Saint Elizabeth
RESEARCH CENTRE
Bringing Knowledge to Life

RESEARCH ON THE RUN

Person and family centred care

Evaluation of the feasibility of using a 'hand-held' fluorescence digital imaging device for real-time advanced wound care monitoring in a community setting

Wound care consumes a large proportion of community nursing time and contributes significantly to health care costs. Instant monitoring of wound healing, especially to detect the existence of bacterial contamination and/or infection over time, through an image-based method could have an impact on wound care in a clinical setting

Key learnings

The Moleculight I:X device offers an opportunity for early detection of bacterial/microorganism contamination that is not detectable with a standard white light visual assessment. It has been shown to be very effective in a controlled, in-hospital setting.

In this feasibility trial, we found that some barriers to the use of the device that are unique to the community clinic setting, but we also found some new potential benefits of using the device in the community.

There is potential benefit to using this device in the community for wound care, and a follow-up study in clinics and in the home setting could identify more precisely the extent of those benefits.

Project overview

MolecuLight I:X is a hand-held, non-contact device developed by University Health Network-affiliated researchers to provide real-time imaging of chronic wounds using high-resolution fluorescence and white-light. The device, which was approved by Health Canada in October 2015 for use on patients with chronic wounds, could have an impact on clinical wound care and management in several ways: by reducing complications related to undetected bacterial infection, facilitating image-guided swabbing/ biopsy and tracking chronic wound healing over time.

What did we do?

Nine nurses from three Saint Elizabeth wound care clinics in Southwestern Ontario were trained on the device, and seven of the nurses from two clinics used the device with eligible clients (over age 18 with a wound that has not healed within four weeks) for a period of three months. One clinic did not have adequate lighting conditions for the version of the device we were using.

Nurses completed a standardized data collection sheet each time they used the device during one study week each month and then six nurses participated in a semi-structured interview about their experiences at the end of the three months.

What did we find?

The number of data sheets completed (40) was insufficient to carry out the planned quantitative analysis. Interview data was analyzed thematically.

Nurses reported that they were adequately trained and the device was easy to learn. Overall, they described a few difficulties using the device, such as inadequate lighting and challenges with charging the device, and they noted some issues related to patient flow. In addition, nurses found that using the device only for chronic wounds (not healed in 4 weeks) limited the number of patients on whose wounds the nurses could use the device.

Although they did see some clinical value, especially for monitoring a wound over time, they also viewed it as a helpful tool for patients to understand their wounds. They also perceived the device to have application to all kinds of wounds.

Innovative approach:

To determine how, in a community clinic setting, the use of the MolecuLight I:X device integrates into wound care nurses' routine workflows, and in particular:

- The time it takes to do fluorescence imaging
- Any difficulties in using the device or reading results
- The nurses' perception about the ease in using the device
- Its usefulness in assessing chronic wounds for treatment
- Its effectiveness in providing image-guidance for detecting wound infection otherwise overlooked by conventional assessment (observation and clinical signs and symptoms)
- Any barriers or facilitators in using the device

IMPACT: How are we moving Knowledge to Action

There were a number of recommendations flowing from the feasibility study on how to use the device more broadly in the community:

- Explore obtaining Health Canada approval for use of device for acute/surgical wounds.
- Test the feasibility of "draped" imaging device in a

community wound care clinic to deal with lighting issues.
- Test the usefulness of using the device to follow clients' wound healing trajectories over time.
- Explore the use of the device as a teaching tool to support client self-management.
- The information from this study will be used to inform the development of future protocols for the deployment of the device in the clinical settings by healthcare professionals, and to develop appropriate training and job aids to ensure optimal use of the device

About our researchers

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About Moleculight

MolecuLight is an early-stage medical imaging company that focuses on the development and commercialization of optical imaging-based solutions providing relevant, actionable information rapidly at the point-of-care. MolecuLight is based in Toronto, ON, Canada. For more information, please visit: www.moleculight.com

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For more information about this project, please see our PFCC webpage:

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About the Saint Elizabeth Research Centre

Saint Elizabeth Health Care has made a strategic commitment to research — $10 million over 10 years.

At the Saint Elizabeth Research Centre, we study the needs of people, their caregivers, and health care providers to develop innovative solutions to improve health and care experiences across the continuum/ more effective approaches to care. The Research Centre has four areas of focus: integrated care and transitions, end of life care, caregivers and person and family centred care.

Our goal is to improve people's health and care.
We work on innovative solutions for tough problems.

We see possibilities everywhere.