

RNFOO Project Update: Final Report, Dec 13, 2022

Innovations in wound care education for nurses and nursing students: Virtual simulation games (VSGs) and a virtual simulation quiz (VSQ)

Our team developed a comprehensive online wound care educational module for nurses and nursing students, featuring a series of virtual simulation games (VSGs) with embedded self-assessment, formative assessment, and a set of innovative virtual simulation quizzes (VSQs) for pre and post or summative assessment. These video-based virtual simulation games will support knowledge of assessment, etiology, treatment and clinical decision-making related to four common wound classifications: (1) pressure injuries, (2) venous insufficiency ulcers, (3) diabetic foot ulcers and, (4) surgical wounds. The VSQs also referred to as virtual objective structured clinical examinations (V-OSCEs) will simulate a nurse caring for multiple patients with a sample of the different types of wounds covered in the wound care module. The project deliverables were: (1) four VSGs; (2) a VSQ; and (3) a website to host the VSGs and VSQ, along with additional curated resources including assessment tools, guidelines, and photographs.

We have successfully created the following four VSGs and two VSQs (or V-OSCEs):

Pressure Injury: Clara's Story

http://www.can-sim.ca/games/woundclara/story_html5.html

Venous Ulcer: Adam's Story

http://www.can-sim.ca/games/woundadam/story_html5.html

Diabetic Foot Ulcer: Ted's Story

http://can-sim.ca/games/wounddfu/story_html5.html

https://www.can-sim.ca/games/woundted/story_html5.html

Surgical Wound: Tesfa's Story

https://www.can-sim.ca/games/woundtesta/story_html5.html

RISE Link: <http://can-sim.ca/accessjama/wound-tesfa-eng>

Wound Assessment and Management V-OSCE A

https://www.can-sim.ca/games/woundvoscea/story_html5.html

Wound Assessment and Management V-OSCE B

https://www.can-sim.ca/games/woundvosceb/story_html5.html

We will be making a few tweaks to the VSGs and V-OSCEs based on feedback from our usability testing and evaluation study completed at Queen's University this fall, but the URLs will not change. Once the edits are complete we will launch the website to the public in January. See attached appendix with some screenshots from the website. The URL will be: <https://woundnursing.ca>

Usability Testing and Evaluation

Usability testing was completed by members of the research team and our research assistants to ensure the functionality of the modules and the accuracy of the placement of the content. The four VSGs and the two V-OSCEs were implemented in a second year medical-surgical nursing course at Queen's University in the fall of 2022. To date 31 students have completed the post-test survey. Participants rated the VSGs and V-OSCE highly. Although post-test scores generally improved, overall the pre and post-test V-OSCEs were centrally clustered indicating there may have been some issues with some of the questions. Qualitative feedback was very positive, indicating the value of the series of wound care VSGs on student's learning. Some constructive feedback such as allowing students to go back to review a photo of the wound before answering a multiple choice question will be incorporated into upcoming revisions. We anticipate this will improve learner satisfaction, as well as scores on the V-OSCEs.

Future Research

A larger multi-site study is proposed through the CAN-Sim Simulation Research Interest Group that will aim to evaluate the revised versions of the VSGs and V-OSCEs.

Dissemination

In terms of dissemination, we have completed several conference and invited speaker presentations and have submitted abstracts to upcoming simulation and nursing education conference as outlined below:

Conference and invited speaker presentations:

Luctkar-Flude, M., & Woo, K. Virtual simulation for global health equity. Invited presentation at the First Annual Centre for Health Innovation Spring Symposium, Queen's University, Kingston, ON, June 7, 2022.

Luctkar-Flude, M., Tyerman, J., & Wilson-Keates, B. Development of virtual simulation experiences and a virtual OSCE (V-OSCE) focused on wound assessment and management (WAM). Podium presentation at the International Nursing Association for Clinical Simulation & Learning Virtual Conference, Milwaukee, WI, June 15-18, 2022.

Tyerman, J., & Luctkar-Flude, M. Innovations in wound care education for nurses and nursing students: Virtual simulation games (VSGs) and effective debriefing strategies. Podium presentation at the International Nursing Association for Clinical Simulation & Learning Virtual Conference, June 24-27, 2020.

Upcoming presentations:

Luctkar-Flude, M. Launch of the Wound Assessment and Management virtual simulation games (VSGs) and virtual OSCEs (V-OSCEs). Webinar for the Canadian Alliance of Nurse Educators using Simulation (CAN-Sim), Feb 28, 2023, 2:00PM EST. Registration link: <https://can-sim.member365.ca/public/event/details/f53e8f664ca6223cc3bf30663d54c5c1fcb99921/1>

Abstracts submitted:

Luctkar-Flude, M., Tyerman, J., & Killam, L. Promoting Global Health Equity Through Virtual Simulations for Health Professionals, Students and Patients. Abstract submitted for podium presentation at the International Council of Nurses (ICN) Congress, Montreal, QC, July 1-5, 2023.

