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COVID-19 and Resource Allocation: Planning for Times of Scarce Medical Resources

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President Theodore Roosevelt once reportedly said, "In any moment of decision, the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing."[1] During the COVID-19 pandemic, it has not always been easy to determine what doing the right thing means. In times when medical resources become scarce, choices may have to be made as to who should receive limited medical supplies and services. Relatively early on in the COVID-19 pandemic, the World Health Organization (WHO), for example, approximated that one in five people who contracted the novel coronavirus would need hospital care.[2] Similarly, the Centers for Disease Control and Prevention (CDC) estimated that up to 20 percent of children infected with the novel coronavirus in the United States would require hospitalization.[3] At the time, questions began to arise as to whether hospitals would have the capacity to care for the increasing number of individuals who would need to be hospitalized, whether because they contracted COVID-19 or for other, non-COVID-19 conditions.

In addition, due to the highly infectious nature of COVID-19, specialized precautions have had to be put in place to reduce the spread of COVID-19 in healthcare facilities, particularly in the hospital setting. For example, in April 2020, the CDC recommended that healthcare personnel should wear face masks or N95 respirators at all times while in the facility, especially before entering a patient's room.[4] The same is true for other personal protective equipment (PPE), including gloves, gowns and eye protection. The CDC also reported, however, that there were major shortages of PPE.[5] The lack of N95 respirators in particular created a "black market" where alleged price gougers sought to sell or resell millions of these masks at exorbitant prices. The 3M Company, the maker of the N95 masks, filed lawsuits in at least 10 states against alleged price-gougers who were allegedly seeking to sell N95 masks to the Strategic National Stockpile, among other federal and state entities, some at prices six times higher than 3M's list price – a mark-up of 600 percent.[6] In addition, during the first several weeks of the pandemic, the number of ventilators needed to care for patients with COVID-19 who were critically ill shrank, seemingly on a weekly basis. Some estimates at the time indicated that hospitals in the United States would need as many as half a million more ventilators during the pandemic.[7] Other estimates indicated that there could be as many as 31 times the number of patients who would need ventilators than there were ventilators.[8] Even though the positive effects of social distancing and other efforts decreased the initial estimate of ventilators that would be needed during the pandemic, by April 2020, approximately 25,000 ventilators were still projected to be needed in the ensuing weeks.[9] The increasing scarcity of ventilators was also attributed to the length of time for which an adult COVID-19 patient needs to be on a ventilator. Whereas, on average, non-COVID-19 adult patients would typically remain in the Intensive Care Unit (ICU) on a ventilator for approximately one to three days, COVID-19 patients remain on ventilators for two to three weeks, thereby greatly increasing the demand.[10]

As with the supply of ventilators, hospital beds for COVID-19 patients dwindled, with the Washington Post declaring at the time that ″the United States is on the brink of a hospital capacity crisis″ because, according to the CDC, the United States would need approximately 15,800 more hospital beds than were currently available.[11] Other estimates projected that 60 percent of the population would become infected with the novel coronavirus with a hospitalization rate of 20 percent.[12]

In light of the increasing shortages of critical, life-saving supplies, hospitals and other healthcare providers quickly tried to create (or dust off) policies and procedures to assist them in the event they would have to make exceedingly difficult decisions regarding who would have access to much-needed ICU hospital beds and ventilators and who would not during the pandemic. But how were these decisions going to be made in the hospital context and by whom? Would it be a matter of rationing scarce resources or, in making these decisions, would the concept of ″medical futility″ come into play? This article focuses on the COVID-19 pandemic at the point where critical shortages of hospital beds, particularly ICU beds, and ventilators were beginning to be seen. It looks at what steps hospital providers took, as well as what steps they were preparing to take, in the event the anticipated surges of COVID-19 patients far exceeded the availability of these supplies. Such steps ranged from identifying creative solutions to increase the number of beds and ventilators to having to understand in order to be able to potentially apply the concepts of ″medical futility″ and healthcare ″rationing″ to determine who would receive scarce resources.

