MolecuLight i:X™
Wound Intelligence Device

Case studies

Bacteria appear red in image, Pseudomonas aeruginosa would appear cyan if present
Guided Debridement with the MolecuLight i:X™

Clinical Synopsis

Patient treated their diabetic foot ulcer with an over-the-counter antibiotic ointment for two months prior to seeking treatment from a wound care practitioner. Patient understanding of bacteria, infections, and the pathway to amputation was lacking. The patient was shown images of their wound throughout the MolecuLight i:X guided debridement process. The simple image colour scheme (green = tissue, red = bacteria) facilitated patient education and emphasized the importance of regular debridement in a clinic setting.

Wound Etiology

Diabetic foot ulcer, >2 months without treatment

Anatomical Location

Toe on left foot

Patient Demographics

Male, 57 years old

Patient-Related Challenges

- Lack of patient awareness, delay of treatment
- Improper footwear, lack of offloading
- Rapid callus build-up requires frequent debridement

Patient’s General Care Paradigm

- Weekly debridement
- Antimicrobial foam
- Offloading
- Local wound care

Clinician Stated Utility of the MolecuLight i:X

- Increase patient awareness of their condition
- Guided debridement
Accurate Sampling

Achieve Positive Wound Sampling Results Using Bacterial Fluorescence From the MolecuLight i:X™

The MolecuLight i:X excites tissue and bacteria with violet light, causing potentially harmful bacteria to produce red fluorescence. Multi-site clinical trials* have found a 100% positive predictive value (PPV) of this red fluorescence for detecting potentially harmful bacteria in wounds, regardless of sampling technique (curettage or biopsy) or microbiological analysis method (culture or qPCR).

<table>
<thead>
<tr>
<th></th>
<th>MolecuLight i:X Guided Curettage Sampling</th>
<th>MolecuLight i:X Guided Biopsies</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPV</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Number of Patients</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Microbiology</td>
<td>Culture</td>
<td>qPCR</td>
</tr>
<tr>
<td>Bacterial Loads</td>
<td>Predominately moderate/heavy</td>
<td>≥ 10^4 CFU/g</td>
</tr>
</tbody>
</table>

Pathogens Detected from Regions of Red Fluorescence

- Red fluorescing Staphylococcus aureus
- Red fluorescing Beta-hemolytic Streptococci (Group B)
- Red fluorescing Citrobacter koseri

*MolecuLight Clinical Case 0043

*Clinicaltrials.gov registry number NCT02682069

qPCR

- Mixed Bacteria
- Staphylococcus aureus
- Streptococcus agalactiae
- Kebesella pneumoniae
- Enterococcus faecalis
- Staphylococcus spp
- Enterobacter cloacae
- Citrobacter koseri

Culture

- Mixed Bacteria
- Proteus mirabilis
- Staphylococcus spp
Guided Detection of MRSA with the MolecuLight i:X™

Methicillin resistant *Staphylococcus aureus* (MRSA) infections are difficult to treat with standard types of antibiotics and are therefore more dangerous and costly to the healthcare system.

Clinical Synopsis

This non-healing venous leg ulcer patient presented with clinical signs and symptoms of inflammation that did not suggest bacterial presence during a routine wound care visit. However, the MolecuLight i:X Imaging Device detected the presence of red-fluorescing bacteria, prompting the clinician to swab the wound. Lab results confirmed the presence of MRSA.

