

**Toward a Positive Medicine
Healing our Healers, from Burnout to Flourishing**

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University of Pennsylvania

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Advisor: Leona Brandwene

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Abstract

It is estimated that between 25-75% of physicians suffer from burnout. Symptoms of emotional exhaustion, depersonalization, and a low sense of personal accomplishment afflict physicians as early as medical school, into residency training, and throughout medical practice, with potential consequences for patient healthcare outcomes, public health, and the costs of our health system. While medical institutions can do more to support physician, trainee, and medical student self-care, physicians cannot wait for institutional change in order to pursue well-being. A construct for physician flourishing is proposed, borrowing from and building off of prior validated constructs of psychological and physical well-being. This proposed model, known as REVAMP, focuses on six elements that comprise physician flourishing. Specific interventions to improve each of these elements are proposed that may be used by the individual practitioner, in formal medical education settings, or by practicing physicians in continuing medical education programs. Waiting to intervene until physicians are burned out and suffering has high costs; proactive approaches such as those suggested within REVAMP can be adopted as early as undergraduate medical school education to help physicians-in-training cultivate optimal well-being. Flourishing physicians deliver the highest quality patient care. It is time to help our healers flourish.

Keywords

Physician burnout, Flourishing, Medical Education, Relationships, Engagement, Vitality, Accomplishment, Meaning, Positive Emotions

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practitioners. You magnify my enthusiasm while keeping me grounded, and have inspired my quest to intervene on health “from cell to society.” So much of what you have shown me has turned into the basis of this paper and my future work as a medical student and researcher. I look forward to learning from you for many years to come.

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Preface

As a 23-year-old almost Master of Applied Positive Psychology graduate (pending the acceptance of this capstone), matriculating to medical school in a few short weeks, I currently maintain wide eyes, a beginner's mind, and a sense of purpose and idealism that will guide me through this next phase of my professional life. Equipped with knowledge of positive psychology and still unfettered by the sleep deprivation, accruing student loan interest, and institutional barriers that prevent so many physicians from prioritizing their own health and well-being, I am uniquely positioned to assess and intervene on a system in need of healing.

Spending the past year studying the human condition, the things that make life most worth living, and what it means to flourish, while simultaneously working within a large health system and engaging in deep discussions with as many physicians as I possibly could, I became acutely aware of many problems that exist within our current medical system, yet optimistic about ways that small changes can make a large positive impact. While I have many thoughts about how medicine can become a more positive discipline altogether—focusing on *health* instead of just the treatment of disease within medicine, providing incentives for everyone to see a primary care provider annually, integrating more telemedicine and at-home care platforms into healthcare to improve access, among many others—I believe the most natural place to begin is within the lives of physicians, residents, and medical students. As a future doctor myself, I am struck by the question “how will I be able to deliver the highest quality patient care, if I am suffering? Isn't it the duty of every physician to take the best care of his or herself so that they may be in the best position to treat patients?” Unfortunately, many physicians are burned out, certainly not thriving, and struggling to find the meaning and joy in their work that the profession seems to promise. However, it does not need to be this way.

Accordingly, this paper is about promoting flourishing among doctors; it is about re-igniting physicians with the passion they felt for medicine when they applied to medical school as premedical students; it is about equipping medical students, trainees, and practicing physicians with the resources they need to promote a complete state of psychological and physical well-being within themselves, so that they may champion these ideals for their patients.

We all have choices about how we will lead our lives—whether we will languish, simply exist, or flourish, enjoying the beauty and wonders of our careers in medicine. I urge all physicians and those in training to choose a path of flourishing and work diligently toward your own well-being. You will be a better doctor and person because of it. Hopefully, the research found in the following pages will help you on your journey.

I cannot wait to embark on my medical career through the lens “positive medicine,” practicing self-care in pursuit of my own flourishing, and engaging my medical school peers and future patients to do the same.

“That physician will hardly be though very careful of the health of his patients if he neglects his own.”

Galen 130-200 A.D.

(as cited in Wallace, Lemaire & Ghali, 2009).

PART 1: HEALING OUR HEALERS

Introduction

Our healers are in need of healing themselves. Despite great progress in our scientific understanding of interventions designed to treat disease and promote health, many physicians, trainees, and medical students are losing sight of their own well-being. While the problem of physician distress has appeared in the medical literature for over 20 years (Ramirez et al., 1995; Lemkau, Rafferty, & Gordon, 1994), emerging threats to physician wellness are on the rise. These include, but are not limited to, increasing regulatory burdens of documentation, reporting, and monitoring for physicians, increased managerial and cost controls by government agencies, a rise in managed care organizations, which shifts an increasing share of the financial risk for patient outcomes on physicians, and declines in physician income and autonomy (Wallace et al., 2009). Further, doctors frequently work in emotionally-charged situations, often surrounded by suffering, fear, and frequent failure, and difficult personal interactions with patients, families, and other medical professionals. Excessive cognitive demands and fatigue associated with working shifts as long as 24 hours may further detrimentally affect work quality and physician well-being (Wallace et al., 2009). Additionally, some physicians and trainees may face emotional scars from tensions within what some doctors call a “hidden curriculum” where physicians learn to value expertise and reductionism over whole-person care, embrace independence and invulnerability over teamwork and collaboration, and remain silent when communications with patients are inadequate, when team members are treated with disdain or disrespect, and when deviations from quality care occur (Paolini & Greenawald, 2016, p. 4).

When not constructively mitigated, all of these factors can lead to burnout, a syndrome of emotional exhaustion, depersonalization, and a sense of low personal accomplishment, which

affects physician's relationships to their work (Maslach & Jackson, 1981). Burnout is associated with depression, anxiety, and substance abuse, decreased effectiveness at work, decreased career satisfaction, broken relationships, and not surprisingly, suboptimal patient care. Burnout is estimated to affect between 25-75% of all physicians. Suicide rates for physicians are estimated to be six times greater than the general population, cardiovascular mortality is higher than average, and approximately 8-12% of practicing physicians are expected to develop a substance-abuse disorder at some point in their career (Wallace et al., 2009). National studies find that doctors at the front lines of care, including family medicine physicians, general internists, and emergency medicine doctors are at the highest risk for burnout (Shanafelt et al., 2012).

Although most studies measure burnout among practicing physicians, burnout is said to begin as early as medical school and residency training, with young physicians reporting nearly twice the prevalence of burnout as their older colleagues (Schernhammer, 2005; Cohen & Patten, 2005). Suicide rates among medical school students are much higher than rates in the age-matched overall population, a gap driven primarily by female medical students, who have the same suicide rates as male students, whereas suicide rates in general population are much higher among men (Schernhammer, 2005). Additionally, 17% of medical residents rated their mental health as fair or poor, which is more than double that of the general population. Sadly, 22% of physician residents beginning their medical careers reported that they would not pursue medicine again given the opportunity to relive their careers (Cohen & Patten, 2005).

It is believed that burnout is exacerbated within this population because physicians tend to neglect their own emotional, psychiatric, and medical needs, and are reluctant to seek help from others (Schernhammer, 2005; Wallace et al., 2009; Arnetz, 2001). Despite findings showing that doctors who receive support from colleagues or a spouse are more successful in

achieving wellness, perceived stigma associated with seeking help has been documented as a deterrent for doctors to talk to their colleagues about their own distress (Wallace et al., 2009; Arnetz, 2001). Doctors are also likely to avoid seeking help for problems because of the fear of potential discrimination from medical licensing boards, whose applications include questions about physician's physical health, mental health and substance abuse. While certainly it is not unreasonable to inquire about physician health in these assessments, some boards undertake investigations if physicians report seeking treatment, and these can lead to sanctions irrespective of evidence for impaired functioning (Hampton, 2005). In fact, the culture of the medical profession is increasingly recognized as a key factor preventing doctors from ample self-care.

Aside from the psychological and physical costs incurred on individual physicians, burnout inflicts major financial costs on our health system. Dissatisfied physicians have an increased probability of changing jobs or leaving medicine entirely. It is estimated that the cost of replacing a physician is between \$150,000-\$300,000, when accounting for time taken to recruit, screen, and interview new candidates. This figure does not include additional expenses such as signing bonuses and moving and promotion costs (Wallace et al., 2009). At the organizational level, physician burnout is associated with increased absenteeism, job turnover, early retirement, a higher probability of ordering unnecessary procedures and lab tests, as well as reduced practice revenue and time with patients (Linzer et al., 2001). In a two-year longitudinal study that assessed the effect of 196 physician's job satisfaction and practice characteristics on the care and outcomes of over 20,000 patients with diabetes, hypertension, and heart disease, a physician's overall job satisfaction had a positive effect on patient adherence to treatment and effective management of chronic disease (di Matteo et al., 1993). In another study, more dissatisfied physicians tended to have riskier prescribing profiles and less adherent and less

satisfied patients (Williams & Skinner, 2003). Medical students and physicians who themselves have poor personal health profiles are less likely than healthier physicians to conduct evidence-based screening or recommend healthy lifestyle counseling for things like alcohol abuse to their patients (Cornuz, Ghali, Di Carantonio, Pecoud, & Paccaud, 2001; Frank, Elon, Naimi, & Brewer, 2008). This evidence indicates that physician wellness may be an important indicator of patient satisfaction and adherence to treatment.

During his tenure at the Institute for Healthcare Improvement, Berwick asserted that the healthcare “triple aim” includes 1) enhancing patient outcomes of care, 2) improving population health, and 3) reducing costs (Berwick, Nolan, & Whittington, 2008). In order to meet these aims, I posit, and many in the medical field certainly agree, that physicians must first themselves be in a position to heal rather than simply survive. Therefore, it is absolutely essential that medical care, beginning as early as undergraduate medical education, prioritize physician and student well-being, above and beyond the reduction of burnout. If not, to reach this triple aim will remain an elusive aspiration rather than a concrete reality of our healthcare system (Paolini & Greenawald, 2016).

Positive Psychology and Physician Well-being

Although the World Health Organization (WHO) defines health as a state of “complete positive physical, mental, and social well-being” (World Health Organization, 1946), medicine defines health more narrowly as the absence of disease. This definition comprises what is known as the disease model, or the medical model, or sometimes the biomedical model of health (St. Claire, Watkins, & Billingham, 1996; McClintock, Dale, Laumann, & Waite, 2016). The medical model, which is based in organ system malfunction and dates back to the 1910 Flexner Report, largely ignores a notion of health that includes the presence of physical, psychological,

and social well-being (McClintock et al., 2016; Flexner, 1910). One reason for this may be because the healthcare system of the early 20th century was built to address a pathogenic crisis in which life was shorter, nastier, and more brutish (Keyes, 2007). Further, the epidemiological transition that occurred throughout the 20th century, which increased life expectancy for Americans at birth by 30 years, lacked any accompanying paradigm shift in medical practice to ensure that the quality of our lives was increasing as well (Keyes, 2007). It would make sense then that physicians, still operating under a disease model today, orient their own thinking about wellness as the absence of burnout or psychological stress (Shanafelt, Sloan, & Haberman, 2003). However, psychological and physical well-being extend beyond the mere absence of disease or malaise. Rather, psychological well-being includes the presence of positive psychological strengths including optimism, future-mindedness, perseverance, resilience, and achieving success in various aspects of personal and professional life, to name a few (Shanafelt et al., 2003, Seligman & Csikszentmihayli, 2000). These factors both buffer against and prevent psychological disorders such as depression and burnout, and importantly also promote a state entirely distinct from the absence of disease known as flourishing (Seligman, 2011; Keyes, 2002). Physical well-being or vitality may be thought as the presence of positive subjective, biological, and functional health. This includes possessing the energy, strength, and stamina to do day-to-day tasks with vigor, positive physiological and body system functioning, as well as an optimal state of adaptation between one's bodily function and the positive physical requirements of one's chosen lifestyle (Seligman, 2008).

It was this understanding, that well-being constitutes something beyond the mere absence of disease or mental illness, that facilitated a paradigm shift within the field of psychology nearly two decades ago. In 1998, Dr. Martin Seligman dedicated his American Psychological

Association (APA) presidential address toward ushering in an era of psychology that “seeks to understand and nurture those human strengths that can prevent the tragedy of mental illness” (Seligman & Csikszentmihayli, 2000; Seligman, 1998). He argued that despite unprecedented access to education and healthcare, greater economic stability and longer lifespans, we find ourselves in the midst of an epidemic of mental health issues around the world (Seligman & Csikszentmihayli, 2000). Although we are living longer with more resources than ever before, America in the 20th century has experienced a threefold increase in teen suicide, more anxiety and depression among adults, and more lifestyle and stress-related chronic conditions. In other words, he exposed the fact that living longer—the gold standard of population health—does not mean that we are living better (Seligman & Csikszentmihayli, 2000; Keyes, 2007). Seligman called to his colleagues in scientific psychology to seek a balanced and empirically-grounded body of research that would augment the notion of human nature from one of suffering, weakness, and disorder to include things like virtues, character strengths, and the social, biological, and psychological factors that would enable humans to flourish (Keyes & Haidt, 2002). Positive psychology, a direct result of Seligman’s tenure as president of the APA, therefore, is the “scientific study of what goes right in life, from birth to death and all stops in between...residing somewhere in the part of the human landscape metaphorically north of neutral” (Peterson, 2006, p. 10).

Preceding this shift toward a positive psychology, the field of psychology in the years since World War II had focused primarily on an understanding of clinical pathology and how to alleviate human suffering, akin to the practice of medicine today (Keyes & Haidt, 2003; Seligman, 2011). With soldiers returning from war with diagnoses like “shell shock” and “combat fatigue,” our nation was in need of healing, and research in the science of psychology

became concentrated in the direction of pathology (Seligman, 2011; Peterson, 2006). Widely-accepted classification manuals such as the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* and the *International Classification of Diseases (ICD)* that outline hundreds of mental disorders, and are still widely used today, proliferated a worldview of human nature as one fraught and defined by fragility and disease (Peterson, 2006). Psychologists looking to prevent these serious mental illnesses, however, discovered that the disease model was insufficient for this aim; rather, major strides in prevention had actually come largely from systematically building competency rather than correcting weakness (Seligman & Csikszentmihayli, 2000). Additionally, an exclusive focus on personal weakness and damage is not only insufficient for treating illness, but it also forgoes the possibility of understanding how the factors that make life most worth living such as optimism, hope, vital engagement, community involvement, etc., can also reduce psychological suffering where even Prozac and psychotherapies have failed (Seligman & Csikszentmihayli, 2000; Peterson 2006; Keyes & Haidt, 2003). Since Seligman's address to the APA in 1998, the field of positive psychology has exploded with several thousand researchers all over the world studying the pathways to optimal human flourishing (Seligman, 2011).

Despite the burgeoning research and practice in the realm of positive psychology, the notion of human flourishing or optimal health is still mostly absent from medical practice. There exists no field of "positive medicine," that like positive psychology, would aim to cultivate a state of complete health and well-being, above and beyond the worthy goal of curing disease, the current aim of mainstream medical practice (Shanafelt et al., 2003; McClintock et al., 2016). This missing piece of cultivating well-being holds immense promise for the healing and helping of many of our physicians who are currently languishing, as well as the patients whom they treat.

Throughout this paper, I discuss the role that positive psychology principles and interventions hold to positively impact our physicians and the medical field more broadly. It is my aim that the introduction of this knowledge, which emphasizes the pursuit of well-being and self-care among physicians, will prevent medical students and practitioners from defaulting to the unfortunate status quo that includes burnout, silent suffering, and the tacit dismissal of the psychological and physical well-being of our healers.

More broadly and beyond this paper, the goal of my life's work as a future physician is to help initiate and be part of this paradigm shift within the field of medicine, paralleling that which occurred in psychology two decades ago. In this vision, the practice of self-care and the pursuit of well-being among doctors is a norm and medical institutions and educational systems support physician, trainee, and medical student well-being on par with and in service to patient care. By enabling our doctors to flourish, we can most effectively enhance patient outcomes, improve population health, and reduce the immense costs of our health system.

Beyond the Medical Model: Comprehensive Theories of Well-being

The aim of this paper is to propose approaches that can reduce burnout and promote physician flourishing, or well-being. We have defined burnout as a syndrome of emotional exhaustion, depersonalization, and a sense of low personal accomplishment, which affects physician's relationships to their work (Maslach & Jackson, 1981). We now turn to defining well-being. Well-being is a construct and cannot be reduced to any single indicator or aspect of behavior. Thus, models of well-being explored in the literature all contain several components, each of which can be measured and contributes to, rather than wholly defines, well-being (Seligman, 2011). We will explore the prevailing theoretical and empirical models of well-

being, and then propose a comprehensive theory of well-being for medical practitioners that can be effectively operationalized and delivered in a medical context.

Throughout the history of scholarship on well-being, the notion of well-being has been conceived in a variety of forms. In 1958, Jahoda developed her theory of *Ideal Mental Health*, a theory that stemmed from an analysis of researchers' thoughts about positive mental health, and posited, "the absence of mental illness is not a sufficient indicator of mental health" (Jahoda, 1958, p. 15). Jahoda hypothesized there were six criteria or empirical indicators that comprise well-being, including **1) a positive attitude toward the self, 2) personal growth, development, and self-actualization, 3) integration or synthesis of psychological function that helps resist stress, 4) autonomy, 5) an accurate perception of reality, and 6) environmental mastery** (Jahoda, 1958). This theory, while never empirically validated, emphasized that scientists should strive for more scientific methodologies, including scales and metrics for each criterion. Researchers in psychology subsequently developed scales to measure social indicators of psychological well-being such as positive affect, life satisfaction, and perceived stress (Ishizuka, 1988; Ryff, 1989). These included scales such as the Affect Balance Scale (Bradburn & Caplovitz, 1965), the Life Satisfaction Index (Neugarten, Havinghurst, & Tobin, 1961), the Self-Esteem Scale (Rosenberg, 1965), and the Zung Depression Scale (as cited in Ryff, 1989).

Initial results from the use of these metrics found that life factors such as being married and having children were the greatest indicators of positive affect and life satisfaction (Campbell, 1976; Diener, Suh, Lucas, & Smith, 1999). Similarly, a 1980 study conducted on happiness among a large sample of Americans found that the single most important predictor of happiness was the presence of a close, loving relationship with another person, followed by work satisfaction (Ishizuka, 1988). These findings, as well as Jahoda's assertion that well-being cannot

be defined by social influences alone, sparked Dr. Yukio Ishizuka of Harvard Medical School to develop his own model of well-being (Diener et al, 1999; Jahoda, 1958; Ishizuka, 1988). This model, known as the *Lifetrack Model of Positive Mental Health*, integrates Ishizuka's Eastern schema with his Western medical training as a psychiatrist and includes three broad criteria for well-being: **1) the search for self, 2) the need for intimacy, and 3) the quest for achievement.** By the self, Ishizuka refers to the ability and willingness to be "in touch," "at peace," and "in control," of one's own thoughts, feelings, and actions. This requires individuals to recognize and accept both the positive and negative elements in life, integrating them in a balanced perspective (Ishizuka, 1988). Intimacy has to do with the three dimensions of couple relationships including the intellectual/social, emotional, and physical/sexual dimensions, as well as relationships with parents, children, friends, God, or the universe. Achievement is the capacity to reach beyond the self through productive, constructive, and creative expressions of one's capacities.

At around the same time that Ishizuka was creating his *Lifetrack Model*, Carol Ryff was engaging in a systematic review of theories on optimal psychological functioning. Recognizing many points of convergence in prior theories, Ryff (1989) identified and subsequently operationalized six broad facets of well-being. Five of six of these criteria map precisely onto Jahoda's (1958) classification and include: **1) self-acceptance, 2) positive relationships with others, 3) autonomy, 4) environmental mastery or competence, 5) purpose in life, and 6) a sense of personal growth.** In the creation of her six-facet model and scales, Ryff expanded our capacity to measure important theoretical elements of well-being including positive relations with others, meaning and purpose in life, autonomy, and personal growth that were previously absent from the empirical arena. Ryff's Scale of Psychological Well-being is now the most widely used measure of positive psychological functioning (Ryff 1989; Huppert, 2009).

Updating his theory of Authentic Happiness (Seligman, 2002), a founding father of positive psychology, Dr. Martin Seligman, came up with a revised theory of human flourishing which he calls well-being theory (Seligman, 2011). Elements were selected if they met the following three criteria: it contributes to well-being, many people pursue it for its own sake (not as a means to any of the other elements), and it is defined and measured independently of the other elements (Seligman, 2011). This model includes: **1) positive emotion, 2) engagement, 3) positive relationships, 4) meaning, and 5) accomplishment.** Positive emotion in this theory refers to ‘feeling good’ and includes subjective well-being variables like pleasure, ecstasy, comfort, warmth, and others (Seligman, 2011). This element is present in each of the aforementioned theories of well-being. Engagement refers to what Csikszentmihalyi (1990) refers to as the “flow” state, which is defined by deep immersion in life’s activities: being one with the music, time passing in unordinary ways, and the loss of self-consciousness while performing the activity (Seligman, 2011, p. 45). This state occurs at the intersection of skill and challenge, often accompanies domains with clear goals and immediate feedback, and results in a natural merging of action and awareness (Csikszentmihalyi, 1990). This is a novel element of the PERMA theory and one that will serve to enhance physician well-being within the workplace, during medical training, and in life outside of the medical setting. Meaning refers to belonging to and serving something beyond the self, similar to Jahoda’s (1958) integration element and Ishizuka’s (1988) intimacy with God or the universe domain. In explaining the accomplishment or achievement domain, Seligman (2011) emphasizes that he includes this element because positive psychology is descriptive rather than prescriptive or normative, and each element reflects what brings well-being to humans and not what one feels *should* bring well-being to humans. The inclusion of this criterion should not be interpreted as an endorsement of the pursuit

of achievement as a sole pathway to well-being, nor that achievement should be pursued at all costs (including at others' expense). Finally, positive relationships are perhaps the crux of the field of positive psychology and Seligman's PERMA theory. Christopher Peterson, one of the founders of positive psychology, pithily summed the field up in the words, "other people matter" (Seligman, 2011; Peterson, 2006). This is also a domain that is pervasive in prior theories of well-being and its ubiquitous nature suggests it will be integral to a model of physician flourishing.

More recently, researchers responding to a growing need for governments to measure well-being, employed a different set of methods to provide a framework of optimal well-being. A 10-item construct was developed by defining the opposites of internationally agreed-upon symptoms of depression and anxiety in the DSM and ICD, and conducting a statistical regression drawing from a large sample data from 43,000 Europeans in 23 countries (Huppert & So, 2013). The domains resulting from this model include: **1) competence, 2) emotional stability, 3) engagement, 4) meaning, 5) optimism, 6) positive emotion, 7) positive relationships, 8) resilience, 9) self-esteem, and 10) vitality**. Strikingly different country profiles resulting from psychometric analyses using this model indicate that cultural differences in well-being certainly exist (Huppert & So, 2013). This model differs from previous constructs largely in its introduction of vitality or energy, and deviates from Ryff's six-factor model by parsing out optimism, resilience, and emotional stability as separate from positive emotion, adding engagement (similar to Seligman's PERMA model), and supplanting the characteristics of self-acceptance, autonomy, and personal growth with self-esteem.

Finally, a newer theory of well-being transcends just psychological flourishing to address overall well-being in "the most important domains of life" such as one's community, workplace,

and economic status (Prilleltensky et al., 2015, p. 200). Prilleltensky and his colleagues at the University of Miami developed the ICOPPE construct, which captures the elements of **1) interpersonal, 2) community, 3) occupational, 4) physical, 5) psychological, and 6) economic well-being**. In this sociological model, interpersonal well-being refers largely to what other models call positive relationships (Ryff, 1989; Seligman, 2011; Huppert & So, 2013) or intimacy with other people (Ishizuka, 1988). Community well-being pertains to the level of satisfaction with one's community or environment. Occupational well-being, a dimension we have not yet seen explicitly in other models, reflects one's satisfaction with his job, vocation, or avocation as determined by individuals themselves (Prilleltensky et al., 2015) and is a critical consideration when exploring well-being among professional practitioners. Physical well-being represents one's satisfaction with overall physical health and wellness, sharing some characteristics with Huppert and So's (2013) vitality measure. This physical health dimension is absent from Seligman's (2011) PERMA model, Ryff's (1989) scales, and most other scales of subjective well-being. However, international research confirms the great importance of physical well-being for overall life satisfaction (Prilleltensky et al., 2015), and this will be especially important among a population of physicians. Psychological well-being encompasses what other models call positive emotion, optimism, resilience (Huppert & So, 2013; Seligman, 2011), self-acceptance (Ryff, 1989), "the self" (Ishizuka, 1988), and positive attitudes toward the self (Jahoda, 1958). Finally, economic well-being has to do with satisfaction with one's financial position, a component also missing from the other models including Ryff's scales, although some may consider economic well-being to fall within Ishizuka's (1988) and Seligman's (2011) achievement elements. Each of the six ICOPPE factors correlate significantly with comparison

measures as well as with overall well-being, indicating that this model holds great promise for practitioners wishing to study and enhance well-being (Prilleltensky et al., 2015).