The Concept of Medical Futility

According to the National Council on Disability, an independent federal agency that makes recommendations to the President and Congress to enhance the quality of life for individuals with disabilities and their families, medical futility is a concept that concerns ″whether and when a healthcare provider has the authority to refuse to provide medical care that they deem ′futile′ or ′nonbeneficial.′″[13] Medical futility has also been defined to involve medical therapy that has no known or anticipated immediate or long-term benefit for a patient,[14] as well as an action that cannot achieve its proper goal, regardless of how many times it is repeated.[15] The concept of medical futility has apparently been around for thousands of years, with Hippocrates stating that one should ″refuse to treat those who are over-mastered by their disease, realizing that in such cases medicine is powerless.″[16] Plato, too, wrote about the concept of futility, stating that ″for those whose lives are always in state of inner sickness Asclepius did not attempt to prescribe a regime to make their life a prolonged hell.″[17]

Despite its apparent existence for more than two millennia, the concept of medical futility has been difficult to define and has gone through several iterations even throughout the last 75 years. In fact, the concept was not the focus of significant attention until the 1950s and 1960s. During these years, major advances in modern technology and the development of the concept of ″patient autonomy″ or ″patient self-determination″ resulted in individuals beginning to call into question the long-held belief that physicians can and should make decisions about whether and when medical intervention would be considered futile and therefore must be withheld or withdrawn.[18] As the concept of patient autonomy or patient self-determination grew, physicians′ ″power″ to make sometimes life and death decisions related to withholding or withdrawing medical care was criticized as being paternalistic and allowing physicians′ personal values to be imposed on their patients.[19] Physicians′ decisions regarding withholding or withdrawing life-sustaining care took one of two forms: on the one hand, physicians believed they had the right to remove life support when they determined that providing life-sustaining efforts would be futile, regardless of the wishes of the patient or the patient′s surrogate decision-maker(s), and/or the patient′s family.[20] On the other hand, some physicians *resisted* requests from patients′ families or surrogate decision-maker(s) to remove life-sustaining care for ethical reasons or for fear that doing so may lead to medical malpractice lawsuits and/or accusations that they engaged in

criminal conduct, including homicide and euthanasia.[21] Such was the case for the family of Karen Ann Quinlan, which sued for the right to remove her from life support when her physicians, who had determined that there was no hope of recovery, refused to do so.

Perhaps as a result of these difficult, emotional and often-conflicting views between patients and their families on one side and physicians of the other, the idea of establishing a definition of futility became a hotly debated topic in the 1980s. At that time, it was argued that, once a physician, using his or her clinical judgment, training and clinical skills, determines that a particular intervention would not benefit a patient, the physician could label the intervention "futile."[22] This concept contrasted with the idea that if *some* medical benefit to the patient existed, then the intervention should not be deemed futile.[23]

Subsequently, the concept of medical futility was revised into one of "physiological futility," which was defined as a treatment that is incapable of achieving its intended biological aim.[24] This concept focuses on whether or not an intervention will work at all or if it will be totally without benefit. The development of physiological futility was intended to remove the subjectivity involved in making decisions by using scoring systems that would allow healthcare professionals to determine that the desired intervention will not restore or improve function, such as giving a patient antibiotics to treat a viral cold.[25] This model, however, does not take into account individual deviations from expected outcomes and does not remove subjectivity from the process since the scoring systems themselves require medical interpretation and subjective evaluations.[26]

In the 1990s, a new concept of medical futility emerged. This concept contains two key approaches: a quantitative approach and a qualitative approach.[27] The quantitative approach focuses on an estimate of the probability of treatment success such that if a physician concludes that in the last 100 cases, a medical treatment has been useless, then that treatment should be regarded as futile.[28] The qualitative approach, on the other hand, states that "any treatment that merely preserves permanent consciousness or that fails to end total dependence on intensive medical care should be regarded as nonbeneficial and therefore futile."[29] Based on the qualitative approach, treatment for a patient in a persistent vegetative state might be seen as futile. For other patients, such as those on a ventilator, the approach would dictate that the patient's condition would have to be constantly monitored. This approach also distinguishes a treatment "effect," which is limited to an effect on some part of the patient's body, and a treatment "benefit," which improves the person as a whole. If a treatment fails to provide the patient a benefit, the approach states, then it is futile. This model requires the quantitative and qualitative approaches to be separate and independent. Thus, to be futile, a treatment must be *either* quantitatively or qualitatively futile.[30]

