Session D01
The More You Know: Reduce Failures by Understanding Performance Requirements for Healthcare Durable Coated Fabrics and Surface Materials

aahid
American Academy of Healthcare Interior Designers

DCF TASK GROUP

Sunday, October 24, 2021 - 9:45-11:45 am

HCD HEALTHCARE DESIGN EXPO+CONFERENCE

#HCDcon

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- Complete the AIA verification form (be sure to check off the sessions you attend) and retain it for your records.
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- You will self-submit your credits to the IDCEC system at the conclusion of the conference.

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Application Deadline and Exam Window

2022 CHID Exam

Application Deadline: May 1, 2022
Exam Window: September 1 – 30, 2022

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AAHID Historic Timeline

March 4, 2004

Dan Lee, Lew Vassberg, Louise Nicholson-Carter, and Margaret Simmons meet to discuss starting a Healthcare Interior Designer professional accreditation organization.

July 1, 2005

The first 50 professional interior designers who were part of the original establishment of the AAHID examination are referred to as Founding Members.

2008

AAHID moves their office from Dallas to Washington DC. New Logo.

2014

AAHID partners with AMC moving offices from DC to Chicago. New Logo.

2015

AAHID appellation changed to CHID Certified Healthcare Interior Designer. Logo created

2019

AAHID celebrates 15th anniversary with all new exam, online proctored exam delivery, and streamlined application process. Record number of 84 new CHID passed.

2021

New Website and Logos Connections series of virtual meetings between Board, CHID, Industry Partners and Founders to promote knowledge sharing & collaboration.

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Question/Response 1

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Our first session on this subject was HCD 2017 in Orlando Florida. How many of you have attended one or more of our AAHID DCF Education sessions?

❑Yes

❑No

Question/Response 2

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Which term best describes your role in healthcare design?

- ❑ Architect
- ❑ Clinical
- ❑ Interior Designer
- ❑ Manufacturer Representative
- ❑ Owners Representative
- ❑ Trade Association
- ❑ Other?

…first you scare us, then you offer us hope….

"what you guys are sharing is really important, and complex, with critical safety implications …
(the scary part)

… but there is an approach, and a path forward
– we can do it if we de-silo, team up, move forward …"
(the hope part)

Jen Wilcox
Director of Education
The Center for Health Design

Jargon Alert!

Upholstery materials are all referred to as **"fabrics"**
...they can be **durable coated fabrics** or **woven textile fabrics**

Fabric memo samples come with a label that provides basic information about material composition and testing,

Designers call this a **"Memo Tag"**

Manufacturers call this a **"Sample Ticket"**

These terms are used interchangeably

Are you experiencing this?

Cracking & Puddling?

Soiling & Staining?

Delamination?

UV Sunlight fading?

February 2017 -Design Connections - Ponte Vedra, Florida

Several AAHID CHID healthcare designers,

...manufacturers, associations, and industry partners, shared their frustration with ongoing & persistent coated fabric failures, comparing experiences we found we were all experiencing the same problems. After the conference, we continued the discussion, to find a solution, we formed the Durable Coated Fabrics task group.

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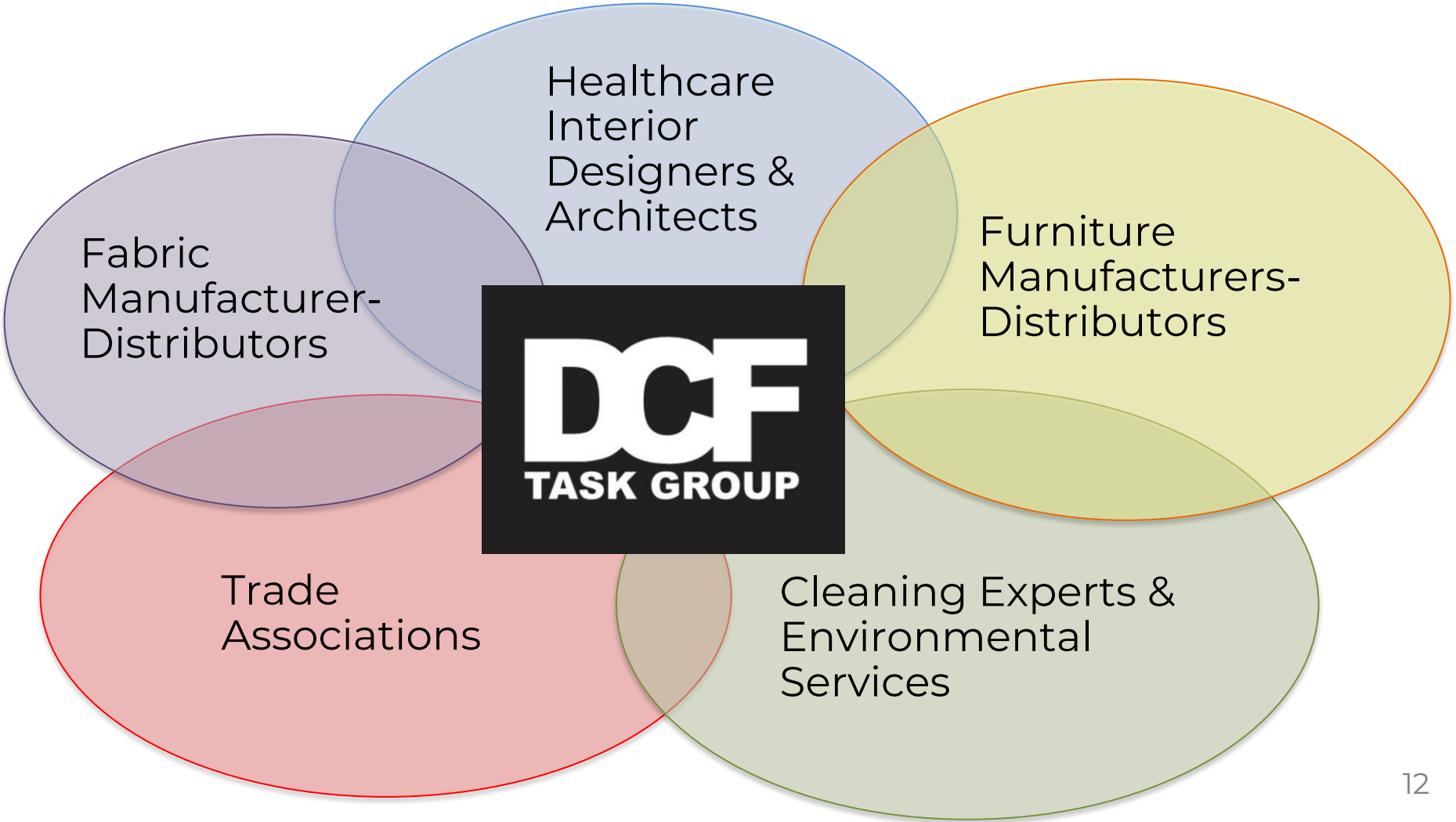
Healthcare Interior Designers & Architects
Fabric Manufacturer-Distributors
Furniture Manufacturers-Distributors
DCF
TASK GROUP
Trade Associations
Cleaning Experts & Environmental Services

Since 2017 the DCF has met regularly to discuss issues of performance & durability, polled the industry for information on current practices, supported durability field testing, advancing education and collaborative collegial dialogue in the healthcare design industry.

In 2019 DCF officially becomes affiliated with AAHID

With Updates posted on the AAHID Website & LinkedIn page

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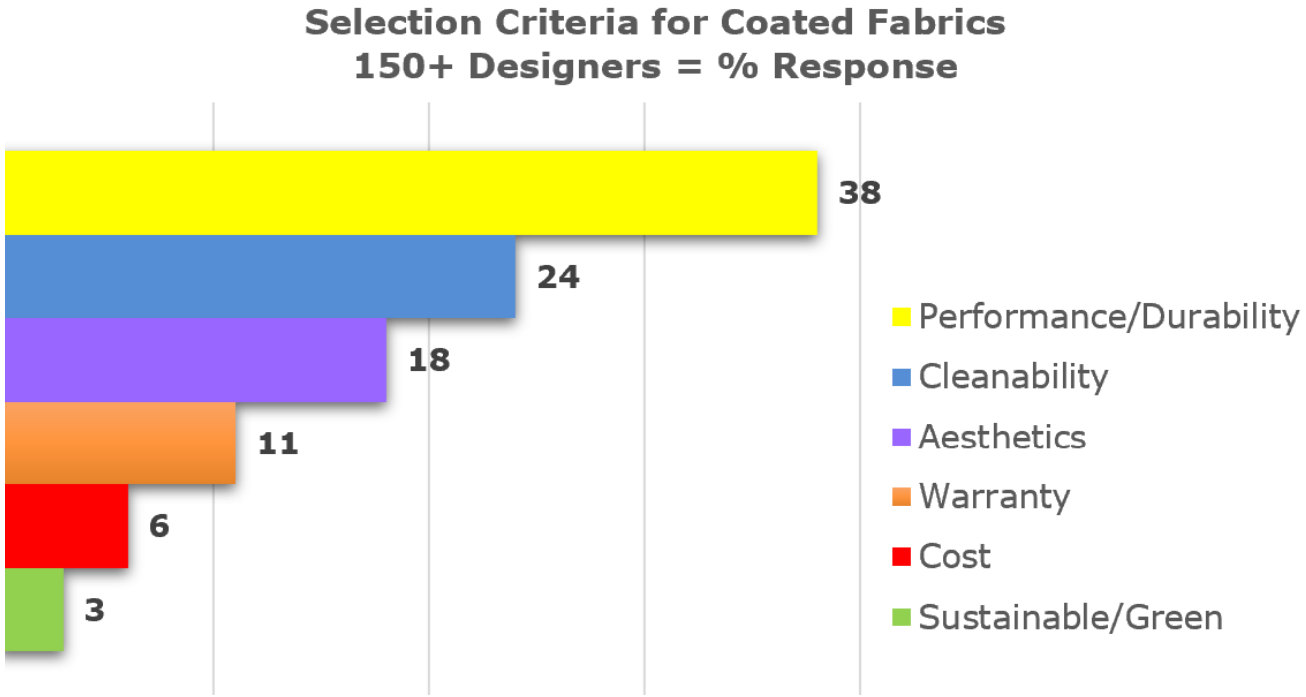
In 2018, We surveyed 150+ Healthcare Designers, asking …

When evaluating durable coated fabrics for upholstery in your healthcare environments, what are your primary selection criteria?



Question/Response 3

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How would you respond today?
Which of the following selection criteria is your top concern?

- ❑ *Aesthetics*
- ❑ *Cleanability*
- ❑ *Cost*
- ❑ *Performance/Durability*
- ❑ *Sustainable/Green*
- ❑ *Warranty*

Question/Response 4

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Is cost a limiting factor when you are specifying **durable coated fabrics**, & if so, what is your budget price point?

- ❑ Cost is not a limiting factor
- ❑ >Greater than $70 SY Net
- ❑ <Less than $70 SY Net

Question/Response 5

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In the last six months, have you had to remove torn, broken, ripped, delaminated, or perpetually soiled furniture items from service?

❑Yes

❑No

Question/Response 6

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For the furniture items that had to be removed, who paid for those items to be repaired, reupholstered, or replaced?

Check any or all that apply…

- ❑ Consultant design firm
- ❑ Fabric manufacturer or distributor
- ❑ Furniture dealer
- ❑ Furniture manufacturer
- ❑ Owner
- ❑ Don’t know

Barbara Dellinger, MA, FIIDA, CHID, CID, EDAC, NCIDQ,
Director Design & Research, Adventist Healthcare

Linda Gabel, CHID, IIDA, Senior Interior Design-Planner,
The Ohio State University Wexner Medical Center

Jane Rohde, AIA, FIIDA, ASID, ACHA, CHID, LEED AP BD+C, GGA-EB, GGF.
Principal - JSR Associates Inc

Shari Solomon, Industrial Hygienist & President,
CleanHealth Environmental, LLC

Learning Objectives: (Note change in presentation order)

1. Explore challenges and opportunities in implementing the *Durable Coated Fabric Programming and Selection Guide for Healthcare* and the CFFA-Healthcare-201 Certification.

3. Demonstrate knowledge of healthcare surface materials and challenges of cleaning and disinfecting processes and procedures.

2. Engage in a continuum of discovery to reveal new challenges and real-world issues related to surface material failures throughout the healthcare built environment, and the impact of environmental contaminates, cleaning chemicals, and methods.

4. Evaluate multiple attributes when specifying products, materials, and surfaces to improve successful outcomes.

Facilitated Role Play

Discuss the Scenario: The Joint Commission is coming!

How do the owner, interior designer, joint commission surveyor, manufacturer sales rep, upholstery fabric provider, EVS representative, & trade association member prepare for the JC

In addition to our panel, our Role Play includes;

Chuck Beavan,
Wieland Furniture Mfr Rep.

