich, ed. *Rhetoric*. Random House, 1954.

- Song, J. "Every dog has its day—but at what price." *The Register Guard* A 15 (2002).
- Speight, Allen. "'Listening to Reason': The Role of Persuasion in Aristotle's Account of Praise, Blame, and the Voluntary." *Philosophy and Rhetoric* 38, no. 3 (2005): 213-225.
- Spranca, Mark, Elisa Minsk, and Jonathan Baron. "Omission and commission in judgment and choice." *Journal of Experimental Social Psychology* 27, no. 1 (1991): 76-105.
- Stone, Vernon A. "A Primacy Effect in Decision- Making by Jurors." *Journal of Communication* 19, no. 3 (1969): 239-247.
- Strack, Fritz, and Thomas Mussweiler. "Explaining the enigmatic anchoring effect: Mechanisms of selective accessibility." *Journal of Personality and Social Psychology* 73, no. 3 (1997): 437.
- Sunstein, Cass R. "Choosing not to choose." *Duke LJ* 64 (2014): 1.
- Sunstein, Cass R. "Fifty shades of manipulation." (2015).
- Sunstein, Cass R. "Hazardous heuristics." (2003): 751-782.
- Sunstein, Cass R. "Moral heuristics and moral framing." *Minn. L. Rev.* 88 (2003): 1556.
- Sunstein, Cass R. "Moral heuristics." *Behavioral and Brain Sciences* 28, no. 4 (2005): 531-541.
- Sunstein, Cass R. "Nudges do not undermine human agency." *Journal of Consumer Policy* 38, no. 3 (2015): 207-210.
- Sunstein, Cass R. "Nudging and choice architecture: ethical considerations." (2015).
- Sunstein, Cass R., and Richard H. Thaler. "Libertarian paternalism is not an oxymoron." *The University of Chicago Law Review* (2003): 1159-1202.
- Sunstein, Cass R. "Forcing People To Choose Is Paternalistic" *Missouri Law Review, Symposium on Libertarian Paternalism*. (Forthcoming). <http://dx.doi.org/10.2139/ssrn.2862694/>.
- Sunstein, Cass R. "The ethics of nudging." *Yale J. on Reg.* 32 (2015): 413.
- Suter, Renata S., and Ralph Hertwig. "Time and moral judgment." *Cognition* 119, no. 3 (2011): 454-458.
- Swindell, J. S., Amy L. McGuire, and Scott D. Halpern. "Beneficent persuasion: techniques and ethical guidelines to improve patients' decisions." *The Annals of Family Medicine* 8, no. 3 (2010): 260-264.



- Tai-Seale, M., Y. Yang, E. Dillon, S. Tapper, S. Lai, P. Yu, H. Allore, and C.S. Ritchie. "EARLY UPTAKE OF NEW US CENTER FOR MEDICARE AND MEDICAID SERVICES' ADVANCE CARE PLANNING PAYMENT." *Innovation in Aging* 1, suppl (2017): 112.
- Tao, Guoyu, Bernard M. Branson, William J. Kassler, and Robin A. Cohen. "Rates of receiving HIV test results: data from the US National Health Interview Survey for 1994 and 1995." *JAIDS Journal of Acquired Immune Deficiency Syndromes* 22, no. 4 (1999): 395-400.
- Teno, Joan M., Pedro L. Gozalo, Susan L. Mitchell, Sylvia Kuo, Ramona L. Rhodes, Julie P.W. Bynum, and Vincent Mor. "Does feeding tube insertion and its timing improve survival?" *Journal of the American Geriatrics Society* 60, no. 10 (2012): 1918-1921.
- Thaler Richard, H., and Cass R. Sunstein. "Nudge: Improving decisions about health, wealth, and happiness." (2008).
- Thaler, Richard H., and Cass R. Sunstein. "Libertarian paternalism." *The American Economic Review* 93, no. 2 (2003): 175-179.
- Thaler, Richard H., and Shlomo Benartzi. "Save more tomorrow™: Using behavioral economics to increase employee saving." *Journal of Political Economy* 112, no. S1 (2004): S164-S187.
- Thaler, Richard. "Toward a positive theory of consumer choice." *Journal of Economic Behavior & Organization* 1, no. 1 (1980): 39-60.
- "The behavioral backdrop to financial incentives" *The Nudge*, March 16, 2011.  
<http://nudges.org/2011/03/16/the-behavioral-backdrop-to-financial-incentives/>.
- Timmermans, Stefan. "Death brokering: constructing culturally appropriate deaths." *Sociology of Health & Illness* 27, no. 7 (2005): 993-1013.
- Towey, Jim. "Five wishes." 1997. <http://www.agingwithdignity.org/forms/5wishes.pdf/>.
- Traber, Maret G. "Does vitamin E decrease heart attack risk? Summary and implications with respect to dietary recommendations." *The Journal of Nutrition* 131, no. 2 (2001): 395S-397S.
- Trautmann, Stefan T., Ferdinand M. Vieider, and Peter P. Wakker. "Causes of ambiguity aversion: Known versus unknown preferences." *Journal of Risk and Uncertainty* 36, no. 3 (2008): 225-243.
- Treadwell, Jonathan R., and Leslie A. Lenert. "Health values and prospect theory." *Medical Decision Making* 19, no. 3 (1999): 344-352.
- Truog, Robert D., Margaret L. Campbell, J. Randall Curtis, Curtis E. Haas, John M. Luce,