An alternate concept of medical futility requires that *both* qualitative and quantitative approaches be utilized together to reach a conclusion about medical intervention. This approach maintains that a treatment or intervention should provide a benefit to a patient both quantitatively *and* qualitatively.[31] It seeks to determine whether an intervention has any reasonable prospect of benefitting the patient and generally involves including the patient and/or his or her family in the decision-making process.[32] This process-driven approach focuses on establishing strategies and processes to minimize conflicts relating to medical futility. The concept was endorsed by the American Medical Association (AMA), which seeks to no longer utilize the term "medical futility" but instead prefers to refer to the concept of deciding whether or not to provide "medically ineffective interventions."[33] The AMA's Code of Ethics includes a process for helping to make decisions about whether an intervention is medically ineffective which includes, among other things, (1) discussing with the patient his or her goals for care, including his or her desired quality of life, (2) reassuring the patient that medically appropriate interventions, including appropriate symptom management, will be provided unless the patient declines particular interventions, (3) negotiating a mutually agreed-on plan of care consistent with the

patient′s goals and with sound clinical judgment, and (4) seeking assistance from an ethics committee or other appropriate institutional resource if the patient continues to request care that the physician judges not to be medically appropriate.[34]

Healthcare Rationing

Like the concept of medical futility, there appears to be no single, universal definition of ″healthcare rationing.″[35] A review of medical literature from 2001 to 2005 identified at least 16 different definitions of the term.[36] Unlike the concept of medical futility, however, which focuses on trying to determine whether a proposed intervention will benefit a particular patient, the concept of rationing generally involves trying to determine the number of patients who need a limited resource and analyzing the costs and benefits of allocating the limited resource among them.[37] In other words, healthcare rationing involves a population of patients, each of whom needs a resource that is in short supply -- too short a supply to satisfy every need -- and determining who should receive it. In order to make the best use of this limited resource, comparisons must be made among patients in order to decide how the resource should be allocated. This necessarily means that some patients who would benefit from the resource will not receive it.[38] Some questions asked in the context of rationing include how much of the resource exists, how many patients need the resource, who may benefit from receiving the resource, and how can the use of the resource be optimized.[39]

In any pandemic, including the current COVID-19 pandemic, where a ″second wave″ of the virus has been predicted to occur in some parts of the country,[40] hospitals may find themselves facing a critical shortage of ICU beds and/or ventilators such that healthcare rationing may come into play. But before any rationing would occur, there are a number of steps that hospitals can take, and that many hospitals took in the last several months, to mitigate ICU bed and ventilator shortages.

Hospital Beds and Ventilators

First, to help ensure that hospitals had enough beds to treat the surges of patients with COVID-19 that were predicted (and some say may still be realized),[41] the Centers for Medicare & Medicaid Services (CMS) urged hospitals to postpone non-essential surgeries and other procedures.[42] CMS recommended a three-tiered framework to assist hospitals in prioritizing services and care for those who need urgent or emergent care to save a life, to manage a severe disease or to avoid further harm from an underlying condition. The tiers take into account factors such as the current and projected number of COVID-19 cases in the community and region, the ability to implement telehealth, the supply of PPE, the health and age of each patient and his or her risk for severe disease, and the urgency of the treatment or service, among other factors.[43] The AMA praised these guidelines.[44] Similarly, the American College of Surgeons published guidance for elective case triage and surgical care during the pandemic.[45] The guidance recommends that considerations regarding whether to postpone elective surgery should include both the patient′s medical needs and the hospital′s ability to meet those needs in real time. The risks to the patient should also be analyzed, which include both the risks of proceeding with the surgery or procedure as well as the risks of delaying it. The guidance additionally recommends that an Elective Surgery Scale created by St. Louis University be utilized, which provides specific guidelines for each surgical specialty, including recommendations for cases that should be deferred, cases that should not be deferred, and certain treatment alternatives for some conditions.[46]

Although CMS and a number of medical societies urged hospitals to cancel non-essential elective surgeries, as of the end of March 2020, some chose not to do so.[47] These facilities continued to perform procedures such as breast augmentations and hip replacements despite the noted recommendations. Other facilities continued to provide elective procedures as long as

