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Human Flourishing and the Diagnostic Imaging Experience

Christopher J. Lisanti, MD, FACR [1]; Spencer Glancy, MD [2]; Sebastian Galante, MD [2]; Parker Lovelace, DO [2]

[1] Department of Radiology, Brooke Army Medical Center, Ft. Sam Houston, Texas, USA Department of Radiology & Radiological Sciences, Uniformed Services University of the Health Sciences, Bethesda, Maryland, USA
[2] Department of Radiology, Ft. Sam Houston, Texas, USA
Brooke Army Medical Center

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ABSTRACT

Diagnostic Imaging is critical to modern healthcare. However, diagnostic imaging services are pressured to either increase efficiency in a for-profit environment as in the United States or maximize output within a cost constrained environment as in managed care systems like national health systems. Prioritizing efficiency in image production and report generation over medical imaging care effectiveness harms diagnostic imaging professionals (radiologists and technologists) evidenced by high burnout rates. This brutal market philosophy reduces the patient to a biomedical engineering problem while turning healthcare professionals into human assembly line workers. Diagnostic imaging should be governed by a holistic philosophy that draws upon medicine's biopsychosocial-spiritual model directed towards basic goods (new natural law philosophy) and hallmarks of flourishing (positive psychology). Human flourishing and resilience stem from a balanced and harmonious life incorporating all our dimensions oriented towards the basic goods. Those who live frantic, distracted, and out of balance lives lack resilience and will not care well for suffering patients or colleagues during daily challenges. Healthcare professionals who live a balanced and virtuous life can love medicine for its own internal good and love those associated with medicine. Pursuing diagnostic imaging excellence for its own sake is one of five hallmarks of flourishing and supports the additional basic goods of life and health. Excellent diagnostic imaging results in safe procedures that reduce diagnostic uncertainty. Clearer diagnoses lessen patients' and clinicians' anxiety while also providing a straightforward path to healing. Loving or pursuing the good of those associated with imaging gives meaning (flourishing hallmark) through the basic good of friendship. The institution must provide both time and resources to facilitate excellent work while not burdening their professionals with valueless tasks. Lastly, the institution should not prioritize other goods (e.g., efficiency or money) above excellent and effective healthcare. A healthy imaging experience consists of diagnostic imaging professionals who value and pursue excellence while working in institutions that support and reward these pursuits, thus fully reducing diagnostic uncertainty. This leads to better patient health outcomes. The result is a humanized diagnostic imaging experience that incorporates all our dimensions, whereby, everyone flourishes.

Introduction

Frustration with the current situation in healthcare is widespread resulting in healthcare professional burnout and decreased healthcare outcomes.[1] A key aspect of this is due to the increasing speed and focus on efficiency of healthcare transactions with a subsequent decrease in time spent with patients.[2] This affects all aspects of healthcare to include diagnostic imaging. The radiologist Dr. Brandon Brown comments on this problem when he states, "As radiologists, we often remark on how the drive toward efficiency and quantity can fragment our work and ourselves."[3] Radiologists continue to rank higher than average in burnout amongst physicians.[4] But this situation affects not only the radiologists, but also the technologists and adversely affects our patients. Thus, renewing the diagnostic imaging experience is a laudable goal for millions of patients each year and an essential one for radiologists and radiologic technologists with 50,000 radiologists and 271,000 radiologic technologists in the United States alone.[5-6]

Many authors have addressed parts of this problem resulting in increased understanding of several facets of the situation.[7] However, without a comprehensive view that includes foundational philosophic and psychologic principles which are then directly applied to the healthcare environment, in this case diagnostic imaging, we will continue to struggle to provide a compelling vision with straightforward practical applications. The goal of this paper is to provide this vision of human flourishing first at a general humanity-wide level and then to apply these first principles to improving the specific diagnostic imaging work experience for everyone. Although some clinical studies and surveys support some of our points, the method of this paper is centered upon critical thinking, philosophical reflection, and the authors' personal experience in diagnostic imaging.

First, we will address what it means to be human drawing upon both philosophy and psychology. Based upon this, a general philosophy of work that informs how we can redeem the good of our work in healthcare will be discussed. Finally, the ideal diagnostic imaging work and the challenges to it will be outlined and practical solutions to these problems both at the individual and institution levels will be shown. The positive impact upon our patients when diagnostic imaging professionals are flourishing and excelling at their craft will then be described.

