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PC-FACS: COVID-19

Feature Editor: Robert M. Arnold, MD, FAAHPM

PC-FACS (Fast Article Critical Summaries for Clinicians in Palliative Care) provides hospice and palliative care clinicians with concise summaries of the most important findings from more than 100 medical and scientific journals. If you have colleagues who would benefit from receiving PCFACS, please encourage them to join the AAHPM at aahpm.org. Comments from readers are welcomed at pcfacs@aahpm.org.

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Summaries With Commentaries

Clinical Characteristics of Coronavirus Disease in China

Background. Given the rapid spread of COVID-19, an updated analysis of cases might help identify disease severity. What are the clinical characteristics of COVID-19 in patients throughout China?

Design and Participants. This study analyzed clinical characteristics of COVID-19 in a select cohort of patients throughout China. Data were extracted regarding patients with laboratory-confirmed COVID-19 from hospitals in 30 provinces, autonomous regions, and municipalities in mainland China through January 29, 2020. The primary composite endpoint was intensive care unit (ICU) admission, mechanical ventilation (MV), or death. Because the cohort was not random, statistics are deemed descriptive only.

Results. Patients (N=1,099; 552 hospitals [30% of the 1,856 designated hospitals]) were median age 47 years (IQR=35–58) and 42% female. On admission (926 nonsevere, 173 severe): ground-glass opacity was the most common radiologic finding on chest CT (56%); no radiographic/CT abnormality was found in 18% with nonsevere disease and 2.9% with severe disease; and 83% had lymphopenia. Overall, 1.9% had a history of direct wildlife contact. Among nonresidents of Wuhan, 72% had contact with Wuhan residents, including 31% who had visited Wuhan. The incubation period was median 4 days (IQR=2–7). Hospitalization was median 12 days (mean=13). During hospitalization, 91% were diagnosed with pneumonia, 3.4% acute respiratory distress syndrome, and 1.1% shock. Patients with severe disease (vs. nonsevere) were median 7 years older, and coexisting illness was more common in patients with severe disease (39% vs. 21%), but between-group exposure history was similar. Symptoms were fever (44% on admission, 89% during hospitalization), cough (68%), nausea/vomiting (5%), and diarrhea (3.8%). Five percent were admitted to the ICU, 2.3% underwent invasive MV, and 1.4% died. Fifty-eight percent received intravenous antibiotics, 36% oseltamivir, 41% oxygen, and 6.1% MV.

Commentary. COVID-19 continues to infiltrate every aspect of life and clinical care. This is one of the first studies to provide palliative care clinicians insight into its contagion pattern, trajectory, and prognosis. Although only 24% of the study’s population had coexisting disorders, and even fewer had life-limiting illnesses (<1% cancer, 1.1% chronic obstructive pulmonary disease), these patients are at higher risk of severe disease and death. This study also shines a light on the need for social distancing because asymptomatic transmission is contributing to the spread. As the number of deaths resulting from COVID-19 continues to increase, we must prepare and expect an increasing demand for our services.

Bottom Line. One descriptive, convenience sample study found that patients with laboratory-confirmed COVID-19 often present without fever or abnormal radiologic findings.

Reviewer. Jennifer Pruskowski, PharmD BCPS BCGP CPE, University of Pittsburgh School of Pharmacy and UPMC Palliative and Supportive Institute, Pittsburgh, PA

Source. Guan WJ, Ni ZY, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China [published online ahead of print February 28, 2020]. N Engl J Med. pii: 10.1056/NEJMc2005203#sa5. https://doi.org/10.1056/NEJMc2005203.

Characteristics and Outcomes of COVID-19 Cases

Background. Until February 2020, most cases of SARS-CoV-2 and the disease it causes, COVID-19, were described in non-US health systems. What are the clinical presentations, characteristics, and outcomes of COVID-19 cases in Wuhan, China, and Washington state?

Risk Factors Associated with Acute Respiratory Distress Syndrome and Death in Patients with Coronavirus Disease in China

Design and Participants. This study described clinical characteristics and outcomes of patients with COVID-19 pneumonia (admitted to Wuhan Jinyintan Hospital between December 25 and January 26) who developed acute respiratory distress syndrome (ARDS) or died. Final follow-up was February 13.

