

Up to Speed: A Role for Trainees in Advancing Health Information Technology

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The six-year old wheezed for two days before the steroids took full effect. As his airways relaxed and his retractions calmed, we prepared to send him home. When rounds finished, I ran to a computer and started the tedious process of discharge paperwork. As a last step, I leafed through a 14-page instructional binder and clicked through the dozen checkboxes required to create his asthma action plan. When I started residency, I expected that asthma care would be a “bread and butter” component of my learning. I did not anticipate, however, the time I would spend mastering the multi-click process for generating asthma action plans, among many other daily computer tasks. I certainly did not expect to spend more time working with clunky software than I spent interacting with my patients and their families.

The goal of utilizing electronic health records (EHRs) in medicine is to deliver high-quality care more safely and effectively. Too often, we fall short of that goal. Whether completing asthma action plans, reconciling medications, or simply dealing with a frozen computer, many of the current digital tools in medicine fail to achieve their potential. As a result, trainees (like many other providers) are becoming increasingly frustrated.

The Institute of Medicine’s 2011 report¹ pointed out the quality and safety deficiencies inherent in EHR workflow and highlighted the need to examine and address the impact of EHRs in these areas. The Joint

Commission has also published two “Sentinel Event Alerts,”^{2,3} cautioning providers about the surprisingly high incidence of adverse events related to Information Technology (IT), and encouraging clinicians to actively identify and report health IT hazards as part of patient safety initiatives. Poorly designed EHRs create real threats to patient safety and providers have a responsibility to help address their impact on patient care.

Aside from the challenges to healthcare delivery, poorly designed EHRs also take away from trainees’ ability to interact with and learn from patients. It has been shown that residents spend more time in front of computers than they do at the bedside.^{4,5} In fact, medical interns spend 40% of their time wrestling with electronic health record systems.⁶ Even when providers are physically at the bedside, computers still disrupt interactions with patients.⁷ Unfortunately, even during the formative years of medical school, trainees are spending a disproportionate amount of their time with EHRs.⁸ In a study conducted with the Rand Corporation, the American Medical Association found that EHRs failed to support efficient and effective clinical work and thus called for a design overhaul of EHRs to improve usability.⁹ When systems are inefficient or non-intuitive, providers spend a disproportionate amount of time addressing computer issues rather than patient care needs.

Trainees are an underutilized resource in IT improvement. As trainees, we are

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James Xie researched and drafted the initial manuscript, revised, and approved the final manuscript as submitted.

www.pediatrics.org/cgi/doi/10.1542/peds.2015-1827

DOI: 10.1542/peds.2015-1827

Accepted for publication May 22, 2015

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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FINANCIAL DISCLOSURE: The author has indicated he has no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The author has indicated he has no potential conflicts of interest to disclose.

in a unique position to act as drivers in the process of innovation. We are responsible for the bulk of documentation, orders, and care coordination in teaching hospitals and clinics. Also, we often rotate through multiple clinical sites with different EHRs. As a result, trainees develop a wealth of experience about the benefits, burdens, and areas needing improvement in these systems. Yet we are rarely involved in conversations at the hospital or industry-level about how these systems could be improved.

To actively address EHR flaws, trainees must be equipped with the knowledge and skills to seize opportunities to make system improvements. Medical educators are beginning to heed this call by proposing ways in which using EHRs should be integrated into clinical training,¹⁰ but a successful approach must also include opportunities for involvement in the evolution of EHRs themselves. Such early involvement with EHR improvement will help trainees to develop into future leaders of IT innovation - leaders that are sorely needed. In the field of pediatrics, several recent articles have underscored the need for clinician involvement in EHR adoption and usability. Lehmann et al note the paucity of pediatric-customized EHR implementations, despite pediatricians' increased EHR adoption overall.¹¹ Also, Miller et al comment on low rates of pediatrician participation in "Meaningful Use", the federal EHR incentive program, citing problems with EHR functionality in pediatric settings as a disadvantage to pediatricians.¹² Pediatricians should be able to leverage electronic tools with pediatric-specific functionality rather than struggle to adapt generic systems to pediatric workflows. We should run the computers, not the other way around.

Despite these reasons to get trainees involved in EHR initiatives, there are barriers to overcome. From the

trainee side, time is a factor, as well as the lack of clear pathways to drive change. My colleagues often point out EHR problems, but many feel too busy to suggest potential solutions. When there are obvious patient safety issues, problems are quickly addressed through error or near-miss reporting systems. However, when inefficiencies do not directly impact patient safety, there is not a clear remediation system in place, so inefficiencies are simply perpetuated. From the administrative perspective, adding more voices to the conversation can be logistically challenging; there are many stakeholders to take into account when implementing and improving an EHR system. Nonetheless, many quality and patient safety improvement committees now include trainees. IT workgroups should be able to follow the same path. Increasing trainee participation in improving EHRs and health IT will require both top-down and bottom-up efforts: faculty and administrators should recognize that trainees are a great asset and trainees should build their confidence in identifying and proposing solutions.

Although barriers to resident involvement certainly exist, they are not insurmountable. From my own experience when I was a medical student, I had the opportunity to participate in an EHR implementation process at Lucile Packard Children's Hospital Stanford (LPCH). There, I witnessed firsthand the value of trainee contributions. LPCH recruited medical students, residents, and fellows to train other providers, liaise with their departments, and provide direct support. In the end, the involvement of trainees in the EMR training process was recognized as a great success that not only resulted in high learner satisfaction rates, but also significant cost savings to the hospital.¹³ As the field of clinical informatics continues to grow, it is becoming increasingly clear that physicians will need to be conversant

in the language of health IT. Just as every pediatrician should know the basics of nephrology or infectious disease, we should also understand how to leverage technology to maximize the benefits of medical care.

Health information technologies are touted for their potential to improve care, but without close collaboration with the users of these technologies, the results will be disappointing. As many hospitals undergo EHR implementations, trainee involvement should be an integral component of planning a successful deployment - and improving EHRs overall. Trainees can effectively partner with IT leadership to identify problem areas, as well as opportunities. My experience at LPCH shows how doing so can be mutually beneficial. Trainees who engage with EHR improvement during training will be great assets to their fields of practice. Transforming collective dissatisfaction with EHRs into meaningful action requires deliberate effort and engagement that starts early in training. There is never a better time to start than now.

ACKNOWLEDGMENTS

Thank you to Dr. Bryan Sisk, MD, Dr. Kristin Schwarz, MD, Dr. Claire McCarthy, MD, and Dr. Catherine Distler, MD for their thorough review and guidance in editing this article.

ABBREVIATIONS

EHR: electronic health record
HIT: health information technology

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Pediatrics 2015;136;412

DOI: 10.1542/peds.2015-1827 originally published online August 3, 2015;

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The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/136/3/412>

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