Clinical Vignette: A Day at the Imaging Center

The radiologist Dr. Chen arrives at the outpatient imaging center at 6:30 AM, already with 52 studies waiting. Sarah, the lead and only MRI technologist today, comes in saying, "Ms. Rodriguez is anxious about the contrast injection for her lumbar spine. The order requests contrast, but she's asking if it's really necessary." Dr. Chen checks the order history: 63-year-old with leg numbness and no significant past medical history. Ms. Rodriguez, a retired teacher, worries about the $400 copay. "Is it really needed, Doctor?" Dr. Chen knows that radiculopathy may be assessed without contrast, and says we should modify the order, but Sarah shakes her head. "The insurance already approved it with contrast. Changing it would delay the scan for days, if not weeks." Ms. Rodriguez looks confused. "So, I have to pay more because my insurance said so or wait for weeks?" Sarah struggles to explain: "Well, they approved this specific scan, and if we don't do what they approved, they won't pay." Ms. Rodriguez is frustrated but reluctantly consents to receiving contrast. Midway into the scan, Sarah rushes over. "Dr. Chen, Ms. Rodriguez is complaining of itching all over and her arms are getting red." Dr. Chen immediately stops the scan and examines Ms. Rodriguez, who's scratching vigorously. "Doctor, I feel like bugs are crawling on me everywhere," she says. Dr. Chen quickly administers antihistamines. The reaction subsides, but Ms. Rodriguez is shaken saying, "So I had a reaction to contrast I didn't need *and* paid extra for it."

The completed images show expected findings: degenerative changes and mild neuroforaminal narrowing. The contrast-enhanced images showed no further findings adding no diagnostic value. However, Dr. Chen sees an incompletely visualized right renal lesion on the scout images, and although it looks like a cyst, Dr. Chen cannot be sure. This is the first time Ms. Rodriguez has been scanned at the imaging center, so there are no comparisons, and a renal CT or MR is recommended in the report. Dr. Chen thinks "Maybe Ms. Rodriguez had imaging somewhere else, and she can bring in a CD with the images."

What it Means to be Human

MODELS OF HUMAN FLOURISHING

The above vignette highlights several of the challenges and tensions that are encountered almost daily in a typical diagnostic radiology department. These difficulties commonly harm the flourishing of everyone--radiologists, technologists, and patients. Understanding what a human is forms the first part of any analysis of flourishing and is essential not only to our work environment but to our lives in general. People who live frantic, distracted, and out of balance lives lack resilience and will not be able to respond well when daily challenges occur. So, a solid understanding and practice of human flourishing are vital prior to any endeavor including work.

There are three perspectives which when taken together provide both conceptual and evaluative understandings of human flourishing. The biopsychosocial-spiritual (BPSS) model used and commonly taught in medicine is the first of the three and provides a foundational understanding of the elements of our humanity and the interdependence of these four dimensions. The second perspective is from new natural law that informs us of a suite of basic goods that humans can and should generally pursue and prioritize above other goods or goals. Lastly, from a more evaluative perspective, the positive psychology movement through thousands of studies and reflection have identified five hallmarks of what a flourishing life looks like.

The BPSS model reminds us that we are not solitary atomistic wills but rather embodied (biologic) humans that are placed in a rich social network that impacts all aspects of our humanity and is essential for our

development, sustainment, and flourishing. The spiritual dimension has been variably described but defining it as the "transcendent" as Dr. Daniel Sulmasy proposed best distinguishes it from the other dimensions.[8-9] The transcendent would include things that are good or true that transcend our social or cultural moment. The virtues can be defined as transcendently good throughout time and in different cultures. Additionally, the virtues have been identified by numerous authors and philosophers both ancient and modern as important aspects of human flourishing.[10-11]

The BPSS model is important as it reminds us that all four of these dimensions are interrelated and impact the other dimensions while also being dependent upon the other dimensions for their flourishing. For instance, our biologic dimension's health requires the psychologic dimension's thoughts, emotions, and desires to be oriented to caring for the body through proper nutrition and exercise. Additionally, the social dimension is critical for society's structures to provide clean air, water, and access to healthy foods. The social dimension through friendship and marriage also give us encouragement and accountability to stick to good diet and exercise programs, to seek healthcare when ill, and to provide support when we are ill, injured or disabled. Lastly, the virtues are essential in making us the sort of people who will have the fortitude and prudence to watch our diets and to persevere in our exercise programs.

However, the BPSS model is insufficient as it has no normative power to inform how we should prioritize our lives. The new natural law philosophical tradition provides a solid base by which we can harmoniously employ the four dimensions of our humanity towards worthy goals or ends which can be identified through prudent reason. These higher ends or goals are called "basic goods." A list of the basic goods includes health, life, work, play, knowledge, aesthetic experience, marriage, friendship, personal integrity, and harmony with the Divine.[12] Furthermore, the sanctity of these basic goods is underlined with the statement to "*Never intentionally damage or destroy a basic human good*" (italics in original).[13] Thus, we see a priority of ends or goals that our multi-dimensional humanity should be aimed at. By extension, all non-basic goods would then be classified as instrumental goods and prioritized lower than the basic goods if they come into conflict.