Wound Etiology
Venous leg ulcer

Anatomical Location
Left medial ankle

Patient Demographics
Male, 50 years old

Patient-Related Challenges
Non-healing ulcer

Cause of Wound
• Trauma to leg
• Deep vein thrombosis

Patient’s General Care Paradigm
• Compression
• Local wound care

Confirmed lab pathologies
Swab results confirmed presence of methicillin resistant *Staphylococcus aureus* (MRSA)

Clinician Stated Utility of the MolecuLight i:X
• Distinguishing between inflammation and potential infection
• Guided swabbing
• Guided cleaning

Image taken in Standard Imaging Mode™
Image taken in Fluorescence Imaging Mode™

Pseudomonas aeruginosa without clinical signs and symptoms visualized with the MolecuLight i:X™

Clinical Synopsis

Patient was referred to wound specialist due to stalled wound healing. No clinical signs and symptoms specific to *Pseudomonas aeruginosa* colonization were observed (e.g. malodorous, greenish crust, green tinge on removed dressing), however real-time visualization of cyan fluorescence on MolecuLight i:X images suggested *P. aeruginosa* (confirmed via swabs). This real-time information led the clinician to select an antimicrobial dressing indicated for use against *P. aeruginosa*. At the patient’s next visit, cyan fluorescence was no longer detected.

Wound Etiology and Location
Venous leg ulcer (5 months)

Patient’s General Care Paradigm
• Antimicrobial dressing active against *P. aeruginosa*
• Local wound care

Confmed lab pathologies
Swab taken from cyan region had moderate growth of *P. aeruginosa*

Clinician Stated Utility of the MolecuLight i:X
• Real-time information on the presence of *P. aeruginosa*
• Guided swabbing
• Guided treatment selection (antimicrobial)
• Confirmed effectiveness of chosen treatment

Image taken in Standard Imaging Mode™
Fluorescence Imaging Mode™
(Arrows indicate cyan fluorescence)
Periwound *Pseudomonas aeruginosa* visualized with the MolecuLight i:X™

**Clinical Synopsis**

Periwound cyan fluorescence on MolecuLight i:X images provided real-time visualization of *Pseudomonas aeruginosa*. This guided the clinician to: (1) prescribe silver creams and dressings, and (2) request home care nurses to cut larger dressings in order to cover the periwound region.

**Wound Etiology and Location**
Venous leg ulcer, left leg

**Patient Demographics**
Female, 78 years old

**Patient-Related Challenges**
Home care nurses had stopped using prescribed antimicrobial against clinician orders

**Patient’s General Care Paradigm**
- Antimicrobial paste
- Local wound care
- NPWT

**Clinician Stated Utility of the MolecuLight i:X**
- Visualization of periwound bacteria led to cutting larger dressings
- Guided selection of antimicrobial (silver) cream and dressings

**Images provided by Rose Raizman RN-EC, MSc, Rouge Valley Health System, ON, Canada**

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**Detecting *Pseudomonas aeruginosa* and *Staphylococcus aureus* with the MolecuLight i:X™**

Most potentially harmful bacteria fluoresce red when imaged with the MolecuLight i:X (e.g. *Staphylococcus aureus*), however *Pseudomonas aeruginosa* fluoresces cyan. In this patient, MolecuLight i:X images revealed both cyan and red fluorescence, which cultures confirmed to be *P. aeruginosa* and *S. aureus*. Real-time bacterial visualization and early detection of these pathogens is vital, as polymicrobial *P. aeruginosa* and *S. aureus* infections are more virulent than single pathogen infections and result in worse patient outcomes1,2. In this case, MolecuLight i:X guidance led to sampling a region with both red and cyan signals, increasing the likelihood of detecting both species.

**Wound Etiology**
Large diabetic foot ulcer

**Anatomical Location**
Left heel

**Confirmed Lab Pathologies**
- Curettage samples revealed heavy growth of *Pseudomonas aeruginosa* and light growth of *Staphylococcus aureus*

**Images provided by Dr. Ron Linden, Judy Dan Wound Care Centre, ON, Canada**

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*Distributed by smith&nephew*
Effective Wound Cleaning

C-section Surgical Site Infection Guided Cleaning and Patient Education with the MolecuLight i:X™

The odds ratio for post-cesarean surgical site infections (SSI) increases by 2.0 for every five-unit increment in body mass index, primarily due to increased bacterial colonization and the presence of skin folds which promote bacterial growth. Rates of C-sections and obesity continue to increase, making it imperative for clinicians and patients to be aware of wound cleaning measures that reduce SSI risk in this population.

