Environmental Cleaning and Disinfection Across the Facility - Resources and Reminders

Rebecca Martinez, BSN, BA, RN, CIC
Infection Preventionist
Nebraska Infection Control Assessment and Promotion (ICAP) Program

NE ICAP

No Disclosures

- No relevant financial relationships were identified, no financial disclosures.

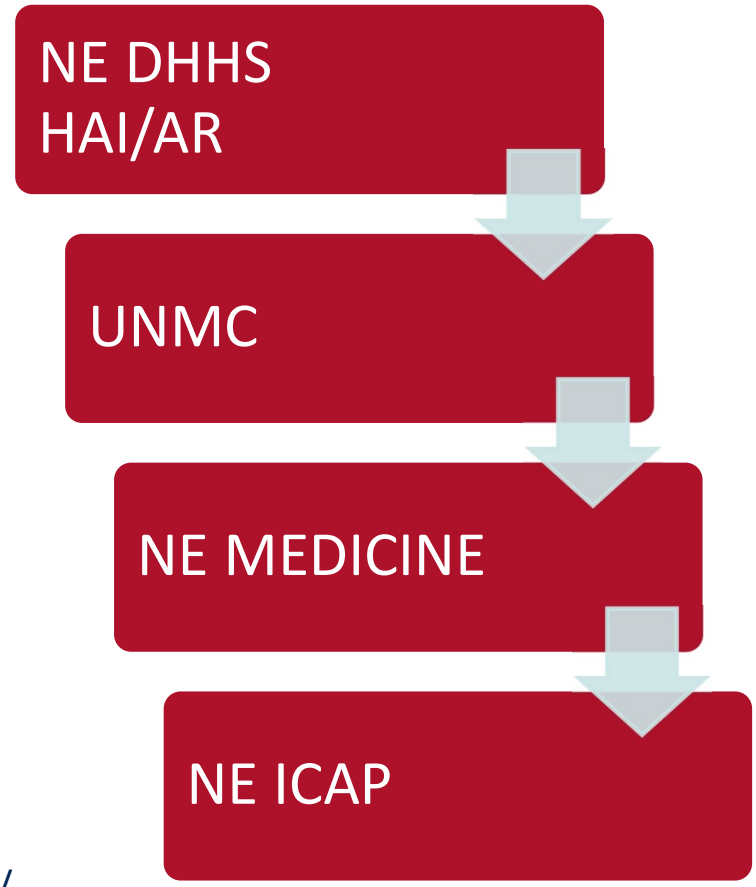
Learning Objectives

- Describe NE ICAP and support for critical access hospitals
- Outline the difference between cleaning and disinfection
- Identify value of clear roles and responsibilities for processes
- Discuss principles of cleaning and disinfection processes
- List resources for cleaning and disinfection

What is NE ICAP?

The Nebraska Infection Control Assessment and Promotion (ICAP) Program is part of Nebraska Medicine and supported by the Nebraska DHHS Healthcare Associated Infections and Antimicrobial Resistance(HAI /AR) Program via a Centers for Disease Control and Prevention (CDC) grant.

- ICAP offers no cost, peer-to-peer infection prevention and control (IPC) education, consultations, and assessments. Our team includes experienced infection preventionists, infectious disease trained medical directors, and professional educators.



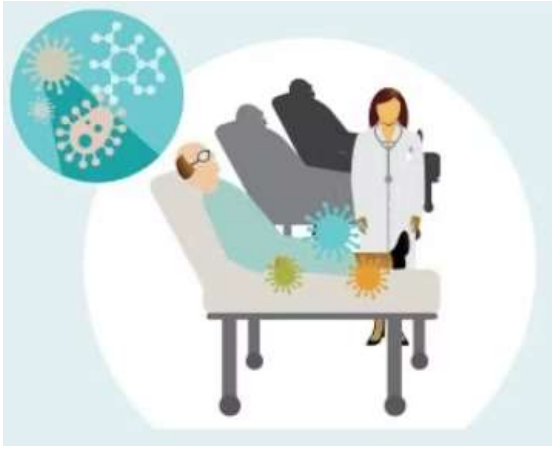
https://icap.nebraskamed.com/about-us/

Germs and How Infections Spread

- Germs are a part of everyday life and are found in our air, soil, water, and in and on our bodies. Some germs are helpful, others are harmful. Many germs live in and on our bodies without causing harm and some even help us to stay healthy. Only a small portion of germs are known to cause infection.

