



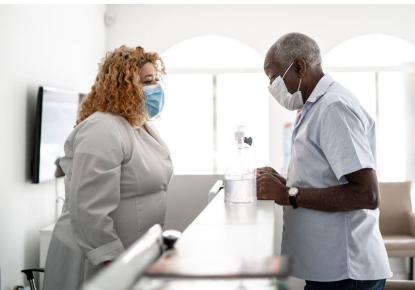
**KDHE-KHC
Infection
Prevention
Learning Action
Network for
Outpatient
Settings**

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Division of Public Health

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Session 6 — May 6, 2021
Environmental Cleaning and Disinfection

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KDHE-KHC Infection Prevention LAN for Outpatient Settings

KDHE-KHC Learning Action Network

| | |
|--------------|--|
| February 25 | IP Program Development |
| March 11 | Surveillance and Reporting |
| March 25 | Occupational Health |
| April 8 | Personal Protective Equipment |
| April 22 | Hand Hygiene |
| May 6 | Environmental Cleaning & Disinfection |
| May 20 | Device Reprocessing |
| June 3 | Antimicrobial Stewardship |
| June 17 | Bringing It All Together |

Recordings and handouts are available online. Visit www.khconline.org/LAN

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LAN Faculty and Planning Committee

| | | |
|---|--|---|
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Feedback Summary from Previous Session

Session #5: Hand Hygiene

The most useful thing presented included:

- All the resources shared and experiences
- 80% of HAI come from hands!!
- How to have observers for hand hygiene collect data
- Barriers and excuses exercise
- New forms/tools
- Education to staff is so important

Next steps identified by participants:

- Share information about the 5 Moments of Hand Hygiene
- Review hand hygiene techniques with staff, expand education to include non-clinical, including just-in-time
- Hang more signs
- Review APIC guidelines
- Re-educate our hand hygiene observers
- Explore monitoring tools, conduct handwashing audits
- Share HH data with more people than we already do
- Promote World Hand Hygiene Day
- Do the barrier/excuse survey
- Review the effectiveness of ABHR compared to soap and water

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Session #6: Environmental Clean & Disinfection

Session Objectives

- Explain key concepts of environmental cleaning
- Describe the difference between cleaning and disinfection
- Identify best practices on evaluating cleaning and disinfection practices and impacts from the pandemic
- Define indoor air quality (IAQ)
- Discuss what can affect IAQ and help improve IAQ
- Describe issues that contribute to poor IAQ and how HVAC systems can reduce spread of COVID-19

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Polling Question #1

Which of the following statements is false?

- A. Cleaning is the physical removal of dirt and germs from a surface
- B. Adenosine triphosphate (ATP) is an enzyme that is present in all living cells
- C. There is no difference in cleaning versus disinfection
- D. Contact time is the amount of time a surface must stay wet with a disinfectant in order to be effective.

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A brief history



- Spaulding classification
- Intermediate and Low-level disinfection is key for general environmental cleaning

| Process | Level of Microbial Inactivation | Method |
|---------------------------------|---|------------------|
| Sterilization | Destroys all microorganisms, including bacterial spores | High temperature |
| High-level Disinfection (HLD) | Destroys all microorganisms except high numbers of bacterial spores | Heat-automated |
| Intermediate-level Disinfection | Destroys vegetative bacteria, mycobacteria, most viruses, most fungi but not bacterial spores | Liquid contact |
| Low-level Disinfection | Destroys vegetative bacteria, some fungi and viruses but not mycobacteria or spores | Liquid contact |

Association for Professional in Infection Control and Epidemiology, APIC Text of Infection Control and Epidemiology, 4th Ed., APIC, Inc., 2014

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The Basics of Cleaning and Disinfection

Cleaning – The physical removal of foreign material on a surface. “Elbow grease”

➔

Disinfection - Thermal or chemical destruction of microorganisms.

➔

Clean and safe environment.

- ❑ Last session, we learned all about hand hygiene. How does cleaning and disinfection effect hand hygiene practices?

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High-touch surfaces –
(think horizontal surfaces within arm’s reach)

- bed rails
- switches
- moveable lamps
- tray table
- bedside table
- handles
- IV poles
- blood-pressure cuff



Cell phones:
The most high-touch surface?



The Centers for Disease Control and Prevention. Appendix C – Example of high-touch surfaces in a specialized patient area. March 2020.

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Contact time

- Defined - Contact time is the amount of time the disinfectant must stay **wet** after cleaning in order to eliminate germs or organisms on a surface.
- Also called dwell time or wet time.
- These times can vary based on product/manufacturer.
- Staff should have multiple resources for knowing contact times (color association, badge buddies, flyers, regular education, etc.)

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Cleaning of Medical Equipment

- Ensure you are following the Manufacturers Instructions For Use (IFU)
- Manufacturers of medical equipment should provide care and maintenance instructions specific to their equipment. These instructions should include information about
 - the equipments’ compatibility with chemical germicides
 - whether the equipment is water-resistant or can be safely immersed for cleaning
 - how the equipment should be decontaminated if servicing is required.

