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# Resuscitation and COVID-19: Recalibrating Patient and Family Expectations During a Pandemic

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As humanity grapples with the social, economic, and political disruption caused by the coronavirus disease 2019 (COVID-19) pandemic, many health-care systems across the globe have been working to set appropriate expectations for patients being treated during these challenging times. As of June 8, 2020, there are close to 2 million COVID-19 cases in the United States with 112,000 deaths [coronavirus.jhu.edu]. As patient volumes increased, healthcare systems and state and federal governments scrambled to address critical shortages of COVID-19 test kits, personal protective equipment, pharmaceutical drugs, and medical equipment such as mechanical ventilators. Medical care was further challenged by a lack of proven therapies for those who contract the virus. Fortunately, some regions have seen a flattening in the rate of incident cases over the last several weeks. Nonetheless, the experience of recent months amplifies the importance of planning for imbalances of supply and demand. To ensure scarce resources are allocated fairly and in a manner that produces the greatest benefit for those in need, multiple guidelines and policy recommendations have been created to guide critical care specialists and others who care for patients with COVID-19<sup>1,2</sup>

Healthcare providers and others who are not on the frontlines of COVID-19 response may have limited familiarity with changes in clinical practice that are necessitated by pandemic response. As healthcare providers continue to learn about the management of COVID-related disease, health systems are grappling with questions of allocating scarce

medical resources. They must fairly and transparently determine which patients receive intensive care unit (ICU)-level care. Many families may not have even considered the possibility that a loved one may not receive all the interventions they desire, including cardiopulmonary resuscitation (CPR), if a region has exceeded its surge capacity and is operating in crisis standards of care. Attending to these uncertainties will require not only a high level of emotional sensitivity to each patient's needs but a solid grasp of the many ethical considerations and national advocacy positions that inform specific institutional policies and governmental positions related to the allocation of scarce healthcare resources during crisis standards of care.

In this paper, we examine ethical considerations related to the provision or withholding of CPR during the COVID-19 pandemic. Our aim is to provide a high-level overview of multiple ethical and practical considerations that need to be balanced to ensure fair and safe delivery of healthcare to patients in need, and to serve the interests of our communities. Familiarity with these guiding considerations can help healthcare providers and others to respond to patient and family questions about COVID-19 care in an ethically informed and nuanced way.

## RISKS TO HEALTHCARE WORKERS

Healthcare workers are at significant risk of infection from exposure to COVID-19 infected patients, as documented in a report from the United States Centers for Disease Control indicating that more than 9200 cases of COVID-19 had been observed in medical providers

between February and April 2020.<sup>3</sup> The greatest risk of transmission is during interventions/procedures generating aerosolized virions. These procedures include chest compressions and endotracheal intubation, 2 core interventions of CPR. Resuscitation, by its very nature, requires prompt, skilled, and aggressive response from healthcare workers. However, the duty to respond to a deteriorating patient must be balanced with our duty to protect our workforce. Many hospitals, including Mayo Clinic, require code responders to don personal protective equipment (PPE) sufficient to safeguard against COVID-19, regardless of whether the patient is known to be infected. This approach reduces the risk of inadvertent exposure. Likewise, pneumatic chest compression vests (such as LUCAS [Jolife AB, Lund, Sweden]) can reduce the number of responders and reduce unnecessary contact with the patient. Under conventional models of care, patients or surrogates may request CPR, even if the likelihood of benefit is small. Participating in such nonbeneficial, high-risk interventions under “normal circumstances” contributes significantly to moral anguish, but rarely poses a threat to the responders’ health. However, during the COVID-19 pandemic substantial threats to the physical and mental wellbeing of our workforce must weigh into resuscitation decisions.

### RISKS TO PATIENTS

Enhancing PPE practices and relying more heavily on automated chest compression devices are necessary steps to protect our healthcare workforce. However, they delay initiation of lifesaving interventions, and it is possible that these policies may translate to worse outcomes for in-hospital cardiac arrest. Patients who achieve return of spontaneous circulation often require ongoing life support such as mechanical ventilation and vasoactive medications; this may be infeasible in systems already operating in surge or crisis mode of scarcity. These concerns have prompted policy discussions about resuscitation practices, including whether default “full code” status for patients remains appropriate in crisis standards of care or whether institutions might forestall attempts at resuscitation on a

case-by-case basis, when outcomes are expected to be poor.

