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**MEDIA CONTACTS:**

Patrick McSweeney  
Kenall Manufacturing  
414-270-7203 / 904-923-4871  
[pmcsweeney@laughlin.com](mailto:pmcsweeney@laughlin.com)

Paul Gallagher  
University of Strathclyde  
0140 548 2370  
[paul.gallagher@strath.ac.uk](mailto:paul.gallagher@strath.ac.uk)

**First Hospital Light Fixture to Kill Bacteria Safely and Continuously  
Becomes Commercially Available in U.S. and Canada  
Proven, Patented Technology Helps in the Fight Against Hospital Acquired Infections**

**KENOSHA, Wis. and NASHVILLE, Tenn.** – [Kenall Manufacturing](#) today introduced [Indigo-Clean™](#), a light fixture that uses Continuous Environmental Disinfection technology to continuously kill harmful bacteria linked to hospital acquired infections (HAIs). The technology behind Indigo-Clean™ inactivates a wide range of micro-organisms that are known causes of HAIs, including MRSA (Methicillin-resistant *Staphylococcus aureus*), *C.difficile* and VRE (Vancomycin-resistant Enterococcus).

Indigo-Clean™ is a light fixture manufactured through an exclusive licensing agreement with the [University of Strathclyde](#) in Glasgow, Scotland, which developed, proved and patented the technology. The light operates continuously and requires no operator, kills bacteria in the air and on all surfaces, and complies with all internationally recognized standards for patient safety. Indigo-Clean™ was unveiled just before the annual meeting of the [Association for Professionals in Infection Control and Epidemiology](#) (APIC) in Nashville.

“Indigo-Clean™ represents a breakthrough in helping to reduce HAIs,” said Jim Hawkins, CEO of Kenall. “It bolsters current disinfection efforts by infection preventionists and environmental services professionals in the fight against HAIs.”

Indigo-Clean™ uses a [narrow spectrum of visible indigo-colored light](#) at an output of 405 nanometers (nm) on the light spectrum. This High-Intensity Narrow Spectrum (HINS) light is absorbed by molecules within bacteria, producing a chemical reaction that kills the bacteria from the inside as if common household bleach had been released within the bacterial cells. Because the light is visible it is lethal to pathogens but is safe for use in the presence of patients and staff.

“As part of Strathclyde’s clinical engagement in the U.K. over the last seven years, this technology has proven effective in killing bacteria in hospital settings. We are proud that the University of Strathclyde selected Kenall to commercialize this in the U.S.,” said Cliff Yahnke, Ph.D., Kenall’s Director of Clinical Affairs. “Breaking the chain of infection, from an infected patient, to the environment, to new patient, is vitally important, and the ability of this technology to be in use and effective at all times, will make a huge difference.”

Strathclyde’s technology has been in use since 2008 at [Glasgow Royal Infirmary](#), a large teaching hospital operated by NHS (National Health Service) Greater Glasgow and Clyde. The technology and its effectiveness have been the subject of more than 20 peer-reviewed academic publications and 30 conference presentations since 2008. The HINS-light project was voted UK Research Project of the Year in 2011 by Times Higher Education magazine. Strathclyde gained a U.S. patent on the technology last year and recently granted Kenall licensing rights for the North American healthcare market.

The team at Strathclyde is based within the [Robertson Trust Laboratory for Electronic Sterilisation Technologies](#) (ROLEST) and includes Scott MacGregor, Ph.D., John Anderson, Ph.D. and Michelle Maclean, Ph.D.

“We have spent more than 13 years researching and developing HINS-light technology for the purpose of reducing the environmental transmission of pathogens and ultimately reducing HAI in the healthcare setting,” said MacGregor, ROLEST founder/co-director and Vice-Principal of Strathclyde. “Our partnership with Kenall in the United States is an exciting new chapter which will see this innovative technology become a commercially available product. We chose Kenall because of its extensive experience in providing lighting for the most challenging healthcare environments where infection prevention is a key consideration.”

