

IUVA HEALTHCARE WORKING GROUP

WORKING TOWARDS
UV DISINFECTION DEVICE EFFICACY STANDARDS
FOR THE HEALTHCARE INDUSTRY

IUVA HEALTHCARE WORKING GROUP - AGENDA



- **History of the Healthcare/UV Working Group**
- **What We've Learned**
- **Where We're Going**
- **End Goal**

IUVA HEALTHCARE WORKING GROUP - HISTORY



- Started as a Citizen's Regulatory Initiative 5+ years ago
 - Proposed Simplistic Standard: "5 Ft. for 5 Minutes"
for a 3-Log₁₀ Reduction in C.-diff
 - Tried a direct Federal Approach
 - ✓ 25 Congressional Letters, 4 Staffer briefings,
One Rep. Meeting
 - Consistent response:
"Why Not Let the Marketplace Work It Out?"

IUVA HEALTHCARE WORKING GROUP - HISTORY (cont.)

- Found IUVA covered the UV Disinfection Marketplace well, joined with them and never looked back
 - First Panel at IUVA Americas – Austin (Feb 2017) Thanks Alumni!
 - Next 2 Panels - IUVA Americas – Redondo Beach (March 2018)
 - Yale Workshop (Sept. 2018) – 75+ Attendees,
 - ✓ Industry, Academia, Medical; International (Canada, France, Uruguay)
 - NIST Workshop (Jan, 2020) – ~150 Attendees
 - ✓ Industry, Academia, Medical & Federal; International (7+ countries)
 - Other Presentations: SPIE, APIC, RadTech, ASHRAE, ISO

IUVA HEALTHCARE WORKING GROUP - HISTORY (cont.)

- At IUVA-Redondo, Formed the Healthcare/UV Working Group
 - Initially ~20 people; now at 42 members & counting
 - Membership is
 - ✓ *Multi-faceted*: members also in
ASHRAE, ASTM, SHEA, SPIE, IES, and APIC
 - ✓ *Multi-talented*: includes OEM CEO's, Research PhD's,
Practicing MD's & MPH's, and current IUVA Board Members
 - ✓ *Multi-national*: USA, Canada, Israel, France, Sweden, China, Germany
 - ✓ *Open*: Any IUVA Member can join us

IUVA HEALTHCARE WORKING GROUP - WHAT WE'VE LEARNED



➤ The Problems and Solutions are Multi-Dimensional

- When Measuring UV Light, One Size Doesn't Fit All

- ✓ Light Source Matters

- Gas Discharge - LP Hg, MP Hg, Xenon, etc.
 - Solid State - UV LED's
 - Others - Lasers, Pulsed Sources

- ✓ Wavelength Matters

- Single Wavelength, Multiple Wavelengths, Broad Spectrum
 - UV-C (260nm+/-), Far UV (207-220nm), Near-UV (~407nm)

IUVA HEALTHCARE WORKING GROUP - WHAT WE'VE LEARNED (cont.)

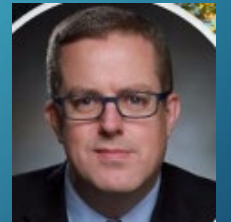
➤ The Problems and Solutions are Multi-Dimensional (cont.)

- *When Measuring Biological Efficacy, Variables Compound*
 - ✓ Large Variation in UV Pathogen “Established Deactivation” Values
 - e.g., $67,567 \mu\text{Wsec}/\text{cm}^2$ to $342,667 \mu\text{Wsec}/\text{cm}^2$
for *C-diff* at 3-Log_{10} ($\sim 500\%$) [Boyce]
 - ✓ No Standardized Method for Testing in Healthcare Setting
 - Large Variation in Numbers of Items & Surfaces
 - How Many Samples Needed? Using Which Pathogens?
 - What's the right target for reduction? 2-Log_{10} , 3?, 4?

IUVA HEALTHCARE WORKING GROUP - WHERE WE'RE GOING

➤ On UV Light Measurement, Collaborating on Multiple Fronts

- with Illuminating Engineering Society (IES) as a partner leading to ANSI certification - Alex Baker (Panel III)
- with IUVA's Medium Pressure Hg Bulb Task Force on Gas Discharge Sources— Dr. Jim Bolton
- with IUVA's UV LED Task Force on Solid State Sources – Dr.'s Gordon Knight & Natalie Hull



➤ Led by Dr. Cameron Miller (Panel III) & Dr. Ashish Mathur (Panel IV)



IUVA HEALTHCARE WORKING GROUP

- WHERE WE'RE GOING (cont.)

➤ On Establishing UV Pathogen Deactivation Values

Developing the standardized method for determining UV dosage values (flux, wave length & duration) necessary to deactivate a given pathogen by 99.9%

- Effort led by Dr John Boyce (Panel II) –
APIC & SHEA



➤ On Measuring Biological Efficacy in Healthcare Settings

- Developing the standardized efficacy testing protocol in a simulated hospital patient room, randomized sampling locations, exposure & sampling protocols using a specified pathogen
- Effort led by Dr. Matt Hardwick (Panel III) –
APIC, HSI & ASTM



➤ Selection of a Collaborating SDO(s) is TBD

IUVA HEALTHCARE WORKING GROUP **- END GOAL**

➤ **Objective:**

**Nationally Recognized UV Disinfection Efficacy Standards
for Environmental/Non-Medical applications**

- **ANSI, ASTM, ASHRAE, and/or ISO**

➤ **Expected Result:**

More UV Disinfection in Healthcare Environments

➤ **Measure of Success:**

Reduction of Deaths due to HAIs

IUVA HEALTHCARE WORKING GROUP - END GOAL (cont.)

➤ End Goal:

National UV Disinfection Efficacy Standards that

- The UV Industry Can Live By
- The Federal Regulators Can Accept and Adopt
- The Healthcare Industry Can Use
when Deciding on UV Technology Investments

Thank You for Working With Us

-- ***It's All About Saving Lives*** --