Results. Patients (N=201) were median age 51 years (IQR=43–60) and 64% male. Forty-two percent...
developed ARDS, 52\% of whom died. In those developing ARDS (vs. not), more presented with dyspnea (60\% vs. 26\% [difference=34\%]; 95\% CI=20-48\%; P<.001) and had comorbidities like hypertension (27\% vs. 14\% [difference=14\%; 1.3-26\%]; P=.02) and diabetes (19\% vs. 5.1\% [difference=14\%; 3.6-24\%]; P=.002). Risks associated with ARDS development and progression to death included older age (hazard ratio [HR]=3.26; 95\% CI=2.08-5.11; and HR=6.17; 3.26-12, respectively), neutrophilia (HR=1.14; 1.09-1.19; and HR=1.08; 1.01-1.17), and organ and coagulation dysfunction (eg, higher lactate dehydrogenase [HR=1.61; 1.44-1.79; and HR=1.30; 1.11-1.52] and D-dimer [HR=1.03; 1.01-1.04; and HR=1.02; 1.01-1.01]) (all P<.05). A fever ≥102.2°F was associated with greater likelihood of ARDS (HR=1.77; 1.11-2.84; P=.02) and lesser likelihood of death (HR=0.41; 0.21-0.82; P=.01). Methylprednisolone lowered the risk of death for patients with ARDS (HR=0.38; 0.20-0.72; P=.003).

Characteristics and Outcomes of Critically Ill Patients with COVID-19 in Washington State

Design and Participants. This study described the clinical presentation, characteristics, and outcomes of patients with COVID-19 admitted to the Evergreen Hospital intensive care unit (ICU) between February 20 and March 5.

Results. Patients (N=21) were mean age 70 years (range=43-92) and 52\% male. Overall, 86\% had comorbidities, mostly chronic kidney disease and congestive heart failure. Initial symptoms included shortness of breath (76\%), fever (52\%), and cough (48\%). Symptom onset was mean 3.5 days prehospitalization (81\% ICU-admitted <24 hours postadmission). At admission: 95\% had an abnormal chest radiograph (bilateral reticular nodular opacities [52\%; 86\% by 72 hours] and ground-glass opacities [48\%; 67\%]), WBC count was mean 9365 μL (67\% were normal), 67\% had an absolute lymphocyte count <1000 cells/μL, and 38\% had abnormal liver function. Fifteen patients out of 15 requiring mechanical ventilation had ARDS (8/15 severe by 72 hours). Although most did not present with shock, 67\% received vasopressors. Cardiomyopathy developed in 33\%. As of March 17, mortality was 67\%, 24\% of patients have remained critically ill, and 9.5\% have been discharged from the ICU.

Commentary. The COVID-19 pandemic has caused unprecedented stresses on healthcare workers and systems, including palliative care teams. Palliative care teams, as the experts in conducting goals of care discussions with patients and families who are informed by prognostic information, are now faced with the difficult task of trying to help patients and families navigate a disease in which short-term prognostic data are limited and long-term prognostic data are nonexistent. These two cohort studies examined the factors associated with risk of ARDS and death in patients with COVID-19-associated pneumonia. Although their findings are valuable for palliative care teams to be aware of, they are preliminary. Because a significant minority of patients remained hospitalized on ventilators at the time of publication, the reported mortality rates may be even higher (or lower, although that is less likely) when longer-term data are available. In addition, these early reports are unable to provide insight into longer-term outcomes that are important to many of our patients, such as function and ability to live independently. To expertly guide patients through this often devastating illness, palliative care professionals will need to keep abreast of the COVID-19 literature as the pandemic evolves and the longer-term outcomes come into sharper focus.

Bottom Line. Early reports of COVID-19-associated pneumonia and ARDS provide insights into risk factors, short-term prognosis, and morality that are important for palliative care professionals to be aware of when counselling patients and families.

Sources. Wu C, Chen X, Cai Y, et al. Risk factors associated with acute respiratory distress syndrome and death in patients with coronavirus disease 2019 pneumonia in Wuhan, China [published online ahead of print March 13, 2020]. JAMA Intern Med. e200994. https://doi.org/10.1001/jamainternmed.2020.0994.
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2. Young BE, Ong SWX, Kalimuddin S, et al; Singapore 2019 Novel Coronavirus Outbreak Research Team. Epidemiologic features and clinical course of patients infected with SARS-CoV-2 in Singapore [published online ahead of print March 3,
Allocation of Medical Resources During the COVID-19 Pandemic

Background. Emerging viral pandemics can place extraordinary demands on public health systems. How can medical resources be allocated fairly during the COVID-19 pandemic?