Steve Rye,
CFFA Technical Services Manager

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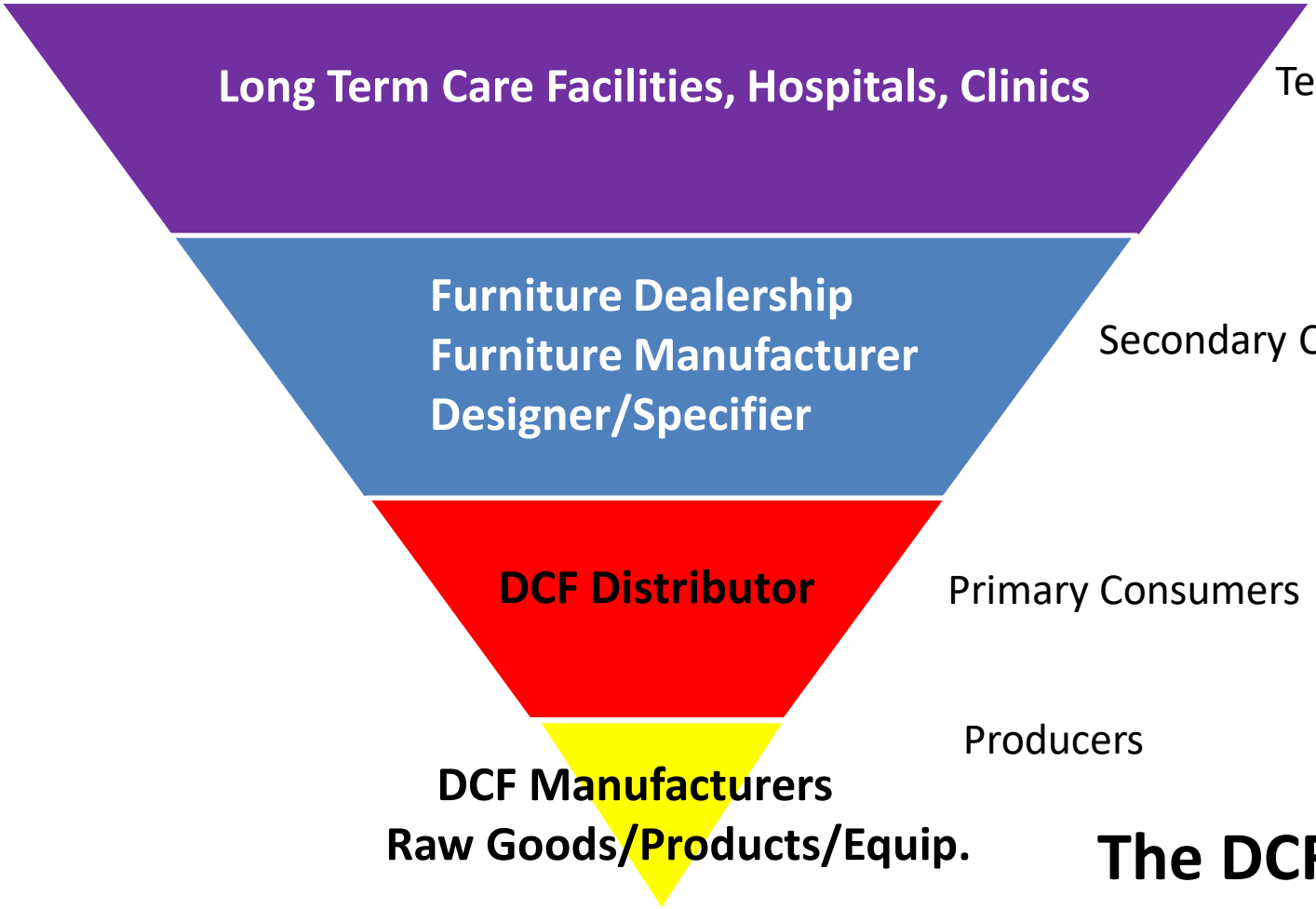
Barbara Dellinger, MA, FIIDA, CHID, CID, EDAC, NCIDQ,
Director Design & Research, Adventist Healthcare

1. Explore challenges and opportunities in implementing the *Durable Coated Fabric Programming and Selection Guide for Healthcare* and the CFFA-Healthcare-201 Certification.



The DCF Food Chain

Education

Summary of 2018-2019 Shady Grove Medical Center Evergreen Lounge Study

Initial Goals:
Assess performance of various coated fabrics

Test for cleanliness & bioburden

Selection of **18 durable coated fabrics:**
Recommended as Heavy-duty, 24/7, Healthcare

Aesthetics/color – avoid “patchwork quilt look”

Ability to withstand SGMC’s cleaning

Education

Summary of 2018-2019 Shady Grove Medical Center Evergreen Lounge Study

Results:

Goal 1. Durability:

- 15 of 18 Excellent
- 3 of 18 Good (some stretching on humid days)

Goal 2. Cleanliness:

- Testing halted due to challenges with the testing device
- EVS inability to comply with daily, consistent cleaning as recommended by fabric manufacturers.

After 2 years, all still look great.

Issues and unanswered questions everywhere we looked:

Memo tag/Sample ticket

Website inconsistencies

Sales reps

Education: *Discovery of inconsistencies*

Memo Tag/Sample Ticket

- Provides only basic product information – very limited by space; inconsistent wording
- Inconsistent definitions (if any) of “Heavy duty, 24/7 healthcare use”
- Various tests are done; sometimes for similar test; ASTM, CFFA, AATCC
- Quantity of tests varies between 0 – 7 (most list 0 - 2) per Memo tag
- Most reference “Wyzenbeek” but they do not use official CFFA or ASTM test names
- Sustainable attributes listed and supersede durability and performance which aren’t all listed
- Test names are inconsistent and confusing;
    - CFFA-16 is Tear Strength, but AATCC 16H is Colorfastness
    - ASTM D-751-06: is it “Break Strength” or “Seam Slippage”?

Manufacturer Website Information

- Testing info is limited and inconsistent between manufacturers
- One had tested for 12+ staining agents, with results – another did not list any staining results
- Many provide results of cleaning product tests on the website; but some do not

Manufacturer/Distributor sales rep may provide additional information

- Several more test results were provided when the summary chart was sent
    - Between 8–12 tests listed (but most not on website)
- Some sent test results not listed on Memo tag **or** on Website when requested

Education

There was no
standard list
of which tests
are most important to
healthcare designers

Memo sample ticket and Website info comparison: V.3 - 9.28.20

Test names, if noted, are highlighted

Coated Fabric A (Sample ticket)	Coated Fabric B (Sample ticket)	Coated Fabric C (Sample ticket)	Coated Fabric D (Sample ticket)	Coated Fabric E (Sample ticket)
Name and # of pattern Color Content Finish Backing Cleaning Weight Width Repeat Abrasion (dbl rubs noted) **TEST NAME/# NOT GIVEN** (other than Wyzenbeek)	Name Color and # Contents Finish Fluid Barrier Width Abrasion Resistance Hydrolysis Resistance Flammability (3 tests noted) **TEST NAMES/# NOT GIVEN** (other than Wyzenbeek noted)	Collection Name Content Width Abrasion (Wyzenbeek) Cleaning Code Key Features : Bleach cleanable Resists blue jean dye **TEST NAME/# NOT GIVEN** (other than Wyzenbeek)	Name Style Color Width Material **NO TESTS NOTED**	Name Number Color Content Backing Width Application Features Environmental info 3 flame ratings Wyzenbeek Lightfastness AATCC 16 Cal 133 BIFMA Wyzenbeek noted; but not by test # **2 TESTS NOTED**
VS. Website info Additional website info - two more tests are noted but not by formal test name or # Price Finish (topcoat) Backing Warranty Environmental Flammability "meets all" **No test noted on Website**	**VS. Website Info** Additional website info - Abrasion Resist. ASTM D-4157 Break Strength ASTM -D-751-06 Tear Strength ASTM D-2261 Seam slippage ASTM D-06 Colorfastness to light AATCC 16 Crocking ATTCC-8 Hydrolytic Sta. ISO 1419 **7 Tests noted on Website**	**VS. Website info** Additional website info 4 Flammability test Colorfastness – AATCC 16H Emissions CA Hydrolytic Stability – ISO 1419 **2 Tests noted on Website**	**VS. Website info** Add'l website info 5 flame tests ASTM D4157 – Wyzenbeek Crocking AATCC 8 Light AATCC 16.3 **3 Tests noted on Website**	**VS. Website info** Info exactly the same as sample ticket **2 Tests noted on Website**

Who decides which tests are requested?

What are the common names used in place of some tests?

How much do the tests cost?

How many tests were conducted?

How many tests did the product fail?

How is a Designer supposed to know all of this?

How to cover the time it takes?

Lessons Learned:

I thought that the field test results were the most important part, but it turns out that test results, and data-gathering, are only the first steps…

It’s the path you travel while gathering the data that leads to new discoveries.

Something had to be done –

frustration,

time lost,

money lost,

& still no answers

Collaboration

How does DCF Task Group fit into this?

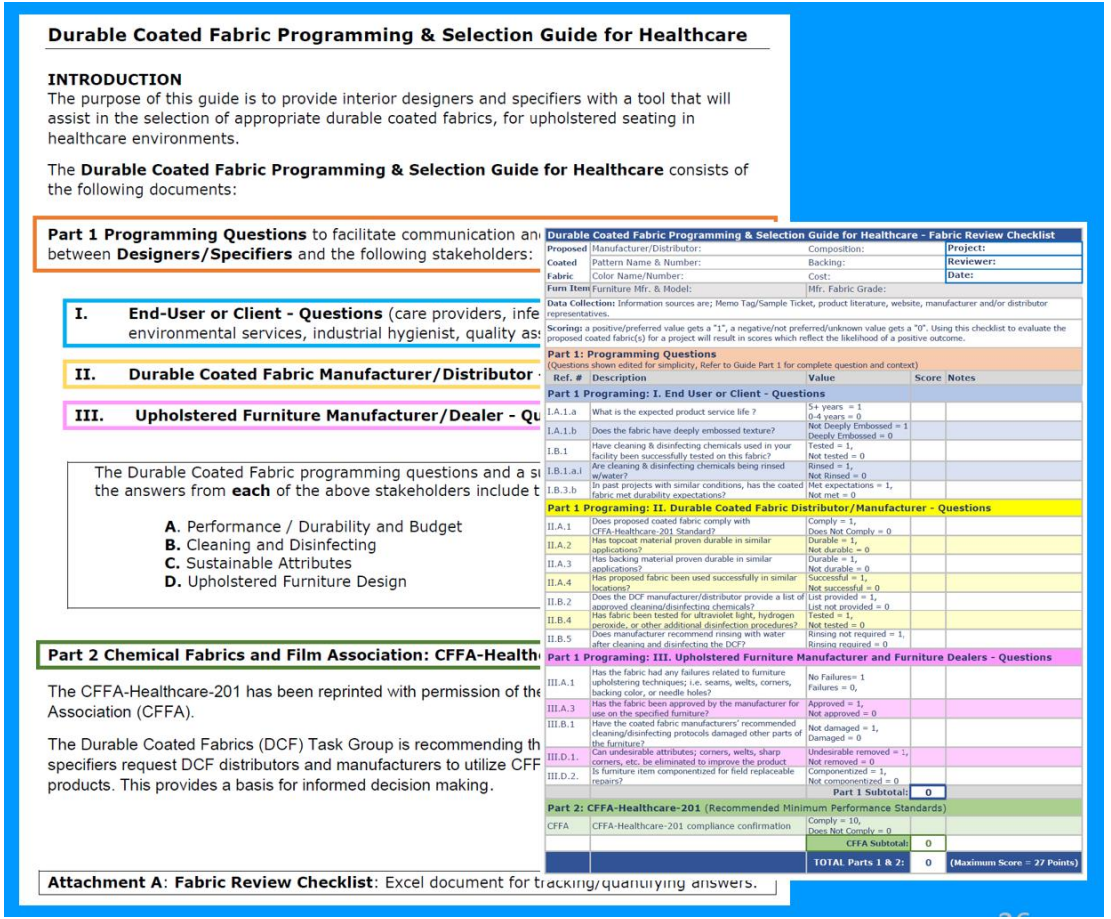
Collaboration with

- CFFA
- Infection preventionists,
- Designers both in-house and with big and small firms
- Furniture manufacturers
- Fabric manufacturers
- BIFMA

Collaboration

Durable Coated Fabric Programming & Selection Guide for Healthcare

- Part 1: Programming Questions
- Checklist



Durable Coated Fabric Programming & Selection Guide for Healthcare

INTRODUCTION

The purpose of this guide is to provide interior designers and specifiers with a tool that will assist in the selection of appropriate durable coated fabrics, for upholstered seating in healthcare environments.

The **Durable Coated Fabric Programming & Selection Guide for Healthcare** consists of the following documents:

Part 1 Programming Questions to facilitate communication an
between **Designers/Specifiers** and the following stakeholders:

I. End-User or Client - Questions (care providers, infe
environmental services, industrial hygienist, quality as

II. Durable Coated Fabric Manufacturer/Distributor

III. Upholstered Furniture Manufacturer/Dealer - Qu

The Durable Coated Fabric programming questions and a su
the answers from **each** of the above stakeholders include t

A. Performance / Durability and Budget
B. Cleaning and Disinfecting
C. Sustainable Attributes
D. Upholstered Furniture Design

Part 2 Chemical Fabrics and Film Association: CFFA-Health

The CFFA-Healthcare-201 has been reprinted with permission of the
Association (CFFA).

The Durable Coated Fabrics (DCF) Task Group is recommending th
specifiers request DCF distributors and manufacturers to utilize CFF
products. This provides a basis for informed decision making.

Attachment A: **Fabric Review Checklist**: Excel document for tracking/quantifying answers.

Durable Coated Fabric Programming & Selection Guide for Healthcare - Fabric Review Checklist

Proposed Coated Fabric	Manufacturer/Distributor:	Composition:	Project:
	Pattern Name & Number:	Backing:	Reviewer:
	Color Name/Number:	Cost:	Date:
Furn Item	Furniture Mfr. & Model:	Mfr. Fabric Grade:	

Data Collection: Information sources are; Memo Tag/Sample Ticket, product literature, website, manufacturer and/or distributor representatives.

Scoring: a positive/preferred value gets a "1", a negative/not preferred/unknown value gets a "0". Using this checklist to evaluate the proposed coated fabric(s) for a project will result in scores which reflect the likelihood of a positive outcome.

