

A Novel Online Training Program Aimed at Reducing Pressure Ulcer/Injury Incidence in both Acute Care and Post-Acute Care Settings

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ABSTRACT

The US Department of Health and Human Services now estimates that 2.5 million people in the US will develop pressure injuries annually¹. Patient safety groups consider pressure injuries to be avoidable medical errors²; cost per patient of treating a pressure injury can range from \$3500 to \$60000 depending on the pressure injury stage, while insurance companies are deeming these errors non-reimbursable³. Development of an evidence-based pressure injury reduction education program that can be administered online and taken as the learner has available time is of obvious importance. Therefore, in this study of (N=5763) registered nurses and nursing assistants focused on reducing pressure injury incidence through nurse education, we evaluated the engagement, baseline and post knowledge acquisition of a novel online pressure injury education program consisting of nine skin health learning modules. Education modules were developed using best practice guidelines from organizations such as the NPUAP, WOCN and AHA to foster learning and promote standardization in both knowledge and practice. We found an average overall increase of knowledge related to the pressure injury program of 12.4% (Mean Pretest = 73.5%, SD=18.7%), (Mean Posttest =85.9%, SD =14.1%) (Mean Difference = 12.4%, SD=16.4%, p=0.00). The two highest increases in a single learning module was in the core module “The Skin’s Anatomy and Physiology, Pressure Ulcers and Proper Care for Nurses” (Mean pre/post difference = 17.4%, SD=16.5%) and “Nutrition and Hydration for Nursing Assistants” (Mean pre/post difference = 17.4%, SD=19.3%). Preliminary self-reported satisfaction with the learning modules for (N=36) nurses was (M=4.6, SD=0.68) using a five-point scale. This study demonstrates that accessible online training can have positive impact on nurse knowledge of proper pressure injury care. The clinical implication of such improvements in knowledge brought about via carefully created educational courses will be the subject of ongoing research in several of the institutions that participated in this project.

METHODS

In this study, we evaluated the engagement, baseline and post knowledge acquisition of nurses and nursing assistants who took 5763 courses via an online pressure ulcer/injury education program consisting of nine skin health learning modules. While there are other courses available that will address the needs of a patient to help prevent a pressure ulcer/injury – Table 1 shows the listing of courses that were evaluated in this study. Table 1 also shows the data collection range for each course, from the time the course went “live” online through the date all the data was collected, collection date. There are four courses that are similar, the main difference being the targeted audience. An additional course, focusing on anatomy, physiology, pressure ulcers/injury and an overview of skin care, is available for nurses only. Satisfaction with the learning modules was also taken, using a using a five-point scale, where 5 indicates high satisfaction.

BACKGROUND

Patient safety, based on the goals set forth in 2002 by the Joint Commission, include the Prevention of Health Care-Associated Pressure Ulcers/injury (Decubitus Ulcers). Each year the Joint Commission revisits the original work and places a focus on specific goals for the healthcare market to address. National Patient Safety Goal (NPSG) # 14 addresses assessment of pressure ulcer/injury risk. The US Department of Health and Human Services now estimates that 2.5 million people in the US will develop pressure injuries annually¹. Patient safety groups consider pressure injuries to be avoidable medical errors², and the cost per patient of treating a pressure ulcer/injury can range up to \$60,000, while insurance companies are deeming these errors non-reimbursable³. Pressure ulcers/injuries are a significant healthcare problem and need to be addressed from several angles. Current literature has brought pressure ulcers/injuries to the forefront of clinicians’ minds. The NPUAP released revised definitions and diagrams in April of 2016⁴. This has come with controversy as to whom, when and if they will be adopted by wound care clinicians all over the world. Over the last few years, other terms such as Moisture Associated Skin Damage (MASD)⁵ or and Medical Adhesive Related Skin Injury (MARS⁶) have been described and researched. Skin tears have been a healthcare issue for decades. A nomenclature and management system was developed by Regina Payne et al in 1993. With increasing sense of urgency, Kimberly LaBlanc and Sharon Baranoski founded the ISTAP⁸ the International Skin Tear Advisory Panel. This group has revised the categorizing system and published general guidelines and recommendations for healthcare providers