A Framework for Rationing Ventilators and Critical Care Beds

Design and Participants. This article discussed how hospitals and states might establish and implement policies for fairly allocating scarce resources.

Results. Categorically excluding patients with certain comorbid conditions is too rigid for a dynamic crisis (ventilator shortages will surge and decline episodically during the pandemic); less restrictive approaches like allowing all patients to be eligible and giving priority to those most likely to benefit are feasible. Prioritizing critically ill patients most likely to survive to hospital discharge is inadequate because it ignores other considerations such as number of years of life saved and whether people have essential responsibilities in saving lives (reciprocity for putting themselves at risk). Ventilation should be presented to patients/families as a time-limited therapy (not an unlimited promise), but ventilation duration must not be too brief to avoid discontinuing ventilators from patients who (if treated longer) would have survived. A triage officer/team, not the treating physician, should make allocation/discontinuation decisions (to enhance objectivity, avoid commitment conflicts, and minimize treatment clinicians’ moral distress). After discontinuing ventilation, comprehensive palliative care is imperative (families should be granted personal protective equipment so they can be with the dying patient, or hospitals should help families use videoconferencing technology). Pennsylvania and Minnesota have endorsed the following strategy: patients meeting usual medical indications for intensive care unit beds/ventilators are assigned a priority score (lower scores indicate greater likelihood of benefit) based on the patient’s likelihood of surviving to discharge and achieving longer-term survival (comorbid conditions), and individuals performing vital public health tasks are given heightened priority by subtracting points from their score. Younger patients are prioritized in the event of tying scores.

Fair Allocation of Scarce Medical Resources

Design and Participants. This article recommended guidelines to ensure individual doctors are never tasked with deciding unaided which patients receive lifesaving care.

Results. (1) Maximize responsible resource stewardship, with the goal of saving the most lives and maximizing improvements in individuals’ length of life posttreatment. (2) Critical COVID-19 interventions should go first to healthcare workers and others who keep critical infrastructure operating, particularly workers facing high infection risk and with difficult-to-replace training. (3) For patients with similar prognoses, equality should be operationalized through random allocation rather than as first-come, first-served. (4) Prioritization guidelines should differ by intervention and should respond to changing scientific evidence (eg, the value of maximizing saving lives justifies giving older people priority for vaccines immediately after healthcare workers and first responders). (5) Vaccine/therapeutic research participants should receive some priority for COVID-19 interventions. (6) There should be no difference in allocating scarce resources between patients with COVID-19 and those with other conditions.

Commentary. One of the most publicly cited and worrisome concerns about COVID-19 is what to do if resources like mechanical ventilators become scarce. These helpful articles summarize ethical criteria and provide guidelines for the allocation of such scarce, potentially life-sustaining resources. The first article briefly focuses on ethical principles and suggests steps to help with decision making. The second relates scientific evidence and experience from past pandemics to the current situation. Its recommendations are articulated with examples applicable to clinical practice. A key message in both articles is that treating clinicians should not make these decisions for their own patients; fair allocation of resources must be made by third, unbiased parties. In both articles, authors recognize the challenges inherent in these decisions, including that there may be no clear answer, different institutions will proceed differently, and these cases take an emotional toll on all involved.

Bottom Line. Ethical guidelines for the allocation of scarce life-sustaining resources may help institutions faced with seemingly impossible decisions. Regardless of which patients receive which resources, palliative care teams will be needed to support patients, families, and professional colleagues.

Reviewer. Giovanni Elia, MD FAAPM, University of California San Francisco, San Francisco, CA

Sources. White DB, Lo B. A framework for rationing ventilators and critical care beds during the COVID-19 pandemic [published online ahead of print March 27, 2020]. JAMA. https://doi.org/10.1001/jama.2020.5046.
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Ethical Framework for Institutional Ethics Services Responding to COVID-19

Background. Shifting from patient-centered practice to patient care guided by public health considerations creates great tension for clinicians, especially under emergency conditions with scarce resources.1–4 During public health emergencies (PHEs), what framework balances patient-centered duty of care with public-focused duties?

