

**Indigo-Clean<sup>®</sup>**  
A brand of **legrand<sup>®</sup>**

***Join me in  
reducing HAIs***

# ***Indigo-Clean***

## ***Continuous Environmental Disinfection Using Visible Light Technology***

- ***Clinically Proven to Reduce SSIs by 73%***
- ***Clinically Proven to Reduce Harmful Bacteria by 88%***
- ***Safe – Does Not Contain UV***
- ***Automatic – requires no additional staff or training***
- ***Can be used while the room is occupied (white) or unoccupied (Indigo-only)***

***“We believed that Indigo-Clean would give us a substantial improvement in our disinfection given the prior research with environmental reduction in bacteria, but we were thrilled when we experienced a 73% reduction in SSIs.”***

***– Lynnelle Murrell, Director of Infection Prevention,  
Maury Regional Medical Center***

## ***The problem:***

### **Current environmental disinfection methods are short-lived:**

harmful bacteria begin repopulating the space as soon as cleaning is complete.

## ***The solution:***

Indigo-Clean is a patented, continuous environmental disinfection technology that uses visible light to safely, automatically and continuously kill harmful bacteria, **24/7**, in the air, and on hard and soft surfaces. It also prevents bacteria from repopulating the space, consequently bolstering current infection prevention efforts.

## ***What makes Indigo-Clean Unique:***

- Indigo-Clean is an environmental disinfection device that is integrated into your lighting
- Indigo-Clean kills bacteria in the air, and on hard and soft surfaces, that can be missed during routine cleaning
- Indigo-Clean requires no special training, additional staff or consumables to operate
- Indigo-Clean is **NOT UV** light... it uses safe 405nm visible light

\* Antimicrobial Activity of a Continuous Visible Light Disinfection System by Rutala, et. al, ID Week 2016

## **Using SAFE 405nm Indigo Light to Kill Harmful Bacteria & Reduce SSIs**

- The 405nm emitted from Indigo-Clean reflects off walls and surfaces, penetrating harmful micro-organisms.
- The 405nm light targets and excites naturally occurring molecules within the bacteria called porphyrins, to produce intra-cellular Reactive Oxygen Species (ROS).
- Similar to bleach, these ROS create an oxidative environment within the organism, inactivating it and preventing it from re-populating the space.

## **What Does it Kill?**

### **ESKAPE Pathogens:**

- E** nterococcus Faecalis
- S** taphylococcal Aureus (including MRSA)
- K** lebsiella pneumoniae
- A** cinetobacter baumannii
- P** seudomonas aeruginosa
- E** nterobacter species

### **And a range of other organisms:**

- *C.diff*
- VRE
- Aspergillus niger
- E. coli
- Salmonella enteritidis



## Excerpt from “Continuous Environmental Disinfection in the OR: A Case Study”

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### Goal

To reduce the number of surgical site infections (SSIs) with the addition of the Indigo-Clean Visible Light Disinfection (VLD) system.

### Methods

Indigo-Clean was installed into one orthopedic OR and its effect on bacteria levels throughout the room was measured using Baird Parker Agar (BPA) contact media for a period of 30 days. During this time, each room was cleaned using the facility’s standard work process. Infection rates were compared one year before and after the VLD system implementation.

### Results

The results from the test room show a continuous, average bacterial reduction of between 56%–88% from the sampled surfaces as compared to those in the two weeks before and after the VLD system installation. Infections were tracked for 12 months and showed a 73% reduction in the test room as compared to the baseline period.