Part 1: Programming Questions
(Questions shown edited for simplicity, Refer to Guide Part 1 for complete question and context)

Ref. #	Description	Value	Score	Notes
Part 1 Programing: I. End User or Client - Questions				
I.A.1.a	What is the expected product service life ?	5+ years = 1 0-4 years = 0		
I.A.1.b	Does the fabric have deeply embossed texture?	Not Deeply Embossed = 1 Deeply Embossed = 0		
I.B.1	Have cleaning & disinfecting chemicals used in your facility been successfully tested on this fabric?	Tested = 1, Not tested = 0		
I.B.1.a.i	Are cleaning & disinfecting chemicals being rinsed w/water?	Rinsed = 1, Not Rinsed = 0		
I.B.3.b	In past projects with similar conditions, has the coated fabric met durability expectations?	Met expectations = 1, Not met = 0		
Part 1 Programing: II. Durable Coated Fabric Distributor/Manufacturer - Questions				
II.A.1	Does proposed coated fabric comply with CFFA-Healthcare-201 Standard?	Comply = 1, Does Not Comply = 0		
II.A.2	Has topcoat material proven durable in similar applications?	Durable = 1, Not durable = 0		
II.A.3	Has backing material proven durable in similar applications?	Durable = 1, Not durable = 0		
II.A.4	Has proposed fabric been used successfully in similar locations?	Successful = 1, Not successful = 0		
II.B.2	Does the DCF manufacturer/distributor provide a list of approved cleaning/disinfecting chemicals?	List provided = 1, List not provided = 0		
II.B.4	Has fabric been tested for ultraviolet light, hydrogen peroxide, or other additional disinfection procedures?	Tested = 1, Not tested = 0		
II.B.5	Does manufacturer recommend rinsing with water after cleaning and disinfecting the DCF?	Rinsing not required = 1, Rinsing required = 0		
Part 1 Programing: III. Upholstered Furniture Manufacturer and Furniture Dealers - Questions				
III.A.1	Has the fabric had any failures related to furniture upholstering techniques; i.e. seams, welts, corners, backing color, or needle holes?	No Failures= 1 Failures = 0,		
III.A.3	Has the fabric been approved by the manufacturer for use on the specified furniture?	Approved = 1, Not approved = 0		
III.B.1	Have the coated fabric manufacturers' recommended cleaning/disinfecting protocols damaged other parts of the furniture?	Not damaged = 1, Damaged = 0		
III.D.1.	Can undesirable attributes; corners, welts, sharp corners, etc. be eliminated to improve the product	Undesirable removed = 1, Not removed = 0		
III.D.2.	Is furniture item componentized for field replaceable repairs?	Componentized = 1, Not componentized = 0		
		Part 1 Subtotal:	0	
Part 2: CFFA-Healthcare-201 (Recommended Minimum Performance Standards)				
CFFA	CFFA-Healthcare-201 compliance confirmation	Comply = 10, Does Not Comply = 0		
		CFFA Subtotal:	0	
		TOTAL Parts 1 & 2:	0	**(Maximum Score = 27 Points)**

Results of Collaboration

CFFA-Healthcare-201B
February 2021

& Certification Seal >>>>>>>>>

A durable coated fabric must pass <u>all tests</u> to be Certified!

CFFA CHEMICAL FABRICS AND FILM ASSOCIATION INC

CFFA-HEALTHCARE-201B
February 2021

Recommended Minimum Performance Standards for
VINYL-COATED AND OTHER CHEMICAL COATED UPHOLSTERY FABRICS - HEALTHCARE

PROPERTY	TEST METHOD	FABRIC BACKING OR SUBSTRATE		
		KNITS	NON-WOVENS	WOVENS
Abrasion: (Wyzenbeek) Healthcare / High Traffic	CFFA 1a #10 Duck	100,000 cycles	100,000 cycles	100,000 cycles
Healthcare/ Normal Traffic		50,000 cycles	50,000 cycles	50,000 cycles
Accelerated Exposure to Disinfectants	CFFA 10B	Slight Change	Slight Change	Slight Change
Accelerated Light Aging (Xenon)[1]	CFFA 2[2]	No change	No change	No change
Adhesion[3]	CFFA 3	3.0 lbs.	3.0 lbs.	3.0 lbs.
Blocking	CFFA 4	None- Slight Adh. (2)	None- Slight Adh. (2)	None- Slight Adh. (2)
Cold Crack	CFFA 6a[4]	No Cracking	No Cracking	No Cracking
Crocking: Dry & Wet	CFFA 7	Excellent (4)	Excellent (4)	Excellent (4)
Denim Stain Resistance	CFFA 7D	Slight (8)	Slight (8)	Slight (8)
Flame and Smoke Resistance (CAL117-2013)	CFFA 9	Pass	Pass	Pass
Flex[5]	CFFA 10	25,000 Cycles No Cracking/ Crazing	25,000 Cycles No Cracking/ Crazing	25,000 Cycles No Cracking/ Crazing
Hydrolytic Stability: PU	CFFA 11P	10 weeks	10 weeks	10 weeks
Seam Strength	CFFA 14	30 x 25 lbs.	35 x 35 lbs.	25 x 25 lbs.
Stain Resistance	CFFA 14Z	No stain (4+)	No stain (4+)	No stain (4+)
Tear Strength: Tongue Trap	CFFA 16b CFFA 16c	4 x 4 lbs. N/A	N/A 15 x 15 lbs.	4 x 4 lbs. N/A
Tensile	CFFA 17	50 X 50 lbs.	50 X 50 lbs.	40 x 40 lbs.
Volatility	CFFA 18B[6]	8%	8%	8%

Table 1 footnotes continue on page 2.

CFFA HEALTHCARE STANDARD CERTIFICATION PROGRAM

CERTIFIED™
CFFA-HEALTHCARE-201

Results of Collaboration CFFA-Healthcare-201

CFFA 142: Stain resistance in the Healthcare Environment

Transferable Stain Types	Inks:	Transferable Stains:
• Synthetic Body fluids: • Stomach Acid* • Human Sweat* • Urine* * See CFFA 142 for specific info	• Viscot Mini surgical Fine tip marker • Ballpoint pen – Bic round Stic-blue	• Revlon Super Lustrous Lipstick "Love that Red" • Johnson's Baby Oil • Jergens Daily Moisture Dry Skin Moisturizer • Cutex Polish Remover NonAcetone • Coppertone Ultraguard Sunscreen • Octocrylene 4% • Shea Moisture Jamaican black castor oil leave in conditioner

Results of Collaboration: CFFA Healthcare 201

CFFA-70 – Denim Stain Resistance (also referred to as ‘reverse crocking’)

CFFA- 100 – Accelerated Exposure to Disinfectants

Clorox Healthcare Hydrogen Peroxide Cleaner Disinfectant (Wipes)
VIREX II 256, diluted to specified concentration
Clorox Healthcare Bleach Germicidal Wipes

See CFFA healthcare 201 for other tests and information

Information above cited with permission of the Chemical Fabrics and Film Association

Where are we now?

Acceptance within the industry of CFFA-Healthcare-201 Certification

a. Reference CFFA website and link to manufacturer's /distributor's products that have passed CFFA Healthcare 201 – and other links
b. Issues with specific tests (CFFA 100 – bleach wipes) and (CFFA 142 nail polish remover) keeps some from getting the full certification.
c. Designers need to encourage the fabric manufacturers and distributors to continue to improve their product.
d. If a product has passed CFFA 201, designers can ask that it be labeled as such.

Additional Data gathering, *with the help of AAHID, the DCF task group uses Surveys to gather information to better understand the extent of product failures in healthcare environments, their associated costs, and potential solutions.*

Cleaning and Disinfection: to collect data on cleaning/disinfection products & procedures from Environmental Services, Facility Management, and Designers
https://www.surveymonkey.com/r/J6W3PDX.

Healthcare Durable Coated Fabrics Upholstery: to collect data from **Designers**
https://www.surveymonkey.com/r/HKBM67B

Healthcare Furniture Manufacturers: to collect data about performance challenges
https://www.surveymonkey.com/r/7NSKHD5

Healthcare Furniture Dealers: to collect data about performance challenges
https://www.surveymonkey.com/r/7MGW896

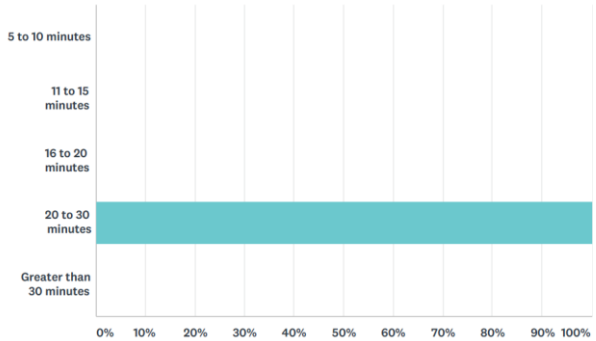
Key Data Points *already gathered for the above surveys, are shown on the following slides…*

Results from our AAHID DCF data-gathering surveys to date have been;

Cleaning and Disinfection: 25 questions, 4 respondents

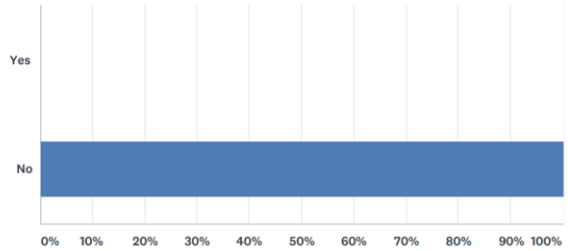
Q7 What is the expected clean time for patient room discharge turnover cleaning?

Answered: 4 Skipped: 0



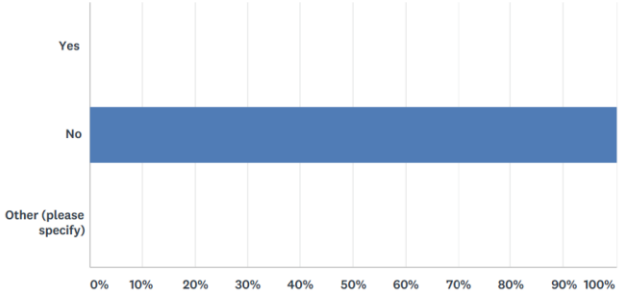
Q12 Is it part of your protocol to rinse the detergents and/or disinfectants from the surface after application?

Answered: 4 Skipped: 0



Q14 Is it a requirement in your EVS contract to rinse the surfaces?

Answered: 1 Skipped: 3



Results from our AAHID DCF data-gathering surveys to date have been;
Upholstery Cleaning – Designers: 25 questions, 4 respondents

Q12 Is it part of your protocol to rinse the detergents and/or disinfectants from the surface after application?	**No**

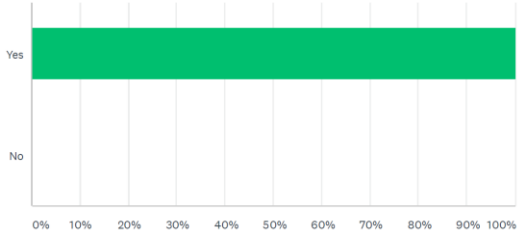
Q24 Where and when in your facility are you using enhanced disinfection technology?

UV technology is used as an adjunct to disinfection of patient rooms upon discharge. It is also used in Surgical Suites and periodically Central Sterile

Results from our AAHID DCF data-gathering surveys to date have been;
Healthcare Furniture Manufacturers: 12 respondents, 12 questions

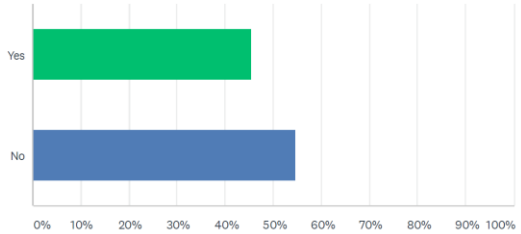
Q1 Our industry has benefited from manufacturers and distributors providing many new and innovative durable coated fabric upholstery materials. We are now experiencing issues related to the use if some of those materials in healthcare environments. Has your company experienced failures with any coated fabric upholstery materials over the last 5- 7 years?

Answered: 12 Skipped: 0



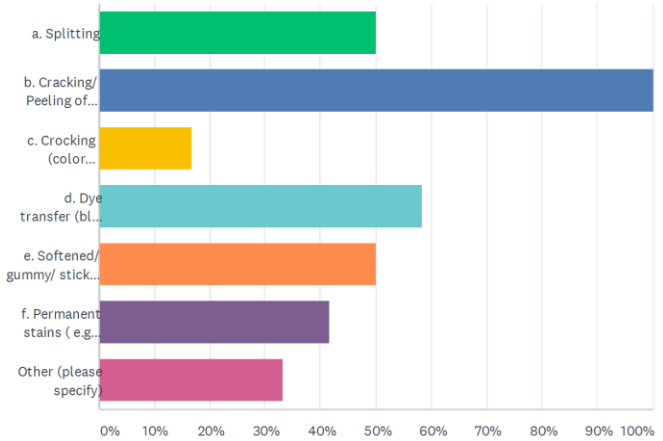
Q11 When a durable coated upholstery material has a topcoat, has a topcoat been a significant factor in the experienced failure?