The BPSS model and the new natural law tradition provide a solid conceptual framework of the human but an evaluative approach from empiric studies can complete and expand our understanding of human flourishing. The Positive Psychology movement of the last several decades has studied human flourishing through thousands of studies and has identified a few hallmarks that characterize flourishing. Dr. Martin Seligman's summarization of these hallmarks into five areas is helped by the easily remembered acronym "PERMA." "P" for positive emotions, "E" for engagement or "flow" (getting lost in time when our talents are commensurate to a challenging task at hand), "R" for good relationships, "M" for meaning, and "A" for accomplishment for its own sake.[14] The flourishing human can be recognized by high marks in most or all these areas.

Putting all this together reminds us of the importance of living outside our own psychologic thoughts, emotions, and desires by embracing others in the social dimension and working with or for others and aiming at excellence in work for its own sake. The spiritual dimension's virtues and the basic good of harmony with the Divine are important aspects of our character that will help us pursue the good of others as if it is our own good, which is a definition of love. These three strains of thought on human flourishing remind us of the vital importance of the social dimension where friendships reside that give us meaning in life and make us more fully human.

CURRENT CHALLENGES AND SOLUTIONS TO HUMAN FLOURISHING

What then are the key challenges preventing us from realizing human flourishing? There are two interrelated rival conceptions of human flourishing which are detrimental to flourishing, and both are compounded by the digital revolution.

The first rival concept is "expressive individualism." Expressive individualism has its roots in the Romantic Period, and it changes the foundation of the human from the social or spiritual dimension towards the psychologic. Carter Snead defines expressive individualism's understanding of the human as "persons are conceived merely as atomized individual wills whose highest flourishing consists in interrogating the interior depths of the self in order to express and freely follow the original truths discovered therein toward one's self-invented destiny."[15] This inward focus and subsequently prioritization of the psychologic dimension begins to put the human out of balance in relation to the other dimensions.

This imbalance is made worse by "consumerism." The modern West is characterized by economic prosperity, where advertising equates personal fulfillment with the continual acquisition of goods and services. Media across all platforms frequently glamorize the lives of the "rich and famous," reinforcing an image of the "good life" as one defined by wealth and consumption. This portrayal targets the psychological self—its thoughts, emotions, and desires—creating a relentless feedback loop where consumption fuels more consumption. Ironically, rather than satisfying our desires, this cycle leads to a gradual decline in fulfillment. This dynamic is known as hedonic adaptation: as our level of comfort or consumption increases, it becomes the new baseline, requiring ever more to achieve the same sense of satisfaction. In this way, goods and services designed to enhance life can become rivals to the basic goods essential for genuine well-being—and are often pursued at their expense.

Expressive individualism and consumerism are both fueled by the digital revolution where we can now satisfy our psychologic desires with less and less regard to the other three dimensions of our humanity. Many authors have pointed out the increasingly obvious harms of the digital world in making us more anxious, less virtuous, and more socially isolated. The harms of social media alone have risen to the level of United States Surgeon General, leading to reports and more and more legislative acts

are being aimed at reducing the adverse impact of this aspect of the digital world.[16]

The solution to these challenges must be both conceptual and practical. It begins with clearly contrasting two rival visions of human flourishing: one rooted in consumerism and individualism, and the other grounded in a holistic understanding of our multi-dimensional humanity. True flourishing prioritizes the basic goods—such as health, friendship, and work—and seeks their harmonious integration rather than their replacement by material excess.

Reducing society's fixation on consumerism and intentionally limiting our engagement with the digital world are foundational first steps. Practical actions—what might be called a "rule for life"—offer a tangible path forward. The Praxis group, for example, proposes practices that include strictly observing the Sabbath and so refraining from work for one day a week (reinforcing the crucial need for rest); tithing to the poor (reducing the importance of consumption); systematically disengaging from phones, tablets, and computers for set times (bringing needed rest and perspective to life); committing to daily prayer (moving towards harmony with the Divine in addition to bringing about greater abilities to focus); sharing power with others; consciously avoiding isolation and pursuing community (pursuing the goods of friendship that can encourage and edify us to pursue a life of flourishing).[17] Together, these conceptual and practical steps form a powerful framework for reclaiming our humanity, restoring mental well-being, and countering the rising tide of burnout in modern life.

Work's Good and Challenges

OVERVIEW OF THE GOOD OF WORK

In our technologically advanced world, work in all its forms is becoming more and more dependent upon the expertise and services of more and more people. We are all becoming increasingly embedded in teams that are part of institutions which provide increasingly sophisticated and complex goods and services. As we mentioned in the BPSS model, all the dimensions of our humanity are interrelated, and the work environment is no different. Our co-workers and colleagues influence us for good or ill, while the institution's policies and procedures form us into a particular type of worker and more generally a particular type of person.