The following table summarizes these theories of well-being, categorized by researcher and colored in groupings of overlapping or redundant constructs.

Jahoda, 1958	Ishizuka, 1988	Ryff, 1989	Seligman, 2011	Huppert & So, 2013	Prilleltensky et al., 2015
1. Positive Attitude Toward Self	1. The Search for Self	1. Self-Acceptance	1. Positive Emotion	1. Competence	1. Psychological
2. Personal Growth	2a. The Need for Intimacy (w/ people)	2. Positive Relationships	2. Engagement	2. Emotional Stability	2. Community
3. Integration of Psychological Function	2b. The Need for Intimacy (w/ the universe)	3. Autonomy	3. Positive Relationships	3. Engagement	3. Interpersonal
4. Autonomy	3. The Quest for Achievement	4. Environmental Mastery	4. Meaning	4. Meaning	4. Occupational
5. Accurate Perception of Reality		5. Purpose in Life	5. Accomplishment	5. Optimism	5. Economic
6. Environmental Mastery		6. Personal Growth		6. Positive Emotion	6. Physical
<div> <div> ■ Relationship with the self ■ Relationships with others ■ Engagement ■ Physical Health/Vitality ■ Competence/Achievement </div> <div> ■ Meaning/Purpose ■ Positive emotions & Regulation ■ Misc. Psychological measures </div> </div>					◆ Sociological construct of well-being; not directly compared to other Psychological constructs
				7. Positive Relationships	
				8. Resilience	
				9. Self-esteem	
				10. Vitality	

Table 1: Elements Across Six Theories of Well-Being

Unanimously, these theories reflect that flourishing is about both feeling good and doing good: not only feeling pleasant emotion and experiencing hedonic pleasures, but also contributing to the world in positive and constructive ways (Keyes, 2007). Additionally, considering the literature of psychological well-being discussed above, a model to define and measure physician (including medical student) well-being should include social, psychological, and physical well-being (World Health Organization, 1946; McClintock et al., 2016). Thus, I propose a model of physician flourishing, borrowing heavily from these prior theories but tailored for physicians, aptly named “REVAMP.” The REVAMP domains include:

R: Positive Relationships – personal, in the workplace, and with oneself

E: Engagement – being present in the moment, entering flow, practicing mindfulness, and using one’s character strengths at work

V: Vitality/ Physical health – proper exercise, nutrition, and sleep

A: Accomplishment – positive accomplishment: “gritty otherishness”

M: Meaning/ Purpose – feelings of transcendence, boundlessness, and inter-connectedness in personal and professional life

P: Positive Emotions – optimism and resilience

By amassing a body of literature, tools, and exercises that influence each of these areas, this project serves as a set of resources that can be immediately used in multiple settings, including medical school curricula, internship and residency training programs, professional societies, and continuing medical education opportunities for internal medicine, emergency department, and family medicine physicians. These physicians who work at the front lines of patient care are often those that are not only most prone to burnout, but these are also the doctors who interface with the highest number of patients; as such, intervening positively on their well-being can have the greatest impact on helping to heal our health system (Shanafelt et al., 2012). Further, these tools may also be used at the discretion of individual students and practitioners in pursuit of their own well-being or in facilitating interest groups within other medical settings.

In the following section, each element of REVAMP is explored. Detailed exercises for bolstering well-being through each of these domains are found in the appendix to this paper, in a REVAMP User’s Guide.

PART II: REVAMP

Relationships

We turn our attention first to the role that positive relationships serve for physician flourishing. Researchers have concluded that good relationships with others may be the single most important source of life satisfaction and emotional well-being across people of all ages and cultures (Seligman, 2011; Reis & Gable, 2003). Certainly, medical students and physicians are deeply embedded in many networks that have the power to positively or negatively shape experiences within the workplace—these include networks of other medical practitioners at each level of the medical hierarchy including students, residents, and attending physicians, nurses, therapists, administrators, department heads, patients, patient families, and others. Further, medical practitioners go home, after shifts of varying lengths, to those more personal relationships with partners, spouses, children, parents, roommates, etc. where they may receive valuable social support. Finally, one’s relationship with his or herself is defined as a central feature of mental health as well as a characteristic of self-actualization (Ryff, 1989), and therefore may be uniquely leveraged to counter burnout in times of distress in medical training and practice. In this section, I discuss the importance of cultivating positive inter and intrapersonal relationships among medical students and physicians to enhance well-being and counter burnout.

Positive Personal Relationships

Positive interpersonal relationships are central in nearly all modern theories of well-being (Ryff, 1989; Seligman, 2011; Huppert & So, 2013; Prilleltensky et al., 2015). By positive relationships, researchers typically refer to the presence of social support, including “feeling liked, affirmed, and encouraged by intimate friends and family” (Joseph, 2015, p. 2509). To be

effective, social support must come from naturally existing social networks and be defined by mutually caring relationships (Peterson, 2006; Berkman, Glass, Brisette, & Seeman, 2000). Additionally, the most important type of social support is known as perceived support, or the perception that one has supportive others who would be available in a time of need (Gable & Gosnell, 2011). Robust literature on this topic reveals that the presence of social support promotes happiness and positive emotion as well as physical health (Joseph, 2015). Thus, one implication of helping physicians cultivate more positive personal relationships beyond an increase in physician flourishing will be the potential downstream benefits to patient health. If physicians are trained to prioritize personal relationships and pursue social support themselves, they may be more likely to inquire about and promote social connection to their patients.

Several powerful and distinct psychological benefits of close relationships and social support have been observed. These include enhanced positive affect due to the sharing of positive events with close partner known as capitalization (Langston, 1994), increased goal attainment when relationship partners provide supportive responses to personal goals (Feeney, 2004), a reduction in anxiety and depression during stressful times (Fleming, Baum, Gisriel, & Gatchel, 1982), and more positive adjustment to the onset of disease (Holahan, Moos, Holahan & Brennan, 1997; Stone, Mezzacappa, Donatone, & Gonder, 1999). These findings provide promising evidence that during the stressful times of medical training and practice, relying on relationships and seeking social support may be protective against all three elements of burnout (emotional exhaustion, depersonalization, and a sense of low personal accomplishment). Close partners also may help reinforce each other's personal development and ideal self-images. *The Michelangelo phenomenon*, named for Michelangelo who believed it was the sculptor's job to release an ideal figure from a block of stone, states that partners who perceive and treat each

other as their ideal selves actually help one another move toward their ideal selves (Drigotas, 2002; Rusbult, Kumashira, Kubacka, & Finkel, 2009; Gable & Gosnell, 2011, p. 271). Known as “partner affirmations,” these behaviors are associated with both personal well-being and relationship quality (Drigotas, 2002; Rusbult et al., 2009). Thus, possessing a concept of one’s ideal self and sharing that vision with a close partner may move a person toward his or her ideal self-concept and enhance well-being.

Studies demonstrate that relationship quality and social connectedness are also protective of physical health, important knowledge for physicians in their pursuit of their own well-being as well as that of their patients. In a meta-analysis combining data from 148 studies of more than 300,000 people worldwide, researchers found that individuals who had ample social connections had between 50-91% greater survival rates than those with meager connections. Meager connections equaled the effect of smoking 15 cigarettes a day or being alcohol dependent, and doubled the effect of not exercising or being obese, indicating that social relationship factors may be just as important to treat as are risk factors for smoking, diet, and exercise (Holt-Lunstad, Smith, & Layton, 2010; Joseph, 2015). Additionally, seven large-scale longitudinal investigations following thousands of people over several years have revealed that individuals with close relationships with friends, family, co-workers, members of a church, or other support groups are less likely to die prematurely than those with fewer social ties (Cohen, 1988; House, Landis, & Umberson, 1988; Joseph, 2015). Over 50 studies have revealed that social support lowers blood pressure and stress hormones, and other studies reveal that social support buffers immune functioning (Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997). Not surprisingly, conflict-laden relationships do not produce these health benefits. For instance, researchers examining hostile marriages found that hostile partners healed 60% more slowly from wounds

than low-hostility couples, and produced greater proinflammatory cytokine levels (Kiecolt-Glaser et al., 2005). Studies reveal that bad relationships are detrimental to health, and thus, it is better to be single than to be in a low-quality relationship (Barr, Sutton, Simons, Wickrama, & Lorenz, 2016). On the other hand, positive, happy, and supportive marriages have been shown to be conducive to health by improving the quality and length of life (Wilson & Oswald, 2005; Kiecolt-Glaser & Newton, 2001). One study following 50,000 young adults found that unhealthy behaviors such as smoking, drinking, and poor eating dropped precipitously after marriage (as cited by Marano, 1998). In a 70-year-long study conducted at Harvard, researchers found that a good marriage at age 50 predicts aging better than low cholesterol level at 50 (Vaillant, 2002). While relationships can of course be stressful, close and happy long-term relationships more often than not contribute to health and happiness over stress and are quite protective to external stressors (Tay, Tan, Diener, & Gonzalez, 2012).

High quality personal relationships may buffer against stress and bolster health and well-being through several mechanisms. One pathway is through tangible emotional support offered during times of stress (Gable & Gosnell, 2011). Close relationships provide an opportunity to confide painful feelings in others, a support component that has been shown to lessen the toxic and debilitating impact of stressful events (Pennebaker & O'Heeron, 1984). Additionally, social support may serve to help people get the proper healthcare that they need upon the onset of symptoms, and people may eat better and exercise more because their partners support them in adhering to healthy regimens. Ultimately, physicians can take advantage of all of these mechanisms to improve their own well-being and combat burnout. Confiding in loved ones, cultivating and maintaining friendships, setting aside time to be with family and close friends, and getting out of toxic relationships can all be ways to maximize the benefits of our social

support. While medical school, especially the clinical years, and residency training can leave little time to do anything other than work (and sleep whenever possible), prioritizing social connections and engaging in mutual self-improvement with close partners may be some of the best ways to maintain and enhance well-being.

Workplace Relationships & High Quality Connections

As medical students and physicians are deeply tied to many others within the medical context itself, a prioritization of workplace relationships, distinct from that of personal relationships, can uniquely enhance physician well-being and work satisfaction. As many power gradients exist within medicine between students, trainees, and practicing physicians, as well as among members of interdisciplinary teams including doctors, physical therapists, social workers, etc., positive workplace relationships are integral to a healthy workplace, patient safety, and to the well-being of team members.

Literature in the field of positive organizational scholarship, a field devoted to studying positive deviance in the workplace (Cameron, 2003), cites relationships, emotions, and meaning—all elements of REVAMP—as the engines of optimal workplace functioning (Dutton & Glynn, 2008). Researchers describe connections at work as dynamic, living tissue that exists between members of a work environment in which there is mutual awareness (Berscheid & Lopes, 1997; Stephens, Heaphy, & Dutton, 2011). How well this tissue is functioning is marked first by the subjective and emotional experience of each person within the connection, which I will discuss in a later section, and also, the structural features of the connection itself. A body of research devoted to studying High Quality Connections (HQCs), or short-term, dyadic positive interactions at work, reveals that features of HQCs include experienced mutuality or a sense of joint participation and responsiveness, positive regard, and even physiological changes that make

individuals feel more alive (Stephens et al., 2011). The presence of HQCs impacts individual, group, and organizational well-being by improving job satisfaction and commitment to one's work, reducing negative arousal, broadening thinking, enhancing learning, creativity, cooperation, adaptability, and organizational resilience, and even lowering costs associated with work, among others (Dutton & Heaphy, 2003). There are four pathways to building HQCs, which I posit, would be useful in improving physician well-being and reducing burnout. These include practicing: 1) respectful engagement, or engaging with others in a way that sends a message of value and worth, 2) task enabling, or helping to facilitate another's successful performance through deliberate delegation and empowerment of tasks, 3) trusting, or conveying to another person that they will meet expectations and are dependable, and 4) playing, participating in activities with the intention of having fun or, or being playful—a strategy that may not typically be thought of in medicine, but one that might yield benefits to the quality of interpersonal professional relationships (Stephens et al., 2011).

Respectful engagement entails how individuals show esteem, dignity, and care for another person (Stephens et al., 2011). In medicine, in particular for medical students and residents on the wards, respectful engagement can leave something to be desired. A core aspect of teaching within the hospitals is called “pimping,” or the rapid pumping of questions that can range from “thought-provoking and relevant to esoteric and unanswerable” (Khullar, 2016, para. 5). Part of medical teaching culture, pimping reflects one area in which medical trainees experience a great deal of anxiety and reportedly low quality connections with supervisors. While I do not suggest that this practice of pimping be abolished, this is one area in which attending physicians could adopt a spirit of respectful engagement that demonstrates dignity and respect, thereby fostering high quality connections (Stephens et al., 2011).

Research on task enabling reveals that the interpersonal giving of information and emotional support may cultivate perspective taking and gratitude, both of which foster connection quality between individuals in the workplace. When medical practitioners including medical students and trainees receive help in ways that ensure fairness, dignity, and respect, studies show they may be more likely to demonstrate positive responses and an increased commitment to the overall relationship with a resident or attending (Flynn & Brockner, 2003). At the same time, if medical trainees feel that help is being provided to them for some instrumental purpose only, they may be less likely to experience HQCs (Ames, Flynn, & Weber, 2004).

Trusting, a critical pathway for building HQCs, involves a willingness to ascribe good intentions to others and have confidence in other's words and actions. Trusting another on a medical team is particularly crucial to workplace well-being, and may be built by being vulnerable and relying on others to follow through on commitments, sharing resources, seeking other's input, allowing others to exercise influence, using inclusive language, and developing joint goals with team members. Excessive monitoring on others, ignoring another's input, accusing others of bad intent, or acting in a way that is demeaning to a colleague or trainee can diminish trust and undermine connection quality (Dutton, 2014). Of course, physicians must employ practical wisdom in trusting others, especially those whom they supervise, as patient care legitimately warrants intense monitoring to ensure quality care and as part of the learning process. However, employing trust expectations, or a pre-established understanding of what colleagues can and should expect from one another, can be a beneficial way to build trust and develop a high quality connection.

Play, a distinctly human capacity that develops over a person's lifetime (Huizinga, 1950) has been shown to enable connections in workplaces in two important ways. Firstly, play enables

variation in response patterns during interactions, enabling colleagues to learn about each other in way that would be less possible or less likely in non-play mode (Stephens et al., 2011).

Secondly, as in the case of playing games, being fully engaged with colleagues in rules that are unlike reality can encourage more interpersonal risk taking and a loss of self-consciousness, that opens people up to connecting with others (Czikszentmihalyi, 1975; Eisenberg, 1990). Play prepares individuals to cope with and adapt to unique challenges and ambiguities of the continuously-changing world (Brown & Vaughan, 2009). While play would perhaps not be appropriate within the context of a hospital or clinic itself, engaging medical teams in play outside of the workplace, for instance, while on lunch breaks or after the work day, can lead to increased positive connections that may translate back into the workplace.

Ultimately, building high quality connections and infusing principles of positive organizational scholarship in the medical workplace can greatly enhance the well-being of physicians, trainees, medical students and all personnel within this community, and directly combat elements physician burnout. Further, compelling research on the spread of happiness across social networks indicates that enhancing well-being of physicians may have rippling effects across entire health systems and perhaps the population at large. Happiness, health, and well-being are not just functions of individual experience, but are rather, properties of groups of people (Fowler & Christakis, 2008). Therefore, investing resources that effectively bolster well-being and combat physician burnout may yield cascading effects through social networks because of the central role a physician often plays in the healthcare workplace. Understanding this dynamic, relations-based spread of well-being, will be crucial for assessing the impact of interventions aimed at improving physician well-being.

Relationship with the Self

One's relationship to the self is an absolutely crucial feature of mental health and optimal functioning (Ryff, 1989). This section, therefore, focuses on self-compassion, an emerging topic in psychological literature linked with evidence of beneficial intervention outcomes. As medical students and physicians may feel great pressure to exhibit faultless performance, meticulous attention to detail, and high levels of competency in their roles, which have been associated with depression and burnout (Enns, Cox, & Clara, 2005), self-compassion may offer a ready-made set of tools to combat this effect. Self-compassion entails three main components including 1) self-kindness versus self-judgment, 2) common humanity versus isolation, and 3) mindfulness versus over-identification, or the conflation one's identity to include other people, including medical patients (Neff, 2003a, 2003b). Rather than belittling or berating themselves with self-criticism at the face of imperfection, self-compassionate individuals can offer themselves warmth and non-judgmental understanding; instead of feeling isolated at the face of adversity or difficult circumstances, self-compassionate individuals understand that life is filled with struggle and that mistakes are inevitable (Neff, Kirkpatrick, & Rude, 2007). Self-compassion involves taking a balanced approach to negative circumstances and painful feelings, so that these are neither suppressed nor exaggerated (Neff et al., 2007). This approach involves having the right amount of distance from one's emotions so that they may be fully experienced while also subject to mindful objectivity (Neff, 2003b).

Self-compassion has been demonstrated to moderate how people react to distressing events (Ford, Kilbert, Tarantino, & Lamis, 2016). Specifically, higher self-compassion predicts lower reports of sadness and embarrassment in the face of real, remembered, and imagined life events, like losing a patient or being grilled on the hospital floor (Leary, Tate, Adams, Batts

Allen, & Hancock, 2007). Additionally, studies have shown that self-compassion buffers against anxiety in self-evaluative situations, and higher scores on the Self-Compassion scale (Neff, 2016) are negatively associated with self-criticism, depression, anxiety, rumination, thought suppression, and neurotic perfectionism. Similarly, high scores are positively associated with life satisfaction, social connectedness, and emotional intelligence (Neff & Germer, 2013). In an academic context (highly relevant to medical student education), self-compassion has been positively correlated with mastery goals including the joy of learning for its own sake, and negatively correlated with performance goals, including defending or enhancing one's sense of self-worth through academic performances (Neff, Hseih, & Dejitthirat, 2005). These findings were replicated among students who had recently failed a midterm exam, further demonstrating that self-compassionate students have more adaptive ways of coping with failure (Neff et al., 2007). These features of self-compassion may be extremely important for medical students, trainees, and physicians for whom medical errors are inevitable and may also be life-threatening to patients. Additionally, physicians and those in training are frequently subject to both internal and external validation, embarrassing situations on the wards (in regards to pimping), and work in emotionally charged and often difficult circumstances.

Self-compassion offers an appealing alternative to the construct of self-esteem (seen in Huppert & So's (2013) well-being model), which is based in performance evaluation and has been associated with narcissism (Bushman & Baumeister, 1998), distorted self-perceptions (Sedikides, 1993), prejudice (Aberson, Healy, & Romero, 2000), and violence toward others who threaten the ego (Baumeister, Smart, & Boden, 1996). Unlike self-esteem, self-compassion does not require the need to raise oneself up by putting others down (Neff et al., 2007). These findings within the self-compassion literature indicate that teaching strategies of self-compassion to

medical students, trainees, and even practicing physicians may greatly buffer these practitioners against burnout without producing feelings that individuals must out-perform their colleagues. Therefore, enhancing self-compassion may also drive higher quality connections with others in the medical workplace.

Tools for Bolstering Relationships: 3 levels of interventions

In Appendix I Part I are a series of resources designed to help bolster relationships at the three levels discussed in this section, including close personal relationships, workplace relationships, and one's relationship with the self. These include: Active constructive responding (Gable, Reis, Impett, & Asher, 2004), Practicing Gratitude, Practicing Acts of Kindness, Best Possible Selves (Lyubomirsky, 2008), Building High Quality Connections (Dutton, 2003), and exercises to foster self-compassion (Neff, 2003a, 2003b).

Engagement

The second element of the REVAMP model is engagement. While engagement may be defined in a number of ways, engagement here refers to absorption in the present moment and is defined by flow states, mindfulness practice, and using one's unique strengths in everyday life and in the workplace. Engagement through each of these domains is associated with greater satisfaction and sense of purpose with one's work and importantly, higher quality patient care. As with relationships, many of these skills aimed to help practitioners bolster engagement may have significant downstream positive implications for patients as well. In this section, the nature of flow experiences and their importance for personal and professional growth of physicians are described. Additionally, strategies to increase engagement, including mindfulness practice and the use of strengths are discussed.

Flow

Flow is a term to describe the psychological state that accompanies high engagement or optimal human experience (Csikszentmihalyi, 1990). Numerous studies suggest that flow can be experienced in all sorts of activities, at work or play, when there is an optimal balance between skill and challenge (Peterson, 2006; Moneta & Csikszentmihalyi, 1996). Certainly, these experiences can occur, and often do occur, within medical practice. Flow may not actually feel like anything in the moment, as the individual is too immersed within the activity at hand to pay attention to emotions (Seligman, 2011; Csikszentmihalyi, 1997). While people describe flow as highly enjoyable, these are typically retrospective, after-the-fact judgments, defined by a rush of well-being or satisfaction after the experience (Peterson, 2006; Seligman, 2011).

The flow state has the potential to make life and work richer, more intense, and more meaningful. It leads to a complex integration of the self in which thoughts, intentions, feelings, and all of the senses become focused on a single goal (Csikszentmihalyi, 1990). With complete immersion in the task at hand (be it taking a medical history, conducting a physical exam, performing a surgery, participating in rounds, or practicing non-medical activities such as painting, running, doodling, etc.), time moves in unordinary ways and self-consciousness disappears. This is promising for medical students who often report feeling threatened in the company of attending physicians and subsequently become preoccupied with their own self-images (Khullar, 2016). These self-evaluations and feelings of inadequacy can be detrimental, leading to downward spirals of anxiety and contributing to stress and burnout. The flow state, however, leaves no room for self-scrutiny. Rather, one's psychic energy is invested fully in the activity itself—in this case, the interaction with the medical team on the hospital floor—and the medical student may lose his self-consciousness, transcend himself, and expand his identity

(Csikszentmihalyi, 1990). Additionally, for the flow state to occur, an individual must first have a sense that his skills are adequate to cope with the challenges at hand, known as self-efficacy (Bandura, 1977). Therefore, flow may not happen right away for new medical trainees, but rather comes after ample, deliberate practice (which will be discussed in the Accomplishment section of REVAMP). Sadly, individuals who are excessively self-conscious and therefore unable to divert conscious attention away from their insecurities may never be able to enter the flow state (Csikszentmihalyi, 1990).

Further, activities that induce flow must be goal-directed, rule-bound, and within an action system that provides clear feedback as to how the person is doing. For example, a surgeon who makes a cut through a patient's abdomen and sees that there is no blood in an incision knows that his cut has been successful, and when he removes the diseased organ and sews his patient back up, vitals intact, he knows that his task is accomplished (Csikszentmihalyi, 1990). Similarly, a psychiatrist can observe the body language of a distressed patient becoming more at ease throughout the course of an office visit, and a family medicine doctor can witness her patient's blood pressure go down between visits after prescribing a beta blocker. What constitutes feedback may vary depending on the activity (or field of medical specialization), but what matters most is the symbolic message the feedback contains: that one has succeeded in reaching a goal. This type of knowledge creates an order in consciousness and strengthens the structure of the self (Csikszentmihalyi, 1990). An ordered consciousness is the ideal for a physician in flow.

Finally, the flow activity must be intrinsically rewarding such that people are willing to do it for its own sake, rather than in pursuit of future gains (Csikszentmihalyi, 1990). This is known as the autotelic nature of a flow experience. For example, many surgeons say that their

work is so enjoyable that they would do it even if they did not have to. It is this feature of flow that lifts life to a different level. Csikszentmihalyi (1990) describes that in flow, “alienation gives way to involvement, enjoyment replaces boredom, helplessness turns into feeling of control, and psychic energy works to reinforce the sense of self” (p. 134).