Answered: 11 Skipped: 1



Q2 Please check (all that apply) the types of issues/ problems/ failures that have occurred based upon upholstery fabric specified:

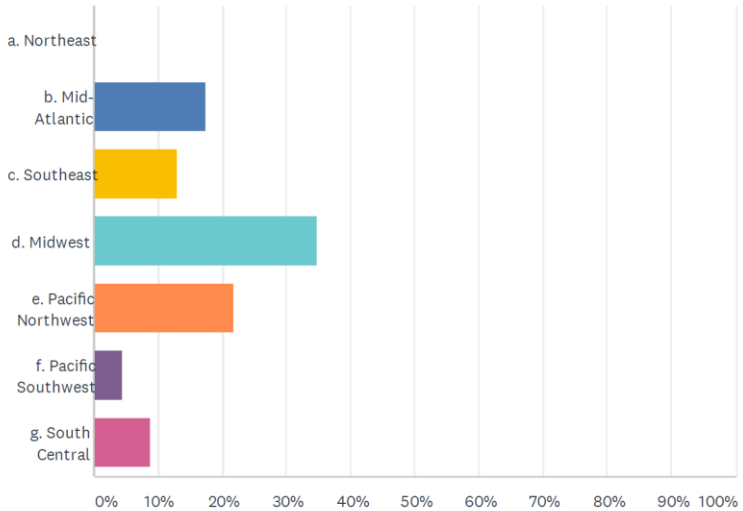
Answered: 12 Skipped: 0



Results from our AAHID DCF data-gathering surveys to date have been;
Healthcare Furniture Dealers: 23 respondents, 12 questions, PAGE 1 of 3

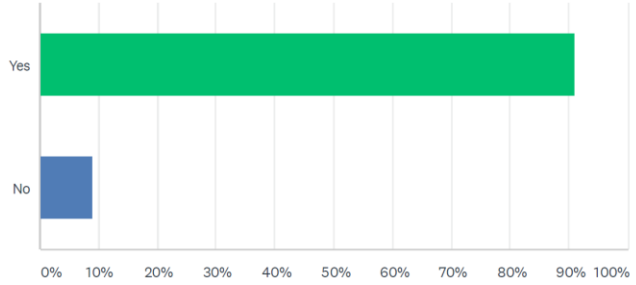
Q2 What is your geographic location and territory?

Answered: 23 Skipped: 0



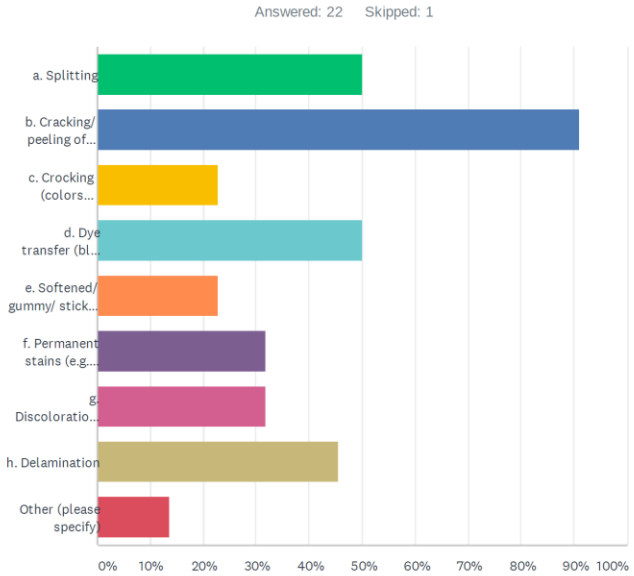
Q3 We are now experiencing issues/problems/failures related to the performance of some of the new and innovative durable coated materials in healthcare environments. Has your dealership experienced/witnessed any performance failures with any coated fabric upholstery materials within the last 5 – 7 years?

Answered: 22 Skipped: 1

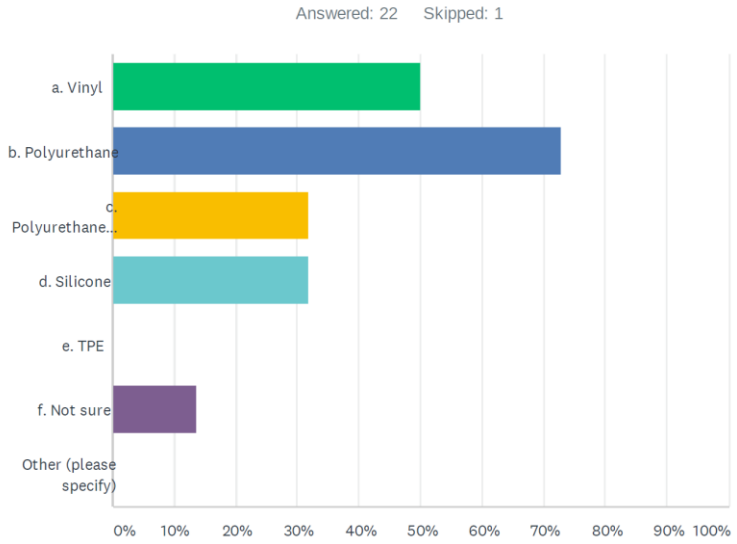


Results from our AAHID DCF data-gathering surveys to date have been;
Healthcare Furniture Dealers: 23 respondents, 12 questions, PAGE 2 of 3

Q4 What types of issues/problems/failures that have occurred based upon upholstery fabrics specified?(Check all that apply)

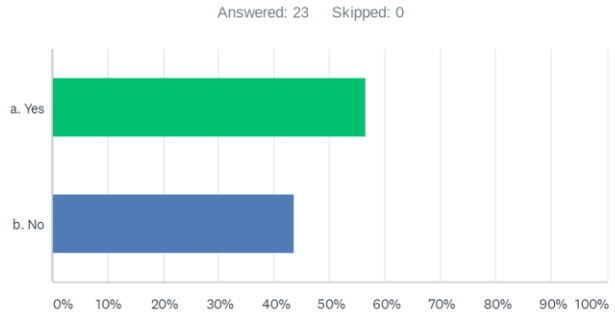


Q5 On which type of coated fabric upholstery materials have you experienced the above issues? (Check all that apply)

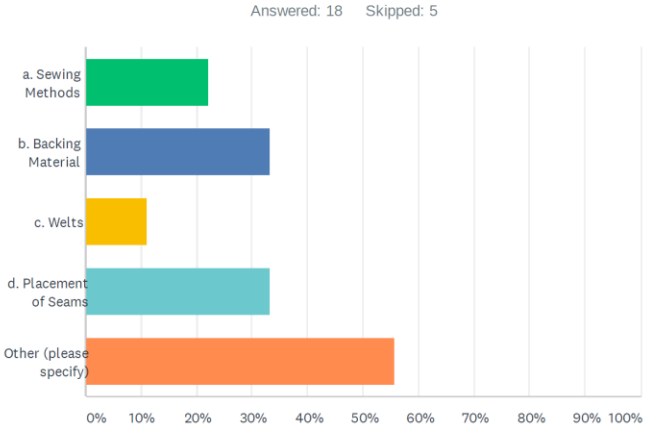


Results from our AAHID DCF data-gathering surveys to date have been;
Healthcare Furniture Dealers: 23 respondents, 12 questions, PAGE 3 of 3

Q6 Has your dealership contributed to the replacement cost (labor or material) for reupholstering or replacing furniture that has failed?



Q10 Were any specific furniture manufacturing methods identified as contributing to durable coated fabric upholstery material failures?(Check all that apply)



Shari Solomon, Industrial Hygienist & President,
CleanHealth Environmental, LLC

3. Demonstrate knowledge of healthcare surface materials and challenges of cleaning and disinfecting processes and procedures.

CleanHealth Environmental
Risk Management Training Solutions

Cleaning vs. Sanitizing vs. Disinfecting

Cleaning

- The physical removal of material (e.g., dust, soil, blood and body fluid); removes rather than kills microorganisms.
- A surface that has not been cleaned effectively cannot be properly sanitized or disinfected.

Sanitizing

- Carry a general claim of germ control, but generally not organism specific

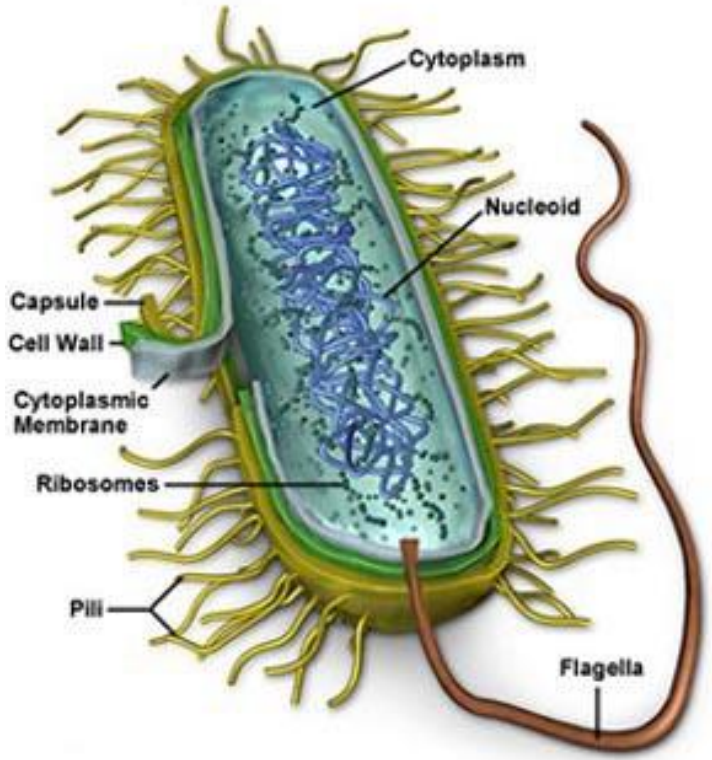
Disinfecting

- The inactivation of pathogens.
- Most common disinfectants:
  - quaternary ammonium compounds
  - hydrogen-based
  - sodium hypochlorite

How Disinfectants Work

To Work Properly, Disinfectants Need:

- Proper Concentration
- Dwell Time
- Kill Claims
- PROPER APPLICATION PROCESS!



CDC - Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic

Updated Feb. 2021

- Use dedicated medical equipment should be used when caring for patients (suspected or confirmed)
- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly
- Implement routine cleaning and disinfection procedures (2-step process)
- Manage laundry, food service utensils, and medical waste

Cleaning & Disinfection: Policy & Procedures

- Selection of tools, supplies, equipment and chemicals
- Increased frequency of cleaning and disinfection in high density and high-touch areas
- Staff training
- Staff roles and responsibilities
- Cleaning and disinfection procedures
- Validation of cleanliness

HIERARCHY OF SUSCEPTIBILITY

SARS-CoV-2

List N: Disinfectants for Use Against SARS-CoV-2

https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2

- List N includes products that meet EPA's criteria for use against SARS-CoV-2, the novel coronavirus that causes the disease COVID-19.
- Note: Inclusion on this list does not constitute an endorsement by EPA.
- **Expedited Review by EPA has ceased (April 2021)**

Concerns Surrounding Application of Disinfectants

Poison control sees spike in calls for cleaner, disinfectant accidents amid COVID-19 pandemic

By Rachael Rettner - Senior Writer April 21, 2020

Calls related to cleaner and disinfectant exposure are up 20% compared with calls last year.

Comments (0)

Image: © Shutterstock

Calls to poison control centers regarding exposure to household cleaners and disinfectants have spiked amid the COVID-19 pandemic, according to a new report.

The report authors found that, from January to March this year, poison control centers received 45,550 calls related to cleaner and disinfectant exposure. That's up 20% compared with calls over the same period in 2019, according to the report, from the Centers for Disease Control and Prevention.

CDC: Some Americans are misusing cleaning products — including drinking them — in effort to kill coronavirus

To try to kill the novel coronavirus, some Americans are unsafely using disinfectant and cleaners, including washing food with bleach, using the products on their skin, and inhaling and ingesting them, federal health officials reported Friday.

Health experts caution explicitly against using cleaning products in these ways.

The findings come from an online survey of 502 adults conducted by the Centers for Disease Control and Prevention in May. Thirty-nine percent had misused the cleaning products, and one-quarter reported "an adverse health effect that they believed was a result" of the products.

Safer Disinfectant Choices

Healthy Green Schools & Colleges recommends choosing List N products with any of the following active ingredients:

- hydrogen peroxide**
- citric acid
- lactic acid
- ethyl alcohol (also called ethanol or just alcohol), or
- isopropyl alcohol
- peroxyacetic acid**
- sodium bisulfate
- hypochlorous acid

**The combination of hydrogen peroxide and peroxyacetic acid is a designated AOEC asthmagen, so avoid products that contain both.

Application Methods

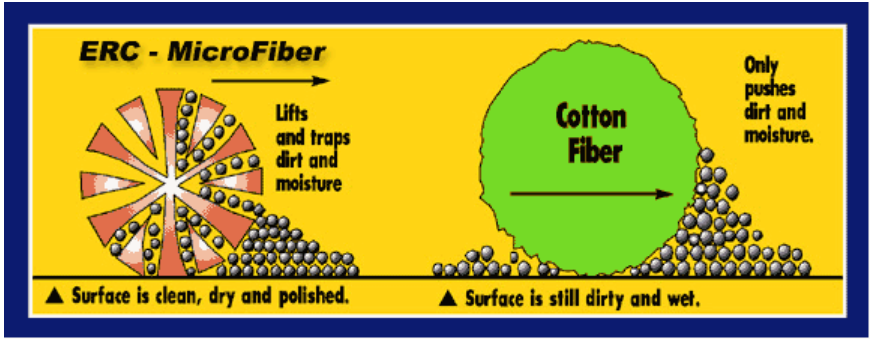
- Electrostatic Sprayers
- Vapor Systems
- Spray Bottles
- Traditional Wiping

THE LABEL IS THE LAW!

Microfiber

What is Microfiber?

