Peabody's Paradox: Balancing Patient Care and Medical Education in a Pandemic

Stephen W. Russell, MD, FACP
Neera Ahuja, MD
Anand Patel, MD
Paul O'Rourke, MD, MPH
Sanjay V. Desai, MD, FACP
Brian T. Garibaldi, MD, MEHP, FACP

One global response to help control the spread of the COVID-19 pandemic from the SARS-CoV-2 virus is social distancing. An unintended consequence of social distancing is a disruption of medical education. As hospital systems limit contact with patients to "essential personnel," a subtle message undermines the role medical students and residents play in supporting patients. Medical educators and trainees worldwide are adapting teaching strategies to the present pandemic. The challenge to maintain a safe and effective learning environment in a pandemic seems daunting.

Yet medical educators have been here before. The 1918 influenza pandemic forced medical students to adapt to a new training environment. While experienced physicians served overseas in World War I, trainees assumed new responsibilities. In Philadelphia, "fourth-year students were assigned the job of interns" while "the third-year students were to act as nurses."[1] A medical educator in Boston, Dr. Francis W. Peabody, contracted influenza on a trans-Atlantic voyage before returning home to a city and a medical system ravaged by pandemic illness.[2] In reflecting on his career a decade later in his opus, "The Care of the Patient," in which he famously wrote that "the secret of the care of the patient is in caring for the patient,"[3] Peabody also described the challenges for medical education. Trainees, he wrote, "encounter many situations which they had not been led to anticipate and which they are not prepared to meet effectively."[3] Then, as now, the twin aims of patient care and resident education seem opposed to one another in a pandemic. How are educators—and learners—going to negotiate what could readily be called "Peabody's Paradox"?

Understandably, outbreaks foster fear among trainees. Among pediatric and medicine residents working with Acquired Immune Deficiency Syndrome (AIDS) patients in New York during the 1980s, nearly half reported concerns of acquiring the disease.[4] Emergency medicine residents in Toronto, Canada, caring for Severe Acute Respiratory Syndrome (SARS) patients in 2003 recalled "disenchantment of altered job descriptions" and "stripped enthusiasm for clinical responsibilities, including bedside teaching."[5] Fear permeated the thoughts of medical residents in Saudi Arabia in 2015, as 85% of trainees who interacted with Middle East Respiratory Syndrome (MERS) patients worried about becoming ill.[6] Even an infectious disease fellow working in an Ebola clinic in Monrovia in 2015 faced "fear of contracting and importing the disease."[7] With the pandemic of COVID-19, medical educators should anticipate learners' anxieties of training during an outbreak, prepare for alternative forms of teaching, and address residents' well-being.

Our collective experience at 5 academic medical centers heightens our awareness of this suboptimal learning environment. Our consortium runs the Graduate Medical Education Laboratory study, supported by the American Medical Association, to identify factors in the training environment that impact well-being and clinical skills.[8] The presence of COVID-19 is creating new and unanticipated factors that are already influencing the training environment.[9,10] By viewing the emergence of these educational challenges through the lens of well-established clinical teaching models, programs can optimize graduate medical education and maintain a focus on well-being.[11] We present 4 strategies for addressing challenges of medical education during an outbreak—informed by historical lessons (TABLE 1)—and illustrate 4 specific examples of implementing educational innovations during the COVID-19 pandemic (TABLE 2).

Strategy 1: Clearly Communicate Learning Goals

Historically, outbreaks alter learning goals by changing residents' educational opportunities. New team structures and quarantining of health care workers redistributes traditional work responsibilities. Infection control measures can separate physicians and patients. The absence of clear communication and the presence of residents' safety concerns can crowd out

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TABLE 1
Historical Strategies to Address Education During an Outbreak

Precedents	Spanish Flu	HIV/AIDS	SARS	MERS	Ebola[a]
Educational challenges	Learning environment altered due to lack of oversight of clinically experienced clinicians	Learning goals altered due to learners' fear for personal safely or questioning ethical obligations regarding clinical care	Learning and retaining new information blunted due to learners underestimating the public health threat, misunderstanding PPE benefits	Self-directed learning decreased due to learner stress, unclear communication of plans for maintaining resident safety	Learners physically distanced from faculty and patients limits feedback in a very high-risk environment
Educational strategies	Learners adapt to a new learning environment by a willingness to assume new responsibilities	Learning goals clarified by consolidating care, creating new care models for affected patients	Retention of updated information improved from attending physicians modeling PPE use and professionalism	Improved remote learning through transparent "Command Center" communications and online resources	Learning how to provide continuous supervision and mentoring, even with physical distancing, offering a model for quality training and feedback in high-risk environments

Abbreviation: PPE, personal protective equipment.
[a] US residents were not (and would not) be expected to care for suspected or confirmed cases of viral hemorrhagic fevers such as Ebola. This isolated model in West Africa, however, demonstrates another historical example of a successful strategies to address education during an outbreak.

effective learning. Amid similar challenges, clinical researchers in Birmingham, Alabama, established an AIDS Clinic in 1987 with a mission for "patient care, social service support, medical provider education, community outreach, and research."[12] This central location for affected patients clarified clinical and learning goals.

