

Poster
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References

Background

- Bacterial burden stalls wounds & can quickly escalate to infection.¹⁻³
- Often asymptomatic, detecting infection presents a clinical challenge that is **accentuated** in elderly, diabetic, and otherwise immunocompromised patient populations.⁴
- Long term care (LTC) and skilled nursing facilities (SNFs)** are burdened by **high wound prevalence** and **high rates of wound infection** and systemic antibiotic prescribing.⁵⁻⁷
- This study aimed to determine the impact of point-of-care fluorescence imaging (MolecuLight iX and DX wound imaging devices) of bacterial location and load on wound healing, antibiotic usage, and infection outcomes in LTC/SNFs.

Study Design

- Retrospective analysis of electronic medical record data of 193 wounds from 113 Medicare-covered patients.



17 providers



SNF & LTC across 4 states

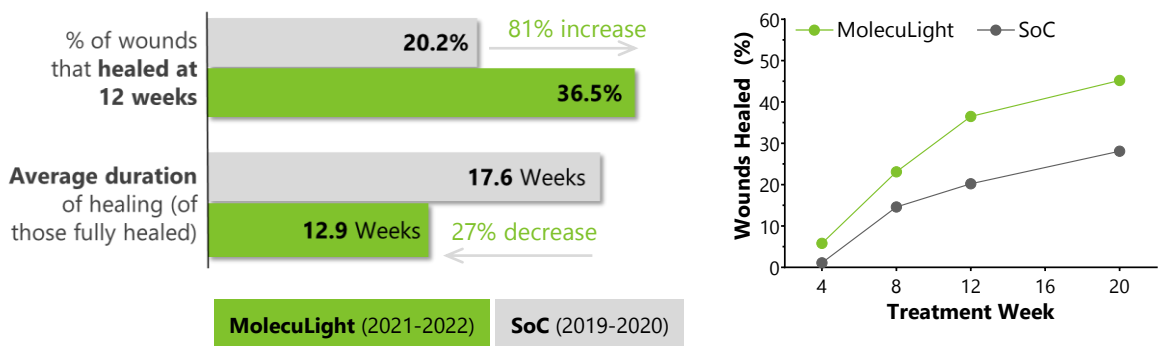
Standard of Care (SoC) cohort	MolecuLight Imaging (ML) cohort
 Admitted Jan 2019 to Mar 2020	 Admitted Feb 2021 to Mar 2022
 52 patients 89 wounds	 61 patients 104 wounds
 Performed debridement using clinical signs & symptoms	 Performed fluorescence imaging to inform clinical decision-making

Wound selection criteria:

- Diabetic ulcer, pressure ulcer, or mixed etiology ulcer
- At least 4 weeks of treatment by Wound Care Plus LLC
- Up to 3 wounds per patient (≥3, random selection)

Outcomes: Wound Healing with Point-of-Care Imaging

- Cohorts were homogeneous & comparable in terms of sex, wound severity, polypharmacy, and # of comorbidities.
- Wounds receiving MolecuLight imaging were 5.2 times more likely to heal within 12-weeks** (p=0.002).
- Wounds in the MolecuLight cohort healed 27% (5 weeks) faster** (p<0.05) than those receiving standard of care.
- SoC at 20-weeks had not caught up to the MolecuLight cohort at 12-weeks.** If this trend continues, MolecuLight imaging will be incrementally more useful as the wound's complexity increases.



Outcomes: Reduced Complications

- Information from fluorescence imaging of bacterial locations using MolecuLight enabled **more thorough and effective removal (e.g. debridement)**.
- There was a 53% decrease in severe, infection-related complications in the MolecuLight cohort**, likely due to earlier detection and more effective intervention against infection.

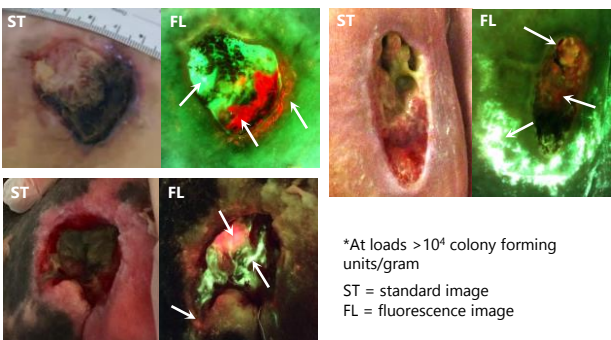
Complications assessed:

- Osteomyelitis
- Cellulitis
- Gangrene
- Sepsis
- Amputation

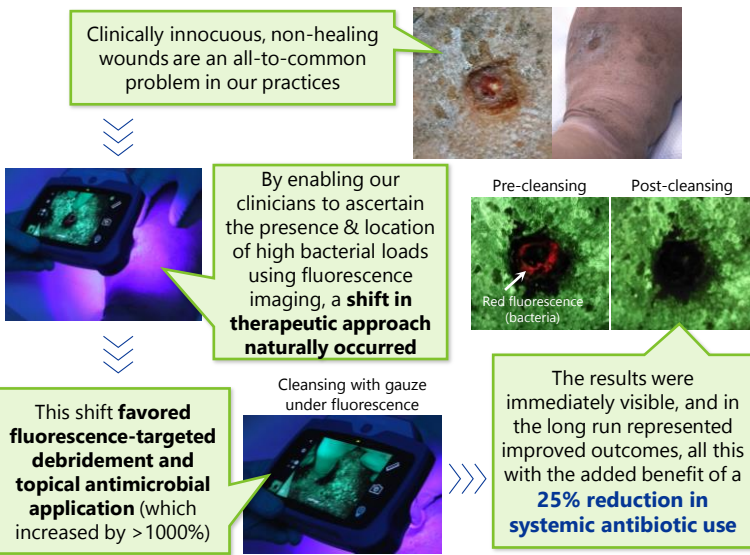
% wounds with severe infection-related complications		
Standard of Care	17%	9/52
MolecuLight	8%	5/61
Impact	-53%	

Fluorescence Image Examples

- Red** signal – bacteria^{8*} (Gram positive & negative)
- Cyan** signal – *Pseudomonas aeruginosa*^{8-9*}
- Green** signal – matrix components¹⁰ (e.g. collagen, fibrin)



Shift in Treatment Paradigm



Clinically innocuous, non-healing wounds are an all-to-common problem in our practices

By enabling our clinicians to ascertain the presence & location of high bacterial loads using fluorescence imaging, a **shift in therapeutic approach naturally occurred**

Cleansing with gauze under fluorescence

This shift **avored fluorescence-targeted debridement and topical antimicrobial application** (which increased by >1000%)

The results were immediately visible, and in the long run represented improved outcomes, all this with the added benefit of a **25% reduction in systemic antibiotic use**

Conclusions

Retrospective analysis findings demonstrate that incorporation of MolecuLight imaging **favorably disrupted our approach to wound care in SNF/LTC facilities**, bringing about a much-needed paradigm shift based upon objective, point-of-care imaging information.

The impacts on **clinical outcomes** were widespread:

- Significantly faster healing improves patient quality of life, **reduces risk of infection and its complications**, and saves resources (less supplies & procedures).
- 53% decrease in serious, infection-related complications means reduced hospitalizations, and likely **reduced morbidity and mortality**.^{11,12}
- Reduced systemic antibiotic use combats antibiotic resistance, over-use, and **reduced rates of antibiotic-related side-effects**.¹³ Clinicians largely switched to localized wound management strategies (e.g. hygiene, topical agents).