Work is typically a very social activity involving both the individual and the institution. They influence each other as institutional policies and procedures influence individuals and likewise individuals comprise the institutions and drive policies and procedures. Many of us may not have much influence in our institution, but what we have total control over is our attitude. To achieve the good of work, the worker simply needs to love two things: 1) love the work for its own sake or reward, and 2) love those associated with your work. Pursuing and loving excellence in our work realizes the basic good of work while also being the hallmark of accomplishment and frequently engagement. Loving those associated with our work can also be thought of as embracing another's good as my own. This others-focused mentality then helps to achieve positive relationships and realizes the basic good of friendship. Serving others also achieves meaning by serving someone or something greater than ourselves. The importance of the social dimension to meaning in our lives is underscored by Dr. Martin Seligman when he says, "today it is accepted without dissent that connections to other people and relationships are what give meaning and purpose to life."[14]

The institution also plays an essential role in realizing the good of our work. The institution needs to provide the necessary resources, especially *time,* to the workers to perform the job well. If the worker is adequately trained and equipped, then the challenge of work can frequently be an opportunity for "flow" or "engagement" thus fulfilling another hallmark of flourishing. On the other hand, the institution should not burden them with meaningless activities, nor should the institution distort the internal good or excellence of the work by making it serve other ends or goals that compete with and harm the internal good of their craft.

THE CHALLENGES TO THE GOOD OF WORK IN HEALTHCARE

Limited Resources

The phrase "time is money" is now being ruthlessly applied to healthcare, transforming it into a market model. The relentless push for "efficiency" and "throughput" has created an environment where healthcare professionals are pressured to see patients quickly to meet financial targets and access benchmarks.[1] This "uncontrolled speed" is identified as one of the greatest harms to human flourishing, both at work and in life generally, contributing to anxiety and a low sense of accomplishment.[14] John Mark Comer in his book *The Ruthless Elimination of Hurry* gets right to the point when he says, "Hurry and love are incompatible."[18] We cannot love our work or those associated with it if we are in a constant state of rushing about.

Other resources such as scanners, computer systems, contrast agents and especially medications are all being constantly scrutinized for cost savings. While prudence in spending is necessary, cost-saving must never come at the expense of excellence. The true aim of healthcare should remain the pursuit of high-quality, compassionate service that honors both the caregiver and the patient.

Meaningless Tasks

Bureaucracy represents another pervasive threat, diluting and degrading the internal good of work by imposing ever increasing layers of additional forms and requirements that consume time better spent on primary tasks. These valueless tasks become mere boxes to be checked, draining meaning from work, and contributing to feelings of estrangement, as they often have less and less to do with our actual work or even the purpose of the institution. The expectation to maintain or increase output despite these added burdens often forces workers to operate faster, inevitably compromising quality.

The transformation of medicine into a market model focused on consumer satisfaction is another root for meaningless work. Healthcare professionals went into

medicine to realize the transcendent goal of making patients whole through healing them, not making satisfied customers by catering to their whims. Increasingly, patients view themselves as consumers or customers who feel entitled to an entire menu of diagnostic and therapeutic services. This results in more tests and therapies that have little or no impact on the health of the patient—meaningless work. In addition to being meaningless, it also inflates costs and exposes patients to unnecessary side effects and complications, fundamentally distorting the purpose of medicine.

To counter the diluting and demoralizing effects of bureaucracy, institutions must critically evaluate and streamline every new requirement, form, and training. This includes rethinking computer-based training—reducing its volume, avoiding one-size-fits-all models, and ensuring it is relevant and purpose-driven. Leadership and support staff should embody servant leadership, guided by a clear, patient-centered vision. Administrative processes must be designed to genuinely support—not burden—frontline workers. By eliminating redundant and inefficient tasks, organizations empower professionals to focus more on direct patient care, enhancing both operational effectiveness and job satisfaction. In doing so, institutions cultivate a more meaningful work environment—one where people thrive, not just perform.

Distorting Medicine's Identity

The impact the market mentality has upon the psyche of the healthcare professional cannot be overstated. Institutions shape their workers into people to pursue and value what the institution values which can either be a cycle of virtue or a cycle of vice that "deform us to be cynical, self-indulgent, or reckless" as Yuval Levin says.[19] Unfortunately, more and more healthcare institutions have embraced the market with healthcare professionals increasingly viewed and designated as "providers of services" while our patients are now healthcare consumers. Instead of the institution *forming* its healthcare professionals into competent and compassionate advocates for the objective good of the health of their patients, they have been *deformed* into providers of goods and services in the most efficient and cost-effective manner possible. The efficiency-driven market model degrades the quality of work due to insufficient time and resources.