1. Fine synthetic fiber (polyester & nylon)
2. 1/16 thickness of human hair
3. ⬆ Surface area = ⬆ absorbency
4. + Charge attracts and trap soils and bacteria (> cotton)
5. Able to penetrate cracks and crevasses (> cotton & paper towels)

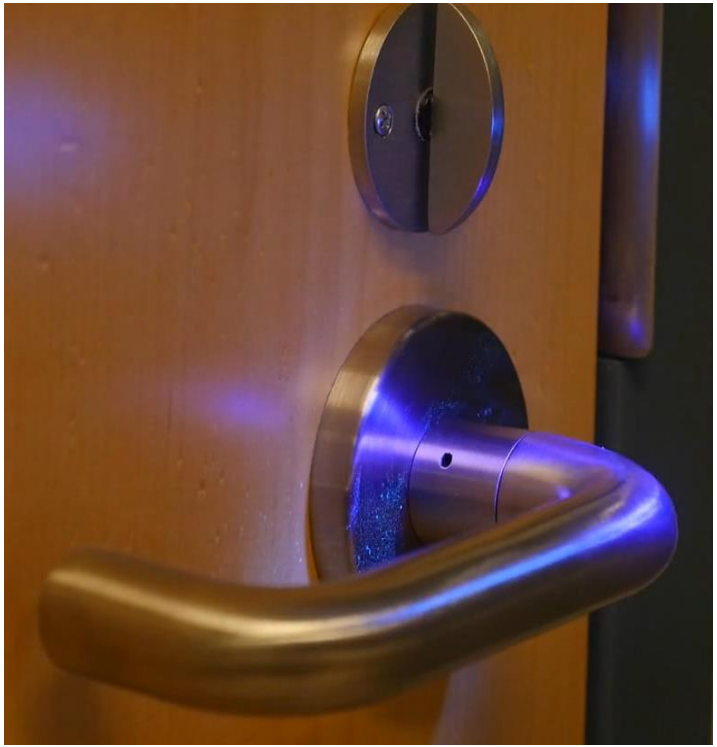


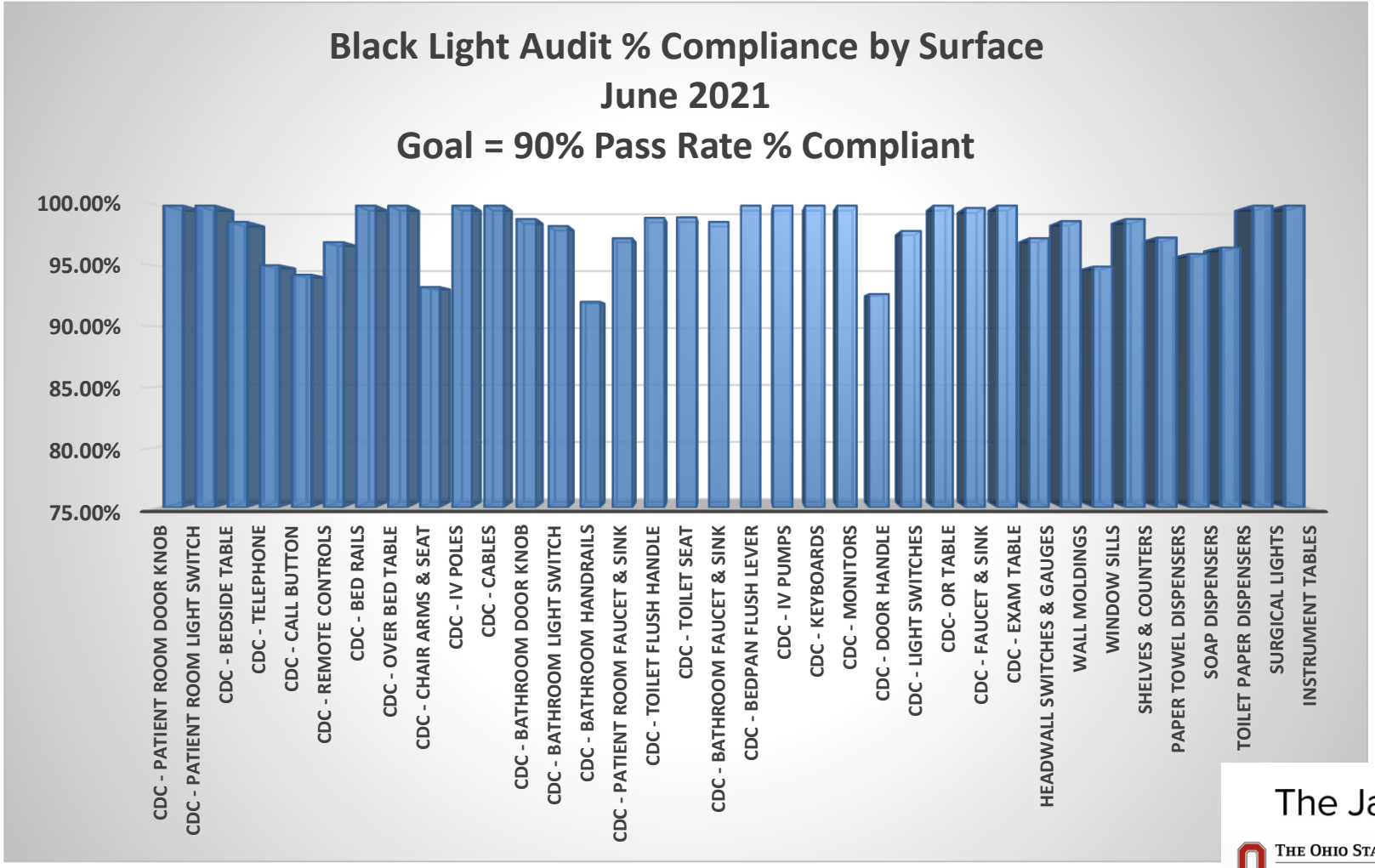
Cleaning Validation Tools

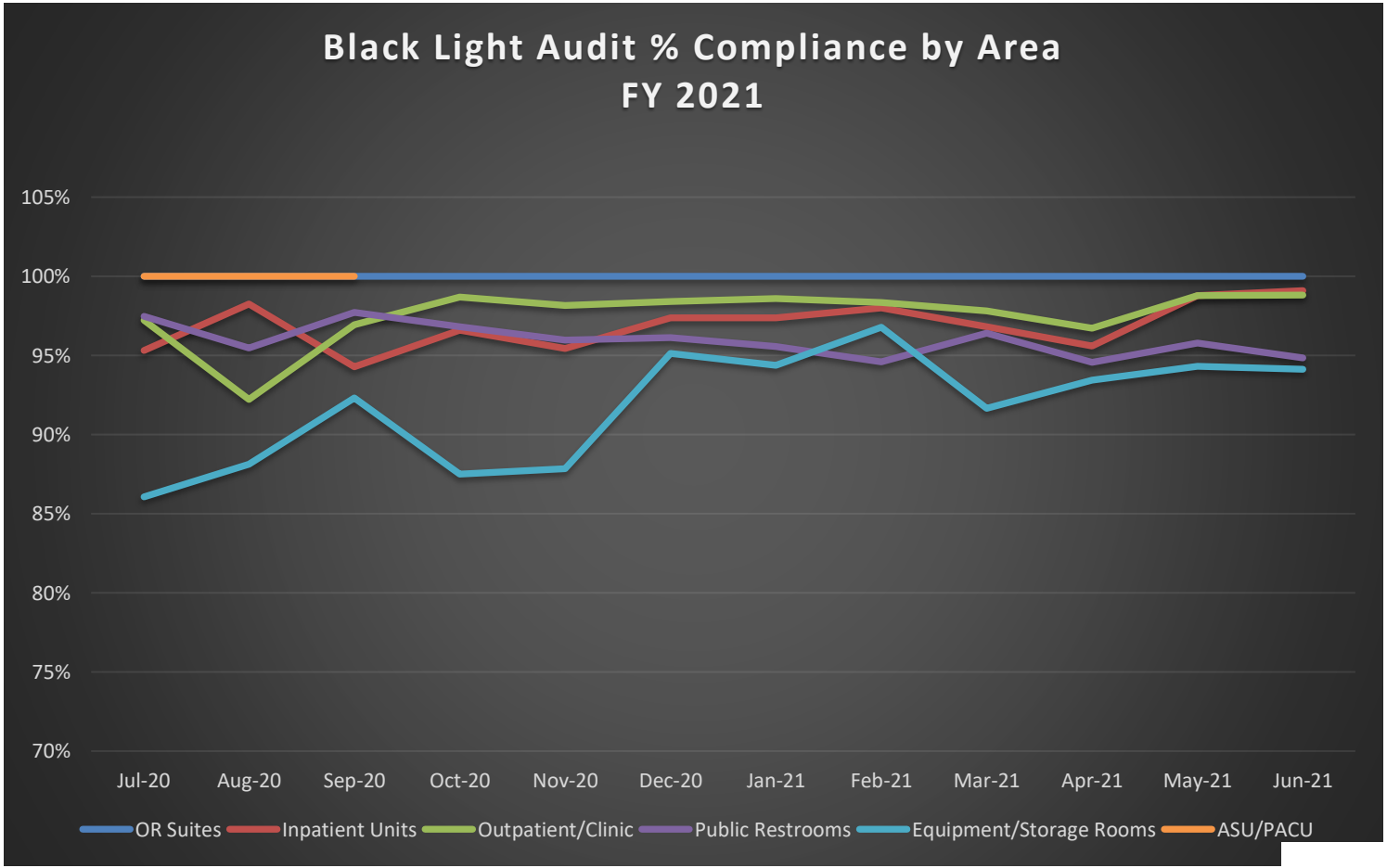
- Adenosine triphosphate (**ATP**) is an enzyme that is present in all living cells.
- ATP is the the universal unit of energy in all living cells.
- **ATP** can detect the amount of organic matter that remains after **cleaning** an environmental surface.

ES Optimizer Mobile Room Inspections

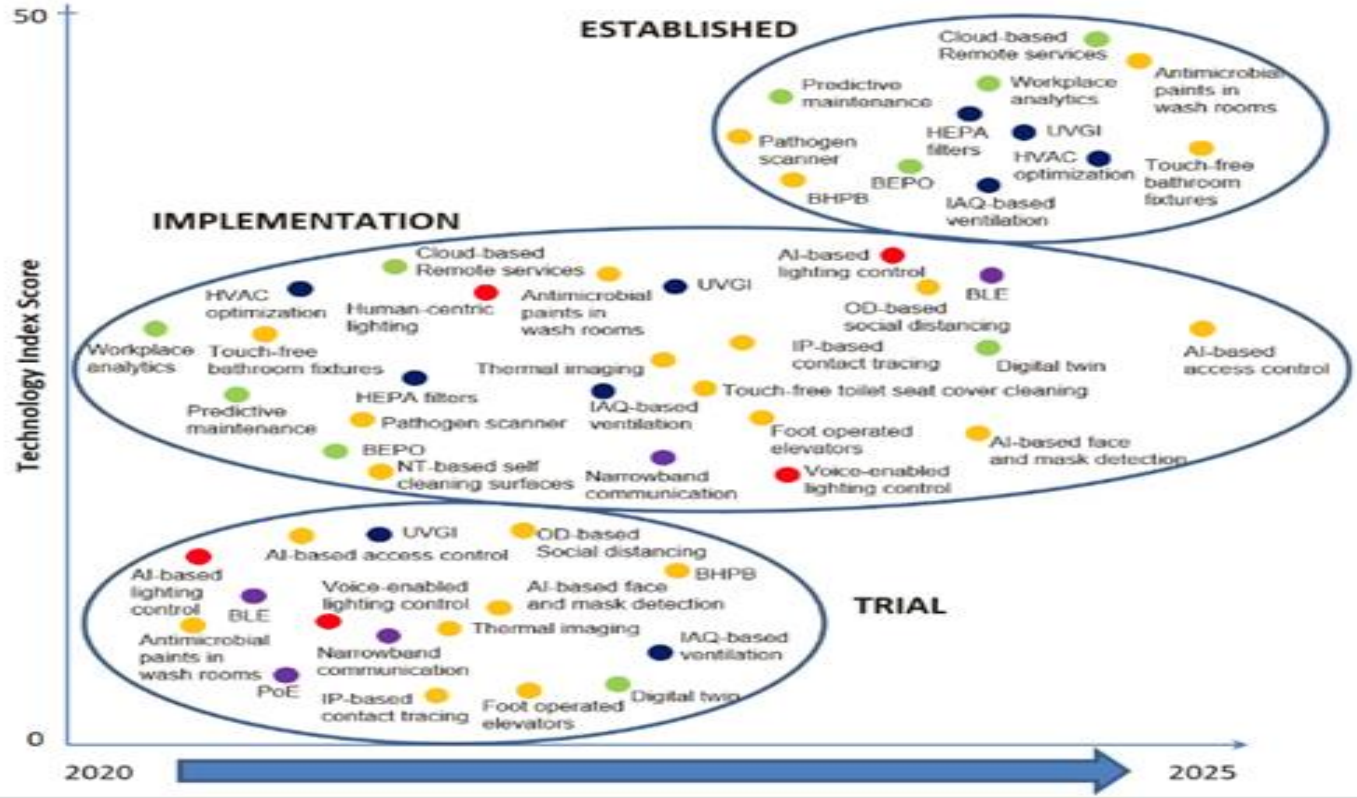
Blacklight with Fluorescent Spray




Black Light Audit % Compliance by Surface
June 2021
Goal = 90% Pass Rate % Compliant
100.00%
95.00%
90.00%
85.00%
80.00%
75.00%
CDC - PATIENT ROOM DOOR KNOB
CDC - PATIENT ROOM LIGHT SWITCH
CDC - BEDSIDE TABLE
CDC - TELEPHONE
CDC - CALL BUTTON
CDC - REMOTE CONTROLS
CDC - BED RAILS
CDC - OVER BED TABLE
CDC - CHAIR ARMS & SEAT
CDC - IV POLES
CDC - CABLES
CDC - BATHROOM DOOR KNOB
CDC - BATHROOM LIGHT SWITCH
CDC - BATHROOM HANDRAILS
CDC - PATIENT ROOM FAUCET & SINK
CDC - TOILET FLUSH HANDLE
CDC - TOILET SEAT
CDC - BATHROOM FAUCET & SINK
CDC - BEDPAN FLUSH LEVER
CDC - IV PUMPS
CDC - KEYBOARDS
CDC - MONITORS
CDC - DOOR HANDLE
CDC - LIGHT SWITCHES
CDC- OR TABLE
CDC - FAUCET & SINK
CDC - EXAM TABLE
HEADWALL SWITCHES & GAUGES
WALL MOLDINGS
WINDOW SILLS
SHELVES & COUNTERS
PAPER TOWEL DISPENSERS
SOAP DISPENSERS
TOILET PAPER DISPENSERS
SURGICAL LIGHTS
INSTRUMENT TABLES


