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Technology and Anesthesia Education

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Present day academic anesthesiologists are under intense pressure to be clinically productive as well as progressive educators. The modern day clinical environment often limits resident physicians to a standardized or protocol-driven learning schedule, with little room for dynamic development of their cognitive skills [1]. Anesthesiologists generally possess interest in embracing emerging technologies for clinical practice; however, we tend to lag in the adoption of technology for the enhancement of education. In order to stay ahead of the curve, new digital technologies must be utilized in order to better integrate the education of the next generation of anesthesiologists with clinical practice.

As a staff physician and faculty at Stanford University School of Medicine, we observe these challenges on a daily basis. We are living in an era when production and time are key factors that often detract from integrating new or unorthodox educational activities into the operating room. How can better techniques be implemented in this rushed environment so that education will be equal, and not inferior, to providing service?

Many anesthesia residents belong to the millennial generation and interact with the world in a fundamentally different manner compared to previous generations. They express a preference for the use of technology and "on demand" learning over more traditional approaches [2]. Medical educators today have new tools that could transform the conventional modes of medical education, with innovative curricula becoming less and less anchored to paper. As an example, we would like to share some changes recently implemented on our orthopedic joint surgery service at Stanford. Historical education for anesthesia residents has been in the form of a printed curriculum bound and delivered to each resident to be used as a guideline for clinical teaching. This method relies upon the resident actually carrying around the rather large binder and the faculty providing consistency in covering the topics. This year, the same curriculum content was provided in a tablet computer (iPad, Apple®, Inc, Cupertino, Ca). The tablet provided continuous availability of a shared visual portfolio with growing and varied topics for discussion. It was intended to serve as a tool for both self-directed learning outside the operating room and to facilitate a dynamic discussion between the attending and the resident while in the operating room.

According to feedback and survey results, residents responded favorably to the introduction of an innovative iPad-based curriculum for the orthopedic anesthesia rotation. This was due in part to residents' better understanding of rotation goals from the beginning, as well as the ability to recognize whether these goals were achieved by the end of the rotation. The visual learning tools tended to stimulate a more consistent resident-attending interaction with regards to teaching and didactics. Overall, utilizing digital technology as an educational tool made a positive difference in resident learning [3].

Within many academic settings, teaching is being guided more by personal beliefs and opinions and less by scholarly inquiry, evidence, and professional standards. The time has come to focus energy and resources on the development of more robust and compelling evidence-based practices to deliver educational content that matters for patient care and can be effectively delivered in the clinical space. If educators, payers, and regulators can more objectively assess the educational needs of this generation of residents, practices pursued by historical precedent, and not evidence of effectiveness, can be eliminated. Mobile computing technologies can enhance resident learning, especially when residents work at multiple locations and are constrained by duty hour limits. Additionally, technologies can be used to document resident learning in the six ACGME core competencies. The time has come for us to embrace new tools, like the Ipad™, and to commit to studying their educational impact.

References

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