- An infection occurs when germs enter the body, increase in number, and cause a reaction of the body.

- Three things are necessary for an infection to occur:
  - **Source:** Places where infectious agents (germs) live (e.g., sinks, surfaces, human skin)
  - **Susceptible Person** with a way for germs to enter the body
  - **Transmission:** a way germs are moved to the susceptible person



CDC - How Infections Spread

CDC - Protect Patients

Source

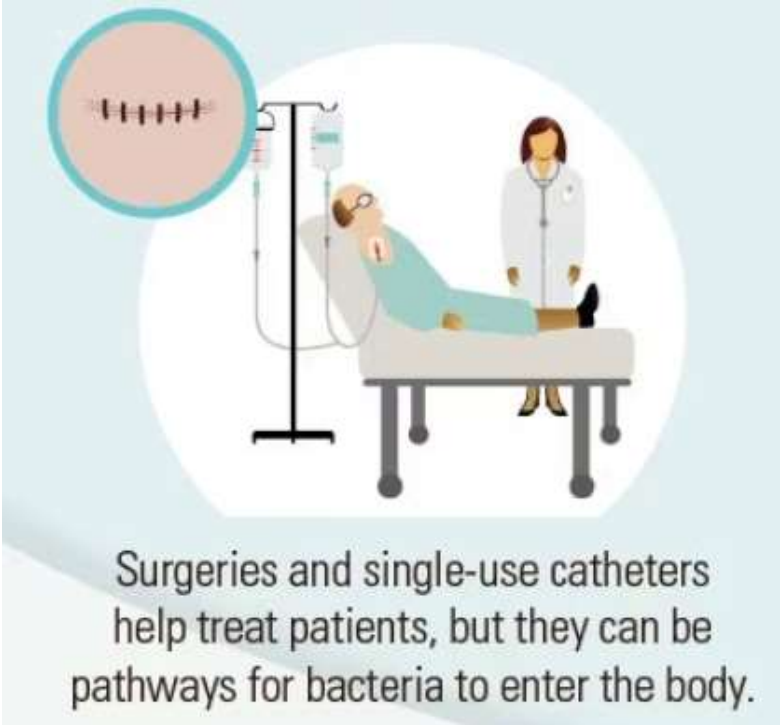
- A source is an infectious agent or germ and refers to a virus, bacteria, or other microbe.
- In healthcare settings, germs are found in many places. People are one source of germs including:
  - Patients, healthcare workers, visitors and household members
  - People can be sick with symptoms of an infection or colonized with germs (not have symptoms of an infection but able to pass the germs to others).
- Germs are also found in the healthcare environment. Examples of environmental sources of germs include:
  - Dry surfaces in patient care areas (e.g., bed rails, medical equipment, countertops, and tables)
  - Wet surfaces, moist environments, and biofilms (e.g., cooling towers, faucets and sinks, ventilators etc.)
  - Indwelling medical devices (e.g., catheters and IV lines)
  - Dust or decaying debris (e.g., construction dust or wet materials from water leaks)

CDC - How Infections Spread

CDC - Learn Where Germs Live in Health Care

Susceptible Person

- A susceptible person is someone who is not vaccinated or otherwise immune, or a person with a weakened immune system who has a way for the germs to enter the body.
    - Devices like IV catheters, surgical incisions, and urinary catheters can provide an entryway
    - Patients who have underlying medical conditions such as diabetes, cancer, and organ transplantation are at increased risk for infection because often these illnesses decrease the immune system's ability to fight infection.
    - Certain medications such as antibiotics, steroids, and certain cancer fighting medications increase the risk of some types of infections.



