Coronavirus Disease 2019: Harnessing Healthy Fear via Knowledge, Attitudes, and Behavior

Hollis R. O'Neal Jr, MD, MS1; John C. Lin, MD2; John W. Devlin, PharmD, MCCM3; E. Wesley Ely, MD, MS, FCCM4,5

Key Words: ABCDEF bundle; coronavirus disease 2019; delirium; family; fear; intensive care

As reports of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections spread across the United States, the landscape of ICU's across the country changed. Gone were long bedside meetings and hand-holding, sit down conversations with patients and families. Instead, we found ourselves covered head to toe in personal protective equipment (PPE)-unrecognizable to our patients, nurses manipulated IV pumps placed outside of patient rooms and communicated to one another via headsets. To limit community spread within the hospital, family members were banned, and patients and even healthcare professionals often felt alone and afraid (1, 2). The influx of patients resulted in shortages of materials and personnel. To meet this need, many hospitals increased their ICU capacity several-fold. Medical societies developed strategies to expand the ICU workforce through use of tiered staffing strategies that enlisted medical team members from either noncritical care disciplines or pediatric specialties to care for critically ill adults (3). Ethicists refined previously developed triage mechanisms to address ICU resource allocation when patient volume and acuity outstripped medical capacity (4).

Working with the unknown, clinicians, researchers, and administrators turned to any and all information (5). The medical literature filled with case reports; social media lit with conversation that this pathogen and the disease it caused were unlike anything seen before (6). Compared to our established approach in patients with “typical” respiratory failure, we intubated earlier, sedated more deeply, created physical and mental barriers between the patients and our medical teams, searched for the “cure,” and moved away from proven strategies such as lung-protective ventilation (7) and the ICU Liberation (“A” for Assessment, Prevention, and Manage pain; “B” for Both Spontaneous Awakening Trials and Spontaneous Breathing Trials; “C” for Choice of Analgesia and Sedation; “D” for Delirium Assess, Prevent, and Manage; “E” for Early Mobility and Exercise; and “F” for Family Engagement and Empowerment (ABCDEF) Bundle (8). In the new reality of the coronavirus disease 2019 (COVID-19) pandemic, practicing evidence-based, critical care medicine became a plea rather than the default (9). New barriers to Bundle application exist with COVID-19: enlistment of new ICU interprofessional team (IPT) members with limited Bundle familiarity, need for social distancing that reduces in-person and synergistic IPT collaboration, and PPE shortages that prohibit collaborative bedside team and patient interactions.

In the face of refining the approach to ICU Liberation Bundle use, we must also address how both irrational and rational fear have impacted our behaviors. As we wait for new knowledge to develop, we have become fearful that the care we are providing is ineffective or impractical. We have limited our bedside interactions and observations in favor of technology that allows monitoring from a distance. Others have described how individual and systemic fear change the behaviors and attitudes of bedside team members (2, 10). In so doing, we have lost the human connection that creates empathy, compassion, and understanding.

To combat fear, we must turn to transparency. Transparency of decision making and answering the question, “Why are we doing it this way?” are paramount to establishing a cohesive, team-based approach that is the foundation of successful ICU care. As we...
all learn to adapt proven approaches to this new infectious disease, we can approach the challenge armed with the Knowledge-Attitudes-Behavior framework. This framework has been used to explore barriers to guideline adoption across medical specialties (11) including critical care medicine (12); it serves as a model for characterizing the impact of a major factor on Bundle performance during the current pandemic: “fear.”

KNOWLEDGE
We fear the unknown. The effects of the novel SARS-CoV-2 on human physiology remain poorly understood, and the clinical course and natural history appear variable. Critically ill patients die at alarming rates, causing clinicians to doubt best practice, even though current guidelines include evidence derived from a diverse array of infectious and noninfectious etiologies, including patients with severe acute respiratory distress syndrome (13, 14). The resultant abandonment of the Bundle causes confusion among the ICU IPT, misses opportunities for humanization in the ICU amidst the dangerous effects of isolation felt by parents and personnel, undermines mechanisms that promote collaboration and safety, and compromises the evaluation of new COVID-19 focused interventions. We each have the ability to turn our minds and those of colleagues back to the “knowledge” we have accumulated through well-executed and definitive top-tier randomized trials over the past decades.

ATTITUDES
Conflict between serving others and maintaining personal well-being exist. Healthcare providers, consistent with our experiences following the 2002–2003 SARS epidemic, are fearful of contracting the diseases that affect our patients, but are even more fearful of transmitting infections to others, especially loved ones (15). This fear of personal safety impacts our “usual care” approach to critical care delivery (10). Fatigue, both physical and emotional, grows as long hours accumulate while clinicians witness widespread suffering, all while striving to provide emotional support for patients removed from loved ones. Persistent media coverage of the pandemic and frequent questions about the illness worsens psychologic fatigue. At the same time, ICU professionals are frequently isolated from their own support systems, often living apart from family to protect them from infection. Thus, our “attitudes” change toward each other and toward those whom we serve desire our utmost attention and maintenance.

