Use of Online Tools Can Validate Knowledge Transference to Clinical Practice in Acute Care Setting

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Purpose

Unit-based educators are challenged with providing timely and meaningful education.

- Traditional self-directed learning methods, though proven convenient to validate completion may have little impact on clinical practice change.
- Face-to-face instructional methods translated into practice change but are arduous for the educator. Staff are challenged to attend educational sessions during work hours.
- Hospital- based electronic education may not meet the timely needs or requirements of an individual unit.
- Manual trending of information can be time consuming and faces inaccuracy.

Using an alternative online option, unit-based educators can create well-timed E-learning modules that deliver the content in an effective and meaningful way for nurses.

Literature Review

- E-learning for continuing education does transfer knowledge to the nurse's daily practice. [2]
- Benefits of e-learning include accommodation of multiple learning styles, asynchronicity, and instructional design flexibility. [3]
- Having full control of e-learning content design and development allows integration of relevant content without relying on third party updates. [3]
- When educators use technology and interactive design, they can create an environment that engages students. [1]
- Knowledge and participant self-efficacy using e-learning has been shown to be at least as effective as face-to-face learning. [3]
- Technology should be viewed as a supplemental tool to pedagogy. [1]
- Not all learners will be competent or confident in use of technology. [3]
- Feedback allows learners to gauge their performance, reinforce learning, correct misconceptions and inspire confidence. [3]

Methods

The learning tool selected (Nearpod) has versatile functionality. The initial lessons were asynchronized (student paced).

- A simple handout was distributed via email explaining the two-step process on accessing the online lesson.
- A sample lesson was distributed to validate staff's ability to access. A face-to-face follow up with the educator for staff who had difficulty accessing and completing the lesson.
- E-learning module was created using didactic information, clinical based scenarios, and questions to validate knowledge transference.
- Data collected to measure learning outcomes and knowledge transference post SLM completion

Results

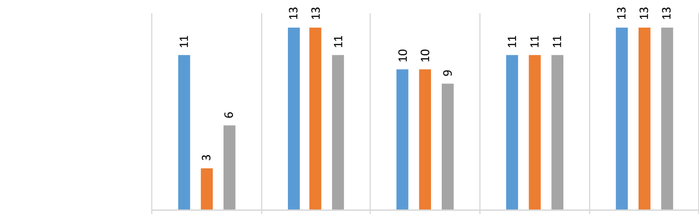
E-Learning modules had a high rate of learner completion with a significant improvement in desired practice changes. Staff reported satisfaction with the online program as they liked having the ability to access the learning via their mobile phone and the instant feedback that the application provided.

Challenges were minimal with digital immigrant staff and they were quickly resolved with a face-to-face demonstration.

Knowledge Transference Identified: Titration Guideline Compliance

- Using clinical situations and parameters, the RN titrated vasopressors, sedatives and analgesic infusions based on the new organizational guidelines. Practice change was validated by monthly chart audit.
- Analysis of the data revealed improved compliance with titration order (27% to 100%) and parameter documentation (54% to 85%) within 3 months of the learning application. Some drug guidelines were updated during this audit with sustained compliance in following the titration guidelines.

Titration Guideline Compliance Practice Change Post-education

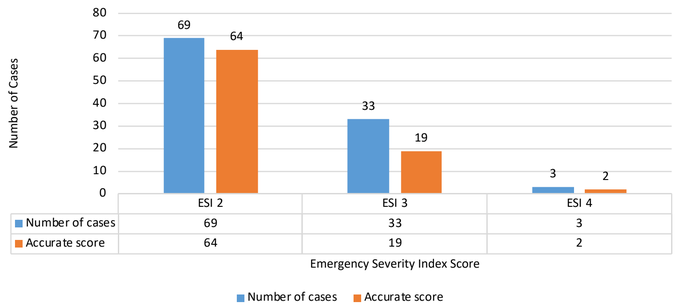


	Pre Education	2019-Q1	2019-Q2	2019-Q3	2019-Q4
Titrated Infusions	11	13	10	11	13
Follow Guideline	3	13	10	11	13
Documented Parameter	6	11	9	11	13

Knowledge Transference Identified: Emergency Severity Index

- Using ESI risk stratification clinical decision-making skills, RNs assigned ESI scores to patients using the following clinical data: danger vital signs, history of present illness, and significant medical or injury history. Practice change was validated by a single month chart audit.
- Analysis of the data revealed an overall ESI accuracy of 81% post implementation of online learning application use.

Cases with Danger Vital Signs



	ESI 2	ESI 3	ESI 4
Number of cases	69	33	3
Accurate score	64	19	2

Conclusions

Online learning is an effective method to facilitate unit-based practice changes.

Educators can easily develop content and related scenarios allowing lessons to be meaningful for staff and pertinent to a units specialized needs. Applications with interactive multifunctional capability allow for a high level of learner engagement.

- Innovative and interactive modalities allow for active learning, validation of knowledge, immediate feedback, and the ability to track and trend areas of both widespread and individual knowledge deficits.
- Online activities can appeal to differing learning style and preference.
- Online reports track and trend individual and unit knowledge on content making it easier for educators to target educational needs.

Timely practice change with validated knowledge transference was obtained in different clinical settings.

- Intensive Care Unit: Titration Guideline Compliance was sustainable at > 91% over one year.
- Emergency Department: ESI accuracy of 81% was obtained using an online application with clinical scenarios measured over a one-month period.

Implications

- Hospital systems should consider utilizing an online technology system with versatile functionality that can enhance the deliverance of education in a timely manner.
- Educators should evaluate knowledge transference to clinical setting using alternate online teaching modes and its usefulness in teaching skill-based scenarios.
- Educators should consider if learning style hindered knowledge transference in select end users.
- Learner satisfaction and performance using the online tool should be measured to ensure individual learning needs are being met.
- Future research of online tool development should include suggested learning links that would enhance education.
- Nursing units should consider using the online modules for decentralized orientation of new hires to maintain sustainability.

References

1. Gallegos, C., & Nakashima, H. (2018). Mobile Devices: A Distraction, or a Useful Tool to Engage Nursing Students? *Journal of Nursing Education*, *57*(3), 170–173. doi: 10.3928/01484834-20180221-09
2. Lahti, M., Kontio, R., Pitkänen, A., & Välimäki, M. (2014). Knowledge transfer from an e-learning course to clinical practice. *Nurse Education Today*, *34*(5), 842–847. doi: 10.1016/j.nedt.2013.09.003
3. Sinclair, P. M., Levett-Jones, T., Morris, A., Carter, B., Bennett, P. N., & Kable, A. (2017). High engagement, high quality: A guiding framework for developing empirically informed asynchronous e-learning programs for health professional educators. *Nursing & Health Sciences*, *19*(1), 126–137. doi: 10.1111/nhs.12322