- Gordon D. Rubenfeld, Cynda Hylton Rushton, and David C. Kaufman. "Recommendations for end-of-life care in the intensive care unit: a consensus statement by the American College of Critical Care Medicine." *Critical Care Medicine* 36, no. 3 (2008): 953-963.
- Tsai, Gawin, and Donald H. Taylor. "Advance care planning in Medicare: an early look at the impact of new reimbursement on billing and clinical practice." *BMJ Supportive & Palliative Care* (2017): bmjspcare-2016.
- Tuller, David. "Medicare Coverage For Advance Care Planning: Just The First Step." *Health Affairs* 35, no. 3 (2016): 390.
- Tversky, Amos, and Daniel Kahneman. "Availability: A heuristic for judging frequency and probability." *Cognitive Psychology* 5, no. 2 (1973): 207-232.
- Tversky, Amos, and Daniel Kahneman. "Extensional versus intuitive reasoning: The conjunction fallacy in probability judgment." *Psychological Review* 90, no. 4 (1983): 293.
- Tversky, Amos, and Daniel Kahneman. "Judgment under uncertainty: Heuristics and biases." *Utility, Probability, and Human Decision Making*. Springer Netherlands, 1975.
- Tversky, Amos, and Daniel Kahneman. "Loss aversion in riskless choice: A reference-dependent model." *The Quarterly Journal of Economics* 106, no. 4 (1991): 1039-1061.
- Ubel, Peter A. "Beyond costs and benefits: understanding how patients make health care decisions." *The Oncologist* 15, Supplement 1 (2010): 5-10.
- Van Den Einden, Loes Cg, Joanna A. de Hullu, Leon F.A.G. Massuger, Johanna M.M. Grefte, Peter Bult, Anna Wiersma, Adriana C.H. van Engen-van Grunsven, et al. "Interobserver variability and the effect of education in the histopathological diagnosis of differentiated vulvar intraepithelial neoplasia." *Modern Pathology* 26, no. 6 (2013): 874.
- Veatch, Robert M. "Doctor does not know best: why in the new century physicians must stop trying to benefit patients." *The Journal of Medicine and Philosophy* 25, no. 6 (2000): 701-721.
- Venneman, S. S., P. Narnor-Harris, M. Perish, and M. Hamilton. "'Allow natural death' versus 'do not resuscitate': three words that can change a life." *Journal of Medical Ethics* 34, no. 1 (2008): 2-6.
- Verkerk, Marian. "A Care Perspective on Coercion and Autonomy." *Bioethics* 13, no. 3- 4 (1999): 358-368.
- Volandes, Angelo E., Michael K. Paasche-Orlow, Susan L. Mitchell, Areej El-Jawahri, Aretha Delight Davis, Michael J. Barry, Kevan L. Hartshorn, et al. "Randomized controlled trial of a video decision support tool for cardiopulmonary resuscitation decision making in

- advanced cancer." *Journal of Clinical Oncology* 31, no. 3 (2012): 380-386.
- Volandes, Angelo E., Michael J. Barry, Yuchiao Chang, and Michael K. Paasche-Orlow. "Improving decision making at the end of life with video images." *Medical Decision Making* 30, no. 1 (2010): 29-34.
- Volandes, Angelo E., Michael K. Paasche-Orlow, Michael J. Barry, Muriel R. Gillick, Kenneth L. Minaker, Yuchiao Chang, E. Francis Cook, et al. "Video decision support tool for advance care planning in dementia: randomised controlled trial." *BMJ: British Medical Journal* 338 (2009).
- Volpp, Kevin G., and David A. Asch. "Make the healthy choice the easy choice: using behavioral economics to advance a culture of health." *QJM: An International Journal of Medicine* 110, no. 5 (2017): 271-275.
- Volpp, Kevin G., Andrea B. Troxel, Mark V. Pauly, Henry A. Glick, Andrea Puig, David A. Asch, Robert Galvin, et al. "A randomized, controlled trial of financial incentives for smoking cessation." *The New England Journal of Medicine* 360, no. 7 (2009): 699-709.
- Volpp, Kevin G., Leslie K. John, and Andrea B. Troxel. "Financial incentive-based approaches for weight loss: a randomized trial." *JAMA* 300, no. 22 (2008): 2631-2637.
- Wallsten, Thomas S. "Physician and medical student bias in evaluating diagnostic information." *Medical Decision Making* 1, no. 2 (1981): 145-164.
- Ward, Brian W., and Jeannine S. Schiller. "Peer Reviewed: Prevalence of Multiple Chronic Conditions Among US Adults: Estimates From the National Health Interview Survey, 2010." *Preventing Chronic Disease* 10 (2013).
- Warren, Danielle E., and Kristin Smith-Crowe. "Deciding what's right: The role of external sanctions and embarrassment in shaping moral judgments in the workplace." *Research in Organizational Behavior* 28 (2008): 81-105.
- Wason, Peter C., and Jonathan St. B.T. Evans. "Dual processes in reasoning?" *Cognition* 3.2 (1974): 141-154.
- Weaver-Catalana, Bernadette. "The Battle for Baby Jessica: A Conflict of Best Interests." *Buff. L. Rev.* 43 (1995): 583.
- Wedell, Douglas H., and Ulf Böckenholt. "Contemplating single versus multiple encounters of a risky prospect." *The American Journal of Psychology* (1994): 499-518.
- Weinstein, Sharon M., Lila F. Faux, Jack I. Thornby, Ronald J. Lorimor, C.S. Hill, Debbie M. Thorpe, and Joseph M. Merrill. "Physicians' attitudes toward pain and the use of opioid analgesics: results of a survey from the Texas Cancer Pain Initiative." *Southern Medical Journal* 93, no. 5 (2000): 479-487.