Some healthcare professionals have given up on their higher ideals and have succumbed to the market efficiency model where according to Dr. Edmund Pellegrino "They place less emphasis on continuity, personal commitment, and personalized relationships with patients than in the past."[20] Others, however, continue to struggle with this day-to-day tension between their professed goals of delivering excellent care and the daily limitations in the clinic or hospital.[21] This struggle results in a fragmented individual who increasingly lacks personal integrity due to this unresolved tension between their conscience and the stark realities imposed upon them by the institution. If the tension is deep enough and/or goes on long enough, then it will result in moral distress and/or injury. Drs. Dean and Talbot in their book *If I Betray These Words* make an excellent case that a substantial source of burnout in medicine is due to the moral injury experienced by many healthcare professionals.[22]

Virtues and the Good of Moral Community

Every person needs to have a community that encourages the virtues and praises the excellence of the work they perform. Humans are intrinsically social beings, and genuine community is essential for individual flourishing.[13,23] The Hippocratic Society explicitly recognizes this vital function in its mission statement which is "To form and sustain clinicians in the practice and pursuit of good medicine."[24] This moral community in medicine should explicitly encourage the virtues, which as Dr. Pellegrino states are "trait[s] of character that dispose its possessor habitually to excellence of intent and performance with respect to the *telos* specific to a human activity."[25] The formation of character is deemed "as important in the education of professionals as their technical education," emphasizing the cultivation of virtues through everyday actions.[25] Key professional virtues include fidelity to trust and beneficence, alongside compassion, intellectual honesty, justice, and prudence.[25] Professional ethics also demands a "certain degree of altruism and even effacement of self-interest," where the "intentions and acts give some degree of preference to the intention of others."[20]

The moral activity of medicine has long been established, and a moral community can not only encourage the individuals but also hold the institution accountable to its primary goals. A healthy environment requires commitment from both the institution and individuals to ensure that healthcare professionals can consistently act in the best interests of their patient, aligning their work with the profession's internal goods.[23] This will prevent the personal disintegration and the moral injury and burnout that flow from it.

Conferences are another avenue that can be used to enhance the good of friendship and promotion of moral formation (the virtues) in addition to the transmission of knowledge (a basic good) or practical skills. Specialty-specific conferences or general communities such as the Hippocratic Society can serve this vital purpose. Through these social events, the shared pursuit of truth and excellence can further aid in offering "moral exemplars" and helping to overcome individual blind spots.[13] These social interactions and collaborative learning enhance the overall vitality of the profession and reinforce its collective dedication to patient health.

Flourishing for the Diagnostic Imaging Professional

OVERVIEW OF THE GOOD OF DIAGNOSTIC IMAGING

Although interventional radiology and increasingly nuclear medicine are therapeutic, the primary end of the vast majority of those in diagnostic imaging is to reduce diagnostic uncertainty through high-quality and safe imaging rendering interpretations usually conveyed by written reports. This reduction in diagnostic uncertainty alleviates patient and clinician anxiety leading to a more straightforward course to healing. These specific aims

support the internal end or goal of healthcare which is the health of the patient with health also being a basic good.

The diagnostic imaging professionals (radiologists and technologists) should love their craft for its own sake, thus realizing the basic good of work and accomplishment for its own sake. Radiologists and technologists need resources, especially time, to do excellent work. Neither should be in a constant state of hurry which leads to cutting corners and sacrificing quality for expediency. Both want their work to matter or have meaning. Meaningful examinations need the correct resources (machines, contrast agents, computers, clinical histories, access to patient information), well trained professionals (both technologists and radiologists), in addition to proper indications (avoiding meaningless studies). If any of these are lacking, then the examination can rapidly become less meaningful (e.g., does not reduce diagnostic uncertainty much) or meaningless (e.g., does not reduce uncertainty at all).

Additionally, they should love those associated with imaging pursuing their good as if it were their own. The good of those associated with imaging is more than just rendering excellent and safe imaging, but also embracing the social dimension of humanity that helps us realize the hallmark of positive relationships and the basic good of friendship. We must resist isolating ourselves since "very little of it [flourishing] is positive as solitary."[14] This means engaging with referring clinicians, technologists, and patients in a spirit of selfless love. This relational orientation brings meaning to work, a critical element of flourishing, by fostering a sense of connection and contribution to something larger than oneself.

Lastly, the virtues are critical to serving others and adhering to our higher ideals and controlling our lesser desires in our pursuit of the basic goods. The virtues of compassion and empathy immediately come to mind and are vital to this therapeutic relationship, fostering improved patient outcomes, adherence, and even preventing burnout.[26] The commitment to "uncalculated giving and graceful receiving" within the professional context, reflecting a "beneficent altruism," is morally obligatory for all health professionals, underscoring the intrinsic value of caring for others.[15,27]

CHALLENGES AND SOLUTIONS TO THE GOOD OF IMAGING

Too Much Work, Not Enough Information

The relentless drive to maximize "efficiency" and "throughput" in diagnostic imaging often results in an environment where the diagnostic imaging professionals are pressured to process patients rapidly with the least amount of cost thus reducing the resources needed to do an excellent job.[28] Resources include the scanning machines, computer systems and contrast agents but also the skill and training of the diagnostic imaging professionals. Working with antiquated systems with less than well-trained staff degrades the quality and the good of diagnostic imaging. On the contrary, there is a distinct satisfaction and joy associated with the production of high-quality and safe images.