The Centers for Disease Control and Prevention (CDC) reports [around 1 in 25 hospital patients in the US have at least one infection contracted in the health care setting](#). The CDC estimates HAIs cause at least 1.7 million illnesses and 99,000 deaths in acute care hospitals in the U.S. and add \$35-45 billion in excess health care costs each year. [Battling an HAI can often add tens of thousands of dollars to the cost of treating a single patient](#). HAIs can also result in significant financial penalties for hospitals under the Affordable Care Act. For example, those providers scoring poorly in the Hospital-Acquired Condition (HAC) program receive lower Medicare reimbursements.

Yahnke added that while current methods of disinfecting the healthcare environment are effective, the methods are episodic and results are short-lived as bacteria immediately re-populate the space. The ability of Indigo-Clean™ to continuously treat the air as well as hard and soft surfaces, provides a significant boost to cleaning and disinfecting efforts. Unlike high-tech systems that clean only when they are activated by a trained operator, Indigo-Clean™ is automatic and continuous.

“As an innovator in healthcare lighting and a leader in LED lighting and controls, we can bring healthcare providers this effective, game-changing tool to ensure the safest and best environment for their patients,” said Hawkins.

Kenall, which completed a new state-of-the-art manufacturing facility just north of Chicago in late 2014, is poised to start commercial production of the technology immediately. The company also provides a clinical partners program to assist hospitals in evaluating the performance and cost savings potential of this technology. For additional information, visit [www.Indigo-Clean.com](http://www.Indigo-Clean.com), see us on [Facebook](#) or [Twitter](#) or call (800) 4-KENALL.

#### *About Indigo-Clean™ and Kenall*

Indigo-Clean is an affiliate of Kenall Manufacturing, which has earned a reputation for superior quality, innovation, sustainability and exceptional value in the lighting industry since its inception in 1963. Kenall introduced the first impact and vandal-resistant lighting products to specialized lighting for the most challenging environments for healthcare, food processing transportation and security purposes. Kenall’s extensive research has led to award-winning intelligent solutions using the latest LED and lighting controls technologies. Kenall products are designed and manufactured in a state-of-the-art facility in Kenosha, Wis. that includes a certified UL Test Lab and a full circuit board design, testing and assembly facility. Kenall products meet the guidelines established under the Buy American Act and the North American Free Trade Agreement. For additional information, visit [www.kenall.com](http://www.kenall.com).

#### *About the University of Strathclyde*

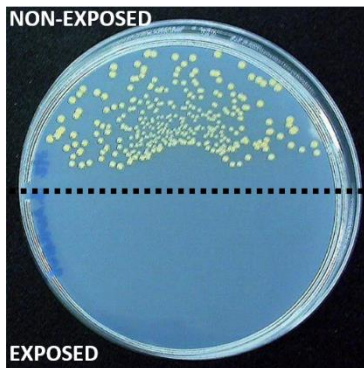
The University of Strathclyde is a leading international technological university recognized for strong research links with business and industry, commitment to enterprise and skills development, and knowledge sharing with the private and public sectors. The University was named U.K. University of the Year in the 2012 Times Higher Education (THE) Awards. In the 2013 THE Awards, the University was named Entrepreneurial University of the Year. In the 2014 Research Excellence Framework (REF), a UK-wide research quality assessment, Strathclyde was placed in the top 20 research-intensive universities. Further information at [www.strath.ac.uk](http://www.strath.ac.uk) or from [corporatecomms@strath.ac.uk](mailto:corporatecomms@strath.ac.uk)

# Indigo-Clean™

Continuous Environmental Disinfection

Indigo-Clean™ is a specially designed light fixture that installs easily into the ceiling of any room in a hospital, clinic or health facility. Indigo-Clean™ uses light-emitting diodes (LEDs) with a wavelength output at 405 nanometers on the visible light spectrum to safely and continuously kill a wide range of harmful bacteria.