### OUT OF HOSPITAL RESUSCITATION

Outside the hospital, emergency responders must balance 2 aims: protection of the workforce and the continued provision of life-preserving interventions. The former is highlighted by the experience in New York City of out of hospital exposure and contraction of the virus. According to one report, during the week of March 23<sup>rd</sup>, New York City Regional Emergency Services received 6000 calls in a single day, at a time when close to 20% of their workforce (including various members of the ambulance team) were out sick with several testing positive for COVID-19 (Marshall L, personal communication).<sup>4</sup>

Resource allocation is also a consideration in out of hospital triage decisions. Modifying the response team structures to minimize the number of staff interacting with the patient is important and will decrease exposures in the frontline. Equipping emergency responders with COVID-19 test kits can help shorten the time to diagnosis and early institution of isolation measures. Residents of nursing homes and other congregate care settings are at increased risk of COVID-19 exposure, infection, and mortality, and its complications and are most likely to require emergency measures such as resuscitation. Given the current crises the management and staff of these facilities should define the goals of care with the residents and/or their healthcare surrogates maintaining a clear focus on the decisions for resuscitation status. Palliative care services (perhaps via telehealth) may serve to facilitate such conversations, particularly to insure a non-coercive and transparent decision-making process.

### IN-HOSPITAL RESUSCITATION

Although the capacity to monitor patients and deploy PPE in resuscitation is greater in hospital settings, in-hospital resuscitation presents other ethical challenges. Initial reports from China indicated that 5% of hospitalized patients with COVID-19 required ICU level care. Half of these ICU patients needed mechanical ventilator support – and

many of required such support for prolonged duration.<sup>4</sup> In the United States, the COVID-19 crisis in places like New York City has illustrated the inadequacy of hospital beds, ICU beds, staff, and medical equipment to meet surge demands. The tenets of biomedical ethics and state law remain pillars to guide medical decision-making and resource allocation, especially to provide structure in a chaotic pandemic. The critical situation has prompted active discussion at multiple levels and forums with measures such as blanket do-not-resuscitate (DNR) orders discussed in the media.

Systematic approaches include disaster-management strategies that commonly employ triage guidelines to assess a patient's probability of survival. In addition, severity of illness scoring systems can lend objectivity and consistency to the decisions regarding life-sustaining intervention such as access to intensive care or provision of CPR. The latter is most influenced by underlying conditions and multi-organ system dysfunction from the acute event. A score can be used to categorize patients into a prioritization status to guide resource allocation, one such category would include patients unlikely to benefit from critical care and/or acute resuscitation.<sup>5</sup> Clinicians must be mindful that a depersonalized scoring system and perhaps less time to establish a supportive environment may have a negative impact on patient and family interactions.

Formulation and application of triage and resuscitative categories guided by severity of illness scoring is the recommended basis of resource allocation, particularly of ventilators.<sup>6</sup> In conditions of extreme scarcity, we recommend individuals who have already been triaged to not receive ICU resources not be resuscitated with CPR (in other words, a do not attempt resuscitation code status). As soon as resources become less strained, such orders should be revisited. Hospitals should anticipate the need to provide support to the designated triage officer from the incident command

center or even a central triage subgroup that includes experienced clinicians, medical ethicists, and legal expertise. Setting realistic expectations through prompt and clear communication to patients and families is a cornerstone of such an approach.

In summary, healthcare systems and frontline providers face extreme pressures during pandemics. The uncertainties around COVID-19 infection rate, morbidity, mortality, as well as lack of proven therapies, exacerbate the circumstances. Implementation of guidelines for crisis standards of care during a pandemic should be guided by the principles of justice and equity. Triage teams deployed by hospital incident command centers should be guided by medical ethics, incorporate critical care expertise, and support individual providers faced with decisions of both triage and resuscitative status of patients. Health systems must take measures to mitigate resource strain, such as canceling elective procedures, adjusting staff to patient ratios, engaging in proactive advance care planning and goals of care conversations.

As hospitals across the United States prepare and plan for a potential surge of critically ill COVID-19 patients coincide with start of influenza season in the fall, we believe that the aim of these preparations should be to save most lives possible while preserving a commitment to the core ethical values that shape the practice of medicine, including providing the highest quality of care possible, to be good stewards of public resources, and to distribute scarce medical resources in a manner that is fair and transparent. Those guiding commitments may need to adapt in light of changing circumstances but should never be jettisoned, even during a pandemic. Candidly discussing the many challenges of balancing those ethical commitments during the COVID-19 pandemic can not only help to reassure patients that their interests remain at the very center of our efforts, but can help to preserve the trust that the communities we serve have placed in us.

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