COVID-19 cases had not been reported in their area, and still other hospitals were making decisions on a case-by-case basis.[48] Perhaps as a result of this patchwork of responses, a number of states placed a moratorium on elective surgeries.[49]

In addition to cancelling elective surgeries and procedures, other solutions were proposed or implemented in an effort to free up capacity for hospitals. The Children′s Hospital Association, for example, advised hospitals that treat both adults and children to send their children and adolescent patients to children′s hospitals in order to create hospital surge capacity for adult patients.[50] Since the coronavirus appeared to be significantly less virulent in children than in adults, some children′s hospitals indicated their willingness to accept adult patients, if necessary.[51] ″Temporary capacity″ structures were utilized or built to deal with patient capacity issues. In New York, for example, the U.S. Army Corps of Engineers built an alternate care facility at the Jacob K. Javits Convention Center, which could house up to 2,500 patients who had mostly recovered from COVID-19 but who still needed to be cared for. In addition, the Navy hospital ship USNS Comfort, with 100 ICU beds with ventilators and the capacity to expand to up to 500 beds was commandeered to New York City to care for COVID-19 patients.[52] Even facilities that had been competitors found ways to collaborate and work as a single team to manage capacity in their service areas. For instance, Boston′s Massachusetts General Hospital and Beth Israel Deaconess Medical Center – traditional rivals likened to the Boston Red Sox and the New York Yankees – cooperated with each other, as well as with other Boston hospitals, to provide mutual aid across the systems so that no one hospital would become overwhelmed with COVID-19 patients while other hospitals had capacity.[53]

Similar measures were taken with respect to helping ensure the availability of ventilators. At the end of March, the U.S. Public Health Service Commissioned Corps, one of the United States′ seven uniformed services consisting of public health professionals, released guidance on optimizing ventilator use during the pandemic. The guidance stated, among other things, that elective surgeries should be cancelled, ventilators should be sent from areas not experiencing outbreaks to areas that need them, and anesthesia machines and other respiratory devices should be converted for use as mechanical support for patients in respiratory failure.[54] A team of University of Minnesota researchers designed a device called the ″Conventor,″ a low-cost ventilator which the Food and Drug Administration (FDA) approved, to be used in clinical settings in the event there were no available ventilators.[55] Additional, innovative interventions were also utilized. In Long Island′s North Shore University hospital, for example, physicians used sleep apnea machines to help COVID-19 patients breathe, while engineers at New York University turned hooded salon hair dryers into negative pressure chambers that delivered oxygen.[56] Another ″battlefield″ solution came from pulmonologists who advised that a simple intervention for COVID-19 patients would be to flip them onto their stomachs, which they stated improves oxygen levels for patients in respiratory distress.[57]

Despite taking all appropriate steps to increase the capacity of hospitals and the supply of ventilators, hospitals needed to be prepared in the event there were still not enough of these resources to meet the needs of actual or imminent surges of patients during the pandemic. In such a case, it appears that the only option left would be to engage in healthcare resource rationing by using well-thought out, clinically supported approaches that are ground in sound ethical principles, that use tools that are as objective as possible, and that involve both the patients and their families in a difficult decision-making process.

Healthcare Rationing Policies

What the COVID-19 pandemic has demonstrated is that if there is a greater need for healthcare resources than there are supplies, the first step in making healthcare rationing decisions is to create appropriate policies that set forth levels of triage or decision-making processes that guide healthcare providers using a step-by-step framework to decide who should receive a scarce

resource and who should not. Generally, these policies are designed to provide ″the greatest good for the greatest number″ and rely on varying methods of stratifying patients who, although they may benefit from the intervention, are nevertheless excluded for a variety of valid, often-complex clinical reasons.[58] Importantly, these protocols must be structured to avoid creating categories of exclusion based on factors other than good clinical decisions supported by empirical evidence which are fairly and equally applied. Otherwise, categorial exclusions may be based on subjective, utilitarian determinations – whether conscious or not – about who is ″worthy″ and ″not worthy″ of a resource. For example, making healthcare rationing decisions that prevent patients from getting potentially life-saving resources based solely on the presence or absence of a disability or based on the socioeconomic status[59] of a group of patients is highly problematic. Yet, at the end of March, the Office for Civil Rights (OCR) released a bulletin reminding entities covered by the civil rights authorities that persons with disabilities should not be denied medical care on the basis of stereotypes, assessments of quality of life or judgments about a disabled person′s ″relative worth,″ which the OCR′s director referred to as ″ruthless utilitarianism.″[60] OCR went on to state that persons with disabilities, as well as those with limited English skills, or needing religious accommodations should not be ″put at the end of the line″ for healthcare services during emergencies like the COVID-19 pandemic.[61]