Room	Oct-2015 to Oct-2016		Oct-2016 to Oct-2017		SSI Change	Bacterial Reduction
	# of Cases	# of SSI	# of Cases	# of SSI		
OR-2 (with IC)	778	11	850	3	>=-73%	>=-85%
OR-3 (Distant Control)	751	6	809	7	<=+17%	Not Measured

## Excerpt from “The virucidal effects of 405nm visible light on SARS-CoV-2 and Influenza A virus.”

**“Reducing the ability of SARS-CoV-2 and influenza A to spread within healthcare settings is paramount. This research adds important findings to the medical literature. It shows the potential of a simple, non-invasive technological solution to achieve inactivation of these highly disruptive viruses...”**

— Adolfo Garcia-Sastre, Ph.D., Director of the Global Health & Emerging Pathogens Institute and Professor of Microbiology and Medicine at the Icahn School of Medicine at Mount Sinai

### Goal

To show the impact of 405nm irradiation on inactivation of SARS-CoV-2 and Influenza A H1N1 viruses without the use of photosensitizers making it directly relevant to the clinical environment.

### Methods

A commercially available visible light disinfection product was tested in a BSL-3 level containment hood, with the distance from the SARS-CoV-2 and Influenza A virus samples, temperature, and fixture output were controlled to ensure that the measurements obtained would represent the performance of the devices in actual use. Untreated samples were prepared the same way and were left inside the biosafety cabinet isolated from the inactivation device at room temperature.

### Results

Previous studies have shown that the visible light irradiance levels used in this study (0.035 mW cm<sup>-2</sup> to 0.6 mW cm<sup>-2</sup>) reduce bacteria levels in occupied rooms and improve outcomes for surgical procedures. It is therefore reasonable to conclude that visible light might be an effective disinfectant against SARS-CoV-2. More importantly, this disinfection can operate continuously as it is safe for humans based upon the exposure guidelines in IEC 62471. This means that once it has been in use for a period of time, the environment will be cleaner and safer at all future times including when it is occupied by humans.

### Indigo Disinfection Mode



Nationwide, healthcare facilities are experiencing positive results with Indigo-Clean continuous environmental disinfection. Select installations include:

- ASC Spartanburg, Spartanburg, South Carolina
- Beverly Community Hospital, Montebello, California
- Cherokee Nation Health Center, Tahlequah, Oklahoma
- Geisinger Medical Center, Danville, Pennsylvania
- Henderson Hospital, Henderson, Nevada
- Henderson OSC, Henderson, Nevada
- Holy Family Memorial, Manitowoc, Wisconsin
- New Century Spine & Outpatient Surgical Institute, Paramus, New Jersey
- Spring Valley Hospital, Las Vegas, Nevada
- St. Mark's Hospital, Salt Lake City, Utah
- University of Utah – Salt Lake City, Utah
- St. Mary's Hospital, Waterbury, Connecticut

*"We wanted a disinfectant technology that would be effective, efficient and easy to use, which is exactly what Indigo-Clean is. Compared to other disinfecting technologies on the market, Indigo-Clean was the most cost-effective and efficient since there was no room downtime. And because it's automatic, it alleviates the concern of training and human error."*

– **Mike Pankey, Administrator,  
Ambulatory Surgery Center (ASC) of Spartanburg**

*"We chose to invest in Indigo-Clean for our operating room lighting not only because of the proven high antimicrobial rates, but we appreciated the ease of use, and the ability to continuously disinfect our operating rooms without any downtime. That translates into more procedures and more revenue for us."*

– **Thomas Ragukonis, MD, Medical Director,  
New Century Spine & Outpatient Surgical Institute**

*"Although we knew the Indigo-Clean lights would give us substantial results given the thorough research and studies done on the lights at medical centers across the nation, we were thrilled when our results were even greater than we anticipated."*

– **Lynnelle Murrell, Director of Infection Prevention,  
Maury Regional Medical Center**

*"Maintaining a safe, clean environment for our patients is our number one priority. Indigo-Clean safely, automatically, and continuously disinfects the environment, which means there is no need for room downtime when it (the operating room) is in use."*

– **Sam Kaufman, CEO & Managing Director,  
Henderson Hospital**

*"Providing high-quality patient care, while maintaining a safe, clean environment for our patients is our number one priority. Knowing Indigo-Clean is a proven disinfectant technology, we felt it was important to partner Indigo-Clean with our current cleaning protocols within our new hybrid cardiac suite."*