As flow is achieved at the optimal level of skill and challenge, it is almost always true that flow activities lead to growth and discovery. Certainly, a person can grow bored or frustrated from doing the same thing at the same level for extended periods of time. Thus, the desire to enjoy oneself again pushes people to stretch skills or to discover new opportunities for using them (Csikszentmihalyi, 1990). For example, the third year medical student who has observed a caesarian section dozens of times in the operating room may grow bored merely watching this surgery again. Seeking deeper engagement, or flow, he may ask a resident or attending physician to help assist next time, taking on a more active role that produces new challenges. Not only will this student most likely be allowed to help and contribute to the surgery next time thereby increasing his engagement in his OB/GYN rotation, but also he will also likely receive a higher grade from his attending physician for his heightened interest and enthusiasm. Explicitly chasing after the flow state, then, may yield deeper engagement for the medical student, a more genuine assessment of whether this field is suitable for further professional pursuit, and result in better graded performance.

Certainly, medical students and physicians who enter flow in their work may experience greater workplace well-being than if they are disengaged; their days might pass more quickly, they may avoid unnecessary self-criticism that gets in the way of effective patient interactions, and they might push themselves to pursue more advanced challenges to be at the top of their professional game. However, flow experiences can be achieved beyond the workplace in other

activities, such as individual hobbies or passions, as well. For instance, playing tennis or golf, cycling, performing in community theater, playing in a band, producing artwork, or whatever it is that an individual enjoys, can provide medical practitioners with great psychological benefits. Finding flow both within physician's work as well as outside in other hobbies may enhance engagement in multiple domains of life, serving to enhance overall well-being and protect against external stressors. Physicians and medical trainees should make time to prioritize flow-inducing activities that are personally meaningful to them outside of work in order to maximize these benefits.

In the following sections, two techniques for increasing engagement and flow for medical students and physicians are proposed. While these sections focus primarily on engagement within the medical landscape, the strategies may certainly be applied to activities outside of medical practice.

Mindfulness Practice

Recent studies demonstrate that “a wandering mind is an unhappy mind,” and being present in the current moment may be crucial for engagement and overall well-being (Killingsworth & Gilbert, 2010, p. 932). While lack of absorption in the present moment in the form of mind-wandering is extremely common across activities from resting to watching television, to speaking with friends, it is especially common in the workplace. Findings from one study reveal that even when individuals are thinking about more pleasant activities than what they are currently doing, people are less happy when their minds wander (Killingsworth & Gilbert, 2010). (Think about that sleep-deprived medical student who scrubbed into a surgery at 4:30 am, daydreaming about going back to sleep when she gets home). Mindfulness, on the other hand, is a practice that maintains awareness in the present moment by disengaging oneself from

strong attachments to beliefs, thoughts, or emotions, thereby developing a greater sense of emotional balance and well-being (Ludwig & Kabat-Zinn, 2008). Mindfulness is defined more specifically as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145). In a commonly-used scale to assess mindfulness, the Langer Mindfulness Scale, the four domains of mindfulness include engagement, our current topic of interest, as well as novelty-seeking, novelty producing, and flexibility (Langer, 2004). These domains describe a person’s openness to experience, willingness to challenge strict categories, as well as continual reassessments of the environment and their reactions to it, qualities that are all extremely important in medicine. Not surprisingly, studies examining the relationship between flow and mindfulness reveal that individuals with the propensity to be mindful are also more likely to enter flow states (Kee & Wang, 2007; Aherne, Moran, & Lonsdale, 2011).

While implicitly, mindfulness has always been a part of good medical practice, through the facilitation of compassionate engagement between physicians and patients (Ludwig & Kabat-Zinn, 2008) mindfulness has also been demonstrated to confer a plethora of other benefits to physicians (Beach et al., 2013). Several studies have revealed that mindfulness-based stress reduction (MBSR) reduces psychological stress and improves well-being of doctors in training (Hassed, de Lisle, Sullivan & Pier, 2009; Rosenzweig, Reibel, Greeson, Brainard, & Hojat, 2003). Other studies have demonstrated that a program teaching mindful communication to practicing physicians reduces burnout, improves physician self-reported well-being, psychosocial orientation, and empathy (Krasner et al., 2009). In addition to improving the personal well-being of physicians, mindfulness may also improve the quality of care delivered to patients (Beach et al., 2013; Epstein, 1999). A mindful orientation with patients may enable physicians to listen

attentively to patient distress, recognize potential errors in their own clinical judgment, refine technical skills, make evidence-informed decisions, clarify values, and act with compassion, technical competence, presence, and insight (Epstein, 1999).

In one observational study of 437 HIV patients treated by 45 clinicians (including 34 doctors, 8 nurse practitioners, and 3 physician assistants), clinicians with high mindfulness scores were more likely to engage in patient-centered communication and display a more positive emotional tone with patients. Patients with more mindful clinicians were also more likely to give their practitioner's high ratings on clinician communication and report overall satisfaction (Beach et al., 2013). In another study of 124 psychiatric inpatients treated by 18 psychotherapy interns, patients of interns who had received mindfulness training performed significantly better on measures of symptom severity compared with patients of interns who did not receive the training (Grepmaier et al., 2007). Researchers propose that this may be due to fewer misdiagnoses among the mindful interns (Groopman, 2007). Medical errors, they suggest, are not typically a result of lack of knowledge, but rather, a result of anchoring biases, attribution errors, and other heuristics. Thus, many cognitive errors may be avoided by the adoption of mindfulness practice (Groopman, 2007).

Several pathways have been proposed to explain the impact of mindfulness on the susceptibility to or ability to recover from disability and disease. These include decreased perception of pain and severity, increased ability to tolerate pain or disability, reduced stress, anxiety, or depression, diminished use and therefore reduced negative side effects of analgesic, anxiolytic, and anti-depressant medications, enhanced ability to reflect on medical decisions and treatment options, improved adherence to treatments, increased motivation for lifestyle changes including diet, physical activity smoking cessation and other behaviors, and others (Ludwig &

Kabat-Zinn, 2008). While some of these pathways have not been empirically studied, mindfulness practice has shown to be effective in decreasing perceived pain among patients with chronic pain (Kabat-Zinn, 1982), enhancing mood disturbance and stress symptoms among cancer patients (Specia, Carlson, Goodey, & Angen, 2000), and treating psoriasis, type 2 diabetes, sleep disturbance, and attention-deficit hyperactivity disorders (Teasdale et al., 2000), as well as eating disorders (as cited in Wansink, Painter, & North, 2005; Proulx, 2008).

In the current medical landscape in which productivity demands of physicians are on the rise, mindfulness practice may hold great promise to help keep physicians in the present moment and enable them to manage difficult emotions and find flow in their work. Mindfulness may also help physicians improve their personal well-being and reduce burnout symptoms more broadly. Finally, mindfulness training may help physicians improve the quality of patient care by reducing medical errors, providing patients with compassion, and tools to prevent and treat disease, cope with pain and chronic illness, and reduce patient stress (Ludwig & Kabat-Zinn, 2008).

Part II of Appendix I includes several activities geared at facilitating mindfulness among medical students and physicians. Importantly, while mindfulness is often believed to be synonymous with meditation, one does not need to meditate to achieve mindfulness. Accordingly, these exercises include both mindfulness meditation and other exercises that may resonate more strongly with non-meditators.

Character Strengths

In addition to flow states and mindfulness, focusing on and building one's unique character strengths is associated with greater psychological well-being (Govindji & Linley, 2007; Proctor Maltby, & Linley, 2009), engagement at work (Harter, Schmidt, & Hayes, 2002), and

work satisfaction (Peterson, Stephens, Park, Lee, & Seligman, 2009). Cultivating character strengths has been associated with great user benefits in a variety of contexts (Biswas-Diener, Kashdan & Minhas, 2011). Research on positive psychotherapy, a recent outgrowth of positive psychology, suggests that attention to strengths in a therapeutic setting is related to greater client outcomes than many of the most commonly-used psychological interventions (Seligman, Rashid, & Parks, 2006). Similarly, within the education context, strengths-based curricula have been associated with increased intrinsic motivation at both the high school and college levels (Louis, 2009). In a study of managers in the United Kingdom, those who focused on performance strengths among their employees saw performance increases of 36.4%, compared with decreases of 26.8% among employees whose managers focused on performance weaknesses (Corporate Leadership Council, 2002). A similar study revealed lower employee turnover in strengths-based work environments (Stefanyszyn, 2007). Additionally, studies have been replicated that show that an intervention designed to help people identify and use their strengths effectively increases happiness and decreases depression up to six months later (Seligman, Steen, Park, & Peterson, 2005; Minhas, 2010). All of this research indicates that focusing on medical student and physician character strengths may yield increased engagement, well-being, and performance in medical training and practice, that have the potential to translate into better patient outcomes and therapeutic gains.

Before strengths can be deliberately cultivated in the medical setting, medical students and physicians must first be able to identify what their unique strengths are. The VIA Classification and VIA Inventory of Strengths are widely used by researchers and practitioners around the world to help people do just that (Niemic, 2013). The VIA Classification was developed by positive psychology researchers as a means to provide a common language for

character strengths and virtues that could be used across all nations and belief systems, even in the most remote areas of the planet (Niemiec, 2013; Biswas-Diener, 2006; Peterson & Seligman, 2004). In addition to the universal nature of character strengths across all cultures, each VIA character strengths is measureable, fulfilling, morally valued, trait-like, and distinctive from other strengths; none diminish others; and all have an opposite, prodigies, paragons who exemplify it, institutions or rituals that express it, and selective absence in some situations (Peterson & Seligman, 2004). The classification contains six virtues—wisdom, courage, humanity, justice, temperance, and transcendence—which correspond with twenty-four character strengths, or pathways to achieving those virtues, which are summarized in Table 2.

The 6 VIA Virtues and 24 Character Strengths					
Wisdom	Courage	Humanity	Justice	Temperance	Transcendence
Creativity	Bravery	Intimacy	Citizenship	Forgiveness	Awe
Curiosity	Persistence	Kindness	Fairness	Humility	Gratitude
Judgment	Authenticity	Social Intelligence	Leadership	Self-regulation	Hope
Love of Learning	Vitality			Prudence	Humor
Wisdom					Spirituality

Table 2: VIA Strengths and Virtues (Peterson & Seligman, 2004)

The VIA Inventory is a free, online measurement instrument tool designed to assess the 24 character strengths that has been used by over a million people around the world (Niemiec, 2013). This tool may help medical students and physicians discover their top character strengths so that these strengths may be exercised in both personal and professional settings to improve engagement and enhance well-being.

After strengths are identified, strengths researchers advocate for a “strengths development” approach (Biswas-Diener et al., 2011). This approach extols interventions

designed to help individuals develop their strengths, such as, “how might you know when you should use this strength more and when you should use it less?” or “what is the impact of your strengths use on others and how does that feedback suggest you might better use your strength?” (Biswas-Deiner et al., 201, pp. 108-109). This approach will be important for doctors, as a balanced expression of character strengths is critical (Niemiec, 2013). As strengths can be overused or underused, helping physicians navigate how to appropriately use strengths in different situations and contexts may be valuable. One arena in which a strengths development approach may be used to enhance workplace engagement and meaning is called “job crafting” (Berg, Dutton, & Wrzesniewski, 2013).

Job crafting is an intervention which may be especially important for cultivating work engagement and satisfaction in a workforce that is experiencing increasing dissatisfaction with work and retiring later in life (Berg et al., 2013; Conference Board, 2010; Johnson, Butrica, & Mommaerts, 2010). This process entails physicians reengineering and re-conceptualizing tasks and relationships at work to become more aligned with strengths, values, and passions (Berg et al., 2013). Through a combination of task, relational, and cognitive crafting (Berg et al., 2013) physicians can employ more of their strengths in their work, cultivating meaningfulness and engagement by leveraging what they are capable of doing well. For example, a physician who discovers that humor and playfulness is among his top VIA strengths might deliberately practice bringing more of that strength into his work as a pediatrician. Cultivating his natural strength of playfulness in his work, an area where he may have been underutilizing this strength, this doctor will likely experience more meaningful interactions with patients and promote patient satisfaction and adherence to recommended treatments. Importantly, over-using humor in patient

interaction may be detrimental, and thus, it is important that this physician practice employing the right combination of strengths to the right degree in the right situations (Niemiec, 2013).

Researchers have created a Job Crafting Exercise tool designed to help people identify opportunities to craft their jobs to better suit their strengths, goals, and passions (Berg et al., 2013). Using this tool with medical students may help these doctors in training to choose specialties or fields more aligned with their strengths and ultimate goals. As described above, using this tool with practicing physicians may help practitioners use more of their strengths in the workplace, revitalizing their relationships to their work from the bottom-up, thereby promoting engagement and helping to counter exhaustion and burnout at work.

Tools for Bolstering Engagement: Flow, Mindfulness, & Character Strengths

Tools for bolstering engagement are found in Part II of Appendix I to this paper. These include: designing a flow experience, guided mindfulness exercises, taking the VIA Inventory, and engaging in Job Crafting exercise.

Vitality

Vitality is what enables people to feel awake, alive, and able to thrive in everyday life. Here, vitality specifically refers to deliberately taking care of one's physical body and mind through regular physical activity, a healthy diet, and ample sleep. As with relationships and engagement, improving physician vitality, and subsequently, physician well-being, although a worthy goal in and of itself, may also have important downstream benefits for the patients whom physicians treat. As so much of medical care entails helping patients to change their habits and make better decisions about health, including diet, exercise, smoking habits, and sleep, physicians who serve as role models for their patients may be more effective at improving their patient's health.

In this section, the robust relationship between the physical body the mind is discussed. As structural factors such as 24-hour long shifts, sleep deprivation, and poor food options in hospitals may prevent physicians from making healthy choices, it is incumbent upon each individual to pursue his or her own vitality in service to physical health, mental health, and optimal patient care.

Physical Activity

Hippocrates, known famously for penning the Hippocratic Oath (Edelstein & Hippocrates, 1943), has also had the following quote attributed to him: “If you are in a bad mood go for a walk. If you are still in a bad mood, go for another walk.” Even in the third century BC, this sage understood the relationship between physical activity and emotional/cognitive states. Despite mounting empirical evidence in support of this relationship, however, physicians today still may be skeptical that physically moving has the power to alter mental states (Ratey & Hagerman, 2008).

Physical activity has been demonstrated to prevent the onset of mental health problems, treat existing mental health problems, improve the quality of life for individuals suffering from chronic pain and mental disability, and uplift the general, non-clinical population (Faulkner, Hefferon, & Mutrie, 2015). By “physical activity,” we refer to any movement of the body resulting in energy expenditure above that of resting level (Faulkner et al., 2015; Caspersen, Powell, & Chistenson, 1985). Although physical activity guidelines suggest that for substantial health benefits, adults need to achieve at least 150 minutes per week of moderate intensity aerobic exercise or 75 minutes per week of vigorous intensity aerobic activity (US Department of Health and Human Services, 2008), the majority of adults do not meet these guidelines (Hallal et al., 2012). Researchers have estimated that physical inactivity across the globe is associated with

6% of the burden of coronary heart disease, 7% of type 2 diabetes, and 10% of breast and colon cancers (Lee et al., 2012). In addition, there is strong evidence that physical activity reduces rates of all-cause mortality, high blood pressure, metabolic syndrome, and falling, increases cardiorespiratory and muscular fitness, improves body mass, body composition, and bodily health, and also improves both depression and cognition. Additionally, in 8,000 adults aged 18-65 years old, exercisers were found to be more satisfied with their lives and happier than non-exercisers (Stubbe, de Moor, Boomsma, & de Geus, 2007). With such vast benefits for both physical and mental health, physical activity may be a great way for physicians to combat burnout and promote their own flourishing.

Studies suggest that both short-term and long-term exercise regimens involving aerobic activity robustly improve performance on tasks that involve executive function such as planning, scheduling, inhibition, and working memory, skills that are absolutely essential for success as a physician (Ratey & Loehr, 2011; Kramer et al., 1999; Colcombe & Kramer, 2003). Several studies have demonstrated that a single bout of exercise, such as thirty minutes of cycling or running, can improve automatic aspects of cognition such as reaction time and speed of information processing (Audiffren, Tomporowski, Zagrodnik, 2008; Hogervorst, Riedel, Jeukendrup, & Jolles, 1996; Joyce, Graydon, McMorris, & Davranche, 2009). Resistance exercise has been shown to improve information processing speed and executive function in a study of 41 middle-aged adults (Chang & Itinier, 2009). Middle-aged adults have also demonstrated enhanced cognitive flexibility and young adults have been shown to improve working memory after acute aerobic exercise (Coles & Tomporowski, 2008; Sibley & Beilock, 2007; Winter et al., 2007; Netz, Tomer, Axelrad, Argov, & Inbar, 2007). These findings are promising for medical practitioners, who may utilize just thirty minutes of aerobic or resistance

exercise to improve their cognition and perhaps medical decisions, patient interactions, and feelings of self-efficacy while in the hospital or clinic.

In longer-term studies, adults aged 18 to 48 years who improved 15% or more in physical fitness following a 10- to 12- week exercise program showed more efficient information processing compared with adults who did not become more fit (Blomquist & Danner, 1987). In another study of 17 to 29 year olds, six weeks of running for thirty minutes three times a week was associated with improved visuospatial memory and positive mood (Stroth, Hille, Spitzer, & Reinhardt, 2009). Another study of women aged 27 to 66 years old showed that individuals who attended three exercise sessions per week for eight months improved physical fitness by 17% and had significant gains in information processing and decision-making (Suominen-Troyer, Davis, Ismail, & Salvendy, 1986). In a recent study comparing the effects of moderate aerobic exercise, minimal aerobic exercise, and high aerobic exercise for ten weeks, both moderate and high exercise groups had significantly improved cognitive flexibility compared with the control group (Hillman et al., 2006). Additionally, those who exercised 5-7 days per week had better reaction time, cognitive flexibility, and attention than participants who exercised 3-4 days per week.

As the human genome evolved to support metabolic demands associated with hunting and foraging for food (Ratey & Loehr, 2011), it makes sense that a sedentary lifestyle is not ideal for cognition. Studies reveal that even brief disruptions in sedentary time are found to have significant impacts on metabolic health, including a lower waist circumference, BMI, triglycerides, and 2-hour plasma glucose levels (John, Bassett, Thompson, Fairbrother, & Baldwin, 2009; Levine & Miller, 2007; Levine, Vander Weg, Hill, & Klesges, 2006). Collectively, these exercise studies reveal that there is perhaps a dose-response relationship between exercise and its positive benefits; exercise may be used in the short-term to help doctors

improve decision-making and cognitive function or may be routinized into everyday life to help improve mood and cognitive flexibility. Further, breaking up periods of sitting or inactivity with physical activity bursts, such as taking a brisk walk through the hospital floors, taking the stairs instead of the elevator, or going for a quick jog during one's lunch break, may yield benefits for physician's mental and physical health that may curb symptoms of burnout and promote greater well-being.

Researchers exploring possible mechanisms behind the positive relationship between physical activity and improved mood and cognition have pointed to different biological markers, including a member of the neurotrophin family called brain-derived neurotrophic factor (BDNF) (Pronk, 2009). BDNF has been widely studied in both animal models and case control-studies and is associated with both physical activity and enhanced cognitive function and mood through its effect on hippocampal function, learning, and neuroplasticity (Duman & Monteggia, 2006; Pronk, 2009). BDNF is thought of as fertilizer for the brain, maintaining and enhancing neural connections and brain cell circuitry (Ratey & Hagerman, 2008). Several studies have found lower levels of BDNF in depressed patients compared with controls (Shimizu et al., 2003; Gonul et al., 2005), and antidepressants have been shown to reverse the decline of BDNFs in these animal models (Tsankova et al., 2006). BDNF levels have been negatively correlated with the emotional exhaustion and depersonalization elements of burnout, and positively correlated with competence in a study of 37 clinically depressed burnout patients and 35 healthy controls (Sertoz et al., 2008). Additionally, animal studies show direct evidence that exercise predominantly employs BDNF to enhance cognitive function. In one study, animals with the best recall on a cognitive task had the highest levels of BDNF expression, and injection of a drug that blocked BDNF activity in the hippocampus also blocked the benefits of exercise (Vaynman,

Ying, & Gomez-Pinilla, 2004). Another study revealed that mice showed an increase in BDNF levels immediately after exercising, and these levels remained elevated for several weeks before returning to baseline (Berchtold, Castello, & Cotman, 2010). Further, acute exercise in human subjects has also shown increased blood serum BDNF levels (Ferris, Williams, & Shen, 2007).

BDNF is considered the biological link between movement, thought, and emotions, and may be directly responsible for sprouting new branches of neurons, thereby increasing one's capacity to learn. Thus, medical students and residents who regularly exercise, and therefore, increase their levels of BDNF in the brain, may have a greater capacity to learn at a higher rate than they would if they were not exercising. For aging physicians, for whom BDNF production naturally tails off with subsequent decreases in neurogenesis, exercise is one way to help these physicians remain sharp and effectively learning throughout the life course. As the human body and brain, including learning and memory, evolved synergistically at a time when physical activity was critical for survival, our optimal cognitive fitness may depend on our physical fitness. Additionally, physicians who regularly perform aerobic exercise and/ or strength training are more likely to counsel their patients regarding the important benefits of exercise as well (Abramson, Stein, Schaufele, Frates, & Rogan, 2000). Thus, physical activity is an essential feature of vitality and physician flourishing.

Nutrition

Certainly, medical students and physicians are aware of the importance of good nutrition for health. However, although physicians possess a great deal of knowledge about health practices, they still may have difficulty applying these practices within their own lives. Thus, as a crucial component of vitality includes eating for optimal performance and health, we briefly mention some important findings about nutrition.

Firstly, high-fat, refined sugar diets are associated with decreases in hippocampal BDNFs, which, as discussed above, are critical for neuronal plasticity, learning, positive emotion, and cognitive function (Molteni, Barnard, Ying, Roberts, & Gomez-Pinilla, 2002).

Therefore, foods high in fat and sugar, such as packaged candy bars, chips, and vending machine snacks, all of which are highly accessible to medical students and physicians on the go, may inhibit cognitive functioning and performance on the job or in the classroom. On the other hand, certain foods such as cumin, garlic, onions, broccoli, blueberries, pomegranates, spinach, green tea, and beets, all repair cellular mechanisms that trigger beneficial stress responses within the body (Ratey & Hagerman, 2011). These natural super-foods are filled with antioxidants and other nutrients that make them ideal for the working brains of physicians. Further, healthy fats, such as unsaturated fats and omega-3s, which are found in fish such as salmon, cod, and tuna, may be excellent for physical health and brain function. The Framingham Heart Study, which followed 900 people for nine years, found that those who ate three meals with fish per week were half as likely to develop dementia as non-fish eaters. Omega-3s are also associated with lower blood pressure, cholesterol, and neuronal inflammation, and elevated immune response and BDNF levels (Ratey & Hagerman, 2011). Therefore, regular fish consumption may also confer benefits to the brain and serve as a healthy replacement for red meats and other high-saturated fatty foods. Further, vitamin B and folate, found in dark leafy greens such as spinach, citrus fruits and berries, lentils and beans, seeds, cauliflower, nuts, and avocado, are associated with improved memory and processing speed. Vitamin D, known for its importance in absorbing calcium and strengthening bones, and more recently as a measure against cancer and Parkinson's, can also be consumed in fish, as well as in eggs, dairy products like low fat yogurt, and tofu.

Medical students and physicians alike should be mindful of their diets for both their physical and mental health, as well as their day-to-day cognition in the workplace. Further, physicians who eat well may be more likely than others to recommend a healthy, balanced diet to their patients, as physician's personal habits are strongly correlated with their tendencies to counsel patients about health practices (Wells, Lewis, Leake, & Ware, 1984). Planning and preparing healthy meals, keeping food logs, keeping healthy snacks on hand such as fruit and nuts, and eliminating refined sugars, saturated fats, and processed foods as much as possible, are ways to help medical practitioners take care of themselves in service of delivering the best possible care.