CDC - Protect Patients

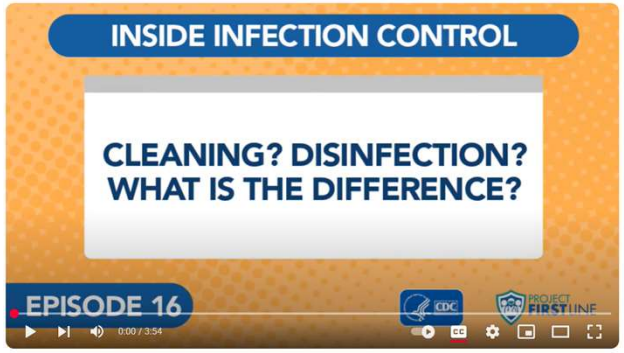
CDC - How Infections Spread

Transmission

- Transmission refers to the way germs are moved to the susceptible person.
- Germs depend on people, the environment, and/or medical equipment to move in healthcare settings. There are a few general ways that germs travel in healthcare settings:
  - Contact moves germs by touch. (For example, healthcare provider hands become contaminated by touching germs present on people or surfaces and then carry the germs on their hands when proper hand hygiene is not performed before touching the susceptible person.
  - Sprays and splashes occur when an infected person coughs or sneezes, creating droplets which carry germs short distances (within approximately 6 feet). These germs can land on a susceptible person's eyes, nose, or mouth and can cause infection.
  - Inhalation occurs when germs are aerosolized in tiny particles that **survive on air currents over great distances** and time and reach a susceptible person. Airborne transmission can occur when infected patients cough, talk, or sneeze germs into the air or when germs are aerosolized by medical equipment or by dust from a construction zone.
  - Sharps injuries can lead to infections when bloodborne pathogens enter a person through a skin puncture by a used needle or sharp instrument.

CDC - How Infections Spread

Differences Between Cleaning and Disinfection



Cleaning doesn't kill germs – it removes them

Cleaning is the process of removing dirt and germs from surfaces or objects

Disinfection kills germs and occurs after or at the same time as cleaning

It is important to clean before disinfecting so that the disinfectant can work

https://www.youtube.com/watch?v=dIuRI9OpjnY

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Why Cleaning Is Necessary

How about we spray these dishes with disinfectant?