Additionally, we will submit an abstract for a presentation at the Canadian Association of Schools of Nursing (CASN) taking place in St. John's, NF, May 29-30, 2023. Abstracts are due in January.

Publications:

We will draft a manuscript for submission for publication in a journal such as *Clinical Simulation in Nursing* focused on the development of the VSGs and V-OSCEs and a second publication focused on the results of the evaluation study.

Summary

In summary, we have been able to complete the project deliverables: 4 VSGs, 2 VSQs (V-OSCEs) and a dedicated website with curated resources to support wound assessment and management skills for nurses and nursing students. We will continue to add virtual simulations and resources to the website over the coming years, and we are sincerely grateful to the RNFOO for providing the funding to support our work to date.

Report submitted by:

Dr. Marian Luctkar-Flude, Queen's University, School of Nursing (mfl1@queensu.ca)

Appendix: Screenshots from the Wound Assessment and Management Website:

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Wound Assessment and Management

A toolkit for nurses, students and educators committed to providing excellence in the management of patient wounds.

[Learn More](#)

Wounds affect all ages of Canadians and cost the Canadian health care system an estimated \$3.9 billion annually*. These wounds profoundly impact psychosocial health and quality of life for our patients. Educating nurses on the prevention, assessment and management of wounds will help reduce the burden on the patients and to the healthcare system.

Why Virtual Simulation?

Virtual simulation is an innovative approach to learning which incorporates various adult learning theories including gamification and immediate feedback. Virtual simulation is a convenient and accessible way to educate nurses.

Utilizing a series of virtual simulation games with both self-assessment and formative assessment tools, students, educators and health professionals can improve wound care knowledge, skill and judgement on the four common wound classifications: (1) Pressure injuries, (2) Venous insufficiency ulcers, (3) Diabetic foot ulcers and (4) surgical wounds.

Wound Care SIMULATION

Virtual simulation scenarios to address the most common types of wounds. Includes self-assessment and formative assessment tools as well as a novel V-CSCS (Virtual Objective Structured Clinical Examination).

[Access Now!](#)

1. Canadian Home Care Association (2018). CHCA on the issues: Wound care. Retrieved from <http://www.cdhomecare.ca/content.php?id=263>

2. Simonetti, V., Comparoni, D., Ficco, M. E., Di Giovanni, P., & Ciccolini, G. (2015). Nursing students' knowledge and attitude on pressure ulcer prevention evidence-based guidelines: a multicenter cross-sectional study. *Nurse education today*, 35(4), 673-679.

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RNFOO Nurse Innovator Award

The winners were announced at the Virtual Reception held on November 18, 2020, hosted by Mary Ho, of CIBC. We believe that each of this year's winning projects will have positive impact on nursing and patients for years to come. With deep appreciation to the NA Founding Donors, the Friends and Supporters, and other donors, we are proud to profile the 2020 RNFOO Nurse Innovator Award Winners.

[Read More](#)

COUPN Strategic Contribution to Nursing Award

The Alliance, headed up by Co-Presidents Dr. Jane Tyson and Dr. Marian Luckner-Flude, have partnered with the Canadian Association of Schools of Nursing (CASN) to develop and disseminate five virtual simulation modules in both official languages to build capacity among graduating and new registered nurses entering the health-care workforce during the COVID-19 pandemic.

[Read More](#)

1. Canadian Home Care Association (2018). CHCA on the issues: Wound care. Retrieved from <http://www.cdhomecare.ca/content.php?id=263>

2. Simonetti, V., Comparoni, D., Ficco, M. E., Di Giovanni, P., & Ciccolini, G. (2015). Nursing students' knowledge and attitude on pressure ulcer prevention evidence-based guidelines: a multicenter cross-sectional study. *Nurse education today*, 35(4), 673-679.

Wound Care Articles and Research

Patient Resource – Surgical wounds

Wound Care Resources

A resource to educate patients about the management of surgical wounds.

[Read More >](#)

Skin: Anatomy, Physiology and Wound Healing

Research Resources

This paper presents anatomy and physiology of skin and underlying structures and outlines normal phases of wound healing.

[Read More >](#)

Best Practice Recommendation – Prevention and Management of Wounds

Wound Care Resources

A clinician's guide for the prevention and management of wounds.

[Read More >](#)

About the project

Management and treatment of wounds is estimated to cost the Canadian health care system \$3.3-billion annually. It is a common challenge throughout many practice settings, including acute care, home care, and long-term care. As our population demographics change with people living longer lives and with increasing co-morbidities, we are seeing wounds more often and with increasing complexity. These wounds can have devastating impacts on patients – causing physical and psychological suffering such as pain, loss of independence, social isolation and depression.



Current evidence suggests nurses' knowledge in wound care is inadequate.

Nurses require ongoing training with proven methods to adult learning theories. Ideally, wound prevention strategies will be utilized prior to wounds developing. Early and appropriate wound care can decrease the likelihood of complications such as infected, chronic, dehiscent or enlarged wounds.