BEHAVIOR
The strain of caring for an overwhelming number of COVID-19 patients has resulted in a seismic change in ICU IPT behavior. The care team, physically separated from their patients, must don PPE to enter the room, prolonging the time needed to respond to a distressed patient. Fears of self-exhaustion result in increased use of sedatives and neuromuscular blockade as well as reduced spontaneous awakening trial/spontaneous breathing trial performance. Patient wakefulness and orientation diminish, eliminating the possibility of movement or mobility. The result is a recrudescence of the comorbidities the Bundle prevents (16–19). Due to PPE shortages and admission surges, IPT members, including therapists who contribute to Bundle performance (20), are less likely to be involved in daily care. The ICU bedside nurse, already being called upon to “do more with less” is left to shoulder greater responsibility for Bundle performance. This “behavior” is not sustainable. We must return to collaborative team effort to ensure that at each bed the concepts incorporated into the Bundle, through decades of work and hundreds of publications, are adapted in the COVID-19 era to ensure that we wake patients up, get them out of bed, and liberate them from the shackles of life support in a timely fashion with as little post-intensive care syndrome as possible.

Finally, as SARS-CoV-2 becomes commonplace, and as many of our healthcare professionals recover from infection by this virus (including first author H.R.O.), another fear arises. It is the fear of complacency, the fear that we lose our “edge” in treating such a deadly pathogen. As businesses reopen and the economy recovers, we must maintain a “rational” fear—a respect—for this virus and all communicable diseases. We are reminded of a quotation attributed to Marie Curie: “Nothing in life is to be feared, it is only to be understood.” Through science, we will develop the knowledge to understand and conquer this virus; hopefully, we will use lessons learned in this pandemic to trust the knowledge previously gained through science to conquer the next pandemic.

Dr. Devlin has received research funding from the National Institute of Aging, National Heart, Lung, and Blood Institute, and the Canadian Institute of Health Research; he is on the editorial board of Critical Care Medicine. Dr. Ely has received funding from the National Institute of Aging and National Heart, Lung, and Blood Institute. The remaining authors have disclosed that they do not have any potential conflicts of interest.

For information regarding this article, E-mail: j.devlin@neu.edu

REFERENCES
1. Ely EW: Doctors Fear the Coronavirus. Is That Affecting Their Medical Decisions? Washington Post. 2020. Available at: https://www.washingtonpost.com/outlook/2020/04/14/doctors-fear-coronavirus-is-that-affecting-their-medical-decisions/. Accessed May 26, 2020
2. Shanafelt T, Ripp J, Trockel M: Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. JAMA 2020; 323:2133–2134
3. Halpem NA, Tan KS: United States ICU Resource Availability for COVID-19. 2020. Available at: https://www.sccm.org/Blog/March-2020/United-States-Resource- Availability-for-COVID-19. Accessed May 26, 2020
4. White DB, Lo B: A framework for rationing ventilators and critical care beds during the COVID-19 pandemic. JAMA 2020; 323:1773–1774
5. Rochwerg B, Parke R, Murthy S, et al: Misinformation during the coronavirus disease 2019 outbreak: How knowledge emerges from noise. Crit Care Explor 2020; 2:e0098
6. Gattinoni L, Chiumello D, Caironi P, et al: COVID-19 pneumonia: Different respiratory treatments for different phenotypes? Intensive Care Med 2020 Apr 14. [online ahead of print]
7. Brower RG, Matthay MA, Morris A, et al: Acute Respiratory Distress Syndrome Network: Ventilation with lower tidal volumes as compared with traditional tidal volumes for acute lung injury and the acute respiratory distress syndrome. N Engl J Med 2000; 342:1301–1308
8. Ely EW: The ABCDEF bundle: Science and philosophy of how ICU liberation serves patients and families. Crit Care Med 2017; 45:321–330
9. Rice TW, Janz DR: In defense of evidence-based medicine for the treatment of COVID-19 ARDS. Ann Am Thorac Soc 2020. [Epub ahead of print]
10. Castelletti S: A shift on the front line. N Engl J Med 2020; 382:e83
11. Cabana MD, Rand CS, Powe NR, et al: Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA* 1999; 282:1458–1465

12. Kahn JM, Asch RJ, Iwashyna TJ, et al: Physician attitudes toward regionalization of adult critical care: A national survey. *Crit Care Med* 2009; 37:2149–2154

13. Alhazzani W, Møller MH, Arabi YM, et al: Surviving Sepsis Campaign: Guidelines on the management of critically ill adults with coronavirus disease 2019 (COVID-19). *Crit Care Med* 2020; 48: e440–e469

14. Devlin JW, Skrobik Y, Gélinas C, et al: Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU. *Crit Care Med* 2018; 46:e825–e873

15. Ho SM, Kwong-Lo RS, Mak CW, et al: Fear of severe acute respiratory syndrome (SARS) among health care workers. *J Consult Clin Psychol* 2005; 73:344–349

16. Balas MC, Vasilevskis EE, Olsen KM, et al: Effectiveness and safety of the awakening and breathing coordination, delirium monitoring/management, and early exercise/mobility bundle. *Crit Care Med* 2014; 42:1024–1036

17. Barnes-Daly MA, Phillips G, Ely EW: Improving hospital survival and reducing brain dysfunction at seven California community hospitals: Implementing PAD guidelines via the ABCDEF bundle in 6,064 patients. *Crit Care Med* 2017; 45:171–178

18. Pun BT, Balas MC, Barnes-Daly MA, et al: Caring for critically ill patients with the ABCDEF bundle: Results of the ICU liberation collaborative in over 15,000 adults. *Crit Care Med* 2019; 47:3–14

19. Hsieh SJ, Otusanya O, Gershengorn HB, et al: Staged implementation of awakening and breathing, coordination, delirium monitoring and management, and early mobilization bundle improves patient outcomes and reduces hospital costs. *Crit Care Med* 2019; 47:885–893

20. Donovan AL, Aldrich JM, Gross AK, et al; University of California, San Francisco Critical Care Innovations Group: Interprofessional care and teamwork in the ICU. *Crit Care Med* 2018; 46:980–990