Title

Expanding FOAMed to Voice Activated Artificial Intelligence: Mental Practice of Emergency Medicine Procedures via Alexa

Permalink

https://escholarship.org/uc/item/6b27q0pm

Authors

High, Megan

Tabor, Ryan

Henderson, Tim

et al.

Supplemental Material

https://escholarship.org/uc/item/6b27q0pm#supplemental

quality of patient care, medical billing, and legal protection for healthcare providers. The education and training surrounding charting and documentation in emergency medicine residency have often been relegated to on-the-job learning, without formal didactic instruction. This deficiency leads to inefficiencies, inconsistencies, and even potential legal vulnerabilities. In response, an innovative curriculum was developed and implemented.

Educational Objectives: The objective of this curriculum is to empower emergency medicine residents with a comprehensive understanding of documentation's critical role in patient care, billing, and legal protection. Through this curriculum, residents gained proficiency in navigating evolving coding guidelines, maximizing relative value units, and implementing best practices to efficiently and accurately document.

Curricular Design: A needs assessment was performed, which showed only 40% of our residents felt they had sufficient training on documentation. Hence, a documentation curriculum was developed which blended didactic lectures with simulated patient encounters. Residents were provided with 6 50-minute lectures, which focused on the requirements for billing, efficiency, and best practices. Residents participated in a simulation case before and after the course, which involved critical care and a medical error. They were required to write a note documenting this case. These notes were evaluated, and feedback was given.

Impact/Effectiveness: A post-intervention survey showed 90% of our residents felt they had sufficient training on documentation. Following completion of the course residents were given another SIM and only 5% of charts were downcoded from a level 5. This curriculum can easily be adopted by other institutions. It was well received by our residents, and it improved their charting competence and confidence.

8 Expanding FOAMed to Voice Activated Artificial Intelligence: Mental Practice of Emergency Medicine Procedures via Alexa

Megan High, Ryan Tabor, Tim Henderson, Ryan McKillip

Background: EM physicians are responsible for performing a variety of life and organ-saving interventions. However, given the infrequency of some high acuity, low occurrence (HALO) procedures, opportunities to hone these skills can be rare. Mental practice (MP), the visualization of a set of actions, has consistently demonstrated a positive impact on performance of medical procedures, but it lacks feedback. Voice activated artificial intelligence (VAAI) (e.g. Alexa, Siri) offers an accessible format for interactive MP.

Objectives: Create an open access VAAI resource to facilitate MP of HALO procedures.

Design: Three experienced EM physicians identified nine HALO procedures via consensus: lateral canthotomy,

transvenous pacing, cricothyrotomy, needle cricothyrotomy, pericardiocentesis, resuscitative hysterotomy, thoracotomy, newborn delivery, and cranial burr hole. An Amazon Alexa application was created which guides a user through MP of each procedure. Alexa was selected for its voice interaction features and ability to run on both mobile phones or smart devices. Users select a procedure and then are prompted to visualize the necessary supplies, then the procedure itself and finally potential complications. After each prompt, Alexa allows time for visualization before reading back a script of the appropriate supplies and steps (Figure).

Impact: Since August 2022, use of the application has grown organically, with 16 activations and 65 sessions on mobile (4/65), smart speaker (28/65), or television platforms (26/65). Application performance has been high, with 100% (65/65) appropriate endpoint responses, indicating it has functioned without error. As users grow, a study of its effect on procedure performance is needed. VAAI is an underutilized medium for medical education tools. This project represents a novel format for free open access medical education (FOAMed), and demonstrates an innovative method for enhancing physician proficiency.
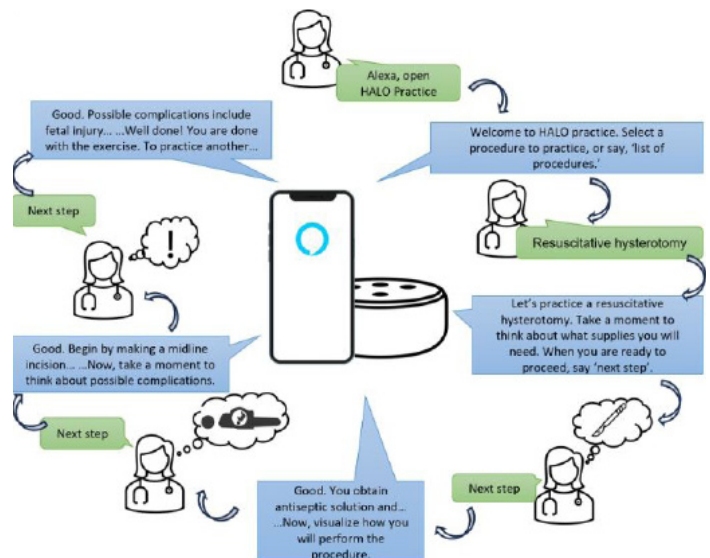

Figure. Example mental practice session. After each prompt, Alexa allows time for visualization before reading back a script of the appropriate supplies and steps.

9 Trauma-Informed Verbal De-escalation Curriculum for Emergency Medicine Residents

Samara Albazzaz, Jeremiah Ojha, Kelly MacKenzie, Jessica Parsons, Erica Harris

Introduction: Use of violent restraints for agitation in the ED contributes to patient morbidity through physical and psychological harm. The process of restraining is also time