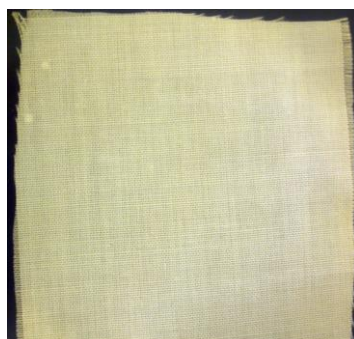
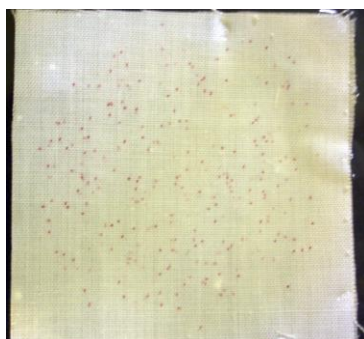
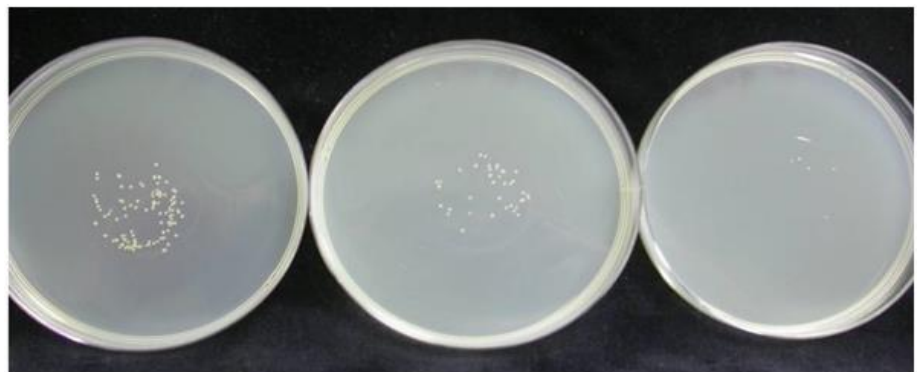
There is no single answer to multi-drug resistant organisms (MRDOs), but Indigo-Clean™ creates an all-new, additional line of defense against infections caused by many of the most prevalent and dangerous bacteria in healthcare settings. Unlike some other environmental cleaning methods, Indigo-Clean™ is effective disinfecting the air as well as on both solid and porous or “soft” surfaces such as bed linens and curtains.



Indigo-Clean™ effectively kills bacteria on inert solid surfaces like stainless steel, glass, acrylics and PVC. Because it's continuously disinfecting the environment, hospital rooms and other patient care areas are available for use while other methods restrict availability of the rooms for incoming patients.

This image (left) shows inactivation of MRSA (Methicillin-resistant *Staphylococcus aureus*) by 405nm light in a laboratory. (Credit: University of Strathclyde)

The image (right) shows, using an imprinting technique, that colonies of *S. aureus* on stainless steel are killed when exposed to the 405nm light. (Credit: University of Strathclyde)



Indigo-Clean™ also effectively kills bacteria on porous surfaces like cotton fabric. Bacteria growth of *S. aureus* (red coloration) is seen on the left, while the fabric on the right was disinfected by Indigo-Clean™. (Credit: University of Strathclyde)



*Indigo-Clean™ light fixtures use Continuous Environmental Disinfection technology to safely inactivate harmful bacteria linked to hospital acquired infections (HAIs) in the air and on all surfaces. Two such applications seen here are a patient room in a hospital critical care unit (left) and a waiting room (right).*



*The technology used in Indigo-Clean™ was discovered in 2002 by researchers at Scotland's University of Strathclyde. (left to right) John Anderson, Ph.D., Scott MacGregor, Ph.D. and Michelle Maclean, Ph.D.*

*Strathclyde's technology has been in use since 2008 at Glasgow Royal Infirmary, a large teaching hospital in the U.K.*

*Strathclyde received a U.S. patent on the technology last year and recently granted Kenall licensing rights for the North American healthcare market.*

*(Credit: University of Strathclyde)*

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