Nevertheless, approximately one week later, on April 8, 2020, OCR announced that it had resolved an issue with the State of Alabama, which OCR claimed maintained ventilator rationing guidelines that allegedly discriminated on the basis of disability and age.[62] According to OCR′s press release, Alabama incorporated a 2010 policy as an annex to its emergency operations plan that allegedly permitted denying ventilator services to individuals based on the presence of intellectual disabilities, including ″profound mental retardation,″ and ″moderate to severe dementia.″ OCR was concerned that these criteria could pave the way for patients with intellectual disabilities or patients above a certain age to be automatically categorized as ineligible for potentially life-saving care, without any individualized assessment of the patients′ medical conditions.[63] Alabama agreed to remove the 2010 policy as well as all links to it from its website, and also agreed to clarify that the 2010 guidelines are not in effect and no similar guidelines will be put into effect in the future.

Similarly, on April 16, 2020, OCR announced another resolution of a complaint, this one involving the Pennsylvania Department of Health, which allegedly issued guidelines that authorized the denial of treatment to individuals with disabilities when prioritizing access to critical care and ventilators.[64] Like Alabama, as part of its resolution with the OCR, Pennsylvania agreed to remove the criteria that automatically deprioritized patients based on ″preexisting conditions that are disabilities″ and agreed to require individualized assessments of patients based on objective medical evidence to support prioritization and triaging decisions.[65] Further, according to a CNN report, a number of other states′ guidance documents (which reportedly have since been removed from the websites) contained similar provisions allowing patients with a variety of medical conditions to be excluded from being placed on ventilators during the pandemic, including patients with severe burns, traumatic brain injuries, severe dementia, amyotrophic lateral sclerosis (ALS) and end-stage multiple sclerosis (MS), as well as patients who are dependent on dialysis.[66]

In its Code of Medical Ethics Opinion 11.1.3, entitled ″Allocating Limited Health Care Resources,″ the AMA addresses the issue of discrimination when making healthcare rationing decisions.[67] Specifically, the AMA states that it is inappropriate to base triage policies on non-medical criteria such as social worth, or factors such a patient′s contribution to his or her illness, past use of resources, or perceived obstacles to treatment. Rather, in the event there are very substantial differences among patients who need the scarce resources, the Opinion states that allocation decisions should be based on medical need. In such circumstances, the first priority should be given to patients for whom treatment will avoid premature death or extremely poor outcomes, followed by patients who will experience the greatest change in quality of life.

However, when substantial differences among patients who need the scarce resources do not exist, the AMA recommends that an objective, flexible and transparent mechanism should be developed.[68]

As a general matter, hospitals should avoid making resource allocation decisions based on a single criterion or with the stroke of an extremely broad brush. For example, some hospitals had been considering placing universal-do-not-resuscitate (DNR) orders for all COVID-19 patients, regardless of the patient′s condition or the wishes of the patient or his or her family.[69] Others were looking at developing guidelines that would override patient or family wishes on a case-by-case basis with respect to placing DNR orders on patients. In both cases, the decisions were predicated on the need to preserve scarce resources, not only of critical care services, but also of PPE for the healthcare providers who would be administering a ″code blue.″ When a code blue is activated, it means that a patient has gone into cardiac arrest and many healthcare workers generally rush into the patient′s room to begin cardiopulmonary resuscitation (CPR). The healthcare workers crowd around the patient, taking turns administering CPR and performing other life-saving measures, often using dozens of gloves, masks and gowns in connection with each code blue.[70] Accordingly, arguments had been made that one code blue utilizes far more PPE than could be afforded during the COVID-19 pandemic and that the codes should be discontinued for COVID-19 patients. While universal DNR orders were ultimately not utilized,[71] the discussion raised the concern that many hospitals did not have appropriate policies in place to assist healthcare workers make gut-wrenching decisions. As a result, a number of organizations developed and encouraged the use of ″model″ policies and protocols that could be utilized during a pandemic, if healthcare rationing becomes necessary.