- Wells, Karen. "Narratives of liberation and narratives of innocent suffering: The rhetorical uses of images of Iraqi children in the British press." *Visual Communication* 6, no. 1 (2007): 55-71.
- Wennberg, John E., Elliott S. Fisher, David C. Goodman, and Jonathan S. Skinner. "Tracking the care of patients with severe chronic illness." *The Dartmouth Atlas of Health Care*. The Dartmouth Institute for Health Policy & Clinical Practice, 2008. 1-174.
- Wennberg, John E., Elliott S. Fisher, Therese A. Stukell, Jonathan S. Skinner, Sandra M. Sharp, and Kristen K. Bonner. "Use of hospitals, physician visits, and hospice care during last six months of life among cohorts loyal to highly respected hospitals in the United States." *BMJ* 328, no. 7440 (2004): 607.
- Whaley, Bryan B., and Austin S. Babrow. "Analogy in persuasion: Translator's dictionary or art?" *Communication Studies* 44, no. 3-4 (1993): 239-253.
- Wheeler, David C., Konrad M. Szymanski, Amanda Black, and David E. Nelson. "Applying strategies from libertarian paternalism to decision making for prostate specific antigen (PSA) screening." *BMC Cancer* 11, no. 1 (2011): 148.
- Wild, Katharine Winifred. *Intuition*. Cambridge University Press, 2014.
- Wilkinson, Dominic, and Julian Savulescu. "A costly separation between withdrawing and withholding treatment in intensive care." *Bioethics* 28, no. 3 (2014): 127-137.
- Wilkinson, T. Martin. "Nudging and manipulation." *Political Studies* 61, no. 2 (2013): 341-355.
- Wilson, Timothy D., and Daniel T. Gilbert. "Affective forecasting." *Advances in Experimental Social Psychology* 35 (2003): 345-411.
- Winter, Laraine, and Barbara Parker. "Current health and preferences for life-prolonging treatments: An application of prospect theory to end-of-life decision making." *Social science & Medicine* 65, no. 8 (2007): 1695-1707.
- Wolpe, Paul Root. "The triumph of autonomy in American bioethics: a sociological view." *Bioethics and Society: Constructing the Ethical Enterprise* (1998).
- Wood, Robert E. "Task complexity: Definition of the construct." *Organizational Behavior and Human Decision Processes* 37, no. 1 (1986): 60-82.
- Wroe, Abigail L., and Paul M. Salkovskis. "Causing harm and allowing harm: A study of beliefs in obsessional problems." *Behaviour Research and Therapy* 38, no. 12 (2000): 1141-1162.
- Yadav, Kuldeep N., Nicole B. Gabler, Elizabeth Cooney, Saida Kent, Jennifer Kim, Nicole

Herbst, Adjoa Mante, Scott D. Halpern, and Katherine R. Courtright. "Approximately One In Three US Adults Completes Any Type Of Advance Directive For End-Of-Life Care." *Health Affairs* 36, no. 7 (2017): 1244-1251.

Yolton, John W. *John Locke & Education*. New York: Random House, 1971.

Zier, Lucas S., Peter D. Sottile, Seo Yeon Hong, Lisa A. Weissfield, and Douglas B. White. "Surrogate Decision Makers' Interpretation of Prognostic Information: A Mixed-Methods Study." *Annals of Internal Medicine* 156, no. 5 (2012): 360-366.

Zikmund-Fisher, Brian J., Brian J. Zikmund-Fisher, Paul D. Windschitl, Nicole Exe, and Peter A. Ubel. "'I'll do what they did': Social norm information and cancer treatment B. decisions." *Patient Education and Counseling* 85, no. 2 (2011): 225-229.

Zimmerman, Jack E., Douglas P. Warner, Elizabeth A. Draper, & William A. Knaus. "Evaluation of acute physiology and chronic health evaluation III predictions of hospital mortality in an independent database." *Critical Care Medicine* 26, no. 8 (1998): 1317-1326.

Zolnierek, Cindy Diamond. "Coercion and the mentally ill: Ethical perspectives." *Journal of the American Psychiatric Nurses Association* 13, no. 2 (2007): 101-108.

## REFERENCES