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Evaluating cleaning and disinfection practices

| Method | What are you evaluating? | Pros | Cons |
|------------------------|---------------------------|--|--|
| Direct observation | Cleaning and disinfection | Able to evaluate entire process including adherence to contact times | Hawthorne effect Labor intensive |
| Environmental Cultures | Cleaning and disinfection | Ability to target specific organism reduction | Labor intensive Increased cost Delay in analyzing results |
| Fluorescent Markers | Cleaning only | Easy to use Inexpensive | May contribute to soil accumulation on a surface Measure for disinfection can be unclear |
| ATP Bioluminescence | Cleaning only | Clear thresholds Sensitive Quick | Increased cost Measure for disinfection can be unclear Results may be altered with certain disinfectants |

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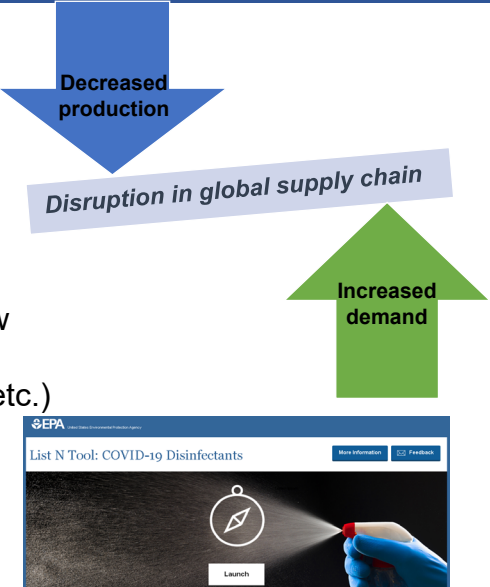
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Challenges during the pandemic.

- Supply challenges
- Scrutiny around process
 - Frequency of cleaning
- Evaluating new products
 - What's important for staff adherence to a new product?
 - Ease of use (dispensing, contact time, odor etc.)
- EPA N. list

[List N Tool: COVID-19 Disinfectants | US EPA](#)



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What is IAQ

Indoor Air Quality:

1. The air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants.
2. Understanding and controlling common pollutants indoors can help reduce the risk indoor health concerns (EPA).

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What can affect IAQ?

Many factors can impact IAQ:

1. Poor maintenance of building systems
2. Poor ventilation or lack of fresh outside air
3. Problems controlling indoor temperature
4. High or low humidity

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How do HVAC systems help improve IAQ?

1. Supply fresh outside air for building occupants
2. Filter outside and recirculate air in the building
3. Control temperature and humidity in the building
4. Exhaust contaminated air and pollutants from the building

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Issues that contribute to poor IAQ

1. Systems not inspected regularly
2. Poor filtration of air
 - filters not checked regularly/not replaced as needed
3. Proper ventilation not provided
 - dampers and actuators not checked/replaced when failed
4. Building automation system (BAS) not operating
 - heating, cooling and humidity not maintained
5. Not removing contaminated air
 - exhaust systems not functioning

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HVAC systems can help reduce spread of COVID-19



Recommendations for HVAC from ASHRE (Jan. 2021)

1. Ventilation, filtration, air cleaning
2. Provide code required ventilation rates or better
3. Use combination of air cleaners and MERV-13 or better air filters for recirculated air
4. Air distribution
 - Reduce directional airflow where possible, promote mixing of space air without strong currents

(continued)

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HVAC systems can help reduce spread of COVID-19 (cont'd)



5. HVAC system operation

- Maintain temperature and humidity design setpoints
- Maintain clean air supply for design occupancy whenever occupant is present
- Verify that HVAC systems are functioning as designed
- Flush spaces between occupied periods to achieve at least 3 air changes of equivalent clean air supply
- Limit re-entry of contaminated air that may re-enter the building from energy recovery devices, outside air intakes and other sources

(continued)

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HVAC systems can help reduce spread of COVID-19 (cont'd)

6. System commissioning

- Verify that HVAC systems are functioning as designed

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Session #6 Quiz

Which one of following can help reduce the spread of COVID-19?

- Poor filtration of air
- Proper ventilation not provided
- Heating, cooling and humidity not maintained
- Maintaining temperature and humidity design setpoints

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Resources

- **US EPA Introduction to Indoor Air Quality (IAQ)**
<https://www.epa.gov/indoor-air-quality-iaq/introduction-indoor-air-quality>
- **ASHRAE**
<https://www.ashrae.org/technical-resources/resources>
- **US EPA List N Tool: COVID-19 Disinfectants**
<https://cfpub.epa.gov/wizards/disinfectants/>
- **CDC: Best Practices for Environmental Cleaning in Healthcare Facilities: in Resource-Limited Settings**
<https://www.cdc.gov/hai/pdfs/resource-limited/environmental-cleaning-RLS-H.pdf>

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References

The Centers for Disease Control and Prevention. Appendix C – Example of high-touch surfaces in a specialized patient area. March 2020.


Ulger, Fatma, Dilek A, Esen S, Sunbul M, Leblebicioglu H. Are healthcare workers' mobile phones a potential source of nosocomial infections? Review of the literature. *J Infect Dev Ctries*. 2015 Oct 29;9(10):1046-53.

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Q&A



Please type your questions or comments in the chat.

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Next steps

- Check out this resource from the CDC <https://www.cdc.gov/hai/pdfs/resource-limited/environmental-cleaning-RLS-H.pdf>



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Upcoming Sessions

May 20 Device Reprocessing
June 3 Antimicrobial Stewardship
June 17 Bringing it all together

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(must be all caps)

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See listserv information sheet.

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  **KDHE-KHC Infection Prevention LAN**

Questions?

Contact:

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| | |
|--|---|
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