Recently, general surgery residents at the University of Washington addressed this by deconstructing their workflow to build 3 larger parallel teams. This supported social distancing, protected resident workforce, and maintained education and patient care.[13]

Strategy 2: Promote Understanding and Retention

Outbreaks can affect a resident's understanding of new information. During the 2003 SARS outbreak in Toronto compliance with safety protocols among pediatric emergency residents was affected by their *perception* of the public health threat—rather than the science behind infection control measures.[14] Recognizing this knowledge gap, attending physicians caring for SARS patients noted opportunities to improve residents' clinical understanding through role modeling effective behaviors. Discussions with residents "explicitly and early in the training process" improved personal safety and patient needs.[15]

Currently, hospitals that are balancing an influx of infected COVID-19 patients have experienced shifting protocols and inadequate supplies of personal protective equipment (PPE) to meet the demand. When responding to acute patient needs, residents might feel they have to choose between personal safety and patient concerns.

Internal medicine program directors at the University of Alabama at Birmingham promoted understanding by adopting daily e-mail communication with residents to share key hospital metrics. More understanding came through a virtual Town Hall, where several COVID-19 positive residents, infected early in the outbreak, shared their experiences with their peers, giving a face to the fear, uncertainty, and hope of the outbreak (Lisa Willett, MD, oral communication, April 10, 2020).

Strategy 3: Advocate Self-Directed Learning

Residents experiencing pandemic stress might focus less on learning. During the 2015 MERS outbreak in Saudi Arabia, exhaustion and fear affected the discipline needed for remote learning. Still, all learners benefited from a new hospital-wide communication structure. An intensive care unit (ICU) "Command Center," attended by the department chair, met twice daily, provided digital education on the hospital intranet, and encouraged team feedback, which improved learning.[16]

Presently, urology residents at Cleveland Clinic Akron General, accustomed to high-volume inpatient consults, reduced their inpatient teams and triaged urgent consults with attending physician oversight, learning to prioritize evaluations while maintaining clinical excellence.[17] Many online resources support remote learning.[18–20]

TABLE 2
Implementing Educational Innovations During the COVID-19 Pandemic

Educational Innovations	Challenge	General Solutions	Specific Strategies	Online Resources
Clearly communicate learning goals: outbreaks alter learning goals by changing educational opportunities	How to minimize viral exposure and protect surgical resident workforce?	General Surgery (University of Washington): ▪ Deconstruct workflow to larger parallel teams	Parallel Working Groups: ▪ Inpatient, operative, and clinical care teams ▪ 1-week rotations each	Critical care resources for ICU and hospitalists: Society of Critical Care Medicine (www.sccm.org)
Promote understanding and retention: outbreaks can affect understanding of new information	How to help residents understand the impact of local disease transmission prior to widespread testing?	Internal Medicine (University of Alabama at Birmingham): ▪ Early adoption of daily communication and virtual meetings to address residents' concerns	Transparent Town Halls: ▪ Virtual meeting where COVID-19 positive residents shared experiences ▪ Daily e-mails for hospital specific metrics	Podcasts for internal medicine: The Curbsiders (www.thecurbsiders.com) Podcasts for narrative medicine: The Nocturnists (www.thenocturnists.com)
Advocate self-directed learning: outbreak stress decreases focus on learning	How to adhere to social distancing educating remotely and providing excellent patient care?	General Urology (Cleveland Clinic Akron): ▪ Redistribute workflow for consults and redesign academic curricula	Triage Urgent Consults: ▪ Prioritize consults to urgent versus outpatient ▪ Schedule daily remote learning sessions	Clinical problem solving: HumanDx (www.humandx.org) Virtual Morning Report (www.clinicalproblemsolving.org)
Continue to provide feedback and evaluation: outbreaks physically separate learners	How to continue clinical oversight of fellows by faculty in a telemedicine environment?	Allergy and Immunology (Rush University, Chicago): ▪ Use a shared virtual space to allow precepting	Virtual Allergy Clinic: ▪ Fellow and patient use video telehealth visit ▪ Faculty joins the virtual visit remotely to precept	Patient Communication Resources: VitalTalk (www.vitaltalk.org)

Strategy 4: Continue to Provide Evaluation and Feedback

Socially distanced faculty and trainees might have fewer opportunities for feedback. When physicians and patients are separated, less bedside teaching occurs. However, smaller care teams allow faculty more time with trainees to assess a resident's autonomy. At a West African Ebola clinic in 2015, a highly structured learning environment for a fellow demonstrated that "quality training can be achieved, even in the most challenging environments," including time for reflection and regular feedback.[7]

Fellows in allergy and immunology at Rush University solved the need for continued clinical oversight by using telehealth that incorporates a 3-way virtual clinical space from a shared virtual desktop so that a faculty member can precept the virtual visit.[21]

The challenges facing medical education during the COVID-19 pandemic are not new, but a renewed effort is needed to prepare our learners. During these days of restricted opportunities to teach at the bedside, in the operating room, or in morning report, new educational opportunities emerge. Even when we don PPE, we learn lessons of teamwork, professionalism, duty, and compassion. In solving Peabody's Paradox, perhaps our biggest lesson is to find space to care for the caregivers.

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Stephen W. Russell, MD, FACP, is Associate Professor of Medicine & Pediatrics, Department of Medicine, University of Alabama at Birmingham; **Neera Ahuja, MD,** is Clinical Professor of Medicine, Stanford University; **Anand Patel, MD,** is a Fellow in Hematology/Oncology, University of Chicago; **Paul O'Rourke, MD, MPH,** is Assistant Professor of Medicine, Johns Hopkins Bayview Medical Center; **Sanjay V. Desai, MD, FACP,** is Associate Professor of Medicine, Johns Hopkins University; and **Brian T. Garibaldi, MD, MEHP, FACP,** is Associate Professor of Medicine, Johns Hopkins University.

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Corresponding author: Stephen W. Russell, MD, FACP, University of Alabama at Birmingham, 1808 7th Avenue South, Birmingham, AL 35233, 205.934.7700, swrussell@uabmc.edu