Wound Etiology
C-section (3 weeks prior)

Anatomical Location
Lower abdomen

Patient Demographics
Female, 35 years old

Patient-Related Challenges
- Morbid obesity, cannot reach to clean
- Absence of patient education and lack of awareness of the problem

Patient’s General Care Paradigm
- 3x/week cleaning by Home Health Care (without i:X guidance)
- Antimicrobial gauze
- Silver dressing

Clinician Stated Utility of the MolecuLight i:X
- Guided cleaning
- Increased patient awareness about infection and cleaning

Image taken in Standard Imaging Mode™

Red-fluorescing bacteria in skin fold at surgical site

Image taken in Fluorescence Imaging Mode™
(presence of bacteria indicated by red color)


MolecuLight Clinical Case 0003
Images provided by Rose Raziman RIN-EC, MSc, Rouge Valley Health System, ON, Canada
Guided Cleaning with the MolecuLight i:X™
A Caregiver’s Perspective

Obesity-associated lymphedema in this patient resulted in extreme leg swelling and a venous leg ulcer which was non-healing prior to introduction of the MolecuLight i:X for guided cleaning. Deep skin creases surrounding this wound provide an environment in which bacteria can thrive. Since introduction of the i:X for patient education and guided cleaning of these creases, bacterial presence has been reduced and the wound has dramatically decreased in size.

<table>
<thead>
<tr>
<th>Wound Etiology</th>
<th>Lymphedema-associated venous leg ulcer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomical Location</td>
<td>Upper medial thigh</td>
</tr>
<tr>
<td>Patient Demographics</td>
<td>Female, 56 years old</td>
</tr>
<tr>
<td>General Challenges</td>
<td>Lymphedema, Diabetes, Morbidly obese, Hypertension</td>
</tr>
<tr>
<td>General Care Paradigm</td>
<td>Previous efforts with various dressings and NPWT produced no improvement</td>
</tr>
<tr>
<td>Utility of the MolecuLight i:X</td>
<td>Patient education, Increased patient adherence, Guided cleaning</td>
</tr>
</tbody>
</table>

Testimonial from the Patient’s Caregiver (Husband):

“Before, we knew about the bacteria, but we didn’t know where it was. After the clinician showed us the pictures, we know where it grows, where it stays, and where we have to clean the bacteria. So it [the MolecuLight i:X] is helpful because before we were not aware of where the bacteria was. We found out that the creases have bacteria. Bacteria travel from the crease and onto the wound. Before this we knew she had bacterial infection and we cleaned, but obviously we didn’t know if it was properly cleaned or not clean, so it [the MolecuLight i:X] is a helpful device for us because it allows us to focus on problematic areas.

Nurses visiting at home (CCAC), especially the wound care nurses, should carry this device. It is helpful for the patient as well as for the nurse.”

Visually Locate Bacteria in Real-time with the MolecuLight i:X™

Clinical Synopsis

Patient sought treatment for a large diabetic foot ulcer that developed after one day spent wearing a pair of high heels.

<table>
<thead>
<tr>
<th>Wound Etiology</th>
<th>Diabetic Foot Ulcer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomical Location</td>
<td>Heel</td>
</tr>
<tr>
<td>Patient Demographics</td>
<td>Female, ~ 50 years old</td>
</tr>
<tr>
<td>Patient-Related Challenges</td>
<td>Poor circulation, Does not adhere to diabetic footwear recommendations</td>
</tr>
<tr>
<td>Patient’s General Care Paradigm</td>
<td>Patient did not return for follow up</td>
</tr>
<tr>
<td>Clinician Specified Utility of the MolecuLight i:X</td>
<td>Localized bacteria, Facilitated thorough wound cleaning</td>
</tr>
</tbody>
</table>
Monroe the Effectiveness of an Antibiotic Against MRSA with the MolecuLight i:X™

Methicillin resistant *Staphylococcus aureus* (MRSA) infections are difficult to treat with standard types of antibiotics and are therefore more dangerous and more costly to the healthcare system.

