



Practitioner

Lt Col Steven Jeffery, RAMC, is a consultant plastic surgeon for the Royal Centre for Defence Medicine at the Queen Elizabeth Hospital in Birmingham, UK as well as a consultant in burn surgery at the Birmingham Children’s Hospital. Dr. Jeffery is a member of the British Burns Association and lectures frequently on both traumatic injuries incurred by British Forces and pediatric burns.



Patient Condition

47-year-old male required an above knee amputation following a traumatic burn injury. Patient reported severe pain and developed an abscess ~6 weeks post-amputation.

Publication

Learn more about this case study published in Proceedings of SPIE

Jeffery, S. The utility of MolecuLight bacterial sensing in the management of burns and traumatic wounds. Proceedings of SPIE 10863, Photonic Diagnosis and Treatment of Infections and Inflammatory Diseases II, 2019

Note: Costs were originally reported in British pounds; they have been extrapolated to USD based on 2018/2019 data⁷⁻⁹.



Use of the MolecuLight *i:X*® Helped Avoid Costs (\$19,550 US) of a Possible Failed Graft Procedure

This 47-year-old male patient required an above knee amputation of his right leg after a severe burn. The stump later became infected, was evacuated, washed out and left open. An subsequent delayed closure was planned.

One week later, clinical assessment suggested the wound was granulating well and had no current contraindications for grafting (e.g. bacterial contamination). The patient was scheduled for a skin graft to close the wound.

However, MolecuLight *i:X* fluorescence images taken prior to the operation detected bacteria (>10⁴ CFU/g) in the wound. Probing of this area revealed the presence of pus, which was later confirmed to contain *E. coli* and *P. mirabilis*.

Based on this information, the clinician decided to delay the skin graft operation, which likely would not have been successful if pursued.^{1,2}



Figure 1: Standard Image. Wound before limb closure.

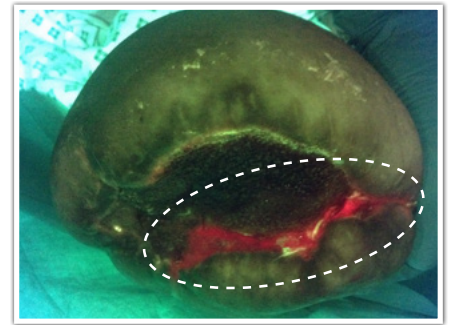


Figure 2: Fluorescence Image. Red color indicates bacteria (>10⁴ CFU/g).

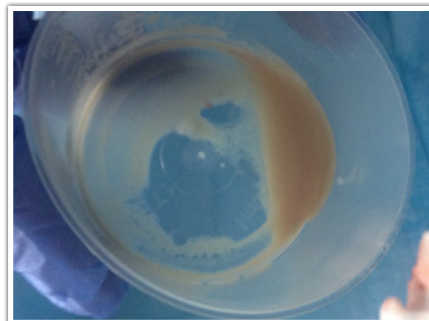


Figure 3: Standard Image. Pus drained from wound.

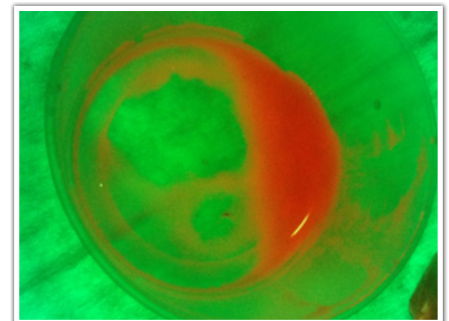


Figure 4: Fluorescence Image. Red color of the pus indicates bacteria (>10⁴ CFU/g).

Potential Cost Savings (estimated in \$US)^{1,7-9}

Operating Theatre and Staff (1 Hour)	\$2,600
Five Day Hospital Stay	\$16,950
Total Estimated Cost Savings	\$19,550

In this particular patient, MolecuLight *i:X* images prevented an unnecessary surgery and saved the hospital the equivalent of approximately \$19,550 US. This figure does not include the additional health care costs of treating a failed infected skin graft, which would almost certainly have developed in this stump had a graft been performed.

MolecuLight *i:X*[®]

The MolecuLight *i:X* allows clinicians to quickly, safely and easily identify wounds with bacteria³⁻⁶ (at loads of $>10^4$ CFU/g, in combination with CSS) and measure wounds^{4,6} at the point of care to provide them with valuable information to inform treatment and monitor progress^{5,6}.

Testimonial

“I was ready to perform skin graft surgery on this patient. The wound looked clean and appeared to be a good candidate for skin grafting. The MolecuLight *i:X* completely changed my decision making and resulted in not only time and cost savings but also an improved patient outcome.”



– Lt Col Steven Jeffery, RAMC

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+1.647.362.4684

Toll Free 1.877.818.4360 (Canada)

info@moleculight.com

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References:

Images provided by Lt Col Steven Jeffery, The Royal Centre for Defence Medicine, Birmingham, UK MolecuLight Clinical Case 0014b

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The MolecuLight[®] *i:X* Imaging Device is approved by Health Canada for sale in Canada and has CE marking for sale in the European Union. The MolecuLight[®] *i:X* Imaging Device has received FDA clearance.

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Red colour in this image indicates bacteria ($>10^4$ CFU/g)^{3,4}.