Project funding provided by



Project part of the network provided by



Wound Assessment and Management Simulations

The wound assessment and management website is a resource for Nurses and Nursing Educators and was primarily designed for use by nursing faculty, given CAN-Sim's mission to collaborate for excellence in simulation education and research.

Educators may opt to use this resource as part of a syllabus, as required reading or as a classroom activity. The lessons in the resource are also designed for self-directed learning for nursing faculty, nursing students, or other health professionals.

No background knowledge in wound care assessment and management is required. The resource was created to provide introductory knowledge on these topics, teaching tools, learning resources, and links to relevant external resources for users wishing to explore content in greater depth.

How to integrate the toolkit into your curriculum

For educators, there are 2 ways in which you can integrate the toolkit into your curriculum as follows:

1. Access the Toolkit through this Website

We have built this resource in a manner that can be accessed and used through this website. We have setup the courses in an easy-to-use format that tracks your progress through each lesson and provides a full learning experience. Students can be provided the following link:

[Access Web-based Resource](#)

2. Full Toolkit Download

Are you looking to incorporate all simulations into your school curriculum or offer them to professionals in your organization through your own Learning Management System (LMS)?

Download the .zip file containing the full package of lessons including all elements of the resource from the link below. Provide the zip file to your LMS administrator or upload yourself into your LMS.

[Download Resource \(SCORM L2\)](#)



Resource Overview

1. Clara's Story

The first simulation is about Clara Campney, an 80 year old female, who is experiencing increased pain in her lower back and has a dressing to her coccyx area requiring assessment.

2. Adam's Story

The second simulation is about Adam Garcia, a 35 year old male, who is being admitted for a right lower leg wound.

3. Ted's Story

The third simulation is about Ted, a 35 year old male, who is being admitted for a right lower leg wound.

4. Testfayo's Story

The third simulation is about Testfayo, a 35 year old male who is post-operative day 5 following a bowel resection and ostomy placement.

5. Wound Assessment and Management (V-OSCE A)

The first assessment of competency using an innovative virtual objective structured clinical examination (V-OSCE)

6. Wound Assessment and Management (V-OSCE B)

The second assessment of competency using an innovative virtual objective structured clinical examination (V-OSCE)

Wound Care Resources



Best Practice Recommendation – Prevention and Management of Burns

A guide to the prevention and management of burn injuries, from the initial assessment to a sustainable treatment plan targeting self-management for the patient.

Tags: Assessment, Best Practice Recommendations, Burns, Management, Prevention [Read More >](#)



Patient Resource – Prevention and Management of Venous Leg Ulcers

A resource to educate patients on the prevention and management of venous leg ulcers.

Tags: Management, Patient resource, Prevention, Ulcers [Read More >](#)



Patient Resource – Prevention and Treatment of Pressure Injuries

A resource for patients at risk for or experiencing pressure injuries.

Tags: Healing, Management, Patient resource, Pressure injury [Read More >](#)



3M Post-acute Case Studies

Case studies exploring the outpatient management of wounds that might benefit from V.A.C. therapy or other 3M products.

Tags: Case studies, Management, VAC therapy, Vacuum [Read More >](#)

Search

Enter keywords

Tags

- Arterial(1)
- Assessment(11)
- Best Practice Recommendations (11)
- Burns(1)
- Case studies(1)
- Chronic(1)
- Chronic wounds(2)
- Clinical judgement(1)
- Community(1)
- Competence(1)
- Competency(1)
- Diabetes(1)
- Digital(1)
- Distance(1)
- Education(10)
- Entry-level(1)
- Graduation(1)
- Healing(3)
- Infection(1)
- Interdisciplinary(1)
- Knowledge(5)
- Management(17)
- Moisture(1)
- Negative pressure(1)
- OSCE(1)
- Pain(1)

Research

A systematic and psychometric review of tests measuring nurses' wound care knowledge

A systematic review analyzing tools to measure nurses' wound care knowledge.

Tags: Knowledge, Pressure injury, Pressure Ulcer Knowledge Assessment Tool, Pressure Ulcer Knowledge Test, PUKAT, PUKAT Tool [Read More >](#)

Attacking the Basics: What Fuels a Wound

Explore intrinsic and extrinsic factors that play a role in wound healing.

Tags: Education, Wound healing [Read More >](#)

Clinical Simulation for Teaching of Wound Evaluation and Treatment

Randomized trial evaluating the use of Objective Structured Clinical Examination (OSCE) and Clinical simulation in education.

Tags: Education, OSCE, Simulation [Read More >](#)

Comparison of pressure injury risk assessment outcomes using a structured assessment tool versus clinical judgement: A systematic review

Systematic review comparing structured assessment tool versus clinical judgement on the risk of pressure injury.

Tags: Assessment, Clinical judgement, Pressure Injury Tool [Read More >](#)

Continuing Education to Increase Nurses' Knowledge of Chronic Wound Care Management.

Search

Enter keywords

Tags

- Arterial(1)
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