Black Light Audit % Compliance by Area
FY 2021
105%
100%
95%
90%
85%
80%
75%
70%
Jul-20
Aug-20
Sep-20
Oct-20
Nov-20
Dec-20
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21
OR Suites
Inpatient Units
Outpatient/Clinic
Public Restrooms
Equipment/Storage Rooms
ASU/PACU

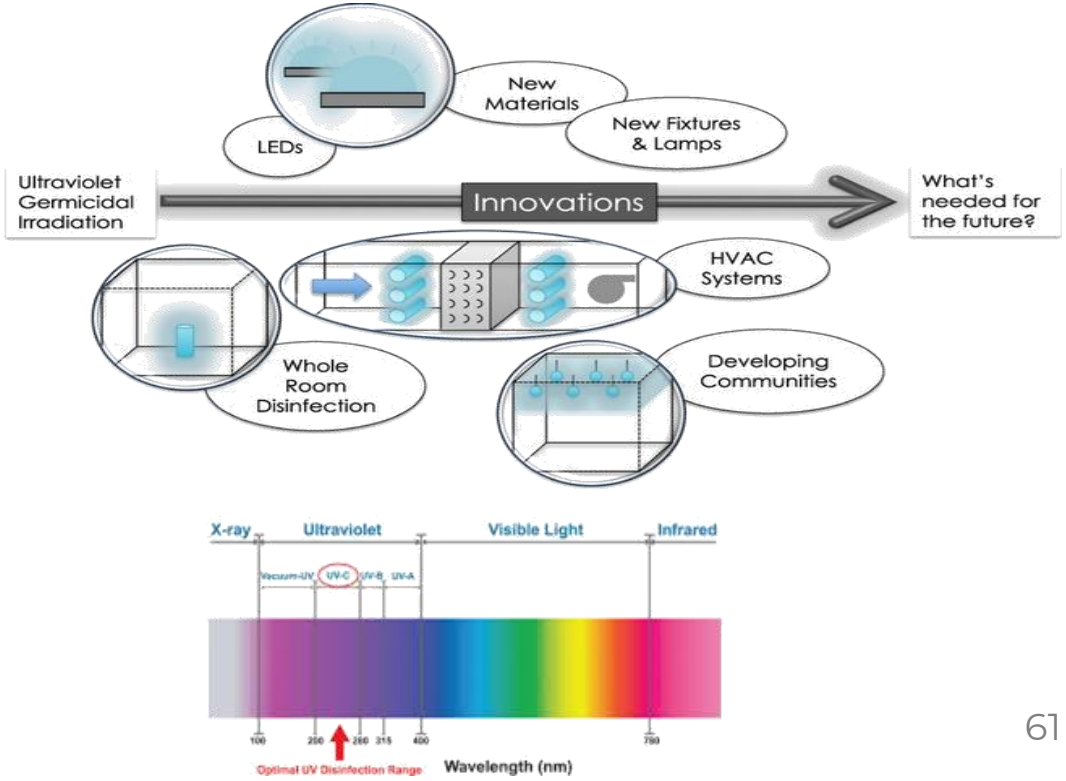
Products Anticipated to Be Used



Additional Disinfection Methods

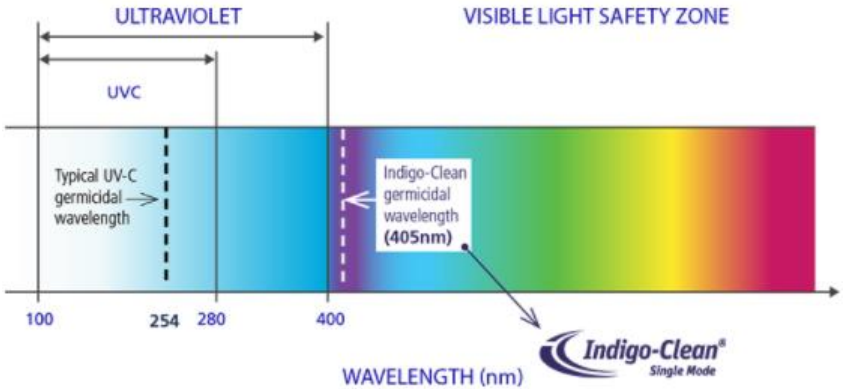
Ultraviolet Germicidal Irradiation

- Short wave, high energy ultraviolet C (UVC) light destroys microorganism's DNA
- Applications for water, air and surface disinfection
- UVC – *Group 1* carcinogen



High-Intensity Narrow-Spectrum (HINS) Light

- 405 nm, sometimes referred to as “Near UV,” although not in the UV spectrum.
- Conforms to international safety guidelines for clinical use in occupied rooms
- Provides continuous disinfection of air and exposed surfaces in occupied spaces.



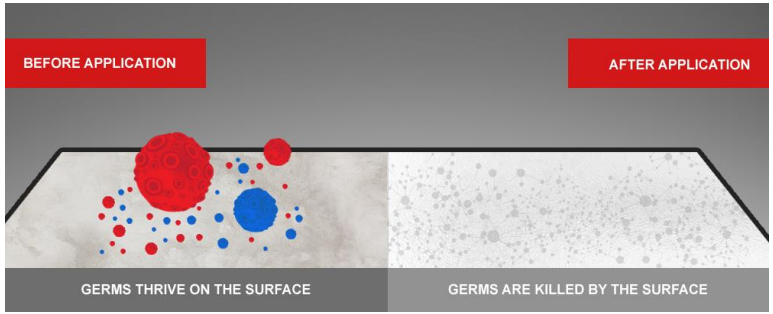
Antimicrobial Surfaces

Replacing traditional materials (e.g., plastic, stainless steel) with materials with antimicrobial properties or treating surfaces with coatings

- Copper
- Silver

Antimicrobial surface coatings

- Surfaces sprayed with surfacine or organosilane

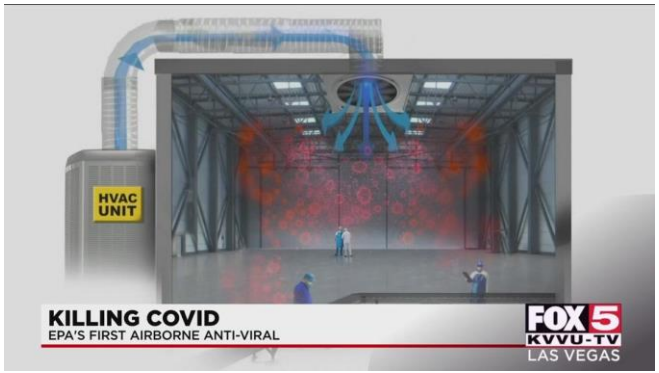


EPA Registration: Residual Efficacy Claims

- Addition of residual (i.e., extended or long-lasting) efficacy claims:
  - for currently registered or new product registrations that would qualify for List N;
  - or products that can be used as a residual supplement to disinfectants on List N.

Section 18 Emergency Exemption

- **SurfaceWise2**
  - Coating applied by ESS in TX, OK, AK by use of American Airlines planes & facilities
- **Grignard Pure**
  - Anti-viral mist used in GA & TN for indoor spaces in healthcare, transportation and public indoor facilities
- **BIAXAM**
  - Adhesive film used in GA, MN, UT AK by use of Delta planes & facilities



Biobreak – 30 minutes

Please bring your completed cards with your answers to the 6 Survey Questions up to the front …

Our presentation will resume promptly at …….

aahid

American Academy of
Healthcare Interior Designers

Linda Gabel, CHID, IIDA, Senior Interior Design-Planner,
The Ohio State University Wexner Medical Center

Learning Objective:

2. Engage in a continuum of discovery to reveal new challenges and real-world issues related to surface material failures throughout the healthcare built environment, and the impact of environmental contaminates, cleaning chemicals, and methods.

Case Study – University Health System

New 1.2 million SF state-of-the-art Cancer Hospital opened in 2014

Project Goals for Furniture and Finishes:

- Create a safe environment for patients, guests and staff
- Sophisticated esthetic
- LEED Gold / reduce use of PVC – based products

  Design Consultant chose to replace 90% of PVC with Polyurethane coated fabrics and finishes.
- Reduce first cost
- Increased durability
- Ease of housekeeping and maintenance

Unintended Consequences

Rapid degradation of polyurethane (PU) coated fabrics and finishes:

- At 8 months in Emergency Department waiting and exam rooms
- Within 2 years:
  - Surgery waiting areas, infusion rooms
  - all 24/7 patient care areas, including task chairs/stools
- Within 3 years:
  - all areas, Gummy texture and peeling of task chair/stools
  - all clinic waiting areas, and PU top coat failure on printed vinyl, revealing white base coating
  - peeling of PU wood finishes
  - peeling and degradation of PU arm caps

Public and Patient Area Failures

Issues:

- Cleaning & Chemicals
- “no rinse” protocol
- UV light treatment
- Heat
- Oils
- Sweat
- 24/7 use
- Rubbing/abrasion
- Polyurethane-based materials






Clinical and Office Support Areas Failures

Issues:

- Heat
- Oils
- Sweat
- 24/7 use
- Rubbing/abrasion points
- Polyurethane-based materials

These surfaces are not scheduled to be routinely cleaned by EVS

Extent of Failures

Quantity of Failures from the Cancer Hospital, (Original items):

1,053 Inpatient sleep settees, overnight sleep chairs, & patient recliners
540 Large scale lounge seating units
923 Infusion Recliners & exam /infusion room guest seating
130 (ED only) modular & exam room seating
1,623 Upholstered Task chairs & stools

4,269 + additional failures in administrative and research buildings in 2020

*Note that we had ordered large quantities of furniture with **these same polyurethane fabrics and finishes between 2013 and 2018** to replace public and patient care furniture in waiting areas throughout the university hospital campus and all off-campus buildings and clinics.*

Why is this so important?

1. Epidemiology (EPI) Concerns

- EVS staff is unable to properly clean and disinfectant the surfaces due to damage & vulnerable subsurface of material exposed.
- Hospital Acquired Infections, (HAI) risks associated with the exposed sub-surfaces, cushion cores, soft backings, and raw wood:

SARS-CoV-2
Multidrug resistant organisms (e.g. MRSA, VRE)
Clostridium difficile
Acinetobacter
Pseudomonas
Klebsiella

2. Contaminated Furniture has to be pulled out of service - sent to hard trash

3. Financial impact - unforeseen cost of replacement furniture

– capital & operational budget diversions est. $9 Million over 5+ years

What's the plan?

Discover the sources of failures - *collaborate with Chemical & Materials Engineering / CDME to understand chemical formula and construction of materials, generate hypothesis for lab tests*

Assess the impact to the hospital's business model – *operational vs. capital $*

Define new Attributes and expand the conversation - *engage Facilities, EVS, EPI, Safety, Compliance, Supply Chain, Center for Innovation, Hospital Leadership*

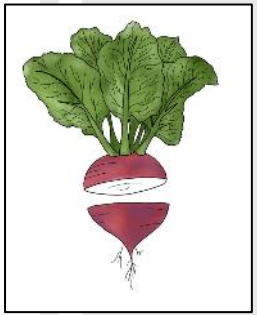
- Increased durability to resist cleaning chemicals / methods and environmental contaminates
- Create new tests & performance criteria for upholstery and finishes specifications
- Create safer environments for all users
- Aligned with the OSUWMC Brand / esthetic
- **Reduce cost** – first and life-cycle considerations, plan for accelerated failures in non-clinical and administrative buildings

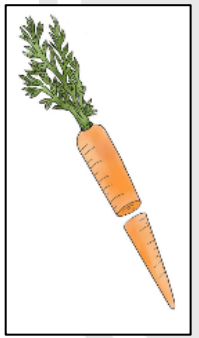
Third Party Lab Material Testing: 2018-2019

Goal – Create fabric performance tests that reflect the current state of disinfecting chemicals/methods, and environmental contaminates within the acute care hospital setting to more accurately predict fabric performance:

Disinfectant & Accelerated UV Exposure Tests, Combined Together

Stain Resistance Test – New Staining Agents and Cleaning Chemicals





Ten upholstery fabrics types currently marketed for "healthcare" tested:

- Vinyl with Brand A topcoat
- Vinyl with UV and acrylic topcoat
- Vinyl with Brand B topcoat
- Polyurethane
- Thermoplastic Elastomer
- Polycarbonate with Brand C topcoat
- Silicone, no top coat
- Silicone with Brand C topcoat
- 100% nylon matrix
- Treated Leather

Disinfectant & Accelerated UV Exposure Test

Disinfectants and Cleaners *–after saturation and drying, chemicals are left on samples going in to Xenon-Arc chamber to test for light-fastness and degradation*

- 10% bleach solution
- Oxivir TB: Hydrogen Peroxide (0.5%)
- Oxycide: Hydrogen Peroxide + Peroxyacetic Acid
- Quaternary - Virex II 256
- JF2 Glance: Non-ammoniated
- JF3 Stride Citrus Neutral cleaner
- Hand Sanitizer - 70% Isopropanol

Disinfectant & Accelerated UV Exposure Test

Rating for fabrics for both tests:

4	**Excellent:** No effect to the integrity or appearance of the material
3	**Good:** Slight discoloration. Damage determined to not affect the material performance and aesthetically mildly objectionable.
2	**Poor:** Moderate effect. Softening, Stiffening and/or swelling are present and permanent.
1	**Severe effect**: Discoloration, cracking and/or delamination clearly visible or objectionable aesthetics.

