The Effects of Simulation Training on Entrustable Professional Activities During Labor and Delivery Clerkships

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Introduction

Entrustable professional activities (EPAs): Graded responsibilities earned during training integrating competencies

"Descriptors of work" and "Descriptors of doctors"

Graduate medical education rely on EPAs to integrate competencies. Undergraduate medical education focuses on individual competency milestones rather than integrating them.

"Mastery of abilities in individual competency domains does not ensure the capability to integrate them across domains or to appropriately apply them in patient care” - Chen et al.

In the 2017-2018 academic year (AY), 3rd year medical students (MS3’s) were trained by residents and attendings in vaginal deliveries using pelvic models during Transition to Clerkship (T2C) orientation held prior to the start of clinical clerkships. The simulation focused on delivering spontaneous vaginal deliveries (SVD) and to help student prepare for their OBGYN rotation.

Question

Does student experience in a vaginal delivery simulation encourage providers to expand EPA’s for medical students on their OBGYN rotation?

Objectives

- Primary: How does simulation training affect a medical student's experience on their labor and delivery rotation. Do student EPAs increase with completion of simulation training?
- Secondary: Does a vaginal delivery simulation improve confidence and learning for MS3's prior to their OBGYN rotation?
- Secondary: What improvements can be made to the simulation to make it useful for students?

Hypothesis

Vaginal delivery simulation training prior to a student’s OBGYN rotation increases provider trust and EPAs. This will increase medical student confidence in performing deliveries and enhance their experience.

Methods

The study was conducted exclusively at UC Davis Medical Center. Surveys were sent to UC Davis OB/GYN residents, attendings, and to providers at affiliated hospitals.

3rd Year Medical Students

- MS3’s who participated in T2C training had the opportunity to complete a pre- and post-test regarding what they learned during the SVD simulation session
- MS3’s were also invited to complete a survey about their OB/GYN experiences at the end of their rotation

4th Year Medical Students

- MS4’s who completed their OB/GYN rotation in the 2016-2017AY were sent an optional survey regarding their level of participation in an SVD during their OB/GYN rotation.
- Students received a $5 gift card for completing the survey.

Medical Educators (Residents and Attendings)

- Residents and attendings at UC Davis Medical Center and affiliated sites were sent surveys asking how prior preparation (simulations, readings, lectures, or videos) influenced a student’s involvement in an SVD

Results

- 95 of 98 MS3 T2C simulation surveys were analyzed with a paired t-test. Incomplete surveys were not included in the survey.
- 52 of 55 MS3’s from OB/GYN rotation 1-4 during the 2017-2018AY completed their post-rotation surveys.
- 51 of 102 MS4’s who completed their OB/GYN rotation during the 2016-2017AY finished the post-rotation survey.
- Experiences were compared to MS3’s using Fischer’s exact test.
- 32 residents and attendings responded to the survey. Totally faculty varied during study. 81.3% of providers were "somewhat likely" to "extremely likely" in letting medical students participate in an SVD after simulation training (CI 68-95%)
- Mean knowledge scores of MS3’s prior to rotation. During T2C orientation, average quiz scores of MS3’s were higher after their simulation training (p<0.001, 99% CI).
- Students had higher comfort levels after simulation training (1=uncomfortable, 5=comfortable) (p<0.001, 99% CI)

Discussion

Simulations had an immediate improvement in MS3 knowledge and confidence. Student feedback included more time with simulations and having it closer to their OB/GYN rotations. Simulations were the preferred learning modality for MS3’s and most useful for their rotation.

Despite formal simulation training, MS3’s had similar experiences in their OB/GYN rotation to MS4’s who were not trained. One possibility is that MS3’s inconsistently informed preceptors of their simulation experience which could have affected their participation level.

A majority of providers were likely to let students participate in an SVD with only simulation training prior to their rotation. Simulation was second only to actual previous delivery experience in terms of increased EPA’s.

Limitations of study include recall bias from MS4’s and response and selection bias in medical educators. Sample sizes were also low due to limited MS3 cohorts who have completed their rotation.

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