Sleep

Sleep is the third component necessary to maximize vitality for physicians and medical trainees. However, extended work shifts, fragmented sleep due to interruptions while on call, moonlighting in the hospital (done by many to repay medical education loans), as well as concurrent sleep disorders and insufficient recovery sleep, may contribute to chronic sleep deprivation in physicians, especially those in training (Olson, Drage, & Auger, 2009). Fatigue has been cited as a cause of 41% of 254 internal medicine resident's most significant medical mistakes, with a third of those mistakes resulting in patient fatality (Wu, Folkman, McPhee & Lo, 1991). Surgical residents have been found to make up to twice as many errors during simulated laparoscopy following overnight call (Grantcharov, Bardram, Funch-Jensen, & Rosenberg, 2001; Eastridge et al., 2003), and anesthesia residents have demonstrated sleepiness on par with narcoleptics even when not on call in the preceding 48 hours (Howard, Gaba, Rosekind, & Zarcone, 2002). Overall, after extended periods without sleep, physicians have

demonstrated declines in the quality of performance as well as emotional well-being and cognition (Jacques, Lynch, & Samkoff, 1990; Olson et al., 2009).

Although in recent years the Accreditation Council for Graduate Medical Education (ACGME) has responded to these mounting concerns by implementing work hour restrictions for physicians in training, a lack of oversight has resulted in widespread violations of these rules and thus, a proliferation of sleep-deprivation among trainees (Landrigan, Barger, Cade, Ayas, & Czeisler, 2006). While duty-hour requirements remain contentious, the goal of this section is not to take a position on the most optimal way to structure physician shifts; rather, it is to help physicians and those in training operate optimally, for both themselves and their patients, under the current circumstances they face. At this time, those circumstances can involve threats to sleep for days at a time.

To counteract chronic sleep deprivation, trainees must use their time away from work to increase their sleep duration and quality. To improve the quality of sleep at home, research suggests that individuals, if possible, should disconnect from the digital world (cell phones, televisions, and computers) before bed and sleep in a completely dark room. Artificial light, such as that of 100-watt light bulbs and the light emitting diodes (LEDs) of electronic devices, has deleterious effects on sleep quality by disrupting the production of melatonin, which governs sleep and circadian rhythms (Ratey & Manning, 2014). Additionally, due to chronic sleep deprivation, many physicians in training may develop sleep disorders that impair the restorative quality of sleep. Thus, medical practitioners who think that they might be suffering from a sleep disorder, such as obstructive sleep apnea, must be thoroughly assessed and properly treated if a condition is identified (Olson et al., 2009). Additionally, spending daytime hours outside within natural sunlight may be just as important as turning off the lights during sleep to harmonize the

body's circadian rhythms (Ratey & Manning, 2014). Taking a walk outside in the morning while drinking that first cup of coffee may be a great way to ready the body and mind for wakefulness. Additionally, simply prioritizing sleep, and being self-aware and transparent with supervisors may be crucial for ensuring patient safety when practitioners are sleep-deprived. Telling a supervisor, "I do not feel equipped to do this task right now, I am not thinking clearly," while certainly not ideal, may be better than botching a procedure and putting a patient's health in jeopardy. Certainly, this would reflect a major shift in culture from current practices, in which most trainees would rather "suck it up" than admit to feeling incompetent or unable to practice. Ultimately, while minimizing provider fatigue should be a priority of the ACGME and teaching hospitals where trainees are sleep deprived, it is up to each physician and trainee to ensure that quality sleep is a priority and must be pursued in service to personal well-being and patient safety. While caffeine use and napping may be helpful countermeasures to physician exhaustion (Arora et al., 2006), getting quality sleep during nighttime hours is the most effective way to prevent exhaustion in the workplace.

Tools for Bolstering Vitality: Physical Activity, Nutrition, Sleep

Interventions to bolster physical activity, improve nutrition, and maximize sleep quality are found in Part III of the Appendix to this volume. These include, activity and sleep tracking, food logging, and engaging in an unplug challenge. Physical activity, nutrition, and sleep, in addition to smoking cessation, an important element that is not covered here, are critical for physician self-care to prevent and combat burnout as well as to pursue one's healthiest self. While vitality or physical health is not ubiquitous in prior theories of well-being, this component is integral for promoters of public health to adopt personally, and subsequently translate these practices into patient care.

Accomplishment

Accomplishment is not a foreign concept to physicians. In fact, just the process of getting into medical school—let alone residency, perhaps a fellowship, and then becoming a practicing physician—requires a significant amount of achievement from childhood, both inside and outside of the classroom. The road to becoming a physician is long and winding one, including several extensive application cycles, interviews, standardized testing, and constantly proving one's worth and capability while in the hospital or clinic, only to fall back to the bottom of the totem pole after gradually rising up through each phase of training. Chances are if you are a physician, you are already an adept achiever.

However, accomplishment is often believed to be a zero-sum game, in which one person's success is contingent upon another's failure. People often view personal goals as being at odds with prosocial goals, and having multiple goals that seem to conflict can put a strain on well-being (Riediger & Freund, 2004). Although research suggests that those who balance self-oriented and other-oriented motivations actually perform better in the long run than those who are purely selfishly motivated (Grant & Berg, 2010; Duckworth, 2016), physicians, especially those in training, are uniquely conditioned. On the one hand, physicians are largely and nobly driven by the desire to help people, namely their patients and society at large. On the other hand, in order to achieve at a level that enables someone to reach that admirable goal of helping people, physicians in training are continuously demanded to adopt a self-oriented drive to outperform their colleagues. This begins in undergraduate education, as premed students must compete for the select number of As that are given out in the premed requirement science courses, which are often graded on a bell-curve to ensure that a third of the class gets As, a third gets Bs, and a third gets Cs. Similarly, medical schools and residency programs only have a

select number of spots, and nailing one of them implicitly requires outcompeting peers and putting oneself ahead of the pack, never mind what it takes to become chief resident or to secure one of even fewer spots in competitive fellowship programs. This constant pressure to achieve, in which achievement is pursued for its own sake, even when it brings about no positive relationships, positive emotions, or sense of purpose (Seligman, 2011), can be damaging for physicians in training and proliferate burnout. While this schema may be driven both by the competitive nature of medicine and by nature of medical students themselves, medical students, residents, and physicians may benefit from learning the latest research in the science of achievement and adopt strategies to pursue ‘positive accomplishment.’

Positive accomplishment involves re-conceptualizing achievement to serve one’s greater purpose, yielding engagement, positive emotions, and positive relationships in the process. It involves knowledge that success is not achieved in isolation, and that no medical student or physician is an island; rather, the highest levels of achievement may come with adopting a view of “otherishness,” or the alignment personal and prosocial goals (Rebele, 2015, p. 26; Grant, 2013). Additionally, retrospective studies looking at the highly eminent individuals across a range of fields, have revealed that core elements of achievement include 1) a strong belief in the significance of one’s work, 2) a sense that one could personally make a difference, 3) a great mentor or role-model, and 4) the ability to persevere (Murray, 2003). People who meet these criteria are often referred to as having grit (Duckworth, 2016).

One of several psychology terms that also have a meaning in the vernacular, grit, as discussed here, does not refer to indefatigable hardiness. Rather, grit refers to passion and perseverance for long-term goals, defined by sustained interest and effort over time (Duckworth, Peterson, Matthews, & Kelly, 2007). Gritty individuals tend to work diligently toward very

challenging goals even when confronted with setbacks and adversity, and when comparing individual characteristics that predict success, grit is a stronger predictor than IQ, talent, or conscientiousness in many domains (Duckworth et al., 2007). Further, grit is associated with higher levels of well-being. In this section, relevant characteristics of grit and strategies for balancing personal and prosocial goals (being “otherish”) are described to help medical students and physicians achieve personally at an optimal level and serve others in the process (Rebele, 2015). Positive accomplishment may be from here thought of as “gritty otherishness.”

Being “Otherish”

In positive organizational scholarship literature, being “otherish” means successfully working toward one’s own personal goals while also focusing on helping others; in other words, being “willing to give more than you receive, but still keeping your own interests in sight, using them as a guide to choose where, how, and to whom you give” (Grant, 2013, p. 158; Rebele, 2015). For physicians and physicians in training, learning to align one’s desire to achieve with the desire to help others, an inherent component of medicine, may be important for physician well-being. While physicians likely enter medicine with the goal of helping patients, they can also serve to help each other to flourish.

Helping others through acts of kindness or philanthropy has been empirically shown to increase happiness and life satisfaction for as much as a year (Thoits & Hewitt, 2001). Similarly, seeing that one’s work has had a positive impact on others has helped to buffer employees against emotional exhaustion in helping and service professions (Grant & Sonnentag, 2010). Individuals who engage in loving-kindness meditation to cultivate prosocial emotions have demonstrated improved life satisfaction, decreases in depressive symptoms and illness symptoms, as well as an increase in positive emotions (Fredrickson, Cohn, Coffey, Pek, & Finkel

2008). Thus, physicians or students who adopt prosocial attitudes toward their peers, fellow physicians, and other medical staff, can yield well-being benefits to all parties. On the other end of the coin, individuals who are more self-referential and hostile have a greater risk for heart attack and other stress related illnesses (Post, 2011).

In a study of medical students throughout the course of their undergraduate medical education, students who held prosocial values earned eleven percent higher grades over the course of four years than their more selfish peers (Lievens, Ones & Dilchert, 2009). Although these students actually tended to earn lower grades during the first year, when the curriculum features less interdependent work and requires more time devoted to acquiring individual knowledge, these students flourished during their clinical years, which required working closely with classmates, instructors, and patients. When some of these students went on to become surgeons, their performance on complicated procedures improved when they worked with teams on which they previously learned how to most effectively help one another (Huckman & Pisano, 2006). While the benefits of being otherish in social settings like the hospital are promising, medical students in independent learning environments can also learn to more successfully give of themselves in service to their own and other's well-being.

Grant (2013) and Rebele (2015) describe several ways to be a successful giver, which are highlighted here and elaborated in Appendix I Part IV, Table 5. Perhaps the most important way to be successfully otherish is by first prioritizing one's own needs and goals. In order to give to others, we must first turn our impulse to give inwards toward the self, so we may help ourselves buffer against burnout and sacrifices that will prevent us from giving to others in the future. Secondly, setting chunks of time to help others (such as tutoring a friend with a difficult immunology concept or cooking dinner for roommates) can help ensure that there is a specific

time and place for giving, and that other time should be respected for one's own goals. Similarly, it is not necessarily true that bigger acts of kindness yield bigger benefits; even five-minute favors can be largely impactful and keep the personal cost of helping down. Thus, keeping favors brief but impactful, such as sending classmates a study guide or flashcards, may be a highly successful otherish strategy. Another important strategy for successfully giving is, knowing when to decline certain requests for help. Grant (2013) suggests engaging in "sincerity screening" (p. 320), or determining whether there is a genuine motivation for seeking help, in order to mitigate the risk that one's helpfulness will end up fueling someone else's self-interest (Rebele, 2015). Then, before committing to help, it is wise to ensure that the favor in question is something that one is qualified to offer; trying to teach a friend how to draw the structure of the brachial plexus before mastering it yourself may turn into a frustrating loss of productive time for everyone. Finally, asking for help more effectively and more often from others can, counterintuitively, serve as a way to bolster others' well-being by providing others an opportunity to give back. When asking for help, it is important to consider what types of favors will be energizing to others, when and where one is asking for help—making helping as convenient as possible will likely yield more desirable outcomes, and allowing others to say no if that is what they feel they need to do (Rebele, 2015).

Asking for help in the form of mentorship, from either peer mentors or physician mentors, may be highly beneficial for medical practitioners at any phase of training or practice. Mentoring episodes can be short-term interactions, even as short as a five-minutes, and a series of high-quality episodes can result in a longer-term positive mentoring relationship that can lead to positive outcomes in career, work, and non-work domains (Ragins & Kram, 2007). As

mentorship is one of the key elements to successful achievement, employing these otherish strategies to both serve as a mentor to others and to seek effective mentorship may be fruitful.

Being otherish may be a fantastic way to build one's personal resources, develop relationships, combat burnout, and ensure one's highest levels of achievement; certainly, no medical student or trainee would be able to get through their medical education without the support of their colleagues. Additionally, being otherish and contributing to the well-being of others is a main component of Duckworth's (2016) grit lexicon, discussed in the following section.

Purpose

Studying sixteen thousand American adults, researchers found that grittier people, those who have the most passion and perseverance for their long-term goals, were dramatically more motivated than others to seek a meaningful life that centers around other people (Von Culin, Tsukayama & Duckworth, 2014). Duckworth (2016, p. 142) discusses that purpose, or a motivation to contribute to the well-being of others, is a central theme among paragons of grit, stating:

Sometimes it's very particular ("my children," "my clients," "my students") and sometimes quite abstract ("this country," "the sport," "science," "society"). However they say it, the message is the same: the long days and evenings of toil, the setbacks and disappointments and struggle, the sacrifice—all this is worth it because, ultimately, their efforts pay dividends to other people.

Thus, perhaps the grittiest doctors are the ones who keep their motivation to help their patients and their colleagues at the forefront of their daily agendas. Research demonstrates that individuals who see their work as being fulfilling or socially useful are more likely to view their

work as a calling, as opposed to a job or a career (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). Viewing work as a calling is associated greater life satisfaction, work satisfaction, and at least a third fewer missed workdays than those who do not see work as a calling (Wrzesniewski et al., 1997). While we will delve more into purpose in the Meaning section of REVAMP, it is worth noting that high achievement can be associated with a high sense of purpose toward serving others.

Deliberate Practice

Duckworth (2016, p. 122) quotes Atul Gawande who has said, “people often assume that you have to have great hands to become a surgeon, but it’s not true. What’s most important is practicing this one difficult thing day and night for years on end.” This quote brings us to understanding a core feature of grit: deliberate practice. Deliberate practice is the process of continuous improvement—a persistent desire to do better (Duckworth, 2016). Deliberate practice is carefully planned, effortful focus on a single stretch goal, such as inserting a central line, successfully reading an electrocardiogram, or studying for an anatomy exam. It requires undivided attention and great effort to reach the goal, and once it is reached, a new stretch goal is established (think, mastering the muscles in the upper limbs, and then moving on to learning the arteries and veins). In addition to tackling a clearly defined goal with full concentration and effort, deliberate practice requires immediate and informative feedback (knowledge of which muscles one needs to pay some extra attention to) and repetition with reflection and refinement (now let me drill the more complicated muscles and then go back and test my knowledge of all of them again).

Deliberate practice has been shown to be a reliable predictor of world-class achievement in a variety of disciplines (Ericsson & Charness, 1994; Duckworth et al., 2007) and requires a

great deal of effort. In fact, at the peak of their careers, world-class performers report only being able to handle three to four hours of deliberate practice per day and must take regular breaks to rest and recover (Duckworth, 2016). Thus, physicians in training trying to master their skills must navigate the fine line between successful and efficient deliberate practice and overworking or exhausting themselves.

Although deliberate practice may feel taxing, the end game of this rigorous process is deep engagement, or the intrinsically pleasurable flow state. Studies reveal that grit and flow go hand in hand, as putting in hours to master one's skills is necessary before achieving flow (Duckworth et al., 2007; Duckworth, 2016). Duckworth (2016) suggests that the recipe for successful deliberate practice is to first, understand the science of deliberate practice, including 1) having a clearly defined stretch goal, 2) employing full concentration and effort, 3) receiving immediate and informative feedback, and then 4) repeating with reflection and refinement. She also suggests creating daily practice rituals and employing mindfulness to embrace rather than fear challenges. Embracing challenge is critical to sustaining deliberate practice in service of increasing skill, as often, it takes a lot of failing at something before expertise is reached. Medical trainees may choose to feel either hopeless while watching a veteran physician complete procedures with a natural grace that takes years to master, or embrace the challenge of mastering new skills with the understanding that failure is a natural part of learning and growth. Medical students and physicians alike may stand to benefit from embracing a routine of deliberate practice as a means of studying for exams, improving clinical skills, and meeting any professional or personal goals.

$$\textit{Grit} = \textit{Passion} + \textit{Perseverance}$$

As this paper is designed for medical students and medical practitioners, we have assumed that this audience already possesses a great capacity for grit, and either currently has—or at some point had—a passion for medicine, or a subfield within medicine such as psychiatry, radiology, gynecology, etc. Deepening one’s experience in medicine by being otherish and purpose-oriented can help spark, re-ignite, or maintain one’s passion for medical work while fostering personal and prosocial goals. Persevering through training and development as a physician through deliberate practice is a key component to grit that can help physicians in training gain mastery and hone both classroom work and clinical skills. For those physicians who have been conditioned to conceptualize accomplishment as an individual sport, adopting a mentality of gritty otherishness or positive accomplishment may yield great benefits to well-being, bringing about more of each REVAMP component.

Tools for Bolstering Positive Accomplishment (Gritty Otherishness)

Interventions to adopt otherish practices, enhance one’s sense of purpose, and engage in deliberate practice are found in in Part IV of the Appendix to this volume. These include value identification, creating SMART goals (Doran, 1981), developing a daily deliberate practice ritual, and creating a reciprocity ring (Grant, 2013).

Meaning

Meaning, or the propensity to seek out, belong to, and serve something that one believes is larger than the self, is understood as an irreducible aspect of human nature (Seligman, 2011; Pargament, Lomax, McGee, & Fang, 2014). Similar to Duckworth’s (2016) definition of “purpose,” defined as the motivation to contribute to the well-being of others, meaning allows one to transcend the self by promoting positive social relationships (Seligman, 2002) or

connecting with a greater beneficent motivation, for instance, contributing to the health of patients. However, economic constraints in modern medicine and the rapid expansion of medical technology are having profound implications on physician meaning and the quality of doctor/patient connection (Campo, 2005). One physician articulates the unique position of doctors today:

...The humane is being supplanted by unfeeling science and uncaring economics—the incalculable distress I feel when I hear an intern refer to her patient as “the breast cancer in room 718,” the ephemeral sadness in cutting short a visit before we can delve into my patient’s grief at the loss of her husband because I have three others waiting. On the other hand clamors the need to articulate rationally, in language not only my physician colleagues but also the likes of health administrators and policy makers can understand, just what it is that I do—and that this work is not an amorphous and merely sentimentally gratifying, but can be productively studied and harnessed (Campo, 2005, p. 1009).

This tension between engaging meaningfully with patients while practicing productive, quantifiable, CPT code-driven medicine is leaving many physicians looking for renewal, reconnection, and meaning. Thus, the penultimate REVAMP element, is aimed at helping physicians and trainees to deeply and consciously connect with both patients and their sacred mission of healing.

Importantly, “sacred” is used here in the psychological sense rather than the theological sense, referring to the tendency of humans to experience transcendence, ultimacy, boundlessness, interconnectedness, and spiritual emotions including gratitude, awe, humility, serenity, etc. in both quotidian and extraordinary interactions (Pargament et al., 2014). Psychological sacredness says nothing about the existence of a higher power or God, but rather, reflects this uniquely

human tendency to have an inner world of values, strivings, and goals (Karff, 2009).

Accordingly, this section discusses the power of delving into patient meaning in the medical interaction, as well as cultivating meaning among physicians and medical trainees.

Sacred Moments

Perceived sacredness can be a source of great meaning in life, feelings of connectedness with a larger community, and a sense of continuity in bridging the present with both the past and the future (Pargament et al., 2014). Sacred moments may be thought of as important moments imbued with the spiritual elements discussed above, including transcendence, ultimacy, boundlessness, and interconnectedness. While sacred moments have been studied in particular peculiar instances, such as connecting with loved ones who have died (Sormanti & August, 1997), in mystical experiences (Hood & Frances, 2013), or in near-death experiences (Greyson & Khanna, 2014), sacred moments are also found in everyday life, and may certainly be cultivated within medical care.

For instance, many people view aspects of life like marriage, work, parenting, and nature, among others, as sacred (Doehring et al., 2009). Empirical studies have demonstrated that people who view marriage as sacred have fewer marital conflicts, greater marital satisfaction and greater marital commitment than those who do not (Mahoney et al., 1999). Similarly, a longitudinal study found that married couples who view marital sexuality as sacred demonstrate higher sexual and marital quality (Hernandez & Mahoney, 2012). As discussed previously, several studies have shown that individuals who view their employment as sacred, or as a calling rather than just a job or career, report higher levels of job satisfaction, organizational commitment, lower turnover intention, and less absenteeism (Caroll, 2013; Wrzesniewski et al., 1997).

Recent research has examined sacred moments between mental health providers, including psychiatrists, and their patients, a sample particularly relevant to our current discussion of physicians (Pargament et al., 2014). These studies sought to better understand the implications of sacred moments on practitioners, patients/clients, and the therapeutic alliance between them. In one study of 58 mental health professionals from a large medical school, 55.5% of providers reported experiencing sacred moments during a patient session, even for practitioners who did not formally identify with a religion. Providers reported that prior to the sacred moment, clients were generally more likely to experience a general sense of unease and tension in their lives, indicating that sacred moments may provide a spiritual resolution to fundamental life distress. Perceptions of sacredness in a treatment moment were strongly correlated with greater perceived client gains, including more growth, gains in therapeutic relationships quality, including trust, honesty, openness, cooperation, and mutual respect, as well as gains for the provider including greater growth and insight, meaning in work, improved work motivation, and spiritual well-being.

Another study examined the subjective experiences of sacred moments in 519 mental health clients who had been in treatment with a therapist in the past year. In this case, a small but significant minority of clients (23.9%) reported that they experienced a sacred moment in treatment with their therapist. Sacred moments were more likely to be reported by clients who experienced tension and unease in their lives, and were linked to an enhanced therapeutic relationship, a better working treatment alliance, greater satisfaction with one's therapist, and more positive changes in mental health. A limitation of these studies is that neither study examined the concordance between provider and client experiences with sacred moments, i.e. if

a provider reported experiencing a sacred moment, the client also perceived the moment as sacred.

In both studies, personal religiousness and spirituality were not strong predictors of sacred moments. Thus, personal religious commitment is not necessarily a prerequisite for the experience of sacred moments. Rather, providers and clients with a range of beliefs, including atheists, may perceive important moments in treatment as sacred in character (Pargament et al., 2014). Taken together, these findings suggest that sacred moments are perhaps an important ingredient in therapeutic change aimed at enhancing the health and well-being of patients within a therapeutic alliance where ongoing treatment is delivered (Pargament et al., 2014; Karff, 2009).

However, while a majority of patients may welcome inquiry into their spiritual or religious beliefs in the context of medical care, many may not wish to seek spiritual council from a physician (Daaleman & Nease, 1994). Rather, physicians can serve to ascertain patient's spiritual beliefs in order to refer them to appropriate council for spiritual guidance, or not. Dr. Christina Puchalski (2000) of George Washington University's Institute for Spirituality and Health recommends that physicians ask a set of questions that may be integrated into a patient's history, such as, "What is your faith or belief? Do you consider yourself spiritual or religious? What things do you believe in that give meaning to your life?" A physician may choose to be less direct by stating, "This is a difficult time in your life. What helps you get through such times?" Puchalski explains that if a patient then mentions his or her spiritual or religious faith, a doctor should validate the potential helpfulness of this type of meaning-based support (Karff, 2009). If no indication of spirituality is given, researchers suggest stating something like the following: "Some people also find that their religious or spiritual approach to life is a great source of support to them when they are ill. Do you have a religious or spiritual connection that is

important to you” (Cohen, Wheeler, & Scott, 2001)? If the answer is no, further inquiry would be intrusive and is therefore, unwarranted.

While empirical evidence indicates that sacred moments may sustain practitioners by fostering deep and effective connections with patients and enhancing a sense of meaning in one’s work, some caveats must be considered. Firstly, not all practitioners will feel comfortable or have time to delve into these questions and may view spirituality as detracting from more vital elements of patient care. Nonetheless, a critical mass of evidence suggests that a spiritual connection is an important source of well-being that is both unique and essential to the human experience. While a physician would never purport expertise in theology, sacred moments can serve as a secular link between the spiritual aspect of well-being and the physician-patient interaction. Therefore, it is important that even when a practitioner’s own attitudes toward spirituality are negative, one must not deprecate patient’s faith. On the other hand, physicians must be extremely careful not to impose spirituality on patients, as any proselytizing gesture would be an abuse of a patient’s vulnerability and violate professional boundaries (Karff, 2009). Walking this fine line and successfully connecting to patient’s deeper meaning requires a nuanced and skilled understanding of patient communication. Thus, explicitly training physicians regarding patients’ experience of the spiritual, and helping them to attune to their own experiences, may be an effective way to improve the physician/patient interaction, patient health, and maximize physician well-being.

