Using an Academic EHR to Infuse Informatics and FLIP the Lab

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Problem Statement: Recommendations from The Institute of Medicine (IOM) call for wider use of information technology and use of electronic health record (EHR) systems to promote greater safety, quality and efficiency in health care delivery (Institute of Medicine [IOM], 2003). In addition, the IOM recommends integrating informatics as one of the five core competencies into health professions education (Ainsley & Brown, 2009). Nurses are constantly challenged to deliver safe, timely and efficient patient-care despite spending only 50 percent of their time at the patient's bedside (Worth & Kennedy, 2008). Hence, it is essential that nursing students be trained in academic institutions to be technologically literate through academic EHRs. Navigating an EHR can cause confusion and frustration among first semester nursing students. **Methods:** Adopting a flipped classroom approach for laboratory courses requires students to submit weekly pre-lab activity assignments using an assigned patient in an academic EHR. Students must answer questions related to course topics and course objectives by navigating through the EHR weekly. This flipped classroom teaching approach helps build essential informatics competencies expected of the beginning nurse, such as, searching for the patient, data access, documentation, patient education and patient monitoring (Staggers, Gassert, & Curan, 2001). Examples of weekly questions include: "Based on your patient's last finger stick glucose result (view Flowsheet), refer to the Orders and Medication Administration Record (MAR), how much regular insulin should be administered to your patient? What site can you administer this subcutaneous injection to your patient?" Students must answer and submit the pre-lab activity assignment questions before coming to their face to face laboratory session. Questions are reviewed at the beginning of the laboratory session and individual feedback is submitted to each student within the academic EHR. Student participation is often increased as the students come prepared, having already answered the questions and navigated the EHR and textbook readings independently. This approach allows more time in the laboratory setting for psychomotor skill practice and faculty guidance opposed to faculty spending time lecturing. Formative evaluation methods are used to evaluate the progression of student learning during a simulated medication administration experience. Students must use the academic EHR during testing scenarios to access patient data and complete psychomotor skills in the simulation laboratory. For example, a student must administer insulin to a diabetic patient after obtaining the glucose reading, reviewing the orders, MAR and performing the safety rights of medication administration using the academic EHR via a computer on wheels near the patient's bedside. **Results:** Upon scenario completion students must document medication administration in the MAR and note any patient education, once again improving essential informatics competencies. Using an academic EHR to flip the lab improves student confidence and competence in navigating EHRs in a realistic way. Pre-lab activity assignments assist faculty with ensuring students come to lab prepared, allowing more time for hands-on skill practice. **Significance:** Students continue to build on meaningful EHR use throughout the program as a way to provide experiential learning that facilitates opportunities to provide safe care and improve patient outcomes.