Fluorescence imaging prompts more thorough debridement of bacteria & biofilm: Real world data from 1000 wound assessments across 36 states

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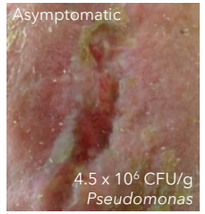
Introduction.



Typical chronic wound patient:

- Comorbid conditions and bacterial loads/biofilm delay healing
- >80% of wounds contain biofilm and/or high bacterial loads[1]
- Attenuated signs and symptoms of infection due to co-morbid conditions

This leads to **a clinical uncertainty around infection management** in chronic wounds. For example, a 350-patient multicenter clinical trial found that **bacterial loads went unaddressed in 85% of wounds, but also that systemic antibiotic prescribing was haphazard**.[1]

Point-of-care **fluorescence imaging** (MolecuLight ***i:***X) of wound bacterial location and load enables **more objective treatment decision making**, as shown by numerous clinical trials,[1-5] resulting in improvements in 12-week healing rates per RCT findings.[6]

But how does this evidence translate in the **real-world setting**?

Methods.

- Retrospective analysis of **single timepoint data** from **1000 chronic wounds**
- Clinicians from a **range of specialties** (MD, DPM, DO, PT, & NP) across **211 facilities** in **36 U.S. states** (physician offices, hospital inpatient & outpatient departments, ambulatory surgical centers, SNF, & LTC)

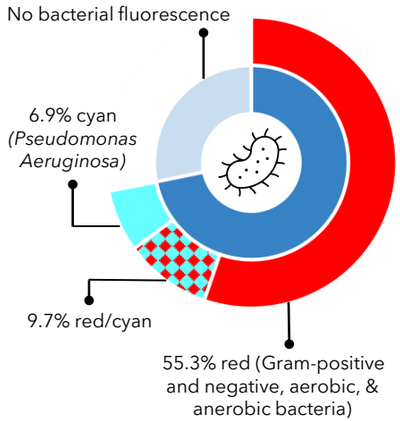
Compared treatment plans before and after fluorescence imaging

1. Wound assessment by clinician
2. Initial treatment plan recorded
3. Fluorescence imaging and interpretation
4. Modification of original treatment plan, when deemed clinically appropriate

Results.

1000 chronic wounds were imaged from 211 facilities in 36 states:

Wound Type	%
Diabetic foot ulcer (DFU)	26.0%
Venous leg ulcer (VLU)	23.5%
Pressure ulcer (PU)	15.6%
Surgical site infection (SSI)	11.8%
Arterial ulcer (AU)	3.4%
Traumatic & burn wounds	4.6%
Other	15.19



71% of wounds had fluorescence indicating **high bacterial loads** (>10^4 CFU/g) which delay wound healing & increase infection risk.[7]

Fluorescence imaging prompted **immediate changes in treatment plan in 53% of wounds**, as follows:

More extensive cleansing Targeting areas of high bacterial loads	**17%** 170 wounds
Targeted or more extensive debridement Targeting areas of high bacterial loads	**31%** 311 wounds
Change in dressing selection Added or removed antimicrobial function	**3%** 32 wounds
Guided sampling for microbiology Obtain samples from areas of high bacterial loads	**6%** 61 wounds
NEW topical application Includes topical antimicrobials, ointment, analgesic creams, etc.	**10%** 100 wounds
NEW systemic antibiotic prescription Imaging prompted 47% increase	**9%** 89 wounds

Clinical Case Example.

- An elderly patient with severe venous insufficiency and lymphedema presented with multiple coalescing ulcers.
- **Fluorescence imaging guided real-time ultrasonic debridement** to effectively and **more thoroughly** remove areas of red fluorescence (high bacterial loads).

red fluorescence = most Gram +/-, aerobe, & anaerobes at loads >10^4 CFU/g[8,9]

cyan fluorescence = *Pseudomonas aeruginosa* at loads >10^4 CFU/g[8-10]

Conclusions.

This **real-world data mirrors** that of **clinical trials:**[1-6]

- Point-of-care fluorescence imaging prompted treatment plan changes in the majority of wounds at a baseline visit.

Incorporating **fluorescence imaging** is likely to **improve bacterial-infection management and wound outcomes** by enabling objective and earlier **treatment adjustments:**

Dressings | Hygiene | Antimicrobials | Sampling | Debridement

***MolecuLight, Inc.**
Toronto, ON Canada

References