Medicine: A Sacred Vocation

In 2007, a Sacred Vocation Program (SVP) was launched for 250 University of Texas internal medicine residents in pediatrics, neurology, psychiatry, and primary care. This formal program aimed to help practitioners find meaning in life through their work, connect their

spiritual and work identities, and recognize healing behaviors (Raine, 2006). Using pre-program and post-program data, the SVP showed significant increases in empathy and compassion and greater connection to patients and colleagues, as well as decreases in fatigue, loneliness, and feeling overwhelmed among the UT residents (Lunstroth, n.d). Seventy-six percent of residents reported that their experience in the program was strongly positive, and residents overwhelmingly reported a greater sense of personal growth, peer support, and stress reduction, and viewed medicine as a calling, as a result of participation. With a self-contained guide for the SVP sessions available online, a program like this for medical students and residents has great promise for improving trainee meaning and combatting burnout. While this program is designed for a group setting, other, less formal tools may be used among individual students and practitioners to enhance one's meaning in medical work.

The Medical Humanities

The medical humanities offer opportunities to inform and elevate the work of healing for both individual practitioners as well as groups in a variety of settings (Campo, 2005). Medical humanities are defined as an interdisciplinary endeavor that draws on creative and intellectual strengths in diverse disciplines including literature, art, creative writing, drama, film, music, philosophy, ethical decision-making, anthropology, and history in pursuit of medical education goals (Kirklin, 2003). Utilizing techniques of the humanities disciplines, including art production, engaging with literature, writing, role-playing, etc., medical humanities facilitate learning about issues in medicine including the patient experience, the doctor-patient relationship, social and family issues in medicine, and others (Shankar, 2011).

In American medical schools, medical humanities curricula are typically driven by local context, including the values of individual health systems and the disciplinary credentials of

medical faculty members (Wear, 2009). This is primarily due to the underrepresentation of humanities content on the United States Medical Licensure Examinations (USMLE), which largely dictate what appears in all American medical curricula. Although standards for medical humanities curricula widely differ across institutions, the use of medical humanities for medical students, trainees, and practitioners may be associated with many positive outcomes including improvements in empathy, professionalism, and self-care (Schwartz et al., 2009).

In one study of a Literature and Medicine elective at the University of California at Irvine, the eight-session course significantly improved student's empathy measured by the two distinct empathy scales (Shapiro, Morrison, & Boker, 2006). As empathy is a construct with several validated scales used to measure it, it is difficult to pinpoint one clear definition used across many studies. However, in this case, researchers found that student's understanding of patient perspectives became more complex as a result of the program, including a greater ability to listen carefully, accurately paraphrase the feelings of others, and check in to see if one's understanding of another's experience is valid (Schwartz et al., 2009). This program was also associated with greater emotional empathy, or tendency to feel another's suffering.

There are some dangers associated with physicians who rely exclusively on emotional empathy as a moral guide in medical care. Firstly, taking on patient's suffering or emotional distress can be stifling for physicians and actually proliferate burnout (Bloom, 2014; Weininger & Kearney, 2011). Emotional empathy can also be biasing, as humans tend to feel more emotional empathy for those who are attractive, who look like them, and who share the same ethnic or national background (Bloom, 2014). People also feel more empathy for persons whom they care about or think about more favorably compared to others. This indicates that physicians

who are highly emotionally empathetic might bias their emotions and subsequent patient care toward certain attractive, racially concordant, or more likeable patients.

A challenge is that cognitive and emotional aspects of empathy are often conflated, and there is not yet a strong consensus on how terms like compassion and empathy are operationalized. Despite this nuance, which is teased out further in Appendix I Part V, Activity 2, physician empathy, or the cognitive ability of physicians to understand what their patients are going through, is linked with both patient satisfaction (Smith et al., 1995) and clinical competence (Hojat et al., 2002a).

A four-week literature and medicine course, as well as a six-week reflective writing seminar about personal illness, were both associated with increases in clinically relevant empathy among enrolled students (Lancaster, Hart, & Gardner, 2002; DasGupta & Charon, 2004). Other studies have found that participation in sessions on empathy and spirituality were correlated with higher scores on another validated measurement of empathy specifically designed for the medical setting (DiLalla, Hull, & Dorsey, 2004). Additionally, studies have found that empathy and humanism ratings are highly correlated (Mangione et al., 2002) and that these constructs are often used interchangeably when physician or medical student performance is being rated (Schwartz et al., 2009).

While fewer studies are available to assert a link between the medical humanities and professionalism, studying the humanities may lead to greater cultural competence and therefore enhance one's ability to care for diverse patients (DasGupta, Meyer, Calero-Breckheimer, Costley, & Guillen, 2006). Regarding physician and student self-care, a randomized controlled trial involving 64 medical students demonstrated that writing about emotional topics decreased the incidence of self-reported depressive symptoms and healthcare visits in a three-month

follow-up period (Austenfeld, Paolo, & Stanton, 2002). Similarly, in a course on humanism and professionalism for medical students, which relied on reading and discussion to foster opportunities for self-reflection, 73% of students reported an increase in connectedness with classmates, suggesting a role for improving communication and yielding positive change in medical student's interactions with patients (Lypson & Hauser, 2002; Schwartz et al., 2009). The Healer's Art Course (Remen, 2013) is one example of a widely used program for meaning making in medical schools. Offered for first and second year medical students at over 70 medical schools in the United States and abroad, The Healer's Art is an innovative curriculum in values clarification and professionalism that utilizes principles of contemplative studies, humanistic and cognitive psychology, as well as creative arts and storytelling to present and explore human dimensions of medicine that are rarely discussed within formal medical training. The mission of this program is to help students "uncover and strengthen the altruistic values, sense of calling, and intention to serve that have led them to medicine, creating a firm foundation for meeting the challenging demands of contemporary medical training and practice" (Remen, n.d. para. 1).

While formal programs like The Healer's Art and the Sacred Vocation Program can be incredibly powerful for helping students and practitioners find meaning and explore the human dimensions of medicine, only a small fraction of medical students will have an opportunity to engage with such programs during undergraduate medical education. Therefore, students and practitioners are urged to engage with the humanities on their own time in their own ways, as a means of both bolstering personal engagement while also benefitting medical practice. For example, existential philosophical meditation, engagement with music, literature, and writing, as well as art appreciation and production, have all been empirically studied as interventions to improve well-being. For instance, studies have demonstrated that engaging with philosophical,

existential questions, such as “what is my purpose in life?” or “what does thinking about death tell me about how I want to live my life?” helps people re-prioritize goals and values and prompt positive changes toward greater flourishing. Specifically, contemplation of death has been associated with increased helping behaviors, environmentally sustainable practices, and better health choices including using more sunscreen, smoking less, and increasing levels of exercise (Vail et al., 2012). Mounting scientific evidence from empirical studies indicates that music listening has beneficial effects on pain perception, stress, and emotions. Self-selected music may regulate psychophysiological stress through physical changes in dopamine, serotonin, cortisol, endorphins, and oxytocin levels and improve subjective well-being (Västfjäll et al., 2012). Additionally, neurological research reveals that reading literature that inspires compassion can help the brain become more efficient at feeling cognitive empathy (Bruell & Ferguson, 1993). Similarly, attention to literature may help to nurture skills of observation, analysis, and self-reflection, and strengthen an individual’s sense of morality and justice (Pawelski & Moores, 2013). Finally, researchers have demonstrated that attending to positive emotions through art production is more effective for improving mood than attending to one’s negative emotions, or venting (Dalebroux et al., 2008). These researchers found that creating positive art, even in the context of an unpleasant reality, allows the artist to escape into a more pleasant imagined situation.

Humans are steeped in art, music, and literature from infancy (Pawelski, 2016). As such, engaging with the humanities is an immediately available resource that medical practitioners have to bolster their own well-being, empathy, meaning, and ability to heal their patients. While there is great promise in formalized programs within medical education to help practitioners engage in the humanities and get in touch with their sacred vocations, tools for immediate

implementation among individual practitioners are found in the Part V of Appendix I of this volume.

Tools for Bolstering Meaning: Sacred Moments & the Medical Humanities

Interventions to bolster meaning in medical practice include developing a work oath, exercising “exquisite empathy,” and creating a meaningful music library.

Positive Emotions

Our final element of physician well-being, positive emotions, brings us to perhaps the most basic tenet of positive psychology: simply feeling good. The pursuit of positive emotions can be both a prophylactic and palliative intervention for physician burnout and distress. While the presence of positive emotions, including joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe, and love may serve as a signal of human flourishing, these emotions also *produce* flourishing (Fredrickson, 2001). Further, positive emotions do not just bring about well-being in the fleeting moments in which they occur, rather, science reveals that positive emotions help individuals to build enduring personal physical, intellectual, and psychological resources in the long-term as well (Fredrickson, 2001; 2009; 2013; Fredrickson, Tugade, Waugh, & Larkin, 2003). Positive emotions may be both protective against physical health outcomes and are absolutely crucial for psychological resilience (Fredrickson, 2009; Fredrickson et al., 2003). While negative emotions are a ubiquitous, inevitable, and necessary part of the human experience, and certainly medical care, the presence of positive emotions, side-by-side with negative ones, can be mentally and physically protective for physicians and the patients whom they treat.

Positive Emotions Broaden-and-Build

An empirically tested theory of positive emotions is known as the broaden-and-build theory, which states that discrete positive emotions, including those mentioned above—joy, interest, serenity, love, etc.—although phenomenally distinct from one another, all share the ability to broaden individual’s momentary “thought-action repertoires” or ideas about possible actions (Fredrickson, 2001; Fredrickson et al., 2003; Fredrickson, 2009). For instance, joy inspires play and creativity, interest provokes exploration, learning, and an expansion of the self, serenity broadens one’s ability to savor current life circumstances and integrate these circumstances into new views of the self and the world, and love creates recurring cycles of urges to play with, explore, and savor experiences with loved ones (Fredrickson, 2001). Researchers have documented that people experiencing positive affect show unusually flexible, creative, integrative, and efficient informational processing and a broad, flexible, cognitive organization, enabling the integration of diverse material (Isen, 1990; Ashby, Isen, & Turken, 1999). Testing this hypothesis in a medical setting, researchers at Cornell University found that physicians who were induced with positive emotions before seeing their patients were actually better than their control counterparts at integrating patient case information. These positively induced doctors were less likely to become fixated on initial ideas and come to premature closure on their diagnoses (Isen, Rosenzweig, & Young, 1991).

Unlike positive emotions, which open our minds to larger possibilities and enable higher level processing, negative emotions are associated with specific action tendencies. For instance, fear leads to the urge to flee, anger provokes the urge to attack, disgust produces the urge to expel, and so forth (Fredrickson, 2009). Scientists believe that these negative responses are what made emotions consequential for our species in the first place, allowing our ancestors to navigate

life or death situations, think quickly, and survive. However, in the context of modern life, especially in the professional setting of a doctor's office or clinic, negative emotions can be deleterious not only to physician well-being, but to patient care and personal health as well. For instance, negative emotions alone may arouse the sympathetic portion of the autonomic nervous system, increasing heart rate, blood pressure, and vasoconstriction (Fredrickson, 2003).

However, laboratory experiments reveal that experiences of positive emotion can mitigate or even undo these lingering cardiovascular effects of negative emotions. Compared with neutral distractions and sadness, positive emotions produced faster returns to baseline cardiovascular activation levels following negative emotional arousal (Tugade & Fredrickson, 2004; Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000).

Positive Emotions and Physical Health

In addition to curbing cardiovascular activation, positive emotions—particularly optimism and hope—have been shown to protect against cardiovascular disease, increase longevity, and improve disease prognoses (Seligman, 2008). Examining the relationship between optimism and cardiovascular disease in 999 Dutch senior citizens, researchers found a remarkably low hazard ratio of .23 for cardiovascular death in the most optimistic members of this cohort, even controlling for age, sex, chronic disease, education, smoking, alcohol consumption, body mass, cholesterol, and history of cardiovascular disease (Giltay, Geleijnse, Zitman, Hoekstra, & Schouten, 2004). Another study, also controlling for all major risk factors, found that among 96 men who had had their first heart attack, only 5 of the 16 most optimistic people died in the next decade whereas 15 of the 16 most pessimistic men died of cardiovascular disease (Buchanan, 1995). In a study of 31 heart-transplant patients, those who reported a high level of positive emotion and good mood prior to surgery were found to have greater adherence

to a post-surgery medical regimen as well as a better status report six months after the operation (Leedham, Meyerowitz, Muirhead, & Frist, 1995). In another study, a strong relationship was found between emotional vitality and lack of cardiovascular disease (Kubzansky & Thurston, 2007). Optimism and positive emotional styles have also been shown to be protective against frailty and physical deteriorations (Ostir, Ottenbacher, & Markides, 2004), contracting the common cold (Cohen, Alper, Doyle, Treanor, & Turner, 2004), stroke (Ostir, Markides, Peek, & Goodwin, 2001), and the rapid progression of HIV (Cohen & Pressman, 2006; Maruta, Colligan, Malinchoc, & Offord, 2000). Finally, a recent study examining the relationship between Twitter language and age-adjusted mortality from atherosclerotic heart disease found that language patterns reflecting positive emotions were protective against disease within communities (Eichsteadt et al., 2015). The results of each of these studies indicate that helping doctors to bolster positive emotions and enhance optimism may help to improve physician's own physical health outcomes, and also may important translate to the patients whom they treat.

Resilience

In addition to protecting against physical health ailments, positive emotions and optimism are the crux of psychological resilience, a necessary competency for physicians, defined as the ability to grow and thrive in the face of challenges and bounce back from adversity (Reivich & Shatté, 2002). A range of self-report, observational, and longitudinal studies support the association between resilience and positive emotions, suggesting that resilient people have optimistic, zestful, energetic approaches to life, are curious and open to new experiences, and are characterized by high positive emotionality (Fredrickson & Tugade, 2003; Block & Kremen, 1996; Klohn, 1996). Resilient people do not only have positive emotions as a result of successful and resilient coping, but they use positive emotions to achieve effective coping. For

instance, studies show that resilient people use techniques like humor, creative exploration, relaxation, and optimistic thinking as ways of coping, all of which rely on the ability to cultivate the positive emotions of amusement, interest, contentment, and hope, respectively. Additionally, resilient people are not only skilled at cultivating positive emotions within themselves, but they also tend to be skilled in bringing out positive emotions within others (Fredrickson & Tugade, 2003).

In a study examining the way that American college students coped with the 9/11 terrorist attacks, researchers found that positivity was the mechanism behind those who experienced least depression and the greatest psychological growth (Fredrickson & Tugade, 2003). The most resilient people in this study did not experience any less stress than the rest of the sample; they certainly experienced negative emotions, suffering, and strong concern in light of the tragedy. However, mixed in with their suffering and concern, they felt joy, love, and gratitude, as well as awe and unity within their local communities and around the globe (Fredrickson & Tugade, 2003; Fredrickson, 2009). Deeply important to the notion of resilience then, is retaining positive emotions throughout the duration and experience of hardship. Physicians certainly should not deny, suppress, or ignore the negative emotions induced by personal circumstances or the daily grinds of their work; rather, physicians and medical students can learn techniques to cultivate protective positive emotions and optimistic explanatory styles in order to help them become more resilient, avoid chronic stressors, and adopt practices that with benefit their own psychological and physical health. Additionally, physicians may help patients reframe difficult situations to experience realistic optimism and prioritize positive emotions in the face of challenging circumstances.

Tools for Bolstering Positive Emotions

A number of exercises have been designed and demonstrated to increase positive emotions and optimism. A sample of these is found in Appendix I Part VI, including: savoring (Bryant, 1989; 2003; 2005), the three blessings exercise (Peterson, 2006), the resiliency exercise called the “ABCs” (Ellis, 1991; Reivich & Shatté, 2002), and avoiding thinking traps (Reivich & Shatté, 2002).

In Summary

This paper sought to examine the constructs of physician burnout and physician flourishing and proposes how an increase in flourishing can buffer against burnout. Through a discussion of the field of positive psychology and its aims, a parallel was drawn to the potential for a positive medicine. The exploration of validated constructs that have been used to conceive of and measure human flourishing served as the foundation for the proposed comprehensive construct of well-being, REVAMP, that may be used among medical students, trainees, and practicing physicians to combat burnout and pursue self-care, on par with and in service to patient care. The REVAMP construct draws heavily from prior theories of well-being and is not revolutionary. However, framed in the medical context, REVAMP uniquely caters to the problems and subsequent opportunities facing medical practitioners in our modern healthcare climate.

The pursuit of physician flourishing will not only make physicians happier people, which is a worthy goal in itself, but it will also serve the utilitarian goals of helping physicians to maximize the quality of their practice, serve as role-models for patients, and prevent physicians from burning out and leaving the practice of medicine altogether. Importantly, the research and tools offered throughout this paper do not absolve the medical community from examining

current practices and making necessary changes that will remove institutional barriers to the prioritization of physician flourishing. Rather, these tools are designed for practitioners to operate within the constraints of an imperfect system, so that they need not wait to thrive until medical policy catches up with the research and practical wisdom found within these pages. Similarly, while further empirical research is warranted to examine the efficacy of the positive interventions suggested in this paper on both physician well-being and patient outcomes, the pursuit of well-being cannot wait for this body of research to emerge. Rather, it is incumbent upon all medical students, trainees, and physicians to actively work toward, take charge of, and REVAMP their own health and well-being. Doing so will better enable them to fulfill their professional duty and sacred mission of healing others while leading more balanced, vital, and meaningful lives.

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Appendix I:

A REVAMP User's Guide

**Toward a Positive Medicine: Healing our Healers
FROM BURNOUT TO FLOURISHING**

REVAMP

RELATIONSHIPS ~ ENGAGEMENT ~ VITALITY ~ ACCOMPLISHMENT ~ MEANING ~ POSITIVE EMOTIONS



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How to Use This Guide

The following REVAMP User's Guide is a one-stop-shop for several guided interventions geared toward bolstering each element of physician well-being: positive relationships, engagement, vitality, positive accomplishment, meaning, and positive emotions. An introduction to each exercise reveals background to each exercise, as well as the desired outcome, the target system on which the exercise operates, the desired target change, and the active ingredients of the exercise (Pawelski, n.d.). Certainly, some exercises may confer differential benefits to some users. Similarly, while I have attempted to categorize these interventions by REVAMP element for ease of targeting and administering these interventions, some interventions will have carry-over effects to benefit other elements of well-being. Accordingly, you may think of this guide as a menu from which you may choose to order a dose of positive relationships, meaning, or vitality, etc. to specifically intervene on, but don't be surprised if you see positive changes in other domains as well.

This guide is designed for use in both individual and group settings. An individual medical student, resident, or physician may simply engage in these exercises on his or her own, picking and choosing interventions that he or she wishes to pursue, or exercises may be completed and debriefed in a group setting. If in a group setting, I suggest that exercises be structured and led by a facilitator with some background in wellness, self-care, or positive psychology. However, sufficient background information is provided in the research portion of this paper and in the introduction to each exercise such that one does not require any formal experience in these domains to successfully facilitate. A medical school interest group in positive medicine, integrative medicine, or mindfulness, a self-care club, or other type of extracurricular wellness organization would be fantastic settings for the use of this guide. Similarly, this guide

could easily be packaged as part of a curriculum in an internship or residency program, or as part of a weekly or biweekly staff meeting of practicing physicians.

Some of these exercises require more action and time than others; some require only a few minutes and some will require commitment for several days. However, I recommend that each intervention take place over the course of one to two weeks, to provide ample time for completion of the exercise, reflection, and integration of the activity into the busy lives of medical students/residents/physicians. Within group settings, a group should designate one meeting to debriefing one intervention and introducing another. Additionally, some exercises require written reflection, so I advise keeping a hand-written notebook that can be easily accessed to accompany this guide. Keeping all reflection notes in one place will allow for easier meta-reflection, or reflection on the reflection, after completing several interventions. Meta-reflection will help to shed light on which interventions have been most effective for each individual and can help guide further engagement with positive interventions. Exercises may be done in the order that they are listed in the guide (in order of the REVAMP elements), or in any order that an individual or group wish.

While several of these interventions have been empirically validated to bolster well-being and decrease symptoms of depression, not all of these interventions have been rigorously studied. However, no harm should result from engaging with this guide. If you do notice any negative changes in your mental health as a result of completing these exercises, please discontinue use and contact the author to inform future iterations of this manual.

You may be wondering, *how will I be able to tell if these interventions are working for me?* Physicians are progress- and data-oriented, and may wish to know whether they are making tangible strides toward improved well-being. While there are metrics that may be used to

measure several different aspects of well-being, I advise that before looking for measurable results, try to tune into your experience, engage in honest reflection, and look for qualitative changes in your daily experience. If you are noticing benefits to your affect, relationship quality, energy level, etc., these exercises are probably working! (Or at least they are certainly not hurting). Maybe you are paying more attention to these domains where you may not have before. Regardless, if you are feeling more in touch with your well-being needs, keep it up.

If you do wish to have more concrete, measurable results, I have provided a list of some metrics that can be used in pre- and post- test engagement with the REVAMP exercises. Please note that while these are validated metrics, these have largely been validated in controlled conditions under the discretion of psychologists, which may be very different than how users are engaging with these instruments. If your results on these metrics do not validate or confirm what you are feeling internally, consider that there is an effect size for every scale, and results can differ from subjective reality. When it comes to quantitative results around matters of well-being, please take these results with a grain of salt. **REVAMP Intervention Assessment Tools:**

- A robust series of diverse metrics are provided for free at www.authentic happiness.sas.upenn.edu. These include measures of daily positive and negative affectivity (the PANAS) (Watson, Clark, & Tellegen, 1988), the Satisfaction with Life Scale (SLS) (Diener, Emmons, Larsen, & Griffin, 1985), a Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006), a Close Relationships Questionnaire (Fraley, Waller, & Brennan, 2000), the PERMA Profiler (Butler & Kern, 2015), which measures overall flourishing. All you have to do is register to create an account and visit the Questionnaire Center.
- If you are interested in measuring burnout, refer to the Maslach Burnout Inventory (MBI), a 22-item questionnaire, which measures emotional exhaustion, depersonalization, and personal accomplishment (Maslach & Jackson, 1981). The MBI can be purchased on mindgarden.com.

- If you are interested in measuring self-compassion, refer to the Self Compassion Scale SCS (Neff, 2016), found on Dr. Kristin Neff's website, <http://self-compassion.org/self-compassion-scales-for-researchers/>. There is a 26-item version and a 12-item version. You will also find a Compassion for Others Scale on her website (Pommier, 2011).
- If you are interested in measuring resiliency, refer to the Connor-Davidson Resiliency Scale (CD-RISC 25) (Connor & Davidson, 2003), a 25-item questionnaire (10 and 2 item scales are also available). You can submit a request form for the CD-RISC 25 at <http://www.cd-risc.com/submit-ofr.php>.
- If you are interested in measuring vitality and energy, refer to the Epworth Sleepiness Scale (Johns, 1992), an 8-item questionnaire that refers to one's likeliness of falling asleep during different activities. This scale can be found at <https://web.stanford.edu/~dement/epworth.html>.
- If you are interested in measuring mindful attention and awareness, refer to the Mindfulness Attention and Awareness 15-item scale (Brown & Ryan, 2003; Carlson & Brown, 2005) or the Langer Mindfulness Scale (Pirson, Langer, Bodner, Zilcha-Mano, 2012). The Mindfulness Attention and Awareness scale may be found at: <http://www.kirkwarrenbrown.vcu.edu/wp-content/scales/MAAS%20trait%20research-ready%20+%20intro.pdf>, and the Langer Mindfulness Scale may be requested at <http://langermindfulnessinstitute.com/research-lab/>.
- If you are interested in measuring how one copes with stress, refer to the Brief Cope Scale (Cooper, Katona, & Livingston, 2008; Yusoff, Low, & Hip, 2010), a 28-item questionnaire that may be found at <http://www.psy.miami.edu/faculty/ccarver/scIBrCOPE.html>.
- If you are an institution interested in measuring physician empathy, refer to the Jefferson Scale of Physician Empathy (Hojat et al., 2002b), which may be requested at http://www.jefferson.edu/content/dam/university/skmc/research/centerResearch/OrderForm_2016.pdf.

If you are an individual looking to begin using this guide yourself or in a formal setting, do not hesitate to reach out to the author with any questions, concerns, comments, or interesting findings.