Model Policies

At the core of a resource allocation protocol lies a comprehensive policy that utilizes a tiered triage system as its decision-making tool. The term "triage" is generally used in clinical settings to describe the process of sorting and classifying patients by type and urgency.[72] It was originally applied to a process of sorting individuals in mass casualty situations such as war by the Surgeon in Chief of Napoleon Bonaparte′s Imperial Guard. From this came not only the concept of triage, but the organizational structure necessary to handle the growing number of casualties in modern warfare.[73]

Resources are available to help hospitals develop a policy to utilize when making triage decisions and decisions regarding the allocation of scarce resources. For example, in 2009, with the H1N1 pandemic on the horizon, the Institute of Medicine (IOM) (now the Academy of Medicine) released a letter report that provided recommendations regarding how resource allocation and triage decisions could be fairly made during crises such as a pandemic.[74] The report, ″Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations: A Letter Report,″ stressed that any such standards of care must be built on a foundation of ethical principles. These ethical principles include the duty to care, the duty to steward resources, fairness and transparency.[75] Policies and protocols must seek to eliminate irrelevant factors such as class, race and ethnicity, the IOM wrote, and should take into account the needs of the most vulnerable, as well as strive to equitably distribute scarce resources.

Based on these principles, the IOM provides concrete recommendations for institutions to follow when creating their policies. These recommendations include the development of clinical care committees consisting of both clinical and administrative leaders who are responsible for making prioritization decisions about the overall use of resources in the hospital. Triage teams should then be appointed by the clinical care committees which will use appropriate decision tools to make allocation determinations. The patients′ clinicians should not be the triage decision-makers nor should they be included in the triage teams, according to the IOM; rather, they should remain patient advocates. The IOM also recommends that decision tools should be created, including

tools for the triage of scarce ventilators. In such cases, the tools should be consistent with currently available evidence-based protocols and national critical care guidelines, which are generally based on the patient′s prognosis and any severe, underlying diseases that drastically limit life expectancy. The decision tools for access to ventilators, for example, are based on a calculation of various scores, one of which is the Sequential Organ Failure Assessment (SOFA). SOFA uses clinical and laboratory variables such as bilirubin and creatinine levels to predict a patient′s outcome by assessing the degree of a patient′s organ system dysfunction. It is a predictive metric for the prognoses of adults needing critical care.[76] Importantly, the IOM reminds providers that these triage and resource allocation decisions should only be made as a last resort, using the best clinical and operational data available, and based on a patient′s prognosis and other acceptable factors.[77]

Another helpful framework for making resource allocation decisions in the critical care setting is based on a triage scoring system that focuses on two ethical considerations: (1) the likelihood of short-term survival using the scarce resource as well as other critical care services, and (2) the likelihood of long-term survival based on the existence of comorbidities.[78] A score of one to four is assigned to short-term survival, while a score of zero to three is assigned for long-term survival. Added together, a score will range from one to seven. Priority should be given to the patients with the *lowest* total triage scores.

Under this model, short-term survival is determined using the SOFA score to measure the likelihood of a patient surviving as a result of the care. With respect to long-term survival, the score is based on a patient′s prospect for survival after discharge. However, in order to account for socioeconomic factors, such as limited access to healthcare and the debilitating effect of poverty on the health of the poor and people of color, the scoring system looks at patients whose comorbidities are so serious that they are not expected to live more than 12 months after discharge. These two scores are then added together. In the event two or more patients receive the same total score, other factors may be taken into consideration, such as ″life-cycle″ considerations. This means that children to adults age 49, whose deaths would be most likely to impose hardship on others whose well-being depends directly on their support (e.g., children and elderly relatives) would be given the highest priority, followed by adults who have not yet lived a full life (age 50-69), then those age 70-84, who have reached the high end of life expectancy, and finally those age 85 and older.[79] If, again, priority scores and life cycle considerations for patients are the same, allocations should be made using a fair and transparent method, such as a ″first come-first-served″ method or a lottery method.