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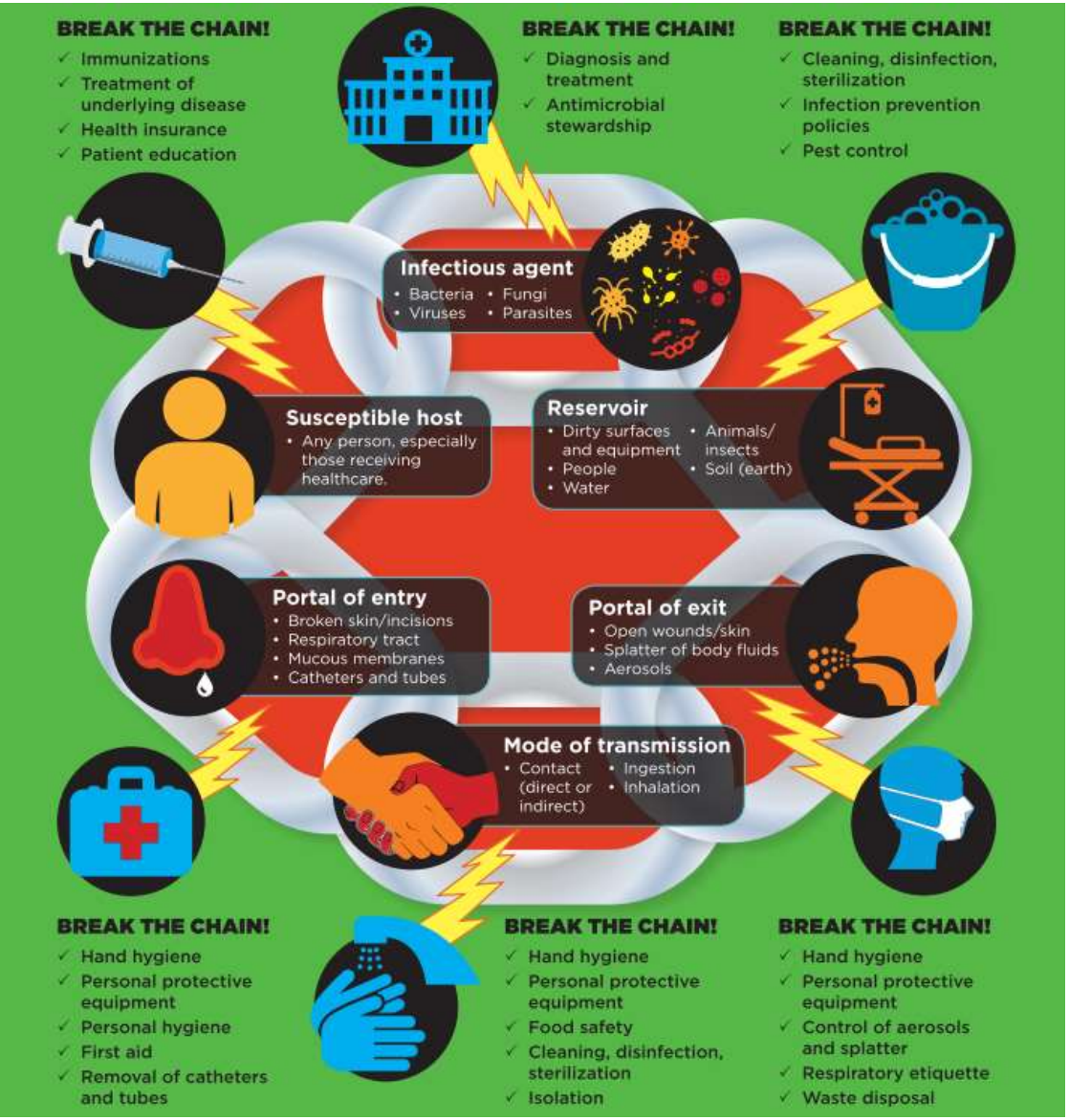

Break the Chain of Infection

Core IPC practices can prevent infections and reduce risk for safer healthcare and work.

- Cleaning and Disinfecting including Sterilization
- Vaccination
- Hand Hygiene
- Respiratory Etiquette
- PPE
- Standard Precautions
- Transmission-Based Precautions
- Cleaning and Disinfecting including Sterilization
- Sharps Safety
- Safe Injection Practices

[APIC - Break the Chain of Infection]

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CDC's Core IPC Practices for Safe Healthcare

- CDC's Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings represent fundamental standards of care that are not expected to change based on emerging evidence or to be regularly altered by changes in technology or practices and are applicable across the continuum of healthcare settings.
  - There are 8 core practice categories:
    - Leadership Support
    - Education and Training of Healthcare Personnel on Infection Prevention
    - Patient, Family and Caregiver Education
    - Performance Monitoring and Feedback
    - Standard Precautions
      - Includes hand hygiene, **environmental cleaning and disinfection,** injection and medication safety, risk assessment with use of personal protective equipment (PPE), minimizing potential exposures, and reprocessing of reusable medical equipment.
    - Transmission-Based Precautions
    - Temporary Invasive Medical Devices for Clinical Management
    - Occupational Health

Image by rawpixel.com

CDC's Core IPC Practices for Safe Healthcare Delivery in All Settings

Core Environmental Cleaning and Disinfection Practices

Routine and Target Cleaning

- Clean and disinfect surfaces near the patient and high-touch surfaces more frequently
- Promptly clean and decontaminate spills of blood or other potentially infectious material

Cleaners and/or Disinfectants

- Use cleaners to remove dirt and soil
- Select EPA-registered disinfectants to kill pathogens most likely to contaminate the patient-care environmental

Follow IFUs

- Follow manufactures' instructions for use (IFU) for proper use of cleaning and disinfecting products (e.g. dilution, contact time, material compatibility, storage, shelf-life, safe use including personal protective equipment (PPE) needed and disposal