**Clinical Synopsis**

Although Negative Pressure Wound Therapy (NPWT)* had significantly reduced wound size in this non-healing venous leg ulcer, all treatments targeting MRSA infection had been unsuccessful. This prompted prescription of a newly available oral antibiotic. After one week of treatment, MolecuLight i:X fluorescence images revealed a significant decrease in bioburden, providing immediate feedback on antibiotic effectiveness.

<table>
<thead>
<tr>
<th>Wound Etiology and Location</th>
<th>Venous leg ulcer (&gt; 1 year), left medial ankle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Demographics</td>
<td>Male, 50 years old</td>
</tr>
<tr>
<td>Patient-Related Challenges</td>
<td>• Persistent MRSA</td>
</tr>
<tr>
<td></td>
<td>• Heavy drainage</td>
</tr>
<tr>
<td>Patient’s General Care Paradigm</td>
<td>• NPWT and antimicrobials</td>
</tr>
<tr>
<td></td>
<td>• Numerous antibiotics</td>
</tr>
<tr>
<td>Clinician Specified Utility of the MolecuLight i:X</td>
<td>Immediate feedback on effectiveness of prescribed antibiotic</td>
</tr>
</tbody>
</table>

### Pre-antibiotic

Images taken in Fluorescence Imaging Mode™ (presence of bacteria indicated by red color)

### After one week of antibiotic usage

Images taken in Standard Imaging Mode™

* The NPWT used successfully was PICO™.

MolecuLight Clinical Case 0020b
Images provided by Rose Raizman RN-EC, MSc, Scarborough A Rouge Hospital, ON, Canada.
Avoid Unnecessary Use of Antimicrobial Dressings with the MolecuLight i:X™

Antimicrobial dressings play a vital role in wound care as they offer broad-spectrum antimicrobial activity with low risk of microbial resistance. Their broad action can be highly effective in killing bacteria, however it may also compromise healthy tissue and thus delay wound healing. Clinicians must ensure that the benefits of using antimicrobial dressings outweigh this potential negative effect.1

Use of the MolecuLight i:X in combination with clinical signs and symptoms can reassure the clinician that potentially harmful bacteria are not present at clinically significant levels. This could help the clinician avoid use of expensive antimicrobial dressings and select treatments that promote wound healing.

Wound Etiology: Venous leg ulcer
Anatomical Location: Mid left calf
Patient Demographics: Female, 70 years old
Patient-Related Challenges: Poor circulation, heavy smoker
Patient’s General Care Paradigm:
• Collagenase cream*
• Routine wound care and dressing changes
Clinician Specified Utility of the MolecuLight i:X:
• Avoidance of antimicrobial dressings
• Cost savings

Clinician Testimonial
“Prior to seeing these images I would have prescribed antimicrobial dressings. Instead, I chose a collagenase cream to break up the slough and promote healing.”

Avoid Unnecessary Use of Antimicrobial Ointments with the MolecuLight i:X™

Antimicrobials play a vital and routine role in chronic wound care as they offer broad-spectrum antimicrobial activity with low risk of microbial resistance. Their broad action can be highly effective in killing bacteria, however it may also compromise healthy tissue and thus delay wound healing. Clinicians must ensure that the benefits of using antimicrobial ointments and dressings outweigh this potential negative effect.1

Use of the MolecuLight i:X in combination with clinical signs and symptoms can reassure the clinician that antimicrobials are not warranted. This can help the clinician gauge when to switch to treatments that promote wound healing.