Education, including awareness, prevention, risk and treatment of pressure ulcers/injuries, is a key factor in pressure ulcer/injury reduction that we explored. There are three well published styles of learning for adults – visual, auditory and kinesthetic. Attending a live presentation is a common option for learning new clinical information because the learner can visualize the words and pictures while listening to the presenter and then have a chance for questions and answers. Sometimes the live presentation includes a “hands-on” type of sharing information while actually holding and learning to use the object. Even though this live program might be considered ideal for learning, it is not always practical. There are a number of time limiting factors, including travelling to the presentation, the actual presentation and the scheduling of the presentation. This is where online evidence-based education directed to the caregiver is valuable. The on demand aspect allows flexibility, while the module allows for the clinician to go at his own pace, even pause the course and return later to complete the course. With all this available information, novel education modules were developed using best practice guidelines from organizations such as the NPUAP, WOCN and AHA to foster learning and promote standardization in both knowledge and practice. Development of an evidence-based pressure ulcer/injury reduction education program (Skintegrity, Medline Industries, Inc., Northfield, IL) that can be administered online and taken as the learner has available time is of obvious importance. Therefore, this study aims to determine if nine skin health education modules help improve registered nurse and nursing assistant knowledge, assessed through pre-test and post-test scores.

Table 1: Education Course		
Courses for Nurses	Live Date	Collection Date
(1) Managing Moisture-Associated Skin Damage (MASD) and Incontinence for Nurses	9/12/2014	12/01/2016
(7) Minimizing Pressure, Friction, and Shearing for Nurses	9/12/2014	12/01/2016
(5) Nutrition and Hydration for Nurses	9/12/2014	12/01/2016
(6) Risk Factors and Assessments for Nurses	9/12/2014	12/01/2016
(9) The Skin’s Anatomy and Physiology, Pressure Ulcers and Proper Care for Nurses	8/19/2014	12/01/2016
Courses for Nursing Assistants	Live Date	Collection Date
(4) Managing Moisture-Associated Skin Damage (MASD) and Incontinence for Nursing Assistants	8/4/2014	12/01/2016
(3) Minimizing Pressure, Friction and Shearing for Nursing Assistants	8/19/2014	12/01/2016
(8) Nutrition and Hydration for Nursing Assistants	8/19/2014	12/01/2016
(2) The Skin and Risk Factors for Nursing Assistants	8/19/2014	12/01/2016