PART I: Relationships

Activity 1: Practicing Gratitude (Lyubomirsky, 2008)

- **Desired outcome:** Improving and enriching relationships and social bonds, bolstering positive affect, thwarting hedonic adaptation
- **Target system:** Attention, affect
- **Target change:** Showing more gratitude, admiration, appreciation, & affection toward others
- **Active ingredients:** Gratitude, relatedness

Practicing gratitude is a cornerstone of positive psychology associated with several beneficial outcomes for well-being. In correlational studies, expressing gratitude is associated with increased savoring of positive life experiences, bolstering self-worth and self-esteem, more effective coping with life stresses and trauma, better adjustment to loss and chronic illness, enhanced moral behavior, nurturing new social bonds and strengthening old ones, inhibiting envy and comparison with others, lessening negative feelings, and reducing our tendency to adapt to positive events (Lyubomirsky, 2008).

Aside from all of these positive effects associated with gratitude, medical students and practitioners can uniquely employ gratitude to thrive in their workplaces and maximize the quality of work relationships. For instance, when third year medical students arrive on the hospital wards and know virtually nothing yet about treating patients, they rely immensely on nurses and residents to answer questions and show them the lay of the land. Expressing gratitude to nurses and residents, therefore, can be a great way for medical students to reveal their deep appreciation until they can more actively assist with patient care. Similarly, medical students can show gratitude to classmates for sharing valuable study resources, to mentors for helping them fall in love with a particular field of medicine, and to patients for exposing them to novel pathology that will help them on their path to healing many others in the future. Additionally, medical students and practitioners can express gratitude to family members, spouses, and friends for their support and understanding the demands of patient care and for helping them get through challenging times.

There are several ways that one can practice and express gratitude to others. Here I suggest the gratitude visit, as this intervention has been empirically shown to induce positive changes in happiness and a decrease in depressive symptoms for up to a month (Seligman, Steen,

Park, & Peterson, 2005). For another gratitude exercise, see Exercise 1 of Part VI: Positive Emotions.

The Exercise:

- Choose a person in your life who has been especially kind to you but may not have ever heard you express your deep gratitude to them.
- Write him or her a letter, with the intention of reading it out loud to this person if at all possible. Describe in detail what the person has done for you and exactly how it has affected your life. Mention how often you remember his or her efforts and how you may plan to pay this kindness forward somehow.
- If possible, read the letter out loud to the recipient. If this is not possible, you can read the letter over the phone or mail the letter and follow-up with a phone call.¹

¹ If you are not comfortable reading or sending the letter, that is okay. Just writing the letter may be enough to produce substantial boosts in happiness. However, sending the letter will maximize the benefits of gratitude to enhance the relationship quality between you and your letter recipient.

Activity 2: Active Constructive Responding (Gable, Reis, Impett, & Asher, 2004)

- **Desired outcome:** Building stronger interpersonal relationships and social support
- **Target system:** Relationships with others
- **Target change:** Embracing a more supportive, positive style of communication, enhancing capitalization
- **Active ingredient:** Changing/ attending to one's response style

This exercise is geared at improving interpersonal relationships and the way that we provide social support to others. Social support is absolutely essential during medical school, training, and practice, and maximizing the quality of support given to others can set a positive tone for all of our close interpersonal relationships.

There are several ways that we may respond to others when they share news with us. The two-by-two table below reflects four ways that we can respond to relational partners. Couples who use active-constructive responding are known to have higher quality marriages whereas the other response styles, when dominant, are associated with marital dissatisfaction. Psychologist John Gottman of the Gottman Institute has studied marriages longitudinally, observing the ways that couples interact with one another in real time. Gottman has predicted whether a marriage will end in divorce with 94% accuracy by observing a couple in a single session (Buehlman, Gottman, & Katz, 1992). Gottman and his colleagues have found that whining, defensiveness, and stubbornness during disagreements foreshadow divorce, whereas humor, affection, and positive interpretations mark successful marriages (Peterson, 2006). Ingredient for a good marriage include when a couple has a productive way of responding to disputes and possesses a shared belief that they can weather conflict together. Using active-constructive responding with a spouse, friend, child, or co-worker, is one way to make any relationship a better one.

Ways of Responding (Gable et al., 2004)	
Active-Destructive: Demeaning the event <i>“Isn’t that new job just going to make you more stressed and unhappy than you already are?”</i>	Active-Constructive: Enthusiastic support, asking questions, leads to capitalization <i>“That’s wonderful! Tell me everything from start to finish!”</i>
Passive-Destructive: Ignoring the event, changing focus to the self <i>“Aren’t you going to ask me about my day?”</i>	Passive-Constructive: Quiet, understated support <i>“I’m happy to hear that.”</i>

Figure 1

The Exercise (from Peterson, 2006):

- Choose a person with whom you are close (a friend, classmate, significant other, etc.). Start paying attention to how you respond to them when they relay good news, such as, “I got an A on our last test!” or “I had the most moving patient interaction today!” Do this long enough to discern a stable pattern.
- Do you respond enthusiastically, asking questions and reveling in the other person’s success? Do you do this more frequently than any other sort of response? If so, you are demonstrating active-constructive responding. You likely already have an excellent relationship with this person. If that is the case, choose another target for this exercise.
- Continue observing your responses to others until you find someone to whom you do **not** typically respond this way. Why aren’t you responding actively/ constructively with this person? It might be because you care deeply about this person, and a critical response stems sincerely from your love for them. You may not want a friend to get too excited about something that could fall through. However, a steady stream of tempered enthusiasm or “constructive” criticism can take a toll on the relationship if your partner does not feel supported or if this is all that he or she hears from you.
- Accordingly, resolve to respond to this person’s good news in an active and constructive manner. Keep track of what you do, and make sure to try and maximize your ratio of genuine active-constructive responses to other responses.

Activity 3: Practicing Acts of Kindness (Lyubomirsky, 2008; Bays, 2014)

- **Desired outcome:** Building better relationships, enhancing subjective well-being
- **Target system:** Affect, attention, relationships
- **Target change:** Increasing “otherish” giving behaviors, practicing more effective ways to give
- **Active ingredients:** Secret acts of kindness, spontaneous giving, giving the gift of time

Doing kind deeds for others makes us happy, bolsters our relationships with others, increases our sense of meaning in the world, and positively impacts our own self-perceptions. Researchers suggest that being kind and generous leads us to perceive others more positively and more charitably and brings about a heightened sense of cooperation and interdependence within a community (Lyubomirsky, 2008). Performing acts of kindness may help to relief distress, guilt, or discomfort that a person may experience and heighten gratitude and awareness of one’s own good fortune. Additionally, engaging in kind acts can help us perceive ourselves as more altruistic and compassionate, and discover hidden capabilities or expertise that we possess, leading to feelings of mastery and control over our own lives.

For instance, a study following peer support volunteers for multiple sclerosis patients found that for volunteers who called patients for only fifteen minutes a month experienced increased satisfaction, self-efficacy, and feelings of mastery in life. They described becoming more other-focused, embracing more nonjudgmental listening skills, becoming more tolerant of others, and being better able to cope with life’s up and downs (Schwartz & Sendor, 1999). Benefits to the peer supporters, which increased with time, were even larger than the benefits to the patients whom they supported.

Importantly, kindness can promote a cascade of positive social consequences, helping others to like us, appreciate us, offer gratitude, and proliferate kindness toward us and toward others. Another activity listed in Section IV, Accomplishment takes advantage of this phenomenon. (See activity entitled Create a Reciprocity Ring). Acts of kindness need not be large or profound to incur great benefits to the giver and the receiver. Varying kindness activities and “chunking” activities rather than sprinkling them over time may yield the greatest benefits to giver well-being (see table 7 in Section IV for more otherish strategies).

The Exercise:

- In the next week, engage in at least five acts of virtue or kindness for another person (a colleague, roommate, friend, supervisor, mentee, stranger, etc.) These do not need to be for the same person, and the person does not need to be aware of the act.² Try to mix and vary the types of kindness activities that you perform (and chunk them if at all possible).
- Anonymous acts can include simple gestures, like washing someone else's dishes, picking up trash on the street, cleaning up the office kitchen, making an anonymous donation, or leaving chocolate on a coworker's desk. More relational acts of kindness can include helping a friend or colleague with work or studying, giving your time to help a friend with errands, cooking a meal for friends, visiting or calling an elderly relative, or volunteering for a charity or philanthropic organization.
- At the end of each activity, log your acts of kindness with the date of completion and what you did. At the end of the week, reflect on your kindness log: did your acts of kindness bond you to others? Make others feel good? Make you feel good? If so, how long did these benefits last? Did any of your acts of kindness proliferate other acts of kindness?

² Secret good deeds, since they are anonymous, may not directly lead to enhanced relationship quality.

Activity 4: Best Possible Self (Lyubomirsky, 2008)

- **Desired outcome:** Developing a more positive relationship with the self, bolstering optimism
- **Target system:** Attention, affect, relationship with self
- **Target change:** Increasing awareness of deeply held values, shift in focus, more optimistic explanatory style
- **Active ingredients:** Imaginal experiences, autonomy, competence, optimism

Conceptualizing and writing about one's best possible future self is a demonstrated potent intervention to increase positive mood and integrate personal long-term goals into everyday life. Writing about one's "big picture" dreams provides an opportunity for an individual to learn about him or herself, and to better understand one's emotions, priorities, desires, and values. Being more aware of these big picture goals can help individuals remain in touch with their values and work toward these goals more optimistically and effectively. This intervention is an excellent happiness-enhancing strategy aimed at improving one's emotions and self-concept (Lyubomirsky, 2008).

The Exercise:

- Write for at least 20 minutes in a quiet place and think about your best possible self. Write about what you expect your life to be in one, five, or ten years from now.
- Visualize a future in which you have grown in all the ways you would like to, and things have turned out the way that you have wanted: you have tried your best, worked hard, and achieved your goals. Write down what you imagine.
- What is your best possible self like? What does he/she do on a daily basis? What do others say about him/her?
- After writing about your best possible self, reflect on the experience you had while reflecting on the best possible self (meta-reflection). How can you actively start working toward that best possible self right now? How can you employ others to help you work toward that version of yourself?

Activity 5: Building High Quality Connections (Dutton, 2003)

- **Desired outcome:** Improving workplace relationships
- **Target system:** Relationships, organizations, attention
- **Target change:** Increasing respectful engagement, task enabling, trust, and play in the workplace for stronger relationships
- **Active ingredients:** Relatedness, mindfulness, self-regulation

High Quality Connections or HQCs comprise the relational glue that holds workplaces and teams together. HQCs are immensely important in various medical settings, including teams on the hospital wards, for medical student communities, and within doctor's offices and medical departments. The four mechanisms for building HQCs include respectful engagement, task enabling, trusting, and playing (Dutton, 2003). Tips for building HQCs in each of these domains are summarized in Table 3 below. This activity is designed to help medical personnel develop skills that make workplace interactions and relationships more energizing and productive.

Tips for Building HQCs in 4 Domains (Dutton, 2003)			
RESPECTFUL ENGAGEMENT	TASK ENABLING	TRUST	PLAY
<ul style="list-style-type: none"> • Be Present • Listen, really listen • Be punctual • Be affirming, yet authentic • Communicate 	<ul style="list-style-type: none"> • Coach • Facilitate • Accommodate • Nurture 	<ul style="list-style-type: none"> • Share with others • Self-disclose • Ask for Feedback and proceed accordingly 	<ul style="list-style-type: none"> • Make meetings playful • Let your guard down • Create fun rituals

Table 1

The Activity:

- Choose a place in your student or professional life where the quality of a connection between participants is less than ideal. In writing, describe and reflect on this current state. What about the connection is less than ideal?
- Strategize about what you might change to improve the quality of connection. What particular steps might you take? How can you measure the effectiveness of these steps in improving relationship quality?

- Actually carry out this intervention in your student or professional life.
- Reflect on the intervention: What worked? What didn't work? Did you observe any immediate changes in the quality of connection? Did anything surprise you? How will you ensure that the connection quality remains high?

Activities 6 & 7: Self-compassion Exercises: How would you treat a friend? & Changing your Critical Self Talk (Neff, n.d.)

- **Desired outcome:** Developing a more positive relationship with the self, eliminating negative self-talk, treating the self with kindness and respect
- **Target system:** Cognition, physiology, affect
- **Target change:** Embracing a less judgmental attitude toward the self, treating the self like one would treat a dear friend
- **Active ingredients:** Attuning to one's inner dialogue, reflection

These exercises are two of several more exercises developed by Kristin Neff to bolster both short-term and long-term self-compassion. Self-compassion is hugely important for medical practitioners, as the practice of medicine is fraught with errors that may be both inevitable and have serious and even fatal consequences for patients. Both of these interventions operate at the level of intervening on one's inner dialogue and transforming self-critical, highly judgmental dialogue into more understanding, caring, and kind self-talk. Additional self-compassion exercises may be found on Dr. Neff's website at <http://self-compassion.org/category/exercises/>.

The Exercise: How would you treat a friend?**Reflect and write down your responses to the following questions:**

1. Think about a time when a close friend felt really bad about him or herself or was really struggling in some way. How would you or did you respond to your friend in this situation (especially when you are at your best)? Write down what you typically do, what you say, and note the tone in which you typically talk to your friends.
2. Now think about times when you feel bad about yourself or are struggling. How do you typically respond to yourself in these situations? Please write down what you typically do, what you say, and note the tone in which you talk to yourself.
3. Did you notice a difference? If so, ask yourself why. What factors or fears come into play that lead you to treat yourself and others so differently?
4. Write down how you think things might change if you responded to yourself in the same way you typically respond to a close friend when you're suffering.
5. Try treating yourself like you would treat a good friend, and see what happens.

The Exercise: Changing your critical self-talk

This exercise should be done over several weeks and will eventually form the blueprint for changing how you relate to yourself long-term. Some people find it useful to work on their inner critic by writing in a journal. Others are more comfortable doing it via internal dialogues. Use your notebook to journal throughout this process.

1. The first step towards changing the way to treat yourself is to notice when you are being self-critical. It may be that – like many of us — your self-critical voice is so common for you that you don’t even notice when it is present. Whenever you’re feeling bad about something, think about what you’ve just said to yourself. Try to be as accurate as possible, noting your inner speech verbatim.³
 - What words do you actually use when you’re self-critical?
 - Are there key phrases that come up over and over again?
 - What is the tone of your voice – harsh, cold, angry?
 - Does the voice remind you of any one in your past who was critical of you?
2. Make an active effort to soften the self-critical voice, but do so with compassion rather than self-judgment (i.e., don’t say “you’re awful” to your inner critic!). Say something like “I know you’re worried about me and feel unsafe, but you are causing me unnecessary pain. Could you let my inner compassionate self say a few words now?”
 - Reframe the observations made by your inner critic in a friendly, positive way. If you’re having trouble thinking of what words to use, you might want to imagine what a very compassionate friend would say to you in this situation.
 - It might help to use a term of endearment that strengthens expressed feelings of warmth and care (but only if it feels natural rather and not corny.) For instance, you can say something like “Darling, I know you are feeling extremely overwhelmed about your upcoming exams. You’ve been in the library for six hours a day and don’t feel like you’re making any progress.

³ You want to be able to get to know the inner self-critic very well, and to become aware of when your inner judge is active. For instance, if you’ve just eaten half a box of Oreo’s, does your inner voice say something like “you’re so disgusting,” “you make me sick,” and so on? Really try to get a clear sense of how you talk to yourself.

Why don't you go for a walk and try to clear your head? It's not healthy to study until you pass out at your desk."

- If you start acting kindly to yourself, feelings of true warmth and caring will eventually follow.

PART II: Engagement

Activity 1: Designing a Flow Experience (Csikszentmihalyi, 1990; Lyubomirsky, 2008)

- **Desired outcome:** Enhancing one's engagement with work, leisure, and life
- **Target system:** Attention, cognition
- **Target change:** Increasing flow in everyday life
- **Active ingredient:** Reflection, action, challenge, designing experience

This exercise is about increasing flow experiences in any domain(s) of your choosing, either within or outside of medicine. Flow is about intense absorption in an activity in which you are fully concentrating, completely immersed, and unaware of yourself (Lyubomirsky, 2008). To induce flow, the idea is to find the optimal balance between skill and challenge: you do not want to do something that is *too* difficult that you are anxious while doing it, and you don't want to do something too simple so that you are bored. Cultivating one's ability to experience flow in many circumstances as possible may lead to a happier, more fulfilling life. Ideally, one would be able to find flow in their favorite hobbies or activities, such as singing, painting, or running, and also in their professional work, dissecting a cadaver, engaging with patients, completing procedures, and making hospital rounds.

Finding flow involves challenging the body and mind to its limits, striving to accomplish something new, difficult, or worthwhile, and to discover rewards in the process of each moment. Eight tools for enhancing flow are presented in the table 2:

The Exercise (From Lyubomirsky, 2008):

- First, briefly reflect about a previous flow experience, or ideally a superflow experience, you've had when you were completely absorbed in the task at hand, lost all self-consciousness and perception of time. Consider a) what has facilitated this experience, b) what, if anything, may have impeded this experience? Then consider, c) how might you solve the potential obstacles to flow?
- Then, intentionally set yourself up for a flow experience, to the best of your ability. Go out and complete this activity and write a brief reflection about the experience. This may be a solitary activity, or something you engage in with others.

Tools for Enhancing Flow (from Lyubomirsky, 2008)	
Control Attention	Physicians and medical students only have so much attention to spare. Flow is about mastering control over one's attention so that they may be completely immersed in the task at hand. While very strict control over one's attention may take a great deal of effort in the moment, it is an important ingredient toward long-term mastery
Open Yourself to New Experiences	Be open to new and different experiences, such as: Going camping, playing a new sport, travelling to a foreign place, or getting certified in new medical technologies and procedures. Keep challenging yourself and do not become complacent!
Be a Lifelong Learner	Similarly to opening oneself to new experiences, learning and embracing new challenges throughout the course of life is a key component of finding flow when you've already mastered many skills
Learn What Flows	Often, individuals fail to recognize when they experience flow. Pay close attention and establish precise time periods and activities during which you are in flow, and seek to amplify these activities
Transform Routine Tasks	You can find "micro-flow" states even in mundane activities, such as running errands, cleaning up a workspace, or listening to a boring lecture. Transform routine tasks by solving puzzles in your head, doodling, or re-writing your favorite songs to include medical content for easier memorization
Flow in Conversation	Develop goals within your conversation to learn more about the person you're speaking with: What is on her mind? What emotions is she experiencing? Have I learned something about her that I didn't know before? Focus your full attention on the speaker and on your reactions to her works. Prompt with follow-up questions: "And then what happened?" "Why did you think that?"
Engage in Smart Leisure	Medical students and practitioners certainly do not have a ton of leisure time to spare. Consider making your leisure time "smarter" by engaging in activities in which you are using your mind and exercising your skills – ideally different skills from the ones you use all day at work and in school
Engage in Smart Work	Job-Craft! (See Activity 4 in this section) Cater your tasks at work to align with your skills, passions, and values.

Table 2

Activity 2: 3 Mindfulness Exercises

- **Desired outcome:** Enhancing subjective well-being, slowing physicians down, improving medical decisions
- **Target system:** Affect, attention, will, cognition, physiology
- **Target change:** Improving listening, mood, and one's ability to slow down, reducing mind-wandering
- **Active ingredients:** Mindfulness, self-regulation, listening, smiling

Mindfulness practice is associated both with greater physician well-being as well as higher quality patient care and better medical decision-making. Mindfulness helps to combat that dim, pervasive dissatisfaction that is associated with living on “autopilot” or in a state of constant mind wandering throughout daily life. Practicing mindfulness involves deliberately paying full attention to what is happening around you and within you; it may be thought of as deep and full awareness of one's thoughts, without judging them (Bays, 2014).

Cultivating mindfulness involves tuning in to elements of life with full presence, such as daily conversations and interactions with patients, colleagues, friends, and family, eating, driving, walking, and really any task that you perform throughout the day. Developing a daily meditation practice is a powerful way to increase mindfulness, but may not appeal to everyone. Three mindfulness exercises are suggested to appeal to any audience, including non-meditators. Further exercises can be found in a pocket book on mindfulness, authored by physician Dr. Jan Chozen Bays, entitled *Mindfulness on the Go: Simple Meditation Practices You Can Do Anywhere*. I also suggest the website calm.com for some guided meditations and other stress-reduction resources.

The Exercise: Listen Like a Sponge (Adapted from Bays, 2014, p. 184)

- In daily conversations, at home, at school, and/or at work, try listening to others as though you are a sponge (think: colleagues, professors, patients, etc.). Just soak in what the other person says, quieting your own mind and inner-chatter. You may have to silence that inner voice that says, “I get it, I get it, now shut up so I can tell you what I think already!”
- Tune into subtle changes in the tone or quality of voice of the speaker, as these things may indicate something deeper than the spoken words that you may want to attend to (especially

with patients). You may discover that you are starting to check out or mind wander while another person is speaking. Try your hardest to tune back in. Do not formulate any response in your mind until a response is requested or obviously needed.

- You may remind yourself to do this by posting the words “like a sponge” or a picture of an ear in relevant places that you will see throughout the day.
- Reflect: Do you notice any changes in the way you feel, keeping your mind and body still to absorb everything that another person is saying? Does listening fully to patients change anything about the therapeutic quality of the interaction? If yes, please explain.
- If you are completing this exercise in a group setting, how does it feel to be fully listened to, on the receiving end of such absorptive listening?

The Exercise: Smile (Adopted from Bays, 2014, p. 213)

- For a whole week, please allow yourself to smile. Notice the expression on your face. Notice it from the inside: are your lips turned up or down? Are your teeth clenched? Is there tension or are there frown lines between your eyebrows?
- When you pass a mirror or reflective window, sneak a look at your expression: when you notice a negative or neutral expression, smile. It can be a wide smile, or small smile like that of the Mona Lisa. This may feel unnatural or even fake at first; however, you may discover that by looking at yourself, your habitual face, which you thought had a pleasant expression, actually appears to be quite negative. Use this opportunity to make your resting face more positive.
- Adjusting your face to smile and appear more positive may actually induce a positive mood. Smiles can temper the anger of others and induce beneficial physiological effects for you, including lowering blood pressure, enhancing the immune system, and releasing endorphins and serotonin.
- Remind yourself to do this by posting the word “smile” on relevant places, such as mirrors, your computer, the back of your front door, or your car dashboard. Try smiling when you talk on the phone, at stoplights, or whenever your computer loads a web page or application.
- Reflect: Do you notice any changes in your emotions as a result of smiling more? Has anyone else noticed that you are smiling more? Are people treating you differently when

you have a smile on your face? Have you received smiles back from other people? If so, what does that feel like?

The Exercise: Begin a Seated Meditation Practice (Adopted from Bays, 2014, p. 221)

- Sit down on a chair or on a cushion on the floor. Find a position that feels relaxed but in which you are still upright and able to breath comfortably. (If you are unable to sit up for whatever reason, you may also meditate lying down).
 - If you would like to do a more guided meditation, visit <https://www.calm.com/meditate/qK3leqhiJP> or <https://health.ucsd.edu/specialties/mindfulness/programs/mbsr/Pages/audio.aspx>
 - If you feel comfortable trying your own practice, follow the instructions below:
- Focus your attention on your breath. Find the places in your body where you are most aware of the sensations of your breathing. Do not try to alter the breath, just focus in on it—your body knows very well how to breathe without any conscious attention.
- Rest your attention on the constantly changing sensations of breathing for the full duration of the in-breath and the full duration of the out-breath. If your mind begins to wander away from the breath, which it may do often, gently and non-judgmentally bring your awareness back to the breath. Aim to continue this for between 20-30 minutes, and feel free to go longer.
- You can also try being creative with your meditation. You can try 1) opening your awareness to the feelings of your hands, particularly where your hands touch each other; 2) dedicate 3 breaths to letting the mind be completely open and receptive and free of thoughts. Then relax and let the mind wander at its will. In a few minutes, once again, let all thoughts drop and pay full attention to the breath. Repeat; and 3) practice listening to all the sounds you hear during meditation. Listen as though at any moment you may hear an important message.
- Try meditating for at least 10 minutes for 5 days in a row. It is best to integrate meditation into your daily routine, just like taking a shower or brushing your teeth. Note that often, the benefits of mindfulness meditation emerge only from a daily discipline and may not be felt right away. Be persistent and make sure to reflect after at least 5 days of repeated practice.