Wound Etiology: Venous leg ulcer
Anatomical Location: Inner lower calf
Patient Demographics: Male, 84 years old
Patient’s General Care Paradigm:
• Regular gauze
• Negative pressure wound therapy
Clinician Specified Utility of the MolecuLight i:X:
• Avoidance of antimicrobials
• Cost savings

Clinician Testimonial
“i:X images show no red fluorescence on the gauze or wound and clinical signs and symptoms suggest nice wound healing. I will discontinue use of antimicrobial ointment and dressings and continue negative pressure wound therapy with regular gauze.”

1. Antimicrobials Made Easy. Wounds International 2011; Volume 2; Issue 1
2. The specific cream was Santyl®

MolecuLight Clinical Case 0036
Images provided by Rose Raizman RN-EC, MSc, Rouge Valley Health System, ON, Canada

MolecuLight Clinical Case 0038
Images provided by Rose Raizman RN-EC, MSc, Rouge Valley Health System, ON, Canada
Optimized Treatment Selection

Which is the contaminated NPWT system? Visualize bacteria with the MolecuLight i:X™

<table>
<thead>
<tr>
<th>Wound Etiology</th>
<th>Wound 1</th>
<th>Wound 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pectoral necrotizing fasciitis</td>
<td>NPWT, changed every 3 days</td>
<td>Sacral Pressure Ulcer (3 weeks)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patient’s General Care Paradigm</th>
<th>Wound 1</th>
<th>Wound 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPWT, changed every 3 days</td>
<td>NPWT, changed every 3 days</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Confirmed Lab Pathologies</th>
<th>Wound 1</th>
<th>Wound 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swabs from next dressing change were negative for bacteria</td>
<td>Swabs confirmed heavy growth of <em>E. coli</em>, <em>Enterococcus faecalis</em>, and <em>Staphylococcus aureus</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinician Stated Utility of the MolecuLight i:X</th>
<th>Wound 1</th>
<th>Wound 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No bacteria observed, wound bed left undisturbed for another 24 hours</td>
<td>Detected widespread bacteria after only 2 days, prompting early dressing change and re-evaluation of patient’s treatment plan.</td>
<td></td>
</tr>
</tbody>
</table>

Standard imaging mode™

Flourescence imaging mode™

MolecuLight Clinical Case 0041
Images provided by Rose Rizmam, RN-EC, MSc, Scarborough & Rouge Hospital, ON, Canada
Optimizing Negative Pressure Wound Therapy (NPWT) Treatment Selection with the MolecuLight i:X™

Instillation NPWT devices cleanse the wound bed to create an optimal healing environment, while standard NPWT devices promote wound granulation and closure but do not cleanse the wound. Clinicians must weigh the relative benefits of these NPWT options at various stages in the healing process.

Clinical Synopsis
In this patient, MolecuLight i:X images revealed heavily contaminated standard NPWT dressings and foam 24-hours prior to a scheduled dressing change. These images prompted early removal of these dressings and a switch to an instillation NPWT device. Swabs later confirmed heavy bioburden.

Wound Etiology
Sacral Pressure Ulcer

Patient Demographics
Female, 88 years old

Patient Related Challenges
Heavy bioburden

Confirmed Lab Pathologies
Swabs confirmed heavy growth of E. coli, Enterococcus faecalis, and Staphylococcus aureus

Patient’s General Care Paradigm
Hospital grade standard NPWT changed every 3 days

Clinician Stated Utility of the MolecuLight i:X
Detected widespread bacteria after only 2 days, prompting early and immediate switch to NPWT + instillation

Visualize Bacteria in Negative Pressure Wound Therapy (NPWT) with the MolecuLight i:X™

The MolecuLight i:X Imaging Device can visualize active extraction of bacteria via a negative pressure vacuum pump* under the sealed wound dressing.