Information is a vital resource—especially in today's digital age—where the quality and accessibility of data can significantly impact patient care. Accurate, detailed clinical histories are often essential for interpreting imaging studies effectively and to achieve the goal of reducing diagnostic uncertainty. Unfortunately, this process is frequently undermined by overly brief clinical notes, fragmented electronic medical records lacking interoperability, and the substitution of ICD codes in place of meaningful clinical context. These practices limit the imaging team's ability to fully contribute to patient outcomes.

Conversely, systems that streamline and enhance the delivery of relevant medical history—particularly those that integrate seamlessly with the electronic medical record (EMR)—empower radiologists to make more informed interpretations. Such systems also free up time for radiologists to focus more deeply on patient interactions and image analysis, ultimately improving diagnostic accuracy and patient care.

The old expression "old radiologists and old images" are your two best friends as a radiologist still rings true. Access to good histories and old images are twin information pillars upon which good imaging interpretations are built. Lack of comparison imaging daily inhibits the good of diagnostic imaging resulting in less specific reports that lead to persistent uncertainty and further imaging and/or therapies many of which are unneeded and potentially harmful to the patient. The rise of digital technology for image processing, viewing, and storage has significantly advanced medical imaging. However, its full potential remains unrealized—particularly in countries like the United States—due to a highly fragmented healthcare system. Most hospitals and imaging centers operate on separate platforms, lacking a unified database that thwarts seamless image sharing. As a result, patients are often left to transport their imaging studies manually, typically on CDs, to upload into other systems—a process riddled with delays, compatibility issues, and inconvenience. This inefficiency not only hampers timely care but also places an unnecessary burden on patients.

Time is another and frequently the most critical resource. Although access to the EMR and prior imaging is a great and necessary step, the radiologist must have sufficient time to look at these points of information. A system that provides these automatically is helpful, but there will be critical information in the EMR or comparison imaging that the algorithm does not automatically access that requires the radiologist's time to dig through the chart to find.

Technologists need sufficient time to perform the study correctly which includes addressing the needs and concerns of each patient prior to and after their imaging. The need to lie still and breath hold are critical in CT, ultrasound, and especially MRI; however, many patients have marked limitations in these areas. A savvy technologist can help identify those needs prior to the examination, speak encouragingly and comfortingly to the patient, while also providing tips to allay anxiety and cooperate with the examination. In the end this yields

good quality examinations the first time getting critical diagnostic information out faster and eliminating repeat examinations. The time spent upfront is usually more than compensated for by decreasing repeat examinations or sequences.

In addition to inquiring about contrast reactions, the technologist can take the time to get to know the patient as a human being with unique perspectives and issues, thus reducing their anxiety. This not only leads to a more pleasant diagnostic imaging experience but may also reduce the incidence of side effects and even contrast reactions which have been seen with a higher rate in patients with anxiety.[29]

There are inevitably times in the best of circumstances where the work volume increases unpredictably such as in the emergency department. These circumstances can be opportunities for entering into "flow" or "engagement" where the task at hand appropriately challenges our abilities. This requires the individual to reframe the circumstances from one of inconvenience or annoyance to one of challenge. It should be noted that humans were not meant to be in a perpetual state of peak performance and thus a balance is needed between times of high volume with more moderate volume of work.

Time involves not just the external circumstances that the institution provides such as the volume of work required in a certain time, but also the amount or proportion of mental time that we as individuals give to the task and patient at hand. Our ability to be "present in the moment" relates largely to how much flourishing we have in our lives prior to work and how well we can manage the distractions in our lives that come at us from a variety of sources. Some distractions may be from an overly busy home life that may be things we can control or not. Additionally, one of the greatest distractions of our age is the intrusion of smart phones into our daily lives. The alerts from a smart phone can become an almost constant source of distraction. The speed of this constant task switching results in inefficiencies and increased anxiety further limiting our effectiveness with the imaging study and patient in front of us. Dr. Seligman underlines this harmful connection when he says, "speed and anxiety go together."[14]

Another aspect of time that individual diagnostic imaging professionals need to devote to our work includes times outside of the actual task at hand to reflect upon and be grateful for the job that was done well, for those who helped us with our jobs, and to recollect positive patient encounters. Positive psychology and philosophical tradition both highlight the vital importance of gratitude in helping us to flourish as humans and to develop the virtues. The psychologist Robert Emmons perhaps the world's expert on gratitude claims "Experiencing gratitude leads to increased feelings of connectedness, improved relationships, and even altruism."[30] These moments can practically be incorporated in our day through a "well-being walk" in the middle of the day or doing a "what-went-well exercise" a.k.a. "the three blessings exercise" at the end of the day.[14]

Thus, both the individual and the institution need to make the resources available for diagnostic imaging excellence that promotes the joy of work well done for its own sake.