- Reflect: What does mediation feel like to you? Do you feel stupid? Tired? Relaxed? Refreshed? At peace? Does practicing seating mindfulness help you to be more present in everyday life?

Activity 3: VIA Strengths Identification & Using Signature Strengths in New Ways

- **Desired outcome:** Increasing engagement in medical work and in life by crafting tasks around one's unique composition of signature strengths
- **Target system:** Attention, affect, engagement
- **Target change:** Shift in focus, increased engagement, increased self-efficacy
- **Active ingredients:** Competence, autonomy, performance experiences

You will take the VIA and use your results to first become aware of your strengths, and then explore your strengths, and finally to apply your strengths in new ways in a domain of your choosing, ideally, within medicine. As you may discover when answering the VIA and reviewing your results, strengths are not fixed traits across settings and time; rather, **strengths are malleable, subject to growth**, and largely **context-specific** (Biswas-Deiner et al., 2011). Thus, strengths that you may rank high in in life such as social intelligence or humor may seem to go out the window when it comes to being on the hospital wards. Similarly, you may not be very prudent or self-regulated when it comes to putting yourself at risk, but when it comes to your patients, you are highly cautious and reserved. Additionally, it is important to note that strengths may be *overused*, or applied in a situation where it may not be appropriate or warranted. When it comes to strengths, there tends to be a “golden mean” or *right* amount of exercising a strength that leads to optimal results (see Figure 2 below).

	Strength	Opposite	Absence	Excess
Wisdom and Knowledge	creativity	triteness	conformity	eccentricity
	curiosity	boredom	disinterest	nosiness
	judgment	gullibility	ineffectiveness	cynicism
	love of learning	orthodoxy	complacency	"know-it-all"-ism
	perspective	foolishness	shallowness	ivory tower
Courage	bravery	cowardice	fright	foolhardiness
	persistence	helplessness	laziness	obsessiveness
	authenticity	deceit	phoniness	righteousness
	vitality	lifelessness	restraint	hyperactivity
Love	intimacy	loneliness	isolation/autism	emotional promiscuity
	kindness	cruelty	indifference	intrusiveness
	social intelligence	self-deception	obtuseness	psychobabbling
Justice	citizenship	narcissism	selfishness	chauvinism
	fairness	prejudice	partisanship	detachment
	leadership	sabotage	compliance	despotism
Temperance	forgiveness	vengefulness	mercilessness	permissiveness
	humility	arrogance	footless self-esteem	self-deprecation
	prudence	recklessness	sensation-seeking	prudishness
	self-regulation	impulsivity	self-indulgence	inhibition
Transcendence	awe	criticism	oblivion	snobbery
	gratitude	entitlement	rudeness	ingratiation
	hope	despair	present orientation	Pollyannaism
	humor	dourness	humorlessness	buffoonery
	spirituality	alienation	anomie	fanaticism

Figure 2: VIA Strengths & their Opposites, Absences, Excesses (Seligman, 2015)

This exercise is aimed to help you channel your top strengths in your work to increase your engagement, meaning, and mastery in medicine. Note that your strengths will be ranked in order of top strengths to low strengths, not necessarily your weaknesses. While this intervention is specifically designed for you to use your top strengths, also consider focusing on some of your bottom strengths. Further information about this is provided in the exercise prompt.

The Exercise:

- First, complete the VIA Survey of Character Strengths (240-item version). Do this by visiting <https://www.authentichappiness.sas.upenn.edu> and register to create an account. You will find the VIA survey under the Questionnaires tab. It should take about 20 minutes to complete.
- Review your results. You can see your rank-ordered 24 strengths by going back to the Questionnaires tab and visiting the Questionnaire Center.

- Reflect upon the following: do any of your top strengths surprise you? What about your lower strengths? What would your life look like if you were unable to use your number 1-top strength? Do you think that you would find it more helpful to focus on using your top strengths or improving your lesser strengths?
- Find 3 new ways to use your top strengths this week. Can you use these top strengths to help you be a better student? A better doctor? A better friend/family member? To overcome some obstacle? To create a positive experience? Please write about the 3 new ways you used your top strengths this week.
- Optionally: focus on a lower strength. How does it feel to exercise one of these strengths that may not come as naturally to you?
- Optionally: invite a friend, co-worker, or family member to take the VIA. Before he/she completes the test, try to identify what you think his/her top 5 strengths will be. After he/she takes the test, debrief the scores together. Were you right about your predictions? In what situations do you notice this person using his or her top strengths in daily life?

Activity 4: Job-Crafting (Berg, Dutton, & Wrzesniewski, 2013)

- **Desired outcome:** Increase work satisfaction, engagement in work, and meaning in work
- **Target system:** Cognition, relationships, and work tasks
- **Target change:** Re-engineering the way workplace dynamics align with personal values and strengths
- **Active ingredients:** Autonomy, crafting work experiences

Job-crafting entails reengineering and re-conceptualizing tasks and relationships at work to become more aligned with strengths, values, and passions (Berg et al., 2013). Through a combination of task, relational, and cognitive crafting, physicians can employ more of their strengths in their work, cultivating meaningfulness and engagement by leveraging what they are capable of doing well. For example, as mentioned in the body of this paper, a physician who discovers that humor and playfulness is among his top VIA strengths might deliberately practice bringing more of that strength into his work as a pediatrician. Cultivating his natural strength of playfulness in his work, an area where he may have been underutilizing this strength, this doctor will likely experience more meaningful interactions with patients and promote patient satisfaction and adherence to recommended treatments. Importantly, over-using humor in patient interaction may be detrimental, and thus, it is important that this physician practice employing the right combination of strengths to the right degree in the right situations (Niemic, 2013).

Researchers Berg, Dutton, & Wrzesniewski, in conjunction with the University of Michigan Ross School of Management, have devised a Job Crafting workbook to help employees identify their passions, strengths, and values and incorporate these into workplace relationships and tasks. This workbook can be purchased online at <http://positiveorgs.bus.umich.edu/cpo-tools/job-crafting-exercise/>.

PART III: Vitality

Activity 1: The Unplug Challenge

- **Desired outcome:** Enhancing one's sense of vitality, improving self-care, reducing exhaustion, improving relationships
- **Target system:** Willpower, physiology
- **Target change:** Achieving better sleep, being more present in the moment, forging deeper connections with family, friends, and self in the moment
- **Active ingredient:** Detaching from the virtual world

This exercise is about detaching from the virtual world of cell phones, television, tablets, email, smart-watches, and anything with a screen, and plugging into the present moment—being with yourself, your friends, your family. Doctors may have an especially difficult time unplugging, as they are often on call and subject to around-the-clock communication with colleagues, hospital staff, and patients. Given the fact that medical practitioners are often tied to their technology, this exercise will be all the more salient for them in helping to prioritize self-care, quality sleep, and time with loved ones.

Not only do phones and other electronic devices get in the way of family meals, other quality time with family and friends, and time alone decompressing from a difficult day or savoring a great one, but these devices may also hamper our sleep quality. The blue light in our cell phones and televisions interfere with melatonin and may disrupt our circadian rhythms. Therefore, unplugging from electronic devices at least two hours before bed, and sleeping in a dark room, may greatly enhance sleep quality.

The Exercise:

- Set an evening, either after work or on a weekend (when you are not on call) to unplug. Invite friends or family to participate in the Unplug Challenge with you. You, alone or with your friends/ family members, will shut off all electronic devices including television, cell phones, tablets, computers, etc. Use clean socks as “sleeping bags” for participant’s cell phones.

- Ready activities to be done without the disruption of technology: cooking dinner, reading, writing, going for a walk or hike, or creating a piece of art. If you are completing the unplug challenge with others, you can cook together, discuss a book, co-create art, play board games, hike, play charades, or create a family tree if completing the challenge with family.
- After an evening of unplugged fun, remain unplugged until bedtime. Resist the temptation to turn on your phone or browse the web before bed. Get to bed at a reasonable hour so that you can get as close to eight hours of sleep as possible.
- Reflect on the experience of unplugging with either yourself or others before turning on your devices in the morning. Do you feel more refreshed and better rested? Did you find that you were more deeply connected with yourself or your loved ones without the disruption of cell phones? Are you more able to focus and concentrate in the moment without your phone constantly buzzing and beeping?

Activity 2: Time Tracking

- **Desired outcome:** Improving vitality, deliberately structuring one's day to maximize vitality
- **Target system:** Cognition, attention, physiology
- **Target change:** Increasing awareness of daily activities to subsequently improve self-regulation, revamping structure of day to live a healthier lifestyle
- **Active ingredient:** Self-regulation, keeping track of daily activities & reflecting on ways to improve

Being more aware of the way that we spend our days and expend our energy can help us to deliberately make healthier choices that may improve both short-term and long-term health. Research demonstrates that the mindsets we hold around daily activities such as how active we are have implications on our physiology; in one study, hotel housekeepers who were taught that their jobs were physically active had significantly greater weight loss, more positive self-images, and larger reductions in systolic blood pressure after four weeks relative to other housekeepers that did not conceptualize their work as active (Crum & Langer, 2007). In this study, everything else, including activity level, was held constant other than these housekeeper's mindsets that work was beneficial for their health, indicating that a placebo effect may be at play in our conceptualizations of physical activity.

Wearable activity-tracking devices can help medical students and physicians to tune into their daily activities and conceptualize daily activity as being beneficial for health; certainly, one need not put on gym clothes and run on a treadmill to yield positive benefits of cardiovascular activity. Rather, an activity-tracking device can add extra motivation to encourage one to walk to work instead of taking the subway, take the stairs instead of the elevator in the hospital, and studying while taking a walk instead of sitting down at a desk. Then, one can look back at the stored activity log to keep track of progress, notice patterns in physical activity and sleep, and better understand energy expenditure to make tweaks more aligned with recommendations for living an optimal lifestyle.

The Exercise:

- For 3-5 days (ensure at least one weekend day in addition to weekdays), either complete the Daily Time Tracking Table below or use a smart phone app like iTrackMyTime to track your

daily activity. If you are using the table, mark each time block with an “x” if the majority of that half hour was spent in the specified activity. Note that it is possible to have completed two activities simultaneously (for instance, if you ran with a group of friends outdoors, you’d put an “x” next to exercising, outdoors, and connecting with others.) This exercise is not about *assessing* how you spend your time; rather it is about raising awareness of how you spend your time.

- At the end of each tracking day, reflect on your mood, affect, and energy level as a result of each activity, to determine if what you were *doing* had any influence on how you were *feeling*.
- After completing the exercise for ~3-5 days, and reflecting each day, reflect on the overall experience: Were there any patterns that you saw, for instance: How many hours of sleep are you typically getting? Is this enough sleep to optimally function during the day? Are you finding the time to exercise? (Remember, guidelines suggest getting at least 30 minutes for five days in a week, or 150 minutes spread over the course of a week.)
- Are there any tweaks that you are feeling inclined to make to be more active? (For instance, can you take the stairs instead of the hospital elevator going between floors?) What can you do spend more time with others? Are there any changes you think you could make in the way you structure your time to maximize your pursuit of vitality?

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Table 3

Activity 3: Keeping a Food Log

- **Desired outcome:** Increasing mindfulness around food choices, improving vitality
- **Target system:** Will, cognition
- **Target change:** Improving the awareness and quality of food choices
- **Active ingredient:** Mindfulness, self-regulation

The Exercise:

- For three days, write down everything you eat and drink, including dressings, sauces, gravies, snacks, etc. Be as honest as possible. Feel free to use this tracking sheet or a mobile app, such as *MyFitnessPal* for tracking. If you use an app, make sure to address how you felt after eating.
- After completing this activity for three days, reflect: Did you notice any relationships between certain foods that you eat and how they tend to make you feel? Are you regularly eating goods that make you feel lethargic, bloated, etc.? Do some foods give you higher energy than others? Are you eating fruits and vegetables daily? How many meals per day are you eating of processed foods (if any)? Are there changes that you wish to make regarding your diet and eating healthier? If so, **see Accomplishment Activities 2 & 3.**

Date/ Meal	Foods	Amounts	Nutritional Content	Feelings after consumption
<i>Example Breakfast</i>	<i>Hard-boiled eggs, apple with peanut butter, black coffee</i>	<i>2 eggs, 1 small apple, 2 scoops of reduced-fat peanut butter</i>	<i>High protein, carbs in the apple, healthy fats in the egg and peanut butter</i>	<i>Felt satiated for ~3 hours, had good energy after meal</i>
<i>Example Lunch</i>	<i>Had chocolate cake (from classmate's birthday), veggie burger from cafeteria</i>	<i>Large slice of cake, ate veggie burger, half of the bun</i>	<i>Overall high carb and high sugar from the cake and bun</i>	<i>Crashed a bit after lunch, needed another afternoon coffee</i>

Table 4

PART IV: Accomplishment

Activity 1: Prospection & Value Identification

- **Desired outcome:** Aligning current actions with long-term values, honing a sense of positive accomplishment
- **Target system:** Attention, cognition, action
- **Target change:** Expanding one's idea of accomplishment
- **Active ingredient:** Thinking about the present as causal of an ideal imagined future

This exercise is a simple writing and reflecting exercise geared at helping medical students, trainees, and practicing physicians to deliberately contemplate and work toward a purposeful and achievable vision of the future. This intervention is inspired by developmental psychologists Bill Damon and David Yeager who study the positive influence of role-models, beyond-the-self orientations, and the importance of reflecting on good work for future motivation (Duckworth, 2016).

The Exercise:

- Thoughtfully reflect on the following questions. Spend at least twenty minutes writing your responses down. If you feel inclined, you are encouraged to share your responses with others (including those people you mention in your responses).
 1. What are some of the things that are most important to you in your life right now? What do you hold most dear?
 2. Imagine yourself fifteen years from now. What do you think will be most important to you then?
 3. What do you notice about what matters most to you now versus what you think will matter most to you in fifteen years from now?
 4. Can you think of someone whose life inspires you to be a better person? Who is it? Why do they inspire you?

5. How can you make the world a better place? How does this relate to what you are learning in medical school/ doing in the clinic/ or doing in your medical practice right now?

Activity 2: Setting & Tackling SMART goals (Doran, 1981; Latham, 2003)

- **Desired outcome:** Improving success at reaching goals
- **Target system:** Cognition, attention, desires
- **Target change:** Increasing self-efficacy, shift in focus from global goals to smaller, more achievable tasks
- **Active ingredient:** Conscious goal-setting

As accomplishment is typically a product of realizing some sort of goal, choosing goals wisely is an important first step to positive accomplishment. Therefore, we rely on the acronym “SMART” to reflect what goals should be: 1) specific, 2) measurable, 3) achievable, 4) relevant, and 5) time-specific (Doran, 1981; Latham, 2003). By setting SMART goals, we can improve our self-efficacy by breaking down large global goals into smaller, more achievable tasks. We delve into each letter in the SMART acronym to provide further clarification, using medical school example.

Global Goal: I want to be a successful medical student

○ **Making it *SMART*:**

- **SPECIFIC:** objective should be as specific as possible. You must explicitly state **what**, **where**, **when**, and **for whom** you want something to happen. There are lots of ways to be a “successful” medical student, but hone in on one domain.
 - I want to maximize my success in my **academic courses during this semester** of medical school
- **MEASURABLE:** objective should be measureable, meaning that there should be current or baseline value and a level of change that is expected.
 - I want to receive **honors (a 90% or higher)** in at least one course this semester, and at least pass all of my other courses.
- **ACHIEVABLE:** objective must be realistic; if you overreach for unachievable goals, you can become disgruntled or lose your motivation. Therefore, make sure that goals are within reach.
 - I want to receive honors (a 90% or higher) in my microbiology course because **this is my favorite topic and I succeeded in this course in college.**

- **RELEVANT:** objective should be in line with overarching goals. Check in with yourself to make sure that the hope you wish for in the short-run is aligned with larger goals
 - I want to receive honors (a 90% or higher) in my microbiology course, in which I am confident in my ability to succeed, so that I can **more easily pursue my dream of being an infectious disease specialist**
- **TIME-SPECIFIC:** objective should have a concrete time period so that you 1) can measure whether you have succeeded and 2) so that you can modify goals proactively before a ton of time has passed.
 - I want to receive honors (a 90% or higher) in my microbiology course **this semester**, starting with my **first exam next Thursday**, so that I can more easily pursue my dream of being an infectious disease specialist

The Exercise:

- Create a SMART goal for yourself in your personal or professional life. Refine the goal until it meets all of the SMART criteria. For example, you decide that your global goal is to eat healthier. How can you make this goal SMART? Perhaps, “I want to eat 2 servings of fruit and 3 servings of vegetables every day this week”
- Follow through on your goal (shorter-term goals might be more effective for this intervention)
- At the end of your specified time-frame, reflect on the following questions: Were you able to meet your goal? If no, what were some barriers that prevented you from meeting your goal? How could you counter these barriers in the future? If yes, what were some keys to your success? What are some goals that you can make in the future to work toward your larger, global goal?

Activity 3: Create a Reciprocity Ring, a Group Intervention (Grant, 2013)

- **Desired outcome:** Enhancing the giving behaviors within a medical community
- **Target system:** Affect, attention, relationships, giving behaviors
- **Target change:** Increasing “otherish” giving behaviors, practicing more effective ways to give help and ask for help, proliferating a culture of giving
- **Active ingredients:** Giving and receiving help to and from others

In his book *Give and Take: A Revolutionary Approach to Success*, Adam Grant discusses an intervention called the Reciprocity Ring, in which an individual makes a request to a group of peers, and the group of peers try to use their knowledge, resources, and connections to help fulfill the request (Grant, 2013). The request can be anything meaningful in their professional or personal lives, including job leads, study advice, travel tips, and so forth. Grant explains that reciprocity rings are used in many companies including General Motors, Boeing, Novartis, Bristol-Myers Squibb, and many others, in which leaders and managers pool their resources to help one another and create a norm of giving.

In this exercise, the first step is asking for help. Since everyone involved will make a request in this intervention, participants who might otherwise be reluctant to seek help are not only encouraged, but also required to do so. By making requests specific and explicit, participants provide their network of givers with a clear direction of how they may contribute effectively to their help requests (Grant, 2013). Strategies to provide help that is most effective for the giver and the receiver are summarized below in Table 5. These strategies are applicable in both the reciprocity ring, and in completing daily acts of kindness for others.

This intervention will work ideally in small group setting.

Otherish Strategies	
Prioritize your own needs and goals	“Put the oxygen mask on yourself before helping others around you” – if you’ve been on an airplane, you’ve heard the spiel. By prioritizing your own needs and employing self-compassion, you can turn your desire to help others in on yourself; this can help you to avoid burnout and enable yourself to recharge to be able to help others in the future
Be a chunker, not a sprinkler	Having an open-door policy for helping others can put you at risk from losing time devoted to your own goals; research shows that you get more psychological benefits when you chunk good deeds in a shorter period of time rather than sprinkling them throughout the week. Set chunks of prosocial time in the calendar to ensure that both your giving and goal-seeking tasks get done.
Know when to say NO	Be discerning: do not automatically agree to every favor that is asked of you. Be critical, screen for sincerity, and ensure that you are qualified to help.
Ask for help more often and more effectively	Give others the gift of giving! Ask for help in areas that will energize the other person; ask for help that will be convenient for the other person to give; allow the other person the option to say no and feel safe. Seek out mentors this way.
Consider the needs of others	Be compassionate toward your peers: by understanding what they are going through, you may be able to more carefully cater your help in ways that will both suit their needs and overlap with your own interests.
Seize energizing opportunities to help	Help people in ways that correspond with your strengths and interests. Helping a friend in the course that comes most naturally to you may be a great way to keep yourself motivated, reinforce the material, and also help another person succeed.
Reflect on your impact	After you help someone, take a moment to consider the impact that you’ve had and reap the emotional and motivational benefits. Doing this has been shown to motivate individuals to continue giving.
Build a team	Recruit other friends or colleagues to join you in a help request to give even more people the gift of giving. This will also help reduce resource demands, protecting each individual from burnout, and can forge bonds between more people and build a community around helping.

Table 5: Ways to be a Successful Giver, adapted from Rebele (2015) & Grant (2013)

The Exercise:

- Get together in a small group and tell everyone to come prepared with a help request to outsource to the group. This can be anything from a personal problem, to career advice, to a job search, to travel advice.
- One by one, take turns sourcing your help requests to the group. Designate someone to take notes that will be visible to everyone, assigning roles to everyone who has the means to help the requester. Make sure to come up with tangible deadlines for when help will be given, for instance, “Tom to send Mike his study guide by Wednesday evening.”
- Make sure to allot enough time for everyone to present his or her requests to the group.
- Reflect upon the experience: How did others step up to help you achieve a goal? How did it feel to give to others in pursuit of other’s goals? Did engaging in this reciprocity ring have lasting benefits beyond just the one instance of giving?

- Feel free to hold reciprocity rings with some frequency to institutionalize helping behaviors into institutional culture.

Activity 5: Developing a Daily Deliberate Practice Ritual (Duckworth, 2016)

- **Desired outcome:** Becoming more efficient and productive completing tasks, enhancing grit
- **Target system:** Cognition, attention, will power
- **Target change:** Increasing the ease of completing required tasks, enabling deliberate practice
- **Active ingredients:** Competence, autonomy, self-regulation

One common feature of creators in science, art, and other disciplines is the presence of daily rituals around deliberate practice. In her book *Grit: the Power of Passion and Perseverance*, Duckworth explains that nearly all of the experts she interviewed in the writing of the book follow routines to get to work. She explains that consistently practicing in the same time and place turns conscious tasks into automatic ones, explaining “Here’s the simple daily plan that help me get going. When it’s eight in the morning and I’m in my home office, I will reread yesterday’s draft. This habit didn’t make writing easier, per se, but it sure made it easier to get started (Duckworth, 2016, p. 138).

This exercise is about helping medical students and practitioners become more adept at deliberate practice through the creation of their own personal rituals and habits.

The Exercise:

- Choose a place in your student or professional life where you lack discipline or wish to develop a routine (studying for exams, reviewing patient notes, even engaging in your own leisure reading). In writing, describe and reflect on this current state. What structures are missing right now that would help you to be more successful in this area?
- Strategize about ways that you might be able to routinize your activity of choice. What particular steps might you take to start creating your ritual?
- Actually carry out this intervention in your life: try out your ritual.
- Reflect on the intervention: What worked? What didn’t work? How does it feel to set aside time to deliberately engage in your activity?
- If integrating your activity into a routine was not successful, how can you modify or change the routine to make it more effective? Carry out the intervention again and follow the same steps above.

- Reflect upon your progress. How can you ensure that you will maintain your routine going forward?

PART V: Meaning

Activity 1: Develop a Personal Work Oath

- **Desired outcome:** Increasing one's sense of meaning and purpose in medical work, bolstering engagement and one's relationship to work
- **Target system:** Energy, cognition, attention
- **Target change:** Capitalizing on purpose as a physician/healer
- **Active ingredient:** An Oath

Creating a work oath comes directly from the curriculum of the Sacred Vocation Program (SVP) created by Sam Karff that is used across the University of Texas the Baylor University health systems. The Personal Work Oath is intended to bolster one's feelings of meaning in medical work and imbuing one's personal values into medical practice. Whereas oaths are written communally within the formal SVP, groups or individuals may complete this intervention. A sample oath from the SVP is included here:

"I will
 Listen and give hope to my patients and their families
 Speak in a comforting and reassuring way.
 Be caring and gentle in all that I do.
 Be a healer even in difficult situations.
 Honor every patient's dignity.
 Heal emotionally and physically.
 I am a physician, an advocate, a healer."

The Exercise:

- Imagine that you are a medical patient seeking treatment for a condition that would fall within the care of your medical specialty (for instance, if you are or training to be a psychiatrist, choose a psychological disorder such as depression, schizophrenia, etc.)
- Think about the most important qualities that you would want to see from your practitioner as you are undergoing treatment, between 5-7 qualities. Examples may include: listening, providing hope and support, speaking in a comforting and reassuring way, focusing on the most pragmatic solutions, honoring patient's dignity, etc.

- Translate each of those qualities that you value most as a patient into one line of the physician oath (see the above example). The last line of your oath should include an empowering statement about your role as a physician/healer.
- Keep your oath handy: type out your oath and make it your computer desktop or phone background, keep it in your medical ID badge, or put it somewhere where it will be visible to you when doing your medical work.