Wound Etiology
Pressure ulcer

Anatomical Location
Sacrum

Patient Demographics
Female, 88 years old

Patient-Related Challenges
• Deep, infected wound
  • Patient has limited mobility

Confirmed Lab Pathologies
Swabs confirmed heavy growth of E. coli, Enterococcus faecalis, and Staphylococcus aureus

Patient’s General Care Paradigm
• Hospital-grade negative pressure wound therapy
  • Constant instillation and removal of wound cleansing fluid

Immediately Prior to NPWT Removal

Wound Bed Underlying NPWT Device

Images taken in Fluorescence Imaging Mode™. Presence of bacteria indicated by red color.

*Part of routine clinical wound treatment process

MolecuLight Clinical Case 0041
Images provided by Rosei Raizman, RN-EC, MSc, Scarborough & Rouge Hospital, ON, Canada

MolecuLight Clinical Case 0034
Images provided by Rosei Raizman, RN-EC, MSc, Scarborough & Rouge Hospital, ON, Canada
Visualize Bacteria in Negative Pressure Wound Therapy with the MolecuLight i:X™

The MolecuLight i:X Imaging Device can visualize active extraction of bacteria via a negative pressure vacuum pump under the sealed wound dressing.

Wound Etiology
- Pilonidal sinus
- 5 weeks post-surgery (pilonidal sinus excision)

Anatomical Location
Natal cleft

Patient Demographics
Female, 21 years old

General Challenges
- Heavy bioburden
- Difficult area to keep clean
- Wound was not progressing prior to NPWT

General Care Paradigm
- NPWT
- Thorough cleaning guided with the MolecuLight i:X

Clinician Stated Utility of the MolecuLight i:X
- Patient education
- Increased patient adherence
- Guided cleaning

Image taken in Standard Imaging Mode™ showing NPWT (negative pressure wound therapy) on the wound

Image taken in Fluorescence Imaging Mode™ showing NPWT on the wound (presence of bacteria indicated by the red color)

MolecuLight Clinical Case 0019
Images provided by Rose Raizman RN-EC, MSc, Rouge Valley Health System, ON, Canada

Optimize Closure Timing of Major Limb Amputations by Visualizing Bacteria with the MolecuLight i:X™

Of all surgical wounds, the highest rate of surgical site infection occurs with lower limb amputations1. Infection complications include rupture of the suture line, cellulitis, delayed healing and further surgery. It is vital to aggressively monitor amputation wounds for clinical signs and symptoms of infection.

Clinical Synopsis
Both patients had an above knee amputation following severe traumatic injury. They each reported severe pain and developed an abscess ~6 weeks post-amputation. Stumps were opened, washed out, and treated with irrigation and negative pressure wound therapy. MolecuLight i:X images were acquired 1-week post secondary surgery, prior to stump closure.

Patient's General Care Paradigm
- Wound irrigation
- Negative pressure wound therapy

Clinician Stated Utility of the MolecuLight i:X
- Allowed for confidence when closing a wound that significant levels of bacteria were not present
- Real-time identification and localization of bacteria prevented closure of a contaminated stump and almost certain future abscess

Patient 1
Absence of red color in the Fluorescence Imaging Mode™ image (center) suggested no bacteria present (later confirmed via swabs). As a result, the stump was closed and healed completely within 2 weeks.

Patient 2
Red color (circled) in the Fluorescence Imaging Mode™ image identified localized bacterial contamination in real-time. As a result, further wash-out was performed prior to closure. Swabs later confirmed E. coli and P. mirabilis.


MolecuLight Clinical Case 0014
Images provided by Lt Col Steven Jeffery, The Royal Centre for Defence Medicine, Birmingham, UK
Absence of bacterial fluorescence on real-time MolecuLight i:X™ images allows for confidence when skin grafting

Advanced wound treatments such as skin grafts are contraindicated when bioburden is present. Days can pass awaiting traditional microbiological reports, in which time bioburden can grow, decreasing likelihood of graft success and wasting much expense.

