Indigo-Clean®
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Disinfection with the Flick of a Switch

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Indigo-Clean

Continuous Environmental Disinfection Using Visible Light Technology

- *Clinically Proven to Reduce Harmful Bacteria by 88%*
- *Clinically Proven to Reduce SSIs by 73%*
- *Clinically proven to kill 94% of SARS-CoV-2 & Influenza-A*
- *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)*
- *Maintains bioburden reduction between terminal cleanings*

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"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*

Why Indigo-Clean® ?

The problem:

Current environmental disinfection methods are short-lived: harmful viruses and 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 viruses and bacteria, **24/7**, in the air, and on hard and soft surfaces. It also prevents these pathogens from repopulating the space, maintaining the bioburden reduction between terminal cleanings.

What makes Indigo-Clean Unique:

- Indigo-Clean is an environmental disinfection technology that is seamlessly integrated into your lighting
- Indigo-Clean kills pathogens in the air, and on hard and soft surfaces, that is often 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
- Unlike UV, Indigo-Clean does not require line-of-sight to work, killing pathogens in the many shadowed areas UV simply does not reach

* Antimicrobial Activity of a Continuous Visable Light Disinfection System by Rutala, et. al, ID Week 2016
**Per IEC 62471: Photobiological safety of lamps & lamp systems.

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 pathogens 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

Enveloped Viruses

- *SARS-CoV-2*
- Influenza-A

And a range of other organisms:

- *C.diff*
- VRE
- Aspergillis 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.

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

https://www.ajicjournal.org/article/S0196-6553(18)31146-5/pdf

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–2 to 0.6 mW cm–2) 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.

What they are saying

Project: Centre Hospitalier Régional de Lanaudière (CHRDL), Joliette, Quebec, Canada

"The addition of an external agent that operates continuously, using cutting-edge technology, becomes an asset to improve the effectiveness of disinfection in more sensitive places."

— ***Grégoire Tremblay, Senior Engineering Technician, GBi Experts-Conseils, Inc***

Project: University of Utah Dumke Gymnastics Center, Salt Lake City, UT

"I wanted to do everything in my power to provide them with most opportune environment for success. After researching LED disinfectant lighting choices, it quickly became clear that the Indigo-Clean Technology was the leader in the industry."

— ***Tom Farden, Co-Head Coach, University of Utah Gymnastics***

Project: Cypress Creek Fire Station #25, Cypress Creek, TX

"The Fire Marshall wanted to explore opportunities on how to keep the fire station sanitized. CW Lighting showed us Indigo-Clean and has kept us up to date on the latest developments."

— ***Brent Moe, Senior Project Manager, Senior Associate, DBR Engineering***

Project: Henderson Hospital, Henderson, NV

"We currently have Indigo-Clean environmental disinfection lights in all of our inpatient and outpatient surgical suites and emergency department patient bays."

"Indigo-Clean has been a great partner in our fight to maintain a safe, clean environment for our patients. There are many disinfectant technologies available, but we feel Indigo-Clean is the right tool to help keep our patients safe."

— ***Sam Kaufman CEO and Managing Director of Henderson Hospital***

Who's Using It?

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Healthcare facilities are experiencing positive results with Indigo-Clean visible light disinfection. Select installations include:

AdventHealth Wesley Chapel, Wesley Chapel, FL

American Family Children's Hospital, Madison, WI

ASC Spartanburg, Spartanburg, SC

Atrium Health Navicent The Medical Center, Macon, GA

Beverly Community Hospital, Montebello, CA

Carilion Clinic Sleep Center, Lexington, VA

Carle at the Riverfront, Danville, IN

Centre hospitalier régional de Lanaudière, Saint-Charles-Borromée, QC

Cherokee Nation Health Center, Tahlequah, OK

Children's Hospital of Philadelphia, PA

CHOMP Montage, Monterey, CA

Cooper University Health Care, Camden, NJ

Cypress Creek Fire Station #25, Cypress Creek, TX

Delray Medical Center, Delray Beach, FL

Doylestown Hospital, Doylestown, PA

Geisinger Medical Center, Danville, PA

Health Sciences Centre, St. Johns Newfoundland and Labrador

Henderson Hospital, Henderson, NV

Henderson OSC, Henderson, NV

Hendricks Regional Health, Danville IN

Holy Family Memorial, Manitowoc, WI

Jupiter Medical Center- Surgical Institute, Jupiter, FL

Lehigh Valley Hospital-Hecktown Oaks, Easton, PA

Mosaic Life Care, St. Joseph, MO

Muncie Healthplex ASC, Muncie, IN

New Century Spine & Outpatient Surgical Institute, Paramus, NJ

North Memorial Health Hospital, Robbinsdale, MN

Northern Nevada Sierra Medical Center, Reno, NV

Northside Hospital Forsyth, Cumming, GA

Northside Hospital Gwinnett, Lawrenceville, GA

Northside Medical Midtown, Atlanta, GA

Novant Health, Charlotte, NC

Parkview Medical Center, Pueblo, CO

Penn Highlands Clearfield, Clearfield, PA

Richmond University Medical Center, Staten Island, NY

Robley Rex VA Medical Center, Louisville, VA

Scottish Rite for Children, Dallas TX

Singing Hills ASC, San Antonio, TX

Spectrum Health Blodgett Hospital, Grand Rapids, MI

Spectrum Health Zeeland Community Hospital, Zeeland, MI

Spring Valley Hospital, Las Vegas, NV

St. Mark's Hospital, Salt Lake City, UT

St. Mary's Hospital, Waterbury, CT

St. Peter's Health, Helena, MT

St. Tammany Parish Hospital, Covington, LA

St. Thomas Midtown Surgery Center, Nashville, TN

Sugarland ASC, Sugarland TX

Tampa General Hospital, Tampa FL

Texas Health Harris Methodist Hospital, Fort Worth, TX

The New Valley Hospital, Paramus, NJ

The Queen's Medical Center, Honolulu, HI

University of Kansas Health Systems, Kansas City KS

University of Massachusetts, Boyden Gym, Amherst, MA

University of Utah Dumke Gymnastics Center, Salt Lake City, UT

UVA Musculoskelatal Center, Charlottesville, VA

Wellington Regional Medical Center, Wellington, FL

Facility Benefits & ROI

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Reducing SSIs: A Payback Calculation

13 SSI's Per OR/Per Year

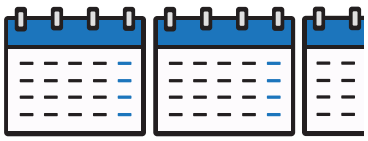
73% Reduction with Indigo-Clean

9.5 Fewer SSI's with Indigo-Clean

Based on 10 Year LED Lifetime

Cost of System	$35K
Annual Operational Labor	$0
Annual Maintenance	$0
Annual Savings	$197,400

$197,400
Savings Per OR/Per Year with Indigo-Clean



2.2 Months Payback

$1.75 Million
10 Year Savings

For additional details visit www.indigo-clean.com

Recommended Use Areas

Pre-/Post-op Areas

- 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

Burn Units/Centers

- Immunologic dysfunction puts patients at risk of severe infection
- Aggressive infection control needed due to excessive skin damage and open wounds

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

Critical Care Areas/ ICUs

- Intensively monitor critically ill patients on life support
- Infection during treatment can adversely affect patient outcome