Students deserve UNLIMITED practice because nurses should NEVER feel unprepared when they administer medication.

GRANT TEMPLATE

sim2grow Medication Administration Grant Application

Objective

The objective of this grant proposal is to secure funding for the purchase of simulated medication administration equipment for use in the practice and simulation environment to educate student nurses in best practices for safe medication administration.

Background/Need

Safe medication administration is a critical skill required by student nurses prior to graduation and subsequent entry into licensed practice. Several factors impact both the student's confidence and competence levels in both the practice lab and in clinical placement.

Nursing program lab and simulation equipment to learn and practice medication administration often lacks fidelity and availability for repeated use is limited relative to the number of students in a program. Many facilities have older medication carts with paper medication administration records that no longer reflect current practice, including use of automated medication dispensing units, barcode scanning of medications and patient identification bands, and validation using electronic medication administration record (eMAR).

Even nursing programs with commercially manufactured automated medication dispensing units designed for hospital use encounter obstacles rendering the system unable to meet all the learning objectives in a training situation. They lack the eMAR integration, require significant maintenance time, and are cost-prohibitive limiting the number of units that can be purchased by any one program. The consequence of these obstacles is that students have minimal practice prior to administering medications to hospitalized patients.

In the hospital setting, clinical instructors are limited in their ability to provide students with extensive medication pass experiences. Clinical group size, hospital restrictions, and competing clinical experience priorities limit the number of times an individual student is able to administer medications in the clinical setting.

sim2grow provides an all-inclusive system specifically designed by undergraduate nursing faculty to meet the established critical elements and learning objectives of safe medication administration and mitigates the barriers to repeated practice that is needed to increase both confidence and independence. Students who have practiced in the lab independently will be accustomed to the steps of the process, decreasing cognitive load, making them better equipped to receive and implement feedback from their clinical instructor during clinical-setting medication administration.

Professional Societies and Boards

Institute of Medicine

The 1999 Institute of Medicine's (IOM) report*, To Err is Human*, includes the frightening statistic that 98,000 Americans die each year due to medical errors. The 2006 IOM report, *Preventing Medication Errors*, reveals an average of one medication administration error per patient per day and 1.5 million preventable injuries due to medication happen each year with almost 1/3 occurring in the hospital.

An initial step in decreasing medication errors in hospitals is to increase exposure to the proper medication administration process while student nurses are still in formation. This can safely be accomplished in the nursing practice lab and in simulation scenarios with medication administration equipment that includes functional barcode scanning, medication dispensing, and an integrated eMAR.

National Council of State Boards of Nursing

The National Council of State Boards of Nursing (NCSBN) (2015) conducted a longitudinal study regarding the use of simulation for a portion of clinical experiences in undergraduate nursing education. The study results indicated:

> "that high-quality simulation experiences could be substituted for up to 50% of traditional clinical hours across the prelicensure nursing curriculum."

Nursing Programs seeking ways to provide high-quality simulation experiences should consider best ways to balance fiscal responsibility with meeting stated milestones. These equally important priorities are both accomplished with meds2GROW as indicated below in the budget and the curriculum mapping sections.

Barcode Medication Administration

The concept of Barcode Medication Administration (BCMA) was framed in 1995 and first introduced in the clinical setting in 2000 (Wideman, et al, 2005). In April 2018, the Leapfrog group reported that in their 2017 survey, 98.7% of the nearly 2,000 hospitals queried had adopted BCMA to some level. Schools of Nursing trying to keep current with this change in practice have encountered incomplete and cost-prohibitive solutions.

sim2grow's Comprehensive Medication Administration System

sim2grow provides a unique solution to the problem of adopting a fully functional BCMA product into nursing programs with the key features universally been sought by nursing faculty. This is because sim2grow's medication administration training system was developed by two nursing faculty to address the frustrations they experienced themselves in their search for a product that could help teach students in the campus nursing lab. There are several dispensing units on the market and several eMAR options available as well, but the combination of both sides of the BCMA system seamlessly integrated to avoid duplication of efforts and time required in setting up the complete system is only found from **sim2grow**.

sim2grow's medication administration system can be used independently by students in practice lab at no patient risk. If the student erroneously attempts to administer an incorrect medication or administer to an incorrect patient, the system will provide immediate feedback on this error offering a learning opportunity without a human life being in jeopardy.

Features

- Proprietary Software
    - Intuitive patient and medication order entry
    - Printable barcode patient identification bands

    - Post-administration documentation
    - Documentation of clinically relevant data
- Over 150 simulated Medication tags/vials
- Set-up directions
- iPads in protective cases
- Handheld Barcode Scanner
- Patient Wristbands
- Mobile Medication Dispensing Cart
- Licensing includes customer Support, ongoing training, software enhancements
- Optional extended licensing includes replacement iPads every 3 years to ensure technology is never outdated

Benefits for Efficient Education

*Simulation lab manage*r: significant time-savings

One time set up of custom patients can be completed in minutes per patient. No re-set in between student use. Students return medication tag to the appropriate drawer corresponding to Lot number on the tag. Students tapping "done" on iPad resets software.