Clinical Synopsis
The deep burns on this patient’s leg were deemed to require a skin graft. Real-time fluorescence images were taken with the MolecuLight i:X immediately prior to grafting, and the lack of red fluorescence suggested an absence of bioburden. This real-time information confirmed earlier microbiological reports, and provided confidence when deciding to proceed with the graft. This graft was successful and the wound began to heal.

<table>
<thead>
<tr>
<th>Wound Etiology</th>
<th>Deep burns, down to bone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomical Location</td>
<td>Right leg</td>
</tr>
<tr>
<td>Patient Demographics</td>
<td>Male, 58 years old</td>
</tr>
<tr>
<td>Clinician Stated Utility of the MolecuLight i:X</td>
<td>Real-time information on bioburden confirmed microbiology report (from days earlier) and allowed for confidence when skin grafting</td>
</tr>
</tbody>
</table>

Image taken in Standard Imaging Mode™

Image taken in Fluorescence Imaging Mode™
(absence of red colour suggests no significant bioburden)
Track Wound Size and Bacterial Presence with the MolecuLight i:X™

Clinical Synopsis
Chronic, non-adherent venous leg ulcer (VLU) patient presented with an 11 cm² wound with red regions on fluorescence images indicating bacterial contamination. After five weeks of treatment with antimicrobials and compression, wound area had reduced by 37% and bioburden was no longer visible in or around the wound.

Wound Etiology and Location
Venous leg ulcer, left leg

Patient Demographics
Female, 74 years old

Patient Specific Challenges
- Chronic, repeat VLU patient
- Refuses maintenance compression stockings
- Refuses home care for dressing changes

Patient's General Care Paradigm
- Antimicrobial powder
- Compression bandages

Document Bacterial Presence during the Wound Healing Process with the MolecuLight i:X™

Clinicians can use the MolecuLight i:X throughout the surgical healing process to monitor bacterial presence, guide additional cleaning, aid in dressing selection, determine effectiveness of chosen antimicrobial dressings, educate patients, and gauge patient adherence to at home cleaning recommendations.

Wound Etiology
Abdominal surgery

Anatomical Location
Distal from belly button

Patient Demographics
Female, 62 years old

General Patient Related Challenges
- Colon cancer
- Diabetes

Patient’s General Care Paradigm
- Antimicrobial dressings (every 2 days)
- Regular cleaning

Clinician Stated Utility of the MolecuLight i:X
- Tracking bacterial presence throughout wound healing
- Guided cleaning
- Patient education
Bacterial Detection with the MolecuLight i:X™
Patient and Clinician Perspectives

Clinical Synopsis
During this patient’s 1st imaging session the MolecuLight i:X detected bacteria in the wound periphery and off-site in a foot crease from a prior toe amputation. Fluorescence Imaging ModeTM guided clinician cleaning and debridement, patient education, and the relay of information on bacterial location to the patient’s home care nurse. At the next appointment, images revealed a clean wound periphery and less bacteria off-site, demonstrating adherence to the wound cleaning protocol.

<table>
<thead>
<tr>
<th>Wound Etiology</th>
<th>Diabetic foot ulcer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomical Location</td>
<td>Right heel</td>
</tr>
<tr>
<td>Patient Demographics</td>
<td>Male, 45 years old</td>
</tr>
</tbody>
</table>
| General Patient Related Challenges | • Diabetes  
• Overweight/poor diet  
• Prior amputation of toes |
| Patient’s General Care Paradigm | • Cleaning and debridement  
• Hyperbaric oxygen therapy |
| Clinician Stated Utility of the MolecuLight i:X | • Detection of off-site bacteria  
• Guided clinician cleaning and debridement  
• Patient education & adherence to non-i:X guided cleaning protocol |

1st Imaging Session

Patient Testimonial
“This device is very useful because it creates some knowledge. So you can see what’s actually going on. I’m good with that. And I have some of the images stored on my phone so that I can show them to my CCAC home care nurse who does the dressing changes so he gets to see as well. It would be useful in CCAC practice because then it would relieve the visits coming to see the surgeon or primary wound care specialists. Conveyance in wound care is critical because the wound care nurse needs to convey the dressing choice and what is going on to the CCAC person doing the dressing changes and this device helps convey that information so they see, physically, they can actually see where the problem areas are and where to focus on.”