Design and Participants. This document was designed for use in healthcare institutions’ COVID-19 preparedness work (supplementing public health and clinical practice guidance) and aimed to structure discussion about foreseeable ethical concerns. In PHEs, first responders need clear rules to follow. Triage protocols, for example, help first responders prioritize patients for different care levels. If these rules seem unfair or cause greater patient suffering/distress, then the burden on first responders will be excruciating.

Results. Healthcare leaders’ duties during PHEs: (1) Plan for the management of foreseeable ethical challenges (triage decisions about care level; life-sustaining treatment initiation/withdrawal; palliative care referral; and staff, space, and supply shortages). (2) Safeguard the healthcare workforce. Clinicians and nonclinicians (eg, maintenance staff) are at heightened risk. Vulnerable populations include those at higher COVID-19 risk (eg, because of age or underlying conditions), those with healthcare barriers (eg, insurance or immigration status), and trainees (eg, medical and nursing students). (3) Guide clinicians through uncertainty/distress. PHEs require planning for and potentially implementing contingencies to manage increased care demand and resource scarcity. Contingency levels of care under emergency conditions unavoidably and gradually reduce care quality because of staff, space, and supply shortages, and infection control reduces care quality by restricting visitors.

Commentary. The worldwide SARS-CoV2 pandemic is a challenge of greater proportion than we have faced in the contemporary period, but we can learn from medical events in recent decades (SARS, MERS, Ebola, AIDS, polio) while relying on our daily best practices to inform our actions. The Hastings Center framework briefly addresses the foreseeable challenges, enumerates three important duties, recommends institutional processes/policies to review, provides strategies to maintain optimal quality, and reminds readers of existing resources and quick references to the roles and responsibilities particularly of public health authorities. This guidance is also provided in PowerPoint format: https://www.thehastingscenter.org/guidancetoolsresources/covid19/.

Bottom Line. We are engaged in discussions regarding the application of patient-centered and public health–focused treatment decisions to varying degrees around the world. Even amid the crisis, it is important to reflect on the guidelines for an ethical response being offered to practitioners and policy makers by well-respected thought leaders and professional societies.

Reviewer. Jessica A. Moore, DHCE, The University of Texas MD Anderson Cancer Center, Houston, TX.

Source. Berlinger N, Wynia M, Powell T, et al. Ethical framework for health care institutions responding to novel coronavirus SARS-CoV-2 (COVID-19)—guidelines for institutional ethics services responding to COVID-19: managing uncertainty, safeguarding communities, guiding practice. The Hastings Center. March 16, 2020.

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Effect on Infants of Mothers with COVID-19

Background. SARS-CoV-2 is highly infectious because it has multiple possible transmission routes.1-3 What are the serological characteristics of infants whose mothers are infected with SARS-CoV-2?

Antibodies in Infants Born to Mothers with COVID-19 Pneumonia

Design and Participants. This case series investigated SARS-CoV-2 infection in the newborns of 6 women with COVID-19 who delivered at Zhongnan Hospital of Wuhan University. Serological diagnostic criteria were applied using the New Coronavirus Pneumonia Prevention and Control Protocol for COVID-19 (seventh edition; released by the National Health Commission of the People’s Republic of China, March 4).

Results. All 6 mothers had mild clinical manifestations and had third-trimester cesarean deliveries in negative-pressure isolation rooms. Mothers wore masks, and medical staff wore protective suits and double masks. The infants were immediately quarantined. All infants had Apgar scores of 8-9 (1-minute) and 9-10 (5-minute) (throat swabs and blood samples had negative reverse transcription-polymerase chain reaction (RT-PCR) results). All infants had serum antibodies detected: 2 had immunoglobulin G (IgG) and immunoglobulin M (IgM) concentrations > normal (both of their mothers also had elevated levels of both), and 3 had elevated IgG but normal IgM (all 3 mothers had elevated IgG and 2 had elevated IgM). Inflammatory cytokine IL-6 was significantly increased in all infants. No infants presented symptoms as of March 8.

Possible Vertical Transmission of SARS-CoV-2 from an Infected Mother to Her Newborn

Design and Participants. This case report described the experience and immediate postnatal course of a mother with COVID-19 at the time of delivery on February 22 at Renmin Hospital, Wuhan.