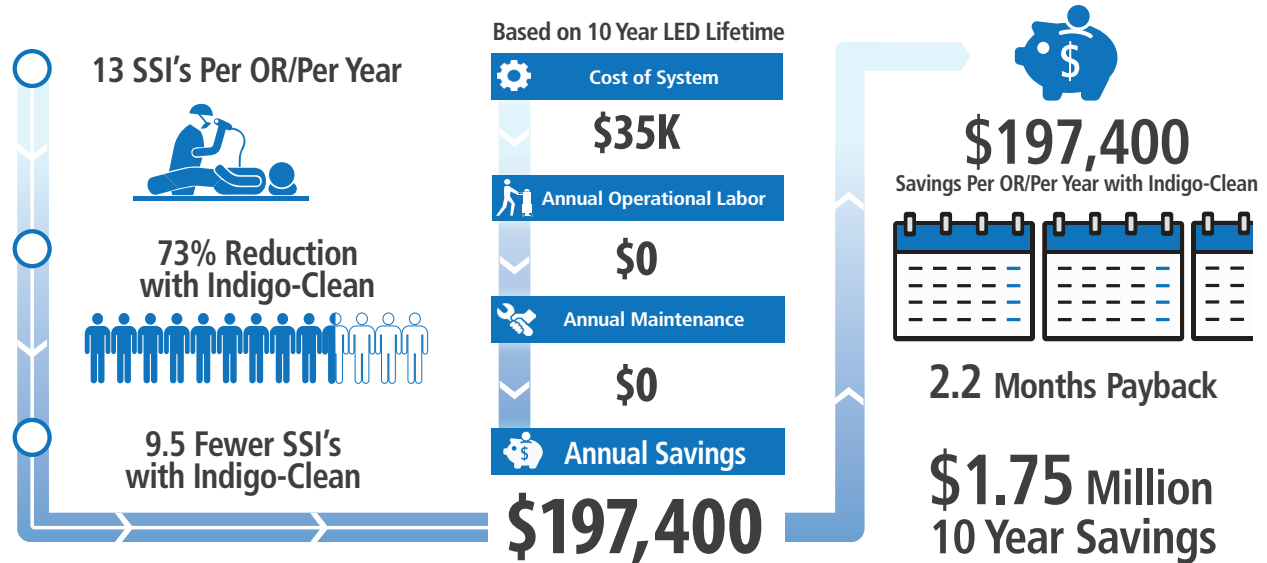
– **Leonard Freehof, CEO/Managing Director,  
Spring Valley Hospital**

*"The advantages of this technology can be accomplished 24/7 as long as the lights are on. The patients and staff do not have to leave the room."*

– **William Rutala, PhD, MS, MPH, CIC,**



## Payback Calculation



For additional details visit [www.indigo-clean.com](http://www.indigo-clean.com)

## Recommended Use Areas

### Operating Rooms



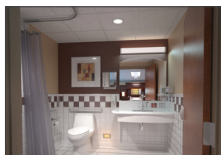
- Clinical Partners report up to 88% pathogen reduction
- Safe for room occupants, even in Indigo mode
- No technician, training, or consumables required for use

### Emergency Departments



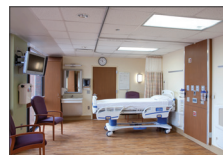
- Receive undiagnosed patients with unknown contaminants
- Indigo-Clean is effective against molds, spores, fungi and bacteria
- Kills harmful bacteria, such as Staph, including MRSA

### Patient Bathrooms



- Hotspot for *C. diff*, notoriously difficult bacteria to kill
- Indigo-Clean effectively kills up to 70% of *C. diff* after 24 hrs of use

### Procedure/Exam Rooms



- Augments current cleaning protocols in high turnover areas
- Can operate in white disinfection mode while room is occupied
- Automatically switches to Indigo disinfection mode when room is empty

### Waiting Rooms



- Like the ER, receive a large number of undiagnosed patients
- Contain a number of high touch surfaces; subject to crowding
- Indigo-Clean provides an ideal disinfecting solution between cleanings