Over the last several months, a number of health systems and states have developed and/or revised their resource allocation and triage policies in anticipation of a potential significant shortage of critical care beds and ventilators during the pandemic. One of these policies, developed by ethicists at the University of Pittsburgh Medical Center (UPMC), has been the subject of much discussion.[80] Entitled ″Allocation of Scarce Critical Care Resources During a Public Health Emergency,″ this Model Policy was actually created in 2009 and revised and refined several times over the years.[81] The Model Policy sets forth a number of elements necessary for making difficult decisions involving the rationing of scarce critical care resources. Unlike some other models, the UPMC Model Policy does not use categorical exclusion criteria to bar groups of patients from access to critical care, which may be perceived as a determination that some groups of patients are not worth saving. Rather, it prioritizes patients who are most likely to benefit from access to critical care resources based on widely vetted ethical principles and multi-principled strategies involving clinical scoring mechanisms. Further, the Model Policy was intentionally designed to be used during crises like a pandemic when time is of the essence.[82]

The Model Policy recommends, among other things, that hospitals (1) create triage teams, which exclude patients′ treating physicians, to ensure consistent, independent decision-making, (2)

establish allocation criteria for the initial allocation of scarce critical care resources, (3) establish reassessment criteria to determine whether the ongoing provision of scarce critical care resources are justified for individual patients, (4) communicate triage decisions with patients and their families, and (5) create an appeals process which allows for the appeal of individual triage decisions.[83]

Each of these recommendations is described in detail in the Model Policy. For example, the policy describes several steps in the allocation process for ICU admission and ventilator access. Step one calls for calculating each patient′s priority score using a number of factors designed to both save the most lives as wells as the most life-years. The SOFA score, discussed above, is at the heart of this calculation. Step two involves making a determination on a daily basis as to how many priority groups can receive the scarce resource, which includes guidance on what to do if this determination results in a "tie." Step three requires the periodic multidimensional reassessment by the triage team of patients who are receiving critical care services in order to determine whether these patients should continue to receive them. For example, if a patient in the ICU suffers a precipitous decline or a significant complication such as a stroke that leads to a very poor prognosis, the patient may no longer be eligible for the critical care treatment. A key to this approach is to maintain constant communication with the patient or the patient′s surrogate decision-maker. Depending on the circumstances, the patient′s family should also be included in the discussions involving the decisions that are being made by the patient and/or surrogate decision-maker.[84] Following these steps will lead to a final decision about who should receive scarce resources. The Model Policy′s aim is to remove subjectivity from the decision-making process and replace it with well vetted clinical criteria that would be applied equally to patients seeking access to a scarce resource.

COVID-19: Healthcare Resource Allocation During a Pandemic

As described in this article, there is no consensus regarding a single definition of either medical futility or healthcare rationing. Nevertheless, the COVID-19 pandemic has illustrated the fact that pandemics (as well as other public health emergencies and crises), may require healthcare providers to make decisions that utilize both concepts: healthcare rationing may have to be utilized from a macro perspective, while medical futility may have to be utilized on an individualized patient level. Of course, these decisions should be made only after all other ways to preserve or increase the quantity of the scarce resource(s) during a pandemic have failed. Efforts to create policies or processes to assist healthcare providers make these life-or-death decisions have varied in both content and ethical feasibility.

Undoubtedly the best triage and resource allocation policies are grounded in a solid ethical foundation that neither utilizes a single criterion to determine who should benefit from a scarce resource nor creates categorical exclusions of groups of patients based on prohibited factors such as disability and age. Rather, those policies that set out a systematic framework and include as many safeguards as possible when making rationing and "futility" decisions are the ones healthcare facilities should be focusing on if faced with making allocation decisions. These policies should include creating triage teams and scoring mechanisms that are based on objective criteria designed to prioritize patients based on both their short-term and long-term prognoses. Consistent and periodic reassessments of these patients must occur so that real-time, accurate decisions can be made. Finally, consistent communication with patients or surrogate decision-makers and their families is essential to help avoid or minimize conflicts if and when the time comes to make critical, potentially life-and-death decisions. Although few, if any, would want to be in a position to make these decisions, having such a policy to guide healthcare providers through the process can not only ease some of their burden, but is critical in helping provide a decision-making process that is fair, ethical and equally applied.

See BrainyQuote, *available at* https://www.brainyquote.com/quotes/theodore_roosevelt_403358.

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