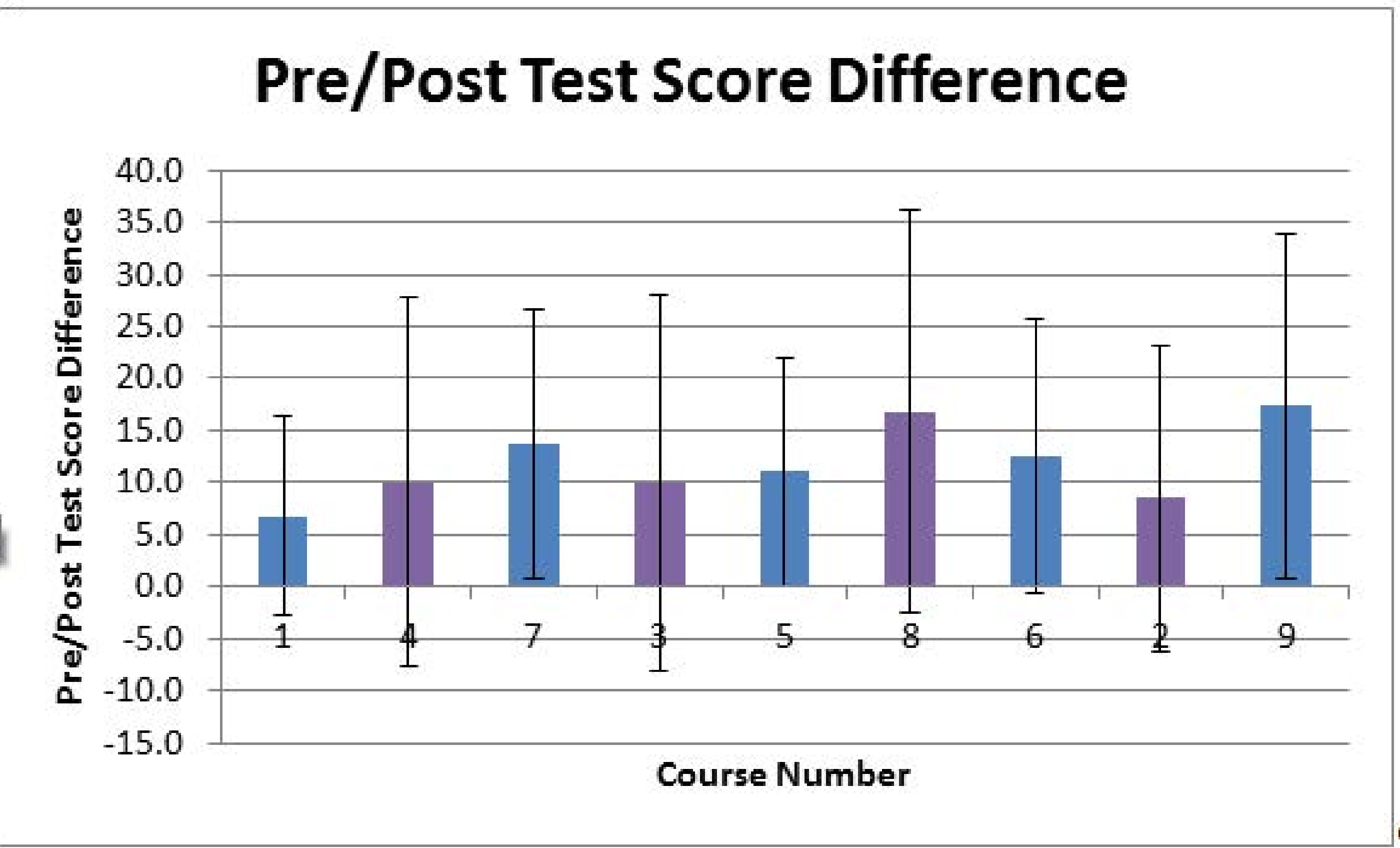


Figure 1: Pre/Post Test Score Difference
The blue columns represent the nurse courses, and the purple columns represent the nursing assistant courses.

LIMITATIONS

This study did not differentiate the nurse license or education levels. All nurses, including Registered (RN) Nurses, Licensed Practical/Vocational (LPN/LVN), Advanced Practice Nurses (APN) or those with advanced training, certification or degrees were included in the evaluation of “nurses.” While statistical difference (p=0.00) was obtained, more studies are needed to confirm that the increase in knowledge relates to practice improvement and a related decrease in incidence of pressure ulcers/injury.

DISCUSSION/CONCLUSION

This study demonstrates that accessible online training can have positive impact on nurse knowledge of proper pressure ulcer/injury care. The clinical implication of such improvements in knowledge brought about via carefully created educational courses will be the subject of ongoing research in several of the institutions that participated in this project.

RESULTS

There were 5732 unique modules taken, this includes 3738 nurses 1994 nursing assistants. Each course was taken an average of 637 times. We found an average overall increase of knowledge related to the pressure ulcer/injury program of 12.4% (Mean Pretest = 73.5%, SD=18.7%), (Mean Posttest =85.9%, SD =14.1%) (Mean Difference = 12.4%, SD=16.4%, p=0.00). The highest increase in a single learning module was in the core module The Skin’s Anatomy and Physiology, Pressure Ulcers and Proper Care for Nurses. The mean pretest score was 63.1%, and the mean posttest score was 80.4 %, yielding a difference of 17.4% with the standard deviation of 16.5%. The course with the highest increase in a single learning module for nursing assistants was Nutrition and Hydration for Nursing Assistants where the average pre/posttest difference was 17.4%. Preliminary self-reported satisfaction with the learning modules for (N=36) nurses was (M=4.6, SD=0.68) using a five-point scale, where 5 indicates high satisfaction. This study demonstrates that accessible online training can have positive impact on nurse knowledge of proper pressure ulcer/injury care.

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