Meaningless Work--Wrong Protocols and Superficial Relationships

Meaning is the "M" in the PERMA acronym and reminds us of our deep longing for purpose and impact in this life. Fruitless tasks can drain our souls of the vitality and energy we need to continue. Meaning can be related to either the task at hand or the impact on the people that it serves.

Diagnostic imaging is a complex field and many within healthcare do not understand the best modality to utilize (e.g., MRI vs. CT vs. ultrasound), let alone the indications for intravenous or oral contrast agents. This complexity commonly leads to clinicians ordering the wrong study. Unfortunately, due to lack of time, difficulties speaking to clinicians about a patient, or obstacles placed by insurance companies, it can be very difficult to alter an imaging study once ordered and approved by insurance. This commonly results in less meaningful and sometimes meaningless studies. Additionally, it increases the exposure of the patient to unneeded radiation or contrast agents which can harm their health. The technologists sometimes realize the futility of the examination, but the radiologists are usually acutely aware of this fact. The diagnostic imaging professionals then shrug their proverbial shoulders and succor this problem by saying "at least we got paid for it." This is a poor substitute for the internal good of imaging, denigrates the meaning of the study and can eventually lead to estrangement and moral injury.

Furthermore, a market mentality, with its prioritization on customer satisfaction along with the limited time and superficial relationship between clinician and patient can easily lead to imaging overutilization. This overutilization not only inflates costs, exposes patients to unnecessary radiation and/or contrast, but leads to more "normal" studies. These "normal" studies may allay some anxiety for clinicians and patients, but if too commonly encountered can lead radiologists and technologists to adopt a jaded attitude regarding the efficacy or the meaningfulness of studies for certain indications.

Radiologists and technologists are a vital imaging team that need to work together and be empowered by the institution to refine protocols and critically assess the value of studies. This gives them a sense of agency, contributing to job satisfaction and a deeper connection with the patients.[7] The need for proper resources, especially time and training, are essential to make the space available to review the indication and ensure the patient is receiving the best study. The technologists at our institution commonly bring to the radiologist's attention an opportunity to change the order or the protocol in order to facilitate the best study possible for this patient. Without the needed time or agency, the technologist will not have as much opportunity or be empowered to take the extra time to ensure the imaging study is not only done correctly but is the right imaging for this patient.

This daily collaboration between radiologists and technologists not only results in higher quality studies but achieves the basic good of friendship and the hallmark feature of positive relationships. However, there are multiple challenges that can limit the good of friendship in diagnostic imaging especially with our patients. First, the very nature of the imaging experience limits any recurrent patient relational experiences. The second is the scarcity of time which affects not only the quality of the work but also the opportunity for relationships amongst radiologists, technologists, and patients. Dr. Richard Swenson states "our relationships are being starved to death by velocity."[31] Another challenge is the digital world which has increasingly isolated the radiologist from both patients and colleagues. Radiologists do fewer "hands on" studies such as barium examinations since CT and/or MR have replaced many of these exams thus decreasing opportunities for patient relationships. Furthermore, before the digital revolution, if a clinician wanted to look at the images, they had to come to the radiology department where the radiologist would be, thus providing a collaborative relational experience. With digital archiving and viewing, images are now available to anyone at any time. These challenges to developing and sustaining relationships and subsequently greater meaning need to be mindfully overcome. Radiologists need to be excited and very welcoming when colleagues come to the radiology department while prioritizing interdisciplinary conferences. Neither may be reimbursable, but both are substantive steps that can help bring meaning to our work.

Task oriented relational experiences such as answering questions regarding a study or contributing to an interdisciplinary conference are good; however, a deeper community of physicians outside of radiology but within healthcare is more important than ever. With the decreased number of doctors' dining rooms, the opportunity for food and fellowship has diminished; however, the need for more unstructured time spent discussing broader aspects of medicine has never been higher. Lunch or dinner and discussion remain time tested avenues for forming community. Radiologist Dr. Brandon Brown encourages others when he states, "One method is for radiology groups and departments to sponsor regular, recurring gatherings outside of clinical work, dedicated not to an agenda but rather to fostering relationships among radiologists."[3] Physician focused groups like the Hippocratic Society use these elements which are not only good for physicians in general but are excellent for radiologists specifically. These multi-disciplinary fellowships help to broaden the view of radiologists who are increasingly isolated while also making radiologists' challenges more visible to their clinical colleagues whose good of medicine and flourishing are closely intertwined.

FLOURISHING FOR THE PATIENT

The Ends for the Patient

The very identity as a patient entails a whole host of roles which usually focus on diseases and disorders of the body and/or the mind. The natural focus of medicine and the patient is to restore health or wholeness through the process and techniques of healing. However, the patient is more than just a sum of diseases or disorders, but a multi-dimensional person where all four dimensions are at work every day. Additionally, they have the same needs for the basic goods as do their diagnostic imaging professionals. Taking these factors and needs into consideration will humanize the experience for the patient just like the professionals.

