

QUERI Partnered Evaluation Initiative

June 2019

Principal Investigator: Nilam J. Soni, MD, MS

Nilam.Soni@va.gov | Sonin@uthscsa

Evaluation of Implementation: National Point-of-care Ultrasound Training Program

South Texas Veterans Health Care System

Overview

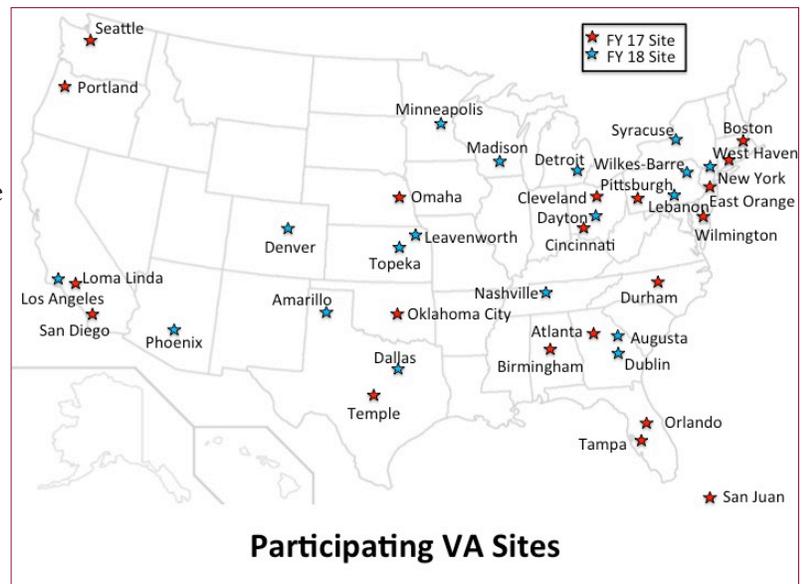
Point-of-care ultrasound (POCUS) has been shown to reduce procedure-related complications from invasive bedside procedures and reduce ancillary diagnostic testing, which decreases patients' exposure to ionizing radiation, and lowers healthcare costs. Despite its potential advantages, POCUS has not been well adopted into healthcare, an important barrier being the limited number of providers trained in its use. VA's Simulation Learning, Education and Research Network (SimLEARN) and Specialty Care Centers of Innovation (SCCI) have launched a collaborative initiative to develop a national POCUS training program to teach frontline VA providers basic diagnostic and procedural applications of POCUS. The aims of their partnered evaluation are to:

- 1** Evaluate provider skill acquisition and retention, and the frequency of POCUS use after participation in a POCUS training course.
- 2** Determine the effect of VA's POCUS training course and implementation facilitation on the facility-level frequency of POCUS use.
- 3** Determine provider- and facility-level barriers and facilitators to POCUS use in the VA system.
- 4** Develop a POCUS champions course to facilitate local implementation by addressing facility-level barriers.

Methodology

Evaluation activities are being conducted onsite at the SimLEARN National Simulation Center in Orlando, Florida. Remote skills testing was conducted using teleultrasound software for all FY17 participants. Both qualitative and quantitative data are being collected with the following strategies.

- A national VA Facility POCUS Survey was completed to assess readiness for implementation of POCUS. During FY17, 20 VA facilities participated in the POCUS training program, and during FY18, an additional 18 facilities were added.



- Providers from selected facilities are participating in an immersive 2.5-day POCUS Training Course at the SimLEARN National Simulation Center.
- POCUS knowledge and skills are tested immediately pre- and post-course. Post-course knowledge retention is tested after 6-9 months. FY17 course participants underwent a post-course skills test after 6-9 months.
- A Provider POCUS Survey assesses frequency of POCUS use at baseline and after 9 months post-course per provider.
- Facilities recruited in FY17 and FY18, as well as non-participating facilities, are being compared with regard to frequency of POCUS use and bedside procedural complication rates per facility using coding data from the VHA Corporate Data Warehouse.



U.S. Department of Veterans Affairs

Veterans Health Administration
Quality Enhancement Research Initiative

Methodology (cont'd)

- Provider and facility-level barriers are being assessed using three tools: 1) Provider POCUS Survey completed by all participating providers, 2) Facility POCUS Survey completed by Chiefs of Staff of all VA facilities, and 3) field notes gathered by faculty during post-course retention testing at six to nine months. Differences in barriers reported and their relationship to frequency of POCUS use are being compared.

Findings and Anticipated Impacts

From October 2017 until April 2019, 234 VA providers from 38 VA facilities participated in 20 immersive, hands-on POCUS training courses organized by VA SimLEARN. Nineteen courses were conducted at the SimLEARN National Simulation Center in Orlando, Florida and the first regional course occurred in February 2019 at the Louis Stokes Cleveland VA Medical Center. Courses are ongoing in fiscal year 2019.

- Participants' POCUS knowledge was assessed pre-course (day 0), immediately post-course (day 3), and remotely post-course (6-9 months). The knowledge test scores improved from a mean of 62% pre-course to 90% immediately post-course, and then declined slightly to 83% after 6-9 months. Retention of POCUS knowledge at six to nine months was directly proportional to the frequency of POCUS use post-course: no use (-11%); low use (-6%); frequent use (-4%).
- Participants' POCUS skills were assessed pre-course (day 0) and immediately post-course (day 3). FY17 course participants underwent a remote post-course (6-9 months). Participants' mean skills test scores pre-course, immediately post-course, and remotely post-course showed a steep improvement followed by a slight decline: lung (17% vs. 77% vs. 72%), cardiac (14% vs. 66% vs. 61%), abdomen (21% vs. 80% vs. 71%), and peripheral IV insertion (25% vs. 76% vs. 71%).
- Barriers to POCUS use per chiefs of staff at facilities not currently using POCUS were: lack of trained providers (71%), lack of ultrasound equipment (63%), and lack of a clinician champion (29%). POCUS course participants reported these top three barriers: lack of being trained in POCUS (55%), cost and difficulty of finding a POCUS training course (37%), and lack of ultrasound equipment availability (34%).
- For the 20 FY17 target facilities, the rate of POCUS exams per 1000 inpatients increased from 106.3 in FY16 (preintervention) to 121.9 during the most recent four quarters (Apr 2018 to Mar 2019), while the rate among nonparticipating similar VA facilities decreased from 109.8 to 103.3. Likewise for the 20 FY17 target facilities, the procedure-related complication rates decreased from 10.0% in FY16 (pre-intervention) to 9.4% in the most recent four quarters, while the rates among non-participating similar VA facilities stayed that same at 10.8%.

Findings from this QUERI project are guiding ongoing efforts of their operational partners—VHA Specialty Care Centers of Innovation and the Simulation Learning and Research Network—to establish and grow the national POCUS training program. This project's findings are guiding development of facilitated implementation strategies for POCUS use at both VA and non-VA hospitals throughout the United States.

Operational Partners

- VHA Simulation, Learning, Education, and Research Network (SimLEARN)
- VHA Specialty Care Centers of Innovation