Results. On January 28, a 29-year-old primiparous woman (34 weeks gestation) developed a 100.2°F temperature and nasal congestion, which progressed to respiratory difficulties. On January 31, a chest CT showed patchy ground-glass opacities in both lungs. RT-PCR on a nasopharyngeal swab was positive. On February 2, the patient was admitted to the hospital and received antiviral, antibiotic, corticosteroid, and oxygen therapies. Four repeat RT-PCR tests were positive. On February 21, IgG and IgM levels to SARS-CoV-2 were both elevated. RT-PCR of vaginal secretions was negative. On February 22, a girl was delivered by cesarean in a negative-pressure isolation room. The mother wore an N95 mask. The neonate had no symptoms (3120 g and Apgar scores were 9 [1-minute] and 10 [5-minute] and was immediately quarantined. At 2 hours postbirth, SARS-CoV-2 IgG and IgM were elevated. Cytokines were elevated as well as a WBC count of 18.08x10^9/L. Chest CT was normal. Five RT-PCRs on nasopharyngeal swabs (2 hours–16 days postbirth) were negative. The infant’s IgM and IgG levels were still elevated on March 7, and she was discharged March 18. On February 28, the breast milk had a negative RT-PCR.

Commentary. The unprecedented, historic COVID-19 pandemic that is sweeping the globe has been the focus of intense research from a multitude of clinical, public health, and policy standpoints. The medical community still is in a more “questions than answers” mode in many areas, and this is likely to continue until uniformity in testing methodology and application is reached, with the caveat that IgM testing in neonates and young infants is particularly challenging.

Finally, vertical transmission of COVID-19 has many implications from the palliative care standpoint: fetal loss, embryotoxicity, and infant health sequelae are all possible. Further, the experience of isolation for exposed neonates will add to the complexity of both maternal and child perinatal experiences, especially if one or both become seriously ill or die from this infection. Limited bereavement and funeral support may exacerbate the difficulties of grief and loss. Long-term repercussions, including bereavement in the setting of restricted access, are unknown, adding to the worries new families may experience.

Bottom Line. Although infants born to COVID-19–infected mothers have appeared well, longitudinal research is needed, particularly in resource-limited environments. Palliative care clinicians can help families navigate the uncertainty.

Reviewer. Regina Okhuysen-Cawley, MD, Baylor College of Medicine, Houston, TX

Sources. Zeng H, Xu C, Fan J. Antibodies in infants born to mothers with COVID-19 pneumonia [published online ahead of print March 26, 2020]. JAMA. https://doi.org/10.1001/jama.2020.4861
Dong L, Tian J, He S, et al. Possible vertical transmission of SARS CoV-2 from an infected mother to her
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Factors Associated with Mental Health Outcomes Among Healthcare Workers Exposed to Coronavirus Disease

Background. One year after the 2003 outbreak, SARS survivors (including healthcare workers) showed elevated psychological distress. What factors are associated with mental health outcomes (MHOs) among Chinese healthcare workers treating patients with COVID-19?

Design and Participants. This cross-sectional, survey-based, region-stratified study assessed MHOs among healthcare workers treating patients with COVID-19 in Chinese hospitals (January 29 to February 3). Depression, anxiety, insomnia, and distress were assessed via Chinese versions of the Patient Health Questionnaire (PHQ), Generalized Anxiety Disorder scale (GADS), Insomnia Severity Index (ISI), and Impact of Event Scale-Revised (IESR). Multivariable logistic regression identified factors associated with MHOs.

Results. Healthcare workers (N=1,257; 34 hospitals) were 65% age 26–40 years, 77% female, 61% nurses, and 39% physicians; 61% worked in Wuhan, and 42% were frontline workers. Participants reported symptoms of depression (50%), anxiety (45%), insomnia (34%), and distress (72%). Nurses, women, frontline workers, and those working in Wuhan reported more severe MHOs than other healthcare workers (median [IQR] scores among physicians vs. nurses: PHQ=4 [1–7] vs. 5 [2–8]; P=.007; men vs. women: GADS=2 [0–6] vs. 4 [1–7]; P<.001; frontline vs. second-line workers: ISI=6 [2–11] vs. 4 [1–8]; P<.001; those in Wuhan vs. those in Hubei outside Wuhan and those outside Hubei: IESR=21 [8.5–34.5] vs. 18 [6–28] in Hubei outside Wuhan and 15 [4–26] outside Hubei; P<.001). Participants from outside Hubei were associated with lower risk of distress vs. those in Wuhan (odds ratio [OR]=0.62; 95% CI=0.43–0.88; P=.008). Frontline workers engaged in direct diagnosis, treatment, and care of patients were associated with higher risk of depression (OR=1.52; 1.11–2.09; P=.01), anxiety (OR=1.57; 1.22–2.02; P<.001), insomnia (OR=2.97; 1.92–4.60; P<.001), and distress (OR=1.60; 1.25–2.04; P<.001).