The first end is cooperation with those experts in diagnostic imaging to obtain high-quality and safe images. Patients are not objects—they are people. They simply cannot be placed in a scanner like equipment. Their cooperation is essential, especially when it comes to holding still, following instructions, or providing accurate medical history. This becomes particularly important with pediatric patients, critically ill individuals, or those with anxiety, trauma, or prior negative medical experiences.

Claustrophobia, for instance, is a common challenge in CT and especially MRI imaging and can significantly impair a patient's ability to remain still or follow breathing instructions. The technologist needs to take the time to make space for the patient to communicate these issues, and it is further incumbent upon the patient to honestly relay these issues to their referring clinician and the imaging team. Proper communication and planning can mitigate these obstacles and improve the overall experience.

The second vital aspect is to love those associated with diagnostic imaging. This is as important for our patients as it is for our diagnostic imaging professionals. Patients, although perhaps in a position of need, must also realize that the radiologist or technologist is another human that needs love and encouragement. Living out the virtues is important for all involved including the patients. Alasdair MacIntryre lists the important virtues of acknowledged dependence as "knowing how to exhibit gratitude, without allowing that gratitude to be a burden, courtesy towards the graceless giver, and forbearance towards the inadequate giver."[32] Complementing those who have gone above and beyond and having forbearance and long suffering when the diagnostic imaging professional is late, the study takes longer than expected or the technologist misses the first intravenous line. All these virtues make both the patient and the imaging experience better.

The Challenges to the Patient

In addition to the obvious health challenges, there are the additional challenges of living a fragmented and frenzied life that is out of balance. A life that is not balanced or working harmoniously may either directly result in disease or disorder or make them worse. This all contributes to a more challenging healthcare experience.

Beyond its impact on professional identity, the market-driven mindset also reshapes the relational dynamics and expectations between patients and healthcare providers. Patients who pay substantial sums for care understandably expect more than rushed, fragmented services—yet this is often what they receive. As a result, many no longer see themselves as patients seeking healing, but as consumers demanding value for their money.

This shift transforms the healthcare relationship from a cooperative partnership—united in pursuit of the common good of health—into a transactional, and often adversarial, exchange where personal interests compete rather than align. Both patients and healthcare professionals suffer under these distorted roles, as the deeper human dimensions of care and compassion are eroded in favor of efficiency, profit, and consumer satisfaction. Reclaiming the integrity of these relationships is essential to restoring meaning, trust, and healing in healthcare.

Opportunities for the Patient

First, know thyself. For patients, this means understanding what true human flourishing entails—and actively pursuing it. Flourishing is not found in mere comfort or convenience, but in a life marked by balance, virtue, and harmony. It involves recognizing your own limitations and having the courage and humility to share them openly—first with your referring clinician, and then with the diagnostic imaging team. Honest communication strengthens the partnership and improves care.

Also, accept that medical processes often take longer than expected. Rather than viewing this as wasted time, use it as an opportunity. Set aside your smartphone. Engage in conversation. Offer encouragement to fellow patients. In doing so, you'll discover something deeply human: that you are not suffering alone. Suffering is part of the shared human experience, and small acts of connection in waiting rooms can restore dignity, foster community, and contribute to healing in ways no scan ever could.

Conclusion

The path forward to flourishing in the healthcare and diagnostic imaging experience requires a comprehensive shift in institutional philosophy and individual practice, re-centering healthcare on what it means to be human and first principles derived from that. A reformed understanding of the human incorporating all dimensions of our humanity working in harmony and oriented to the basic goods is essential. The basic good of work is realized when it is pursued as an end in itself and not merely a means to something else such as money. This is done by focusing on loving excellence in our work for its own sake along with loving the social relationships that accompany it. When we align our work with these values, we foster genuine meaning and open a path to flourishing—for patients, technologists, and radiologists alike—as we rehumanize the diagnostic imaging experience.

Practically, this requires more resources especially information and time. Better clinical histories and access to medical records especially old images will greatly assist excellent imaging and diagnoses. Time, both from an institutional and individual perspectives, allows opportunities to access this information along with the time to connect with patients and our colleagues. Additionally, the institution needs to give the diagnostic imaging professionals more agency by granting them more authority to adjust the imaging study to achieve greater reduction of diagnostic uncertainty. This all results in reclaiming the identity of diagnostic imaging professional whose goals and actions prioritize the objective health of the patient over other lesser goals--effectiveness over efficiency. This redeemed identity and the supportive healthcare institution that goes along with it provides the pathway forward for flourishing as we humanize the diagnostic imaging experience for all … patients, technologists, and radiologists.

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