Using a Teaching Electronic Medical Record for Assessing Residents in the Care of Critically Ill Patients: A Pilot Study

Joshua Smith MD • W Graham Carlos MD • Blaine Takesue MD • Debra Litzelman MD, MA
Indiana University School of Medicine • Regenstrief Institute

Innovation Identified

The Regenstrief Institute (RI), a support organization to the Indiana University School of Medicine, developed a teaching EMR (tEMR) that utilizes mis-identified, real patient data. Residency work hour restriction has the unintended consequence of more limited housestaff exposure to critical care patients.

This work used the tEMR platform as the tool for residents to work through cases of septic shock.

Objectives:
The primary objective was determine if our tool could improve the learners’ ability to enter an evidence-based, comprehensive initial care plan for critically ill patients.

Secondary objectives included determining any improvements in learner’s comfort level admitting critically ill patients and if learners found the tool to be effective.

Need/Gap Addressed

Utilizing the tEMR platform, three modules were created around cases of septic shock using de-identified real patient data. The module began with an introductory case vignette in a pop-up window highlighting initial presentation. The learner navigated through the tEMR and entered initial orders through CPOE. The learners received real-time feedback based on a “Gold Standard” developed by intensivists with references to pertinent medical literature via hyperlinks.

Resources Needed and Potential Barriers

Due to temporal and technologic limitations, this pilot was performed in a one-day session. We would like to allow more time for the learner to interact with the tEMR.

We would like to engage several clinical training institutions to participate in future studies and create cases to teach and evaluate learners across the UME-GME-CME continuum.

We feel there will be many opportunities for additional funding now that we have been equipped with early pilot data showing its feasibility and positive reviews from users.

Timeline Proposed

Month 1
- Develop course objectives
- Introduction of tEMR to team
- Instructor training

Month 2
- Identify optimal teaching cases and create vignette
- Develop evaluation instrument for cases

Month 3
- Learners introduced to the tEMR
- Learners get access to a tutorial
- Learners work through the cases
- Instructors review each students’ entries and provides student with feedback

Stakeholder Input

Thirty nine residents participated in the pilot, with 32 (82.1%) and 19 (48.7%) residents completing modules 2 and 3, respectively.

Diagnostic acumen improved in successive modules. There was an average improvement of 20% in users’ scores across the three modules.

Almost 90% of residents reported the technology was an effective form of teaching and would use it autonomously if more modules were provided.

Institutional Contacts

Debra K. Litzelman, MD, MA; dklitzel@iu.edu
Blaine Takesue, MD; btakesue@regenstrief.org
Indiana University School of Medicine
Regenstrief Institute, Inc.
Indianapolis, Indiana 46202