Clinician Testimonial
“No one had been cleaning in this crease. I have since imaged a couple of other patients with bacteria in creases and I asked them to take a picture of the fluorescent i:X image on their phone and show it to their nurse so the nurse will know where to clean; it will make a difference.”

2nd Imaging Session
Evidence-Based Reassurance with the MolecuLight i:X™: A Patient’s Perspective

Clinical Synopsis

This patient suffered an anastomotic leak (leaking of the bowel) after bowel resection surgery and intestinal anastomosis, resulting in widespread infection and secondary surgery to achieve proper bowel closure. The MolecuLight i:X Imaging Device was used to monitor the surgical site, guide clinician cleaning and provide patient reassurance throughout the healing process.

Patient Demographics

- Female, 54 years old
- Widespread infection
- Delayed wound closure

Patient’s General Care Paradigm

- Negative pressure wound therapy
- Antimicrobial gauze
- Antimicrobial dressings
- NPWT

Clinician Stated Utility of the MolecuLight i:X

- Bacterial monitoring helped clinician gauge when to start negative pressure
- Guided cleaning
- Patient reassurance

Testimonial from the Patient

“I had surgery because I had polyps that were changing, big ones, so they did an operation and took out a piece of the bowel... they realized afterwards I was building up a fever and I had to be operated on again because the bowel was leaking into me. Afterwards, that’s when you start thinking about the bacteria. It’s good to know this device [the MolecuLight i:X] is out there. I was very happy to hear when the bacteria was going away, and when there was no bacteria there. It was really comforting to know that there is a device out there that can detect that and so bacteria can be seen and dealt with. So it was a great thing for me, actually. It was a really good thing. Because you leave here and you don’t think ‘what if’, you know for sure that there was a little bit of infection, then the next time you know there is less infection, then you know it is gone and that is very comforting. Yes. It’s an excellent device as far as I’m concerned. Piece of mind is something else that it helps with. And that’s a big thing. I had the two operations, I was going through a lot of hell. Piece of mind came from knowing that the infection was gone.”

Due to this patient’s irregular wound borders, standard wound ruler measurements overestimated the wound area by more than 2-fold (36 cm² with a wound ruler vs. 15.85 cm² with the MolecuLight i:X Wound Measurement functionality).

Clinical Synopsis

During this patient’s 1st imaging session the MolecuLight i:X detected bacteria in the wound periphery and off-site in a foot crease from a prior toe amputation. Fluorescence Imaging Mode™ guided clinician cleaning and debridement, patient education, and the relay of information on bacterial location to the patient’s home care nurse. At the next appointment, images revealed a clean wound periphery and less bacteria off-site, demonstrating adherence to the wound cleaning protocol.

Improve Measurement Accuracy of Irregular Wound Borders with the MolecuLight i:X™

Wound Etiology
- Venous leg ulcer

Anatomical Location
- Left calf

Patient Demographics
- Male, 90 years old

Patient’s General Care Paradigm
- Antimicrobial dressings
- NPWT

Clinician Stated Utility of the MolecuLight i:X
- Measurement and tracking of irregular wound borders that a standard wound ruler would not adequately capture

Testimonial from the Patient

“The measurement feature will be incredibly helpful in tracking irregular wound borders such as this. For this patient, my ruler measurement is an overestimate. It cannot accurately track border changes over time.”

Image taken in Standard Imaging Mode™ with two MolecuLight Wound Stickers

Wound area measurement of clinician traced wound border

MolecuLight Clinical Case 0026
Images provided by Rose Raizman RN-EC, MSc, Rouge Valley Health System, ON, Canada