Course directors: flexibility

Custom patients can be developed for each course. Unfolding cases are supported with reveal "always" and reveal "later." Students return medication tag to the appropriate drawer corresponding to Lot number on the tag. Students taking a screen shot on the iPad before tapping "done" on iPad saves a copy of the eMAR documentation for remedial assignments, feedback and debriefing. System can be incorporated in the classroom, practice lab, and in high-quality simulations.

Student nurses: extensive practice opportunity

Students using sim2grow's system practice key learning objectives through deliberate practice with immediate and specific performance feedback. Psycho-motor skills are developed through this repetitive process allowing for less cognitive load once the student is in clinical settings.

Curriculum Mapping

With the development of the Clinical Judgement Measures Model (CJMM) by the NCSBN in 2017 and the advent of Next Generation NCLEX (NGN) slated for 2023, the ability of nursing and lab faculty to develop clinical judgement skills in students, as well as map aspects of their curriculum to these skills is paramount. The nursing skills and simulation labs are optimal environments for developing the skills of 1.) recognizing cues, 2.) analyzing cues, 3.) prioritizing hypotheses, 4.) generating solutions, 5.) taking action, and 6.) evaluating outcomes. Learning objectives and critical elements included in the lab and simulation medication administration curriculum can be mapped to the CJMM cognitive skills, making the roadmap to accreditation very easy to follow.

Expected Outcomes

Enter your School of Nursing here has XX students in the program. Fundamental level student nurses will be introduced to medication administration best practices. Exposure to utilizing BCMA will continue throughout the program during subsequent high-quality simulation scenarios in which medication administration is required.

Enter how you plan to use **sim2grow's** comprehensive medication administration system in your school related to the total number of students in the program and your allocated space…. such as:

*In order to use **sim2grow's** system in both the skills lab and the upper-level simulations, XX systems will be purchased. This will allow for XX students per unit in the skills lab and during open lab practice. The additional unit will be dedicated to classroom and high-quality simulation lab experiences.*

Sustainment beyond Grant

A key attribute of the addition of sim2grow's product to this nursing program is that it is a sustainable purchase. The affordable initial investment in **sim2grow's** comprehensive system includes a dispensing unit **and** eMAR documentation. It prevents the need to cobble together two systems that do not integrate well and confuse students.

The ongoing licensing ensures the system is going to be used for years to come by providing annual faculty training overcoming staff turnover issues. It also includes system enhancements. There is no per student cost- the licensing is per iPad.

Expanded protection of the investment is possible by choosing extended licensing which replaces the iPads every three years and new tags for any formulary updates. This eliminates aging equipment concerns as technology advances or as medications are added to the market.

The reusable medication tags eliminate the need for purchasing replacement consumables each semester to keep the system functioning.

Budget
see attached

References

Alexander, M, Durham, CF, et al. NCSBN Simulation Guidelines for Prelicensure Nursing Programs. Journal of Nursing Regulation 2015;6(3):39 – 42. DOI:https://doi.org/10.1016/S2155-8256(15)30783-3.

Fusco, L. A., Alfes, C. M., Weaver, A., & Zimmermann, E. (2021). Medication safety competence of Undergraduate nursing students. *Clinical Simulation in Nursing, 52*, 1-7. doi:10.1016/j.ecns.2020.12.003

Institute of Medicine. 2000. *To Err Is Human: Building a Safer Health System*. Washington, DC: The National Academies Press. https://doi.org/10.17226/9728.

Institute of Medicine. 2007. *Preventing Medication Errors*. Washington, DC: The National Academies Press. https://doi.org/10.17226/11623.

New Report on Bar Code Medication Administration Finds Virtually All Hospitals Have the Technology, but Lack Requirements to Deploy it Effectively. (2018, April 12). Retrieved from https://www.leapfroggroup.org/news-events/new-report-bar-code-medication-administration-finds-virtually-all-hospitals-have

Strudwick G, Reisdorfer E, Warnock C, et al. Factors Associated With Barcode Medication Administration Technology That Contribute to Patient Safety: An Integrative Review. Journal of nursing care quality. 2018;33(1):79-85. doi:10.1097/NCQ.0000000000000270.

Wideman MV, Whittler ME, Anderson TM. Barcode Medication Administration: Lessons Learned from an Intensive Care Unit Implementation. In: Henriksen K, Battles JB, Marks ES, et al., editors. Advances in Patient Safety: From Research to Implementation (Volume 3: Implementation Issues). Rockville (MD): Agency for Healthcare Research and Quality (US); 2005 Feb. Available from: https://www.ncbi.nlm.nih.gov/books/NBK20569/