Commentary. Findings from this study indicate that caring for patients with COVID-19 takes a significant psychological toll on healthcare providers. Nurses, women, frontline workers, and those in the pandemic “hot spots” may be particularly at risk. Study strengths include the large sample size, high participation rate (68.7%), and use of well-validated measures. Limitations include the cross-sectional design. Given elevated long-term distress reported by SARS patients and healthcare workers, it is likely distress associated with COVID-19 will persist if not worsen. Psychological assessment and mental health services should be offered to healthcare workers and COVID-19 survivors.

Bottom Line. Healthcare workers caring for patients with COVID-19 are likely to experience significant psychological distress that warrants intervention.

Reviewer. Laura Porter, PhD, Duke University Medical Center, Durham, NC

Source. Jianbo Lai, Simeng Ma, Ying Wang, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3(3):e203976.

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The Importance of Addressing Advance Care Planning and Decisions About Do-Not-Resuscitate Orders During Novel Coronavirus

Background. Patients most likely to develop severe COVID-19–related illness will be older and have greater chronic illness burden—exactly those who may wish to forgo prolonged life support. How is the importance of providing goal-concordant care heightened during this pandemic?

Design and Participants. This article discussed a component of an appropriate response to the COVID-19 pandemic: ensuring that clinicians have discussions about advanced care planning (especially with older patients with chronic illness) and goals of care with patients/families.

Results. Clinicians always should strive to avoid intensive life-sustaining treatments when unwanted by
patients. Avoiding nonbeneficial/unwanted care becomes especially important in times of stress on healthcare capacity. Furthermore, nonbeneficial/unwanted care puts other patients, family, and healthcare workers at greater transmission risk. For patients in a community setting or nursing home, clinicians should engage in goals-of-care discussions now. Patients with chronic life-limiting illnesses should be offered the option to complete a physician order for life-sustaining treatments form, especially if they would not want cardiopulmonary resuscitation (CPR) or mechanical ventilation. This pandemic heightens the importance of implementing do-not-resuscitate (DNR) orders for appropriate patients: although unwanted/nonbeneficial CPR always risks increasing psychological distress for patients’ families, inappropriate CPR now is especially stressful and potentially dangerous for healthcare workers. Nonbeneficial/unwanted advanced cardiac life support will strain available personal protective equipment. During this pandemic, in extreme situations, there may be a role for clinicians unilaterally deciding to write DNR orders to reduce the risk of medically futile CPR. Lastly, informed assent (vs. informed consent) provides family members a way to agree with the clinician’s determination without assuming decision-making responsibility.

Commentary. Traditionally, the approach to advance care planning is informed consent relying on the central tenants of patient autonomy and shared decision making, with the goal of ensuring medical care is consistent with patients’ values, goals, and preferences. In extreme circumstances, like pandemics, informed assent has been suggested as permissible. The intent of unilateral decision making has been attributed to removing undue burden from patients/families. However, it is controversial because it suggests patients’ values can be bypassed. Although the current proposed model addresses patients’ values as the starting point, it could more clearly note that informed assent must be grounded in patient values.

Bottom Line. The COVID-19 pandemic has created unusual, resource-scarce circumstances in which informed assent of DNR orders may be justified. However, its use should be limited by using informed consent for as long as possible, using informed assent only as necessary, and identifying patients’ values to inform every decision.

Reviewer. Ambereen K. Mehta, MD MPH, University of California, Los Angeles, Los Angeles, CA

Source. Curtis JR, Kross EK, Stapleton RD. The importance of addressing advance care planning and decisions about do-not-resuscitate orders during novel coronavirus 2019 (COVID-19) [published online ahead of print March 27, 2020]. JAMA. https://doi.org/10.1001/jama.2020.4894

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