Disinfectant & Accelerated UV Exposure Test - Results

Disinfectant	Fabric 1 Vinyl w/Brand A Topcoat	Fabric 2 Vinyl w/UV & Acrylic Topcoat	Fabric 3 Thermoplastic Elastomer	Fabric 4 Silcone, no topcoat	Fabric 5 Polyurethane	Fabric 6 Treated Leather	Fabric 7 Vinyl w/Brand B Topcoat	Fabric 8 100% Nylon Matrix	Fabric 9 Polycarbonate w/Brand C Topcoat	Fabric 10 Silcone w/Brand C Topcoat
A In-house Bleach	Rating: 3.0	Rating: 3.0	Rating: 1.7	Rating: 3.3	Rating: 1.0	Rating: 2.0	Rating: 1.3	Rating: 1.0	Rating: 2.0	Rating: 4.0
B Oxivir TB: Hydrogen Peroxide (0.5%)	Rating: 2.0	Rating: 3.0	Rating: 2.0	Rating: 3.0	Rating: 1.0	Rating: 2.7	Rating: 3.0	Rating: 1.3	Rating: 2.0	Rating: 3.0
C Oxycide: Hydrogen Peroxide + Peroxyacetic Acid	Rating: 2.0	Rating: 3.0	Rating: 2.0	Rating: 3.0	Rating: 1.3	Rating: 2.3	Rating: 2.3	Rating: 2.3	Rating: 2.0	Rating: 3.0
D Quaternary- Virex II 256	Rating: 4.0	Rating: 4.0	Rating: 2.0	Rating: 4.0	Rating: 1.3	Rating: 3.0	Rating: 4.0	Rating: 1.3	Rating: 1.7	Rating: 4.0
E JF2 Glance: Non-ammoniated	Rating: 4.0	Rating: 4.0	Rating: 2.0	Rating: 2.7	Rating: 1.0	Rating: 3.7	Rating: 4.0	Rating: 1.0	Rating: 2.3	Rating: 3.0
F JF3 Stride Citrus Neutral Cleaner	Rating: 3.3	Rating: 4.0	Rating: 2.0	Rating: 2.7	Rating: 1.0	Rating: 4.0	Rating: 4.0	Rating: 3.3	Rating: 2.7	Rating: 2.3
G Hand Sanitizer- 70% Isopropanol	Rating: 4.0	Rating: 3.3	Rating: 2.0	Rating: 2.0	Rating: 1.0	Rating: 3.7	Rating: 4.0	Rating: 1.3	Rating: 3.0	Rating: 3.0

4 Excellent 3 Good 2 Poor 1 Severe Effect

Disinfectant & Accelerated UV Exposure Test

Takeaways:

- **Prolonged exposure to UV light matters with ALL disinfectant residue. What is the impact of different UVC light technologies?**
- **UV additive** appears to be very helpful in preventing damage
- **Topcoats & performance treatments/base cloth combinations matter** – polycarbonate vs. silicone with the same branded performance treatment/top coat had different results
- **50% of fabrics** rated for healthcare appear vulnerable to alcohol-based hand sanitizer and “non-oxidizing” cleaning chemicals
- **Acrylic topcoat**, not usually considered for healthcare, appears to perform very well with disinfecting chemicals, even alcohol-based hand sanitizers

Stain Resistance Test – New Staining Agents

Commonly used environmental contaminates in healthcare and public areas tested:

Patient Transferrable Stains

1. Super Lustrous Lipstick- Love That Red (already on standard test)
2. Baby Oil (already on standard test)
3. Daily Moisture Dry Skin Moisturizer
4. Acetone Nail Polish Remover
5. Non-Acetone Polish Remover
6. Broad-Spectrum Sunscreen SPF 50 (Oxybenzone 5%, Avobenzone 3%, Octocrylene 4%, Homosalate10%, Octisalate 5%)
7. Skin Sunscreen Lotion with Broad Spectrum SPF 60+(Zinc oxide 4.7%, Titanium dioxide 4.9%)
8. Jamaican black castor oil strengthen restore leave-in conditioner

Synthetic Body Fluids and Clinical Reagents

1. Stomach Acid – Carolina Biological Supply Company: Gastric Juice, Artificial, Laboratory Grade
2. Human Sweat – Pickering AATCC TM15 Sweat pH 4.3
3. Urine – Carolina Biological Supply Company: Simulated Urine, Normal (already on standard test)
4. Viscot Mini Surgical Fine Tip Marker

Stain Resistance Test – Cleaning Chemicals

Application of staining agent with *extended dwell time of 48 hours*

Cleaning of staining/contaminate agents *with hospital disinfectants in lieu of soap & water*:

- Oxivir TB wipes Hydrogen Peroxide (0.5%)
- Clorox Bleach Germicidal Wipes
- Virex II 256

Stain Resistance Test – Results

Stain	Replicate (Cleaning Agent)	Fabric 1 Vinyl w/Brand A Topcoat	Fabric 2 Vinyl with UV & Acrylic Topcoat	Fabric 3 Thermoplastic Elastomer	Fabric 4 Silcone, no topcoat	Fabric 5 Polyurethane	Fabric 6 Treated Leather	Fabric 7 Vinyl w/Brand B Topcoat	Fabric 8 100% Nylon Matrix	Fabric 9 Polycarbonate w/Brand C Topcoat	Fabric 10 Silcone w/Brand C Topcoat
I Johnson's Baby Oil	1 (Oxivir)	S: +	S: +	S: -	S: +	S: +	S: +	S: +	S: +	S: -	S: -
		Rating: 3.3	Rating: 3.7	Rating: 4.0	Rating: 3.0	Rating: 3.3	Rating: 2.7	Rating: 3.7	Rating: 3.0	Rating: 4.0	Rating: 3.3
	2 (Bleach)	S: +	S: +	S: +	S: +	S: +	S: +	S: -	S: +	S: +	S: -
		Rating: 3.0	Rating: 3.0	Rating: 3.0	Rating: 2.7	Rating: 3.3	Rating: 3.0	Rating: 3.7	Rating: 2.7	Rating: 3.0	Rating: 3.0
	3 (Virex)	S: +	S: +	S: +	S: +	S: +	S: +	S: -	S: +	S: -	S: -
		Rating: 3.7	Rating: 2.7	Rating: 3.3	Rating: 3.0	Rating: 3.3	Rating: 2.3	Rating: 4.0	Rating: 2.3	Rating: 4.0	Rating: 3.0
	4 (Oxivir)	S: +	S: +	S: +	S: +	S: +	S: +	S: -	S: +	S: -	S: -
		Rating: 3.0	Rating: 3.3	Rating: 3.0	Rating: 3.0	Rating: 3.0	Rating: 2.3	Rating: 4.0	Rating: 3.0	Rating: 4.0	Rating: 3.0
	5 (Bleach)	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: -
		Rating: 3.3	Rating: 2.3	Rating: 3.3	Rating: 3.7	Rating: 3.0	Rating: 3.0	Rating: 3.3	Rating: 2.7	Rating: 3.3	Rating: 3.7
	6 (Virex)	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: -	S: -
		Rating: 3.3	Rating: 2.7	Rating: 3.3	Rating: 3.0	Rating: 3.0	Rating: 2.3	Rating: 3.3	Rating: 2.3	Rating: 4.0	Rating: 3.0
	S= Stain Present										
	Evaluated using:	+ (present)	or - (not present)								

4 Excellent 3 Good 2 Poor 1 Severe Effect

Stain Resistance Test – Results

Stain	Replicate (Cleaning Agent)	Fabric 1 Vinyl w/Brand A Topcoat	Fabric 2 Vinyl with UV & Acrylic Topcoat	Fabric 3 Thermoplastic Elastomer	Fabric 4 Silcone, no topcoat	Fabric 5 Polyurethane	Fabric 6 Treated Leather	Fabric 7 Vinyl w/Brand B Topcoat	Fabric 8 100% Nylon Matrix	Fabric 9 Polycarbonate w/Brand C Topcoat	Fabric 10 Silcone w/Brand C Topcoat
M Coppertone Ultraguard Sunscreen Continous Spray SPF 50	1 (Oxivir)	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +
		Rating: 2.7	Rating: 2.3	Rating: 3.0	Rating: 3.0	Rating: 2.3	Rating: 3.0	Rating: 2.7	Rating: 2.0	Rating: 1.7	Rating: 3.0
	2 (Bleach)	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +
		Rating: 2.0	Rating: 2.7	Rating: 2.0	Rating: 2.0	Rating: 1.0	Rating: 2.7	Rating: 2.0	Rating: 1.3	Rating: 1.7	Rating: 1.0
	3 (Virex)	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +
		Rating: 2.3	Rating: 2.0	Rating: 1.7	Rating: 1.7	Rating: 2.0	Rating: 2.7	Rating: 2.3	Rating: 1.3	Rating: 1.3	Rating: 1.0
	4 (Oxivir)	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +
		Rating: 2.0	Rating: 2.7	Rating: 2.7	Rating: 3.0	Rating: 2.3	Rating: 3.0	Rating: 3.0	Rating: 1.7	Rating: 2.0	Rating: 2.3
	5 (Bleach)	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +
		Rating: 3.0	Rating: 2.0	Rating: 2.0	Rating: 1.0	Rating: 1.3	Rating: 2.3	Rating: 2.3	Rating: 2.3	Rating: 1.0	Rating: 1.0
	6 (Virex)	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +	S: +
		Rating: 2.3	Rating: 2.0	Rating: 1.7	Rating: 1.0	Rating: 1.3	Rating: 3.0	Rating: 3.0	Rating: 1.0	Rating: 1.7	Rating: 1.0
	S= Stain Present										
	Evaluated using:	+ (present)	or - (not present)								

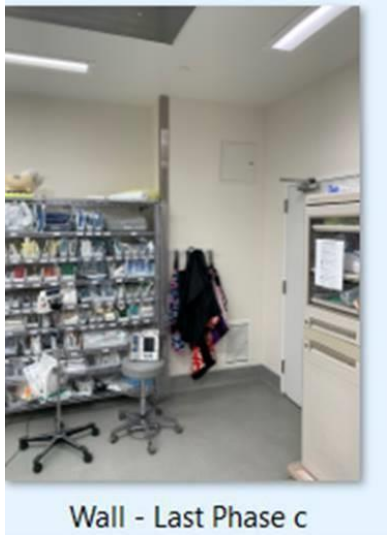
4 **Excellent** 3 **Good** 2 **Poor** 1 **Severe Effect**

Stain Resistance Test – Results Take-Aways

Patient Transferrable Stains	Scores:
Super Lustrous Lipstick- Love That Red	100% fabrics stains present – no 4s
Baby Oil	75% of fabrics stains present, all at 2 or 3, few 4s
Daily Moisture Dry Skin Moisturizer	60% of fabrics stains present; all at 2 or 3, few 4s
Acetone Nail Polish Remover	30% fabrics types stains present; 3 or 4
Non-Acetone Polish Remover	30% fabric types stains present; 2, 3, 4
Broad-Spectrum Sunscreen SPF 50 (Oxybenzone 5%, Avobenzone 3%, Octocrylene 4%, Homosalate10%, Octisalate 5%)	100% fabrics stains present – no 4s; all fabric types scored 1-2, very few 3s
Skin Sunscreen Lotion with Broad Spectrum SPF 60+(Zinc oxide 4.7%, Titanium dioxide 4.9%)	100% fabrics stains present – no 4s; 1 fabric type scored 1, most scored 2
Jamaican black castor oil strengthen restore leave-in conditioner	100% fabrics stains present – no 4s
Synthetic Body Fluids and Clinical Reagents	**Scores:**
Stomach Acid	40% fabrics stains present, all at 3 & 4
Human Sweat	0% fabric stains present, though 50% scored 3 on degradation & appearance
Urine	0% fabric stains present, though 50% scored 3 on degradation & appearance
Viscot Mini Surgical Fine Tip Marker	100% fabrics stains present; no 4s, many 1,2s

We are not done yet…

- Operating Rooms – damage to new interior finish materials



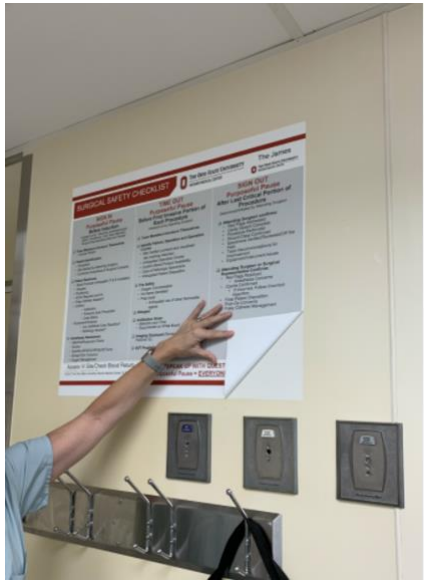
Wall - Last Phase c

Wall - First Phase b

New floor and wall materials in recently renovated ORs have been aging/yellowing/failing at a fast rate, (noticeable within 6 months) = *microscopic fissuring that harbors pathogens*

We are not done yet…

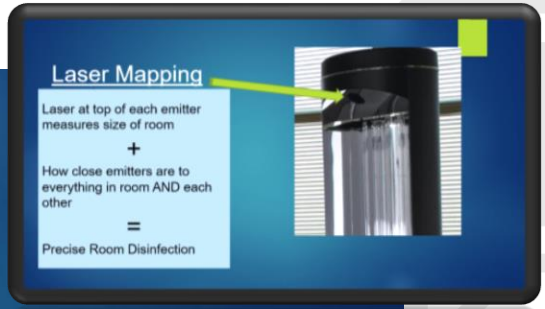
- Operating Rooms – visible damage to surfaces, sensors and devices



Hypothesis

- Cleaning and disinfection methods may be the source of damage to new finishes
- New OR wall finish materials are thermoplastic panels and bumper rails; *(old walls were glazed ceramic tile).*
- New OR flooring is epoxy resinous flooring, *(new VOC-free formula, top coat is different than existing).*
- *Germicidal process using high intensity UVC (254 nm) radiation, with or without the use of wet chemical agents to clean and disinfect the rooms, may be the source of the new damage.*
- **We also use this technology for Cancer and AII inpatient room turns, so we are evaluating for accelerated damage to surfaces**

Height of Surfacide Emitters (aka – “towers”)



No matter what UVC bulb/machine manufacturer:

- Without the Parabolic Concentrator forcing energy into the environment, UVC will **not** reach maybe 3 feet.
- With the Parabolic Concentrator the energy reaches 5-7; 10 feet+ with combined energy of multiple towers.