Activity 2: A Nuanced Approach to Empathy: Exquisite Empathy

- **Desired outcome:** Improving one's nuanced understanding of empathy and why emotional empathy may be a poor moral guide
- **Target system:** Cognition, emotions
- **Target change:** Embracing cognitive empathy while subduing emotional empathy that can lead to burnout; moving toward exquisite empathy
- **Active ingredients:** Psychological and emotional states, vicarious experiences, relatedness, mindfulness

Empathy is great! Right? All doctors should be highly empathetic! Shouldn't they? As I mention in the body of this paper, empathy is a difficult construct to pin down in the medical literature. Different measures of empathy measure different things, and this notion of empathy may be misunderstood as an unmitigated moral good (Bloom, 2014). Moral psychologist Paul Bloom discusses that the most common definition of empathy reflects an experience in which human beings (and some animals including chimps) place themselves in another's shoes, feel another's pain, and take on another's emotional state. Bloom makes a distinction between that definition of empathy, an emotional approach, and compassion, or the cognitive, more reasoned approach to understanding the pain of others. These may be thought of as emotional and cognitive dimensions of empathy.

There are some dangers associated with physicians who rely exclusively on emotional empathy as a moral guide in medical care. Firstly, taking on patient's suffering or emotional distress can be stifling for physicians and actually proliferate burnout (Bloom, 2014; Weininger & Kearney, 2011). Emotional empathy can also be biasing, as humans tend to feel more emotional empathy for those who are attractive, who look like them, and who share the same ethnic or national background (Bloom, 2014). People also feel more empathy for persons whom they care about or think about more favorably compared to others. This indicates that physicians who are highly emotionally empathetic might bias their emotions and subsequent patient care toward certain attractive, racially concordant, or more likeable patients.

FMRI studies reveal that the emotional and cognitive elements of empathy are distinct in the brain. Clinician/researchers Weininger and Kearney (2011) describe a nuanced type of empathy called "exquisite empathy" which is "discerning, highly present, sensitively attuned,

well-boundaried, and heartfelt” (p. 52). Developing exquisite empathy requires practicing self-awareness, including self-knowledge, and self-compassion. These skills can be practiced through mindfulness practice and contemplative awareness.

This exercise is less about practicing empathy, and more about reflecting on the nuances of the empathy construct. In addition to this exercise, I recommend reading Paul Bloom’s September 10, 2014 article in the Boston Review, entitled “Against Empathy,” and Chapter 4 of the 2011 book, *Caregiver Stress and Staff Support in Illness, Dying, and Bereavement* by Irene Renzenbrink.

The Exercise:

Take out a notebook or piece of paper where you can write your reflection on the following situations.

- Imagine a real or hypothetical time in your life when you witnessed or heard of a situation in someone else (can be a stranger, a historical figure, a fictional character, or a friend or loved one) and actually felt this person’s pain. Describe the situation. What did that feel like?
- In your imagined state of feeling the other person’s pain, would you be able to help them if you were given the chance? What could be some potential barriers to helping while in this activated emotional state?
- Now think about this same situation, but let go of the pain. What is left? Do you feel a cognitive desire to help this person? If so, do you think you will be better able to provide help and support without feeling the emotional burden? Do you see the situation more clearly?
- What are some potential situations in which you think you might feel subject to empathy (emotionally or cognitively) in your own medical practice (either now or in the future)?
- Do you think that internalizing this pain will be productive for your clinical judgment and care? How will it make you a better clinician? How might it impair you?
- How might you navigate clinical situations in which you may feel the emotions of others? How can you check in with yourself and identify whether you are feeling emotional empathy in a given situation?
- Reflect on this reflection. Do you have any takeaways about empathy? Do you think of empathy differently than you may have previously?

Activity 3: Create a Meaningful Music Library

- **Desired outcome:** Providing medical practitioners with an available resource for meaning-making and positive emotions through music
- **Target system:** Memory, physiology, affect
- **Target change:** Increasing meaning and motivation through music
- **Active ingredients:** Music, psychological and emotional states, reminiscence

Mounting scientific evidence from empirical studies indicates that music listening has beneficial effects on pain perception, stress, and emotions (Västfjäll, Juslin, & Hartig, 2012). Mechanisms by which music elicits emotions in listeners include pre-wired brain stem reflexes, gradual adjustments in internal rhythms such as heart rate, mimicry of perceived emotions within a piece of music, and imagery and memories associated with a listener's past experiences, among others. These various mechanisms help to bring about emotions that positively impact both the subjective well-being of a listener as well as physical changes, such as changes in dopamine, serotonin, cortisol, endorphins, and oxytocin levels.

Cultivating a meaningful music library available for medical practitioners can provide listeners with an available source of meaning and positive emotions to listen to while driving, walking, working out, performing surgery, or doing paperwork. Actually curating this music library as well as listening to it and may both be positive interventions that can be utilized. Thus, this intervention may have benefits at the time of music collection, and lasting effects when listening to this music library. Note: This activity may not be effective for non-music listeners.

The Exercise:

- Think about types of music in your life, or specific songs that have elicited positive emotions or that represent certain positive or meaningful life experiences. Think about songs you may have sung or listened to with loved ones, a certain genre that is personally uplifting, or the favorite music of someone you hold dear. Anything goes that elicits positive emotion, spirituality, or a sense of meaning.
- Aim for no fewer than five songs in your first brainstorm, and feel free to add to this list over time.

- Find these songs online on music listening software such as iTunes or Spotify, or on YouTube. Create a playlist where you cultivate these songs for easy listening at any time of your choosing.
- Each day for a week, listen to this playlist for at least 15 minutes. At the end of the week, reflect: How did you feel when curating this meaningful music library? Which did you find more positive: the creation of the library or spending time listening each day? Why? What emotions did you feel when listening to the music? Did these emotions last? Did you find yourself listening to the music to induce any specific emotions? Did you experience these emotions at a particular occasion when you needed them? What went really well for you in doing this exercise? What, if anything, didn't go so well? What did you do to make the exercise work especially well for you?

PART VI: Positive Emotions

Activity 1: Three Good Things (Peterson, 2006; Seligman, Steen, Park, & Peterson, 2005)

- **Desired outcome:** Yielding greater positive emotions from everyday experiences
- **Target system:** Attention
- **Target change:** Shifting focus toward noticing the good things that happen in a day
- **Active ingredient:** Questions, being mindful of daily goodness

The Three Good Things exercise is one of the positive interventions that has been empirically validated to increase positive emotions and decrease depressive symptoms for up to six months when studied in a randomized controlled trial. Getting into a habit of counting one's blessings, both within and outside of the medical workplace, may serve medical students and physicians well in yielding greater positive emotions both in the moment when good things occur, and retrospectively in reflecting on good things at the end of each day. Going to sleep feeling contented with your day is a great way to wake up feeling satisfied and ready for another day! Feel free to share your blessings with friends, a significant other, or anyone who appears in your three good things log.

The Exercise (from Peterson, 2006; Seligman et al., 2005):

- Each night for a week, after dinner before going to sleep, write down three things that went well that day. These things can be relatively small (I had a great time at dinner with friends in my medical school class) or relatively large, such as, (I helped to deliver a baby today!).
- After each positive event on the list, answer in your own words, "Why did this good thing happen?" You can speculate, for example, that you had a great time at dinner with your friends because, "you have fantastic friends in medical school" or because "you went to your favorite restaurant." When asked why you delivered a baby, you might say, "Because I am training to be a doctor, my calling in life!"
- Feel free to continue this exercise beyond one week, however, do stop after the week if it begins to feel burdensome. Pay attention to whether your outlook about life events changes as they happen. Reflect on whether this exercise makes you more attuned to good things as they unfold.

Activity 2: Savoring (Bryant, 1989; 2003; 2005; Bryant & Veroff, 2007)

- **Desired outcome:** Improving one's ability attend to, appreciate, and enhance life experiences; increasing subjective well-being
- **Target system:** Affect, attention
- **Target change:** Shift of focus to the positive
- **Active ingredient:** Anticipating experiences, enjoying experiences in the moment, retrospectively appreciating experiences

Savoring is defined as the use of thoughts & behaviors to increase the intensity, duration, and appreciation of positive experiences and positive emotions. Savoring helps us to internalize our positive experiences to maximize the effects of our positive emotions (think: joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe, & love). First, we must feel these emotions, and savoring helps us to manage and sustain them. Interestingly, humans are notoriously bad at anticipating what will make us happy. For instance, we tend to think that big life events will bring us the most joy, but often, we can find immense joy in making the most out of life's small daily pleasures. Thus, savoring is about appreciating the things in life that we often do not pay much time to reflect or even think about after they occur.

There are three temporal forms of savoring, including anticipating, or looking forward to positive events, savoring the current moment, or intensifying and prolonging enjoyment that is occurring right now, and reminiscing, or looking back to ignite or rekindle positive feelings. The four types of savoring are summarized in the table below, and subsequently explained in more detail.

4 Types of Savoring (Bryant, 2003)		
Focus of Attention (Self vs. External) Type of Experience (Cognitive or Experiential)	Internal Self	External World
Cognitive Reflection	Basking (pride)	Thanksgiving (gratitude)
Experiential Absorption	Luxuriating (pleasure)	Marveling (awe)

Table 6

1. Basking: Being receptive to praise and congratulations; Internal focus of attention, cognitive reflection; ex.) Enjoying the afterglow of winning a soccer game, performing a flawless surgery, etc.

2. Thanksgiving: Experiencing and expressing gratitude; External focus of attention, cognitive reflection; ex.) Spending the afternoon with your mother, expressing gratitude that you have such a beautiful, close relationship

3. Marveling: Losing yourself in the wonder of experience; External focus of attention, experiential absorption; ex.) Waking up early to watch the sun rise, going outside during a thunder storm to marvel at the sky's action

4. Luxuriating: Engaging the senses fully; Internal focus of attention, experiential absorption; ex.) Enjoying a relaxing bubble bath, slowly eating a piece of delicious chocolate or sipping a glass of fine wine

10 Strategies to Enhance Savoring (Bryant & Veroff, 2007)
<ol style="list-style-type: none"> 1. Share good things with others 2. Actively build memories, take “mental photographs” 3. Be proud of yourself! Self-congratulate 4. Use downward comparison: remind yourself that things could be much worse 5. Sharpen your sensory perceptions; slow down 6. Be absorbed in the moment: turn off mental chatter 7. Use your body! Laugh, jump for joy, etc. Shout it from the rooftops! 8. Remind yourself to enjoy the moments; time flies! 9. Count your blessings & acknowledge gratitude 10. Avoid kill-joy thinking (don't focus on the negative)

Table 7

The Exercise:

- Think through the three temporal forms of savoring (savoring something about the past, savoring the present, or anticipatory savoring the future); what type(s) are you most inclined to do naturally?
- Of the four types of savoring (basking, luxuriating, thanksgiving, and marveling), which type(s) are you most inclined to do naturally?

- Set yourself up for a savoring experience using a temporal form and savoring type of your choice! Further, implement at least 1 strategy to enhance savoring from the above table.
 - For example, if you are a reminiscer and naturally are inclined toward gratitude, take out an old photo album and look through photos of your childhood. Engage a sibling or parent to do it with you for your savoring strategy of “share good things with others.”
- After savoring an experience, write a brief reflection about what you did, what savoring strategy you used, your subjective experience while savoring, and any other insights you had about the exercise.

Throughout medical training and practice, there will be so many moments to savor: having a meaningful experience with a patient, hearing gratitude from a patient family about how you helped their loved one to heal, graduating from medical school, beginning a residency, graduating from residency.... Savor these moments using the techniques listed in the table above. Congratulate yourself about all of the hard work you accomplish; celebrate with family and friends; and don't let anyone squash your positive affect for no good reason at all.

Activity 3: The “ABCs” (Ellis, 1991; Reivich & Shatté, 2002)

- **Desired outcome:** Improving optimism, resilience, and cognitive control over one’s emotions
- **Target system:** Cognition, affect
- **Target change:** Increasing awareness of thought processes, self-regulation, optimism
- **Active ingredient:** Thinking about past events, understanding cause-and-effect of beliefs and consequences of those beliefs, preparing for future events

The ABCs are fundamentally about building resilience, or the ability to grow and thrive in the face of challenges and bounce back from adversity, a skill that is absolutely essential for medical practitioners. Although some people might believe that they are either resilient or not, resilience can be built and exercised. Resilience is about acknowledging that each of us has choices about how we respond to challenges, adversity, and even traumatic events. While life and medical practice will inevitably throw us many curve balls, we can rely on some core competencies to help us recover from these experiences. These include, **self-awareness, self-regulation, mental agility, our character strengths, connections with others, and optimism.** For instance, by understanding how we react to challenges, we can cognitively transform challenges into opportunities to find deeper meaning, expand our perspectives, develop deeper bonds with others, and experience personal growth with time.

This exercise is about understanding that some of our underlying beliefs have distinct consequences for our emotional states. By understanding this cause-and-effect relationship between our beliefs and the emotions that result from these beliefs, we can intervene and question some of those beliefs to change the way that we react to grief and challenges. Some thought themes and their associated consequences are summarized in the table below.

Beliefs and their Consequences (from Reivich & Shatté, 2002)	
Thought Themes (Thoughts/Beliefs)	Emotions/ Reactions (Consequences)
Loss: <i>I have lost something</i>	Sadness/Withdrawal
Danger: <i>Something bad might happen. There is some threat</i>	Anxiety/Agitation
Trespass: <i>I have been harmed, my rights have been violated</i>	Anger/Aggression
Inflicting harm: <i>I have caused harm</i>	Guilt/Apologizing
Negative self-worth: <i>I don't measure up, I am damaged</i>	Shame/Hiding
Positive contribution: <i>I contributed in a positive way</i>	Pride/Planning future achievements
Appreciating what you have received: <i>I have received a gift that I value</i>	Gratitude/Giving back, Paying forward
Positive future: <i>Things can change for the better</i>	Hope/Energizing, taking action
Vastness: <i>I am in the presence of something greater than me</i>	Awe/Prosocial Behavior* Research is still emerging in this domain

Table 8

This table is about our B→C pathway. To complete our ABCs, think about how an **Activating Event** might trigger our underlying **Beliefs** or automatic thoughts, which then triggers these **Consequences**.

The Exercise:

- Complete the following tables labeled retrospective ABCs and prospective ABCs. In the first table, think about a recent event that was particularly activating for you (you got yelled at by a supervisor, you failed an exam....) Describe what you said to yourself in the moment (what your beliefs or thoughts were) and then write what the consequences were for your emotions, behaviors, and physiology.

Retrospective ABCs (Adopted from Ellis, 1991)	
A: Describe a recent Activating Event:	
B: What were your beliefs or thoughts that you said to yourself in the moment?	C: What were the consequences on your emotions, behaviors, and physiology that resulted from those beliefs?

Table 9

- Reflect: In what ways were those thoughts/beliefs productive? In what ways were these beliefs counterproductive? In the following table, we will think through how to avoid feeling some of those negative consequences by modifying our thoughts/ beliefs. This time, start with the C box and then move to the B box.

Prospective ABCs (Adopted from Ellis, 1991)	
A: Describe an upcoming event that may be potentially activating:	
B: What will you think/ believe to generate those desired consequences?	C: What were emotions, behaviors, and physiology will be the most productive?
2	1

Table 10

- Reflect: How can changing our thoughts or beliefs positively impact our emotional, physiologic, and behavioral states? How can I integrate my ABCs into challenging work in my profession? In my everyday life?

Activity 4: Avoiding Thinking Traps (Reivich & Shatté, 2002)

- **Desired outcome:** Improving our tendency to avoid cognitive biases and “FATtening” our thinking (flexible, accurate, thorough)
- **Target system:** Cognition, affect
- **Target change:** Increasing awareness of cognitive biases, improving self-regulation, optimism
- **Active ingredient:** Understanding thinking traps, when we use them, and how to avoid them

“Thinking traps” are common patterns of thinking that cause us to miss critical information and help us to justify our own thoughts. Thinking traps may be deep-seated, unconscious, and reoccurring. Figures 2-4 illustrate our understanding about thinking traps. These cognitive phenomena exist largely to help us navigate our everyday worlds, and may be thought of as a manifestation of the confirmation bias. With the confirmation bias, we tend to notice, remember, and value information that supports our initial beliefs, and do not notice, don’t remember, and devalue evidence that contradicts our initial beliefs. In science and medicine, falling subject to the confirmation bias can be extremely dangerous. Imagine seeing a patient and immediately settling on your gut diagnosis without asking for much supporting evidence. You then treat the patient according to your initial belief and realize that your treatment is not working. Because you fell subject to the confirmation bias and only paid attention to relevant information that supported your initial belief, you have put your patient’s life in danger. A table of common thinking traps and what they involve is below.

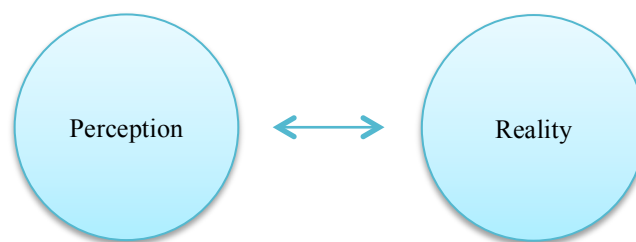


Figure 3: When subject to thinking traps, perception is often detached from the reality of a situation

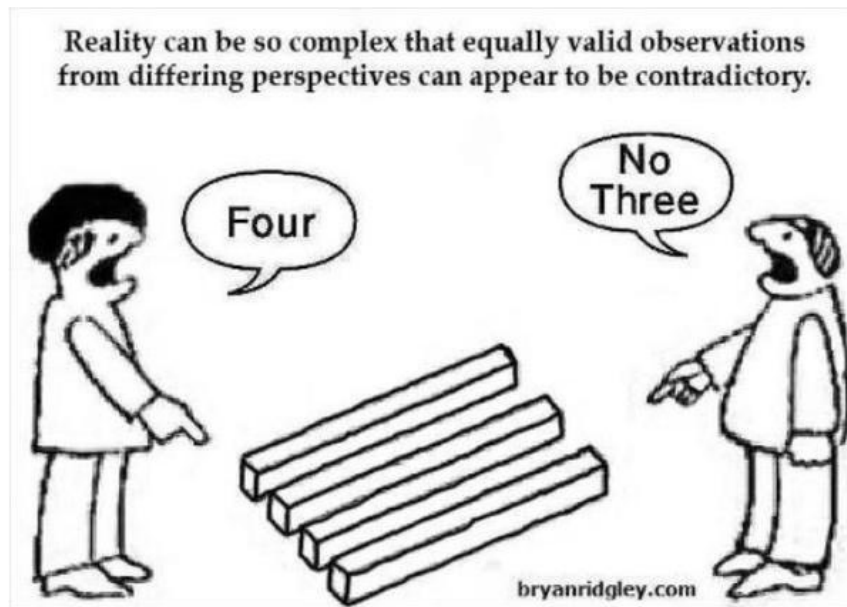


Figure 4: Thinking traps can prevent us from asking, “what am I missing here?”

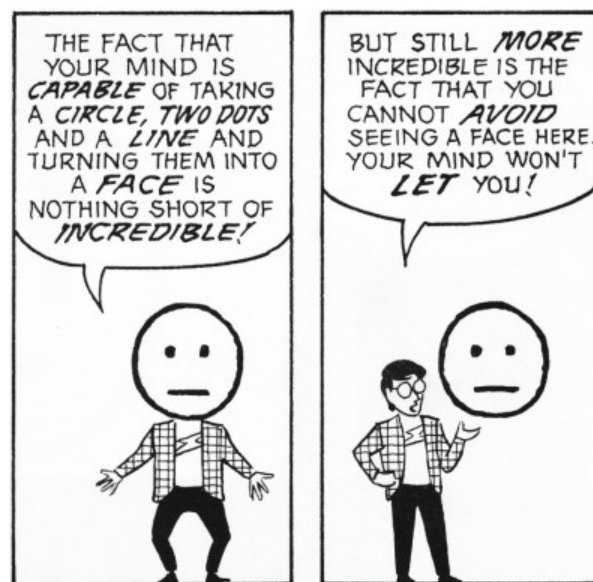


Figure 5: Often, just being aware of our biases is not always enough!

Common Think Traps (from Reivich & Shatté, 2002)	
Trap Name	What it Involves
Jumping to Conclusions	Ready, fire, aim: Believing one is certain of the meaning of a situation, despite little evidence to support it
Overgeneralizing	Character assassination: Taking one event and blowing it up; settling on a global belief about one's general lack of worth or ability on the basis of a single situation
Magnifying & Minimizing	"Wrong side of the binoculars:" Over-valuing negative aspects of a situation and undervaluing positive aspects of a situation
Personalizing	Me, Me, Me!: Tendency to automatically attribute the cause of an adversity to one's personal characteristics or actions
Externalizing	Them, Them, Them!: Tendency to automatically attribute the cause of an adversity to other people or circumstances
Mind Reading	Assuming you know what another person is thinking, or expecting another person to know what you're thinking
Tunnel Vision	Making assumptions only based on the negative or positive aspects of a situation. This can be dangerous, detrimental and inaccurate.
Emotional Reasoning	When we 'reason' that what we are believing is true without questioning its validity

Table 11

So, how do we fight the confirmation bias and these thinking traps that are so pervasive in our lives (Figure 5)? Researchers suggest that we can distance ourselves from our thoughts, by writing them down. Consult with others and invite disagreement! Ask yourself: What would I notice if I thought the opposite? Is there a gray answer? Think about the acronym FAT: aim to be flexible, accurate, and thorough. One way to be FAT is to use mental cues and critical questions.

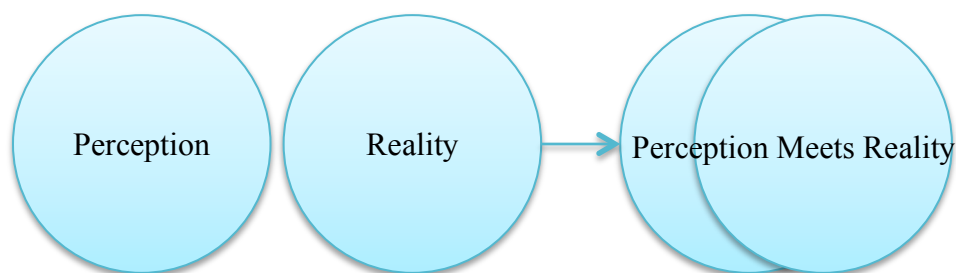


Figure 6

Getting Around Thinking Traps (Mental Cues + Critical Questions)		
Trap Name	Mental Cue	Critical Question
Jumping to Conclusions	Slow down	What is the evidence for and against my thought?
Overgeneralizing	Look at behavior	Is there a specific behavior that explains the situation?
Magnifying & Minimizing	Be evenhanded	What positive events occurred?
Personalizing	Look outward	How did others/ circumstances contribute?
Externalizing	Look inward	How did I contribute?
Mind Reading	Speak up	Did I express myself? Did I ask for information?
Tunnel Vision	Look for more information; include more information in your thought processes	What salient information may I have missed?
Emotional Reasoning	Separate feelings from the facts that are at play	Are my feelings accurately reflecting the facts of the situation?

Table 12

The Exercise:

- In this exercise, we are just adding another layer to our ABCs. The ABC activity is found below with a column to check for thinking traps. Then another chart is included to help you consider how you can specifically work around your thinking traps. As we often succumb to more than one thinking trap in any given situation, there are four lines provided to write about which thinking traps may be at play, and how you can get around them.

ABCs + THINKING TRAPS (Adopted from Ellis, 1991)		
A: Describe a recent Activating Event/ or an Upcoming Event		
CHECK FOR THINKING TRAPS! ▫ Jumping to conclusions ▫ Overgeneralizing ▫ Minimizing/Maximizing ▫ Personalizing ▫ Externalizing ▫ Mind Reading ▫ Tunnel Vision ▫ Emotional Reasoning	B: What were your beliefs or thoughts that you said to yourself in the moment?	C: What were the consequences on your emotions, behaviors, and physiology that resulted from those beliefs?

Table 13

Describe an Activating Event:			
Beliefs/ Thoughts: What you said to yourself in the heat of the moment	Consequences: Emotions & Behaviors	Thinking Trap	Workaround the thinking trap
1.			
2.			
3.			

Table 14