Residency Training in the COVID-19 Pandemic—Addressing the Need for Systems-Based Education

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The academic graduation season of 2022 marked the first, though seemingly not last, in which some residents completed their training with every year dominated by the COVID-19 pandemic. As recent residency graduates meeting these criteria, we are struck by how little we know about practicing medicine in a nonpandemic world. Virtual visits, high hospital censuses, and widespread understaffing were the norm throughout our training, replacing many of the typical residency learning experiences. These changes hindered residents’ development of nonclinical skills crucial for practicing medicine in the US health system, stalling prior progress in systems-based education. As the world transitions to postpandemic normalcy, it is incumbent upon residency programs, health systems, and regulatory bodies to learn from these experiences to ensure and improve the quality of future training.

The COVID-19 pandemic put incredible strain on the health care system, requiring reallocation of resources and rapidly changing priorities. Residents were no exception. Consult, elective, research, and clinic blocks were often replaced by high-volume inpatient rotations. Formal education transitioned to virtual platforms or was paused entirely. Projects and independent studies were subsumed by expanded censuses and shortened call cycles. Through their increased clinical responsibilities, residents helped save countless lives but, in doing so, lost many of the educational components that were the norm in residency training.

The demands placed on physicians can be complex and vast, setting the template for skills that trainees must learn in preparation for independent practice. Residency training often focuses on learning-by-doing clinical education, but health care has grown well beyond bedside care. Physicians must be able to navigate electronic health records, coordinate niche therapies with specialists, traverse shifting insurance landscapes, promote equity among diverse populations, and work within and between systems to provide high-value care. None of these skills can be learned exclusively at the bedside. They need to be developed through intentional exposure and firsthand experience, balanced with other components of trainee education.

Opportunities for supervised exposure to these domains of medical training cannot be easily replicated outside of training and should be incorporated through systems-based education during residency. This tenet of education was established as one of the core competencies of the Accreditation Council for Graduate Medical Education (ACGME) in 2001 as a competency-based milestone. Progress has been made since that time in piloting initiatives that help residents learn these vital skills, but substantial challenges to further implementation remain.

Although the pandemic temporarily stalled the integration of systems-based practices in medical education, it also revealed opportunities to improve residency training and reinvigorate the role that hands-on, real-time learning can have in achieving this core competency. When academic health systems faced unprecedented hospital admissions and rapidly shifting treatment paradigms, frontline residents reliably contributed to improvement endeavors. They were actively involved in efforts to optimize triaging of patients, turn emerging evidence into guidelines, and create multidisciplinary teams to improve care. With little preparation, trainees brought their strong work ethic, eagerness to learn, and readiness to question norms to improving systems and those who practice within them. By being involved in firsthand, real-time systemic endeavors, residents contributed to academic health systems while learning how to practice independently within them.
Just as residents learn clinical skills by working within patient care teams, they learned systemic skills by working alongside faculty and administrators during the pandemic, which should continue going forward. Initially, residents can engage in shadowing and then complete tasks under careful observation with graded levels of autonomy. Classroom time focusing on quality improvement and systems-based practice can be replaced with formal participation in committees and task forces, directly contributing to systems while acquiring skills and consolidating knowledge. There is no denying the power of hands-on experience when learning patient care, and the same goes for developing skills needed to navigate health care systems. When the biggest challenges involve cost, equity, quality, and structural innovation, it is essential for residents to work within the groups aiming to solve these challenges, just as it is essential they work as members of clinical teams providing patient care.

However, widespread implementation is never easy, and advancement will require buy-in from residency programs, health systems, and regulatory bodies. The long-term educational benefits of providing systems-based experiences along with clinical rotations should be apparent, but the short-term systems-level benefits should also inspire such changes. Clinical teams with residents provide a level of care that is similar to nonteaching teams while allowing attending physicians to care for more patients than they could alone. This allows for residents to learn by doing while spreading attending resources further, thereby providing cost-effective, high-quality care to more patients. Such high-quality, cost-effective contributions from residents can also be applied to systems-level endeavors outside direct clinical work.

To achieve these implementation goals for systems-based education, residency programs must prioritize active participation in quality improvement and systems issues similarly to clinical care. For example, programs should appoint core faculty members tasked with developing, implementing, and advocating for residents’ active participation in addressing issues of cost, efficacy, and equity. Curricular evaluations will be needed to identify how training in systems and quality improvement can be provided to residents.

Similarly, health systems should identify projects and administrative groups most likely to benefit from trainee engagement and also change staffing structures to account for more residents involved at the systems level and fewer at the direct patient care level at any one time. This type of systems engagement could involve a longitudinal weekly or biweekly commitment, or it could be a more intensive immersion similar to standard clinical rotations. Both residency programs and health systems will need to invest time and intentionality to enact these changes, but before long, trainees should become so integrated into these systems and committees that teaching hospitals can rely on them in these spheres as much as they do for patient care.

Buy-in to such changes is unlikely to be universal, and inertia will slow and prevent many programs and systems from enacting these improvements. As such, external regulatory bodies must step in to hold them accountable. In the same way that the ACGME requires exposure to certain learning experiences, it could require programs to provide residents with firsthand integration into committees and quality improvement projects. Formal trainee feedback could be elicited to evaluate whether programs are providing residents with such learning experiences, ensuring education and participation in issues of implementation, equity, cost, and high-value care.

Medical education has come a long way in identifying the importance of systems-based practices in residency education, and although the COVID-19 pandemic stalled ongoing progress in advancing systems-based education, it also revealed lessons that should promote change. Residency programs, health systems, and regulatory bodies should work together to incorporate residents into systems-level groups and decisions to the same extent residents are incorporated into patient care. By integrating trainees into the groups currently seeking to improve all aspects of health care, including cost, equity, quality, and structural innovation, residents can help to improve current outcomes of patients, and residency programs will produce more well-rounded, systems-trained physicians ready and prepared to take on future challenges during the next health care crisis.
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