Moving Forward

- **There is no “silver bullet” fabric for healthcare – yet!**
- **Modify industry standardized tests** to update expectations of performance – adjust to changes in disinfectants and CDC requirements
- **Discover extent of damage by UV light technologies & develop standardized material tests, with and without EVS chemical residue**
- Prioritize **component-based furniture** over unitized to easily replace components that are forecasted to degrade over time
- Adjust **life-cycle replacement** expectations with Owner/end-user
- Manufacturers have **opportunity for innovative & collaborative product development** to create durable fabrics and finishes
- **Start testing other vulnerable and failing finishes**

Jane Rohde, AIA, FIIDA, ASID, ACHA, CHID, LEED AP BD+C, GGA-EB, GGF
Principal - JSR Associates, Inc

Learning Objective

4. Evaluate multiple attributes when specifying products, materials, and surfaces to improve successful outcomes.

Multiple Attributes


Performance vs. Sustainability vs. Health & Wellness
OR
Performance + Sustainability + Health & Wellness

Owner Project Requirements

Product Selection and Specification

Owner Project Requirements (OPR)

Project Type: Hospital Emergency Room

Building Service Life: Exterior: 50 years

Building Service Life: Systems: 20 years – 2 ½ Cycle Renovations based on System Service Life

Building Service Life: Interior: 12 years – 4+ Cycle Renovations based on Product Service Life

Outcome: Mitigate / Reduce Infection Risk

Outcome: Improve ED CAHPS Scores (pre- and post-COVID-19 pandemic)

Outcome: Improve Patient and Family Satisfaction

Outcome: Improve Care Staff Retention

Outcome: Improve Staff Satisfaction

Outcome: Reduction of Fall Risk

Resource: Facility Guidelines Institute: www.fgiguidelines.org: Hospital – OPR and Safety Risk Assessment
Resource: Centers for Medicare and Medicaid Services: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/CAHPS/ED (as of 11/05/2020)

Design Firm Recommendations

Hospital Emergency Room – existing site constraints dictate orientation and location of building

LEED® v4.1 Silver Certification

Fitwel® Two Stars Certified

Operational cost savings is key to the Client

Environmental expectations: Energy & Water Savings

Material Selection: Product Service Life, Global Warming Potential, & IEQ

Health & Wellness: Acoustic and Lighting Comfort, Quality, & Control, Water Access, Availability & Quality

Hospital Emergency Room

Performance characteristics for ER product specifications:

- Surfaces to withstand high frequency of cleaning & disinfection
- Handwashing sink accessible locations
- Visual & physical staff access to patients
- Patient & family comfort
- Surface impact resistance
- Lighting controls & contrast
- Durable acoustic materials
- Warm aesthetics

Resource: Facility Guidelines Institute: www.fgiguidelines.org: Hospital Guidelines – Functional Programming & SRA
Photo credit: Shaw: LVT / Wall Protection / Mattress Covers / Handrails: *UMC Hospital Emergency Room Application*

Product Selection Process

Hospital Emergency Room – existing site constraints dictate orientation and location of building

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Health & Wellness: Acoustic and Lighting Comfort, Quality, & Control, Water Access, Availability & Quality

Product Selection Process

Attribute Example: Product Life Cycle

- Comparison of Products
- Performance Testing of Products
- What are the other performance and functional considerations based upon the OPR and the Sustainable / Health & Wellness Requirements?
    - Global Warming Potential (Embodied Carbon)
    - Indoor Environmental Quality
        - Operationally – Green Cleaning and Disinfection
        - IAQ: VOCs – Product Emissions / On-going
        - Acoustics / Thermal / Lighting Comfort (e.g., LRV)

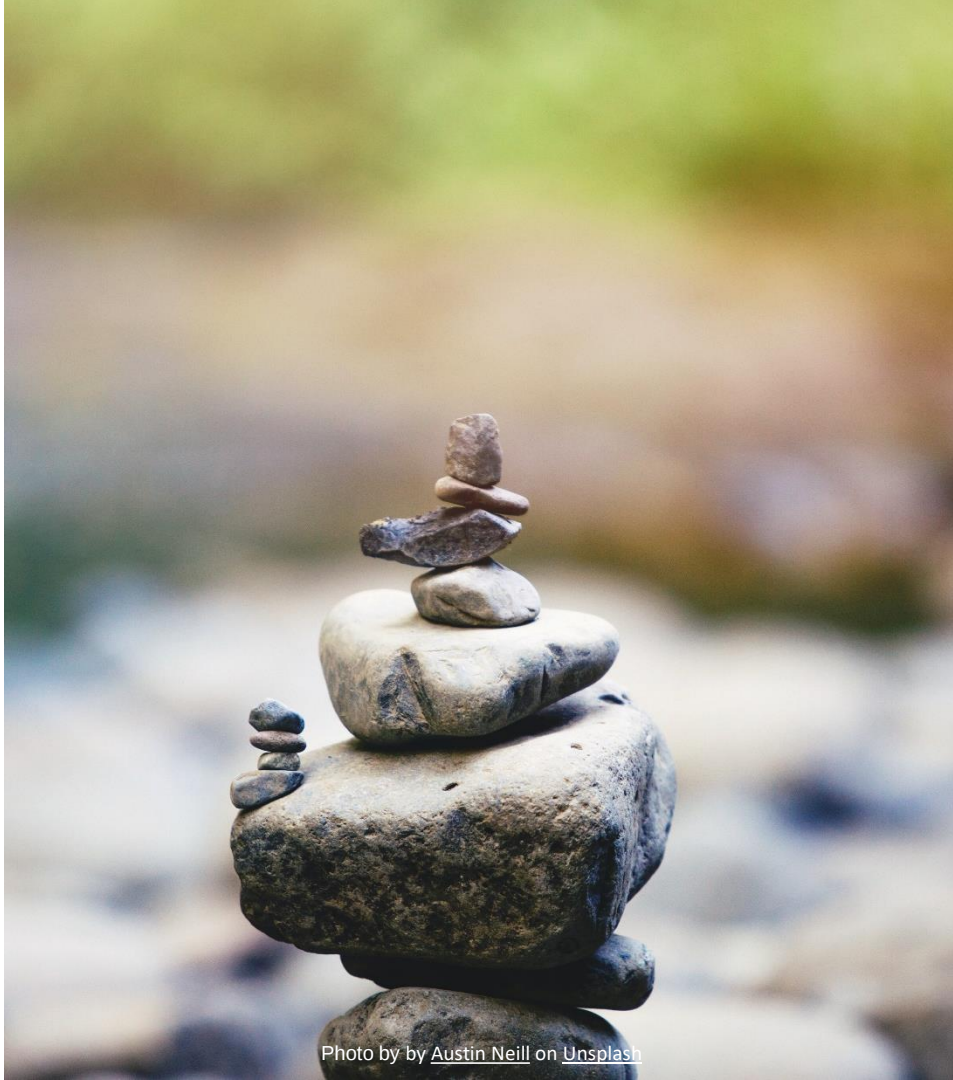
It is essential to move beyond a single attribute comparison for final product selection!

Summary of Complexity of Product Failure

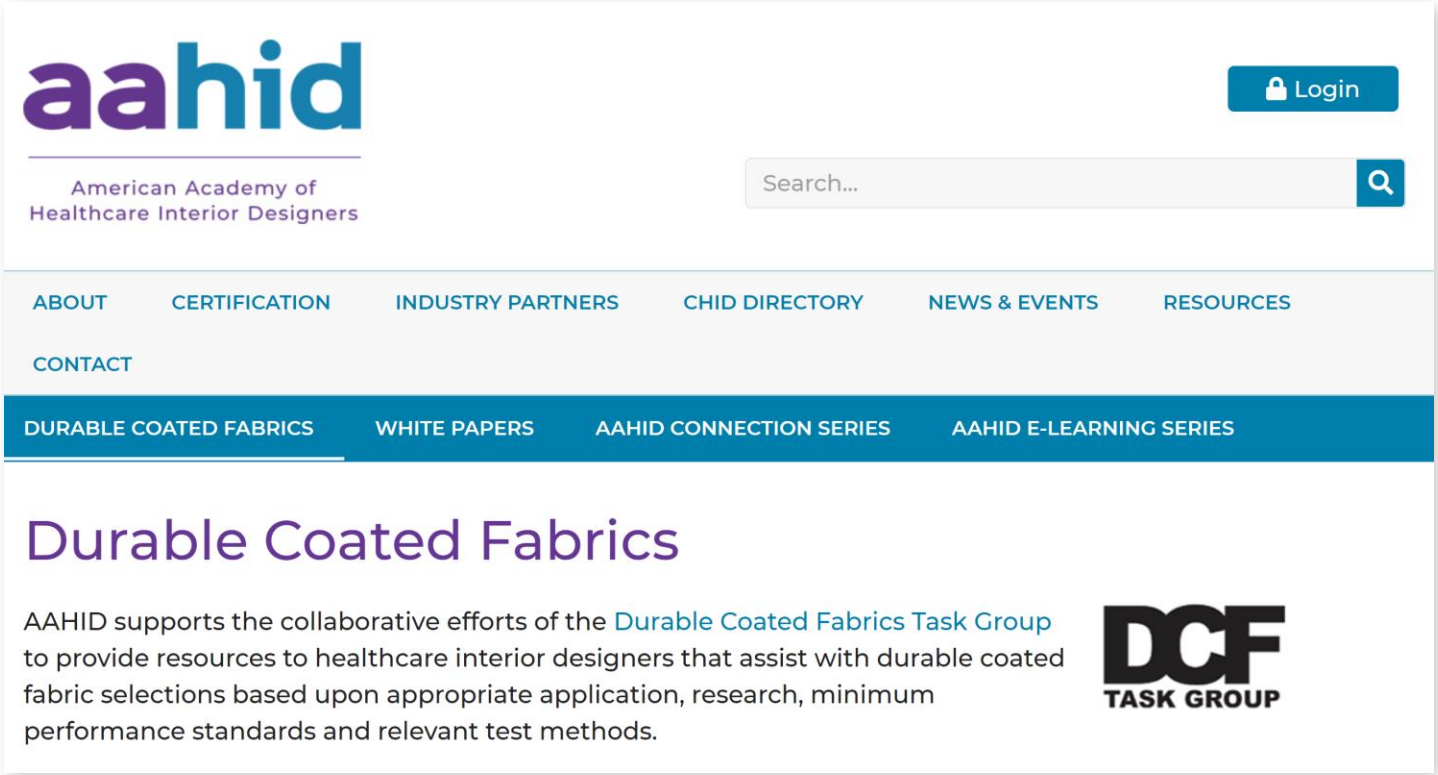
- Evaluation of material selection based upon single attribute
- Perception of “sustainability” or “material health”
- Appropriate product for the appropriate application
- Evaluate ALL performance requirements – including cleaning and disinfection
- Real world conditions – kill time, staff time, FTEs, environmental services training and education

Balancing Criteria

- There are some trade-offs – realizing that some will take precedent over others
- Product Service Life to be identified and tied to Use Phase – based upon performance through maintenance, durability, etc.
- COVID-19 – SARS-CoV-2 – cleaning, sanitizing, and disinfection for human health and safety are still front and center




Balance is Necessary to Avoid Unintended Consequences



Next Steps...

DCF updates are available on the new AAHID website!

Link: https://aahid.org/resources/durable-coated-fabrics/

Additional information will be posted on the AAHID website and Linked In pages

Encourage all interior designers to discuss with your peers, clients, etc.

We don’t have all the answers yet, but do have collaborative partners to help find the solution!

Want to help us to Collect Data? Fill out these surveys!

Cleaning and Disinfection
https://www.surveymonkey.com/r/J6W3PDX

Healthcare Durable Coated Fabrics Upholstery Failures
https://www.surveymonkey.com/r/HKBM67B

Healthcare Furniture Manufacturers
https://www.surveymonkey.com/r/7NSKHD5

Healthcare Furniture Dealers
https://www.surveymonkey.com/r/7MGW896

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American Academy of Healthcare Interior Designers

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Continuing Education Information

AIA –

- Have your conference badge scanned by the room monitor at the start of each session you attend.
- Complete the AIA verification form (be sure to check off the sessions you attend) and retain it for your records.
- CE credits will be uploaded to the AIA transcript system within 6-8 weeks of the close of the conference. Check at main registration to ensure your AIA member number is entered so we can report on your behalf.

IDCEC –

- At the end of each presentation there will be a QR class code specific to each presentation that you will scan and upload into the IDCEC mobile attendance app to record your attendance. The code will be at the table outside of the session room.
- It is recommended that you have your IDCEC verification form STAMPED by the room monitor at the conclusion of each session you attend. This is the ONLY proof of attendance that will be accepted.
- You will self-submit your credits to the IDCEC system at the conclusion of the conference.

EDAC –

- Complete the EDAC verification form and retain it for your records.
- It is the candidate's responsibility to self-submit the credits online through Scantron at the time of their EDAC renewal. Renewal notices with login instructions will be sent from Scantron four months prior and one month prior to the candidate's renewal date.

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LIGHTS UP!

Q & A!

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DCF TASK GROUP

Your question is important to everyone!

Go ahead & ask the Question you're thinking of….