CDC's Core IPC Practices for Safe Healthcare Delivery in All Settings

CDC - Best Practices for Environmental Cleaning in Healthcare Facilities: in Resource-Limited Settings

Figure 2. Framework for the best practices – by chapter

Chapter 2: Cleaning Programs

- Organizational Elements
- Staffing and Training
- Infrastructure and supplies
- Policies and procedures
- Monitoring, feedback and audit

Chapter 3: Supplies and equipment

- Products for environmental cleaning
- Supplies and equipment for environmental cleaning
- Personal protective equipment for environmental cleaning
- Care and storage of supplies, equipment, and personal protective equipment

Chapter 4: Procedures

- General environmental cleaning techniques
- General patient areas
- Patient area toilets
- Patient care area floors
- Spills of blood or body fluids
- Specialized patient areas
- Noncritical patient care equipment
- Methods for assessment of cleaning and cleanliness

https://www.cdc.gov/healthcare-associated-infections/media/pdfs/environmental-cleaning-rls-508.pdf

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Organizational Elements & Communication

Facility-level organizational support is a key program element in the implementation of an effective environmental cleaning program. The main areas of support include:

- Developing the facility-specific environmental cleaning policy and corresponding service level agreement or contract (as applicable).
- Developing and maintaining a manual of standard operating procedures for all required cleaning tasks at the facility.
- Ensuring that structured training activities are carried out for all new staff and on a recurring basis.
- Ensuring that routine monitoring is implemented and results are used for program improvement.
- Ensuring that cleaning supplies and equipment are available in required quantities and in good condition (i.e., preventing stock-outs).

An effective environmental cleaning program requires strong communication and collaboration across multiple levels of the facility, at both the program development and implementation stages. Strong communication systems also improve understanding of the importance of environmental cleaning for IPC and patient safety among all clinical staff.

Staff Training & Validation Regardless of Department

- Appropriate number of staff (staffing levels) and training and education are key program elements. Cleaning and disinfection is a core infection prevention and control (IPC) practice.
  - Include in the job descriptions or terms of reference
  - Provide structured, targeted training (e.g., pre-service, annual, when new equipment is introduced)
    - Duties should be commensurate with training received (e.g., staff should not be asked to clean high-risk wards (e.g., operating room), unless they have received specific training for that patient care area)
    - Train all staff so they are familiar with products and can identify hazards of the chemicals that they could be exposed to in the workplace including what PPE to use
  - Assess competency to ensure they have the knowledge and skills for the job duty
  - Define performance standards or competencies

CDC's Core IPC Practices for Safe Healthcare Delivery in All Settings

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What is an EPA Registered Disinfectant

- **General or Broad-spectrum**
  - A disinfectant that is effective against both gram-positive and gram-negative bacteria (*Staphylococcus aureus* and *Salmonella enterica*) is considered to be a general or broad spectrum disinfectant.
    - General or broad spectrum disinfectants have a wide variety of uses in residential, commercial, institutional, and other sites.
- **Hospital**
  - A disinfectant that is a general or broad-spectrum disinfectant and also is effective against the nosocomial bacterial pathogen *Pseudomonas aeruginosa* is a Hospital disinfectant.
    - These disinfectants are generally for use in hospitals, clinics, dental offices, or other health care related facilities.

https://www.epa.gov/pesticide-registration/pesticide-registration-manual-chapter-4-additional-considerations#use

Common EPA Lists

- ❑ List S – HIV, Hepatitis B, Hepatitis C
- ❑ List N – SARS-CoV-2
- ❑ List K – *C. difficile*
- ❑ List G – Norovirus
- ❑ List P – *Candida auris*
- ❑ List Q – Emerging Viral Pathogens

https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants

Properties of an Ideal Disinfectant

Broad antimicrobial spectrum	Fast acting	Not affected by organic matter or other products	Nontoxic	Surface compatibility
No or minimal residual effect on surfaces	Easy to use	No odor or acceptable odor	Economical	Water solubility
	Stable in concentrate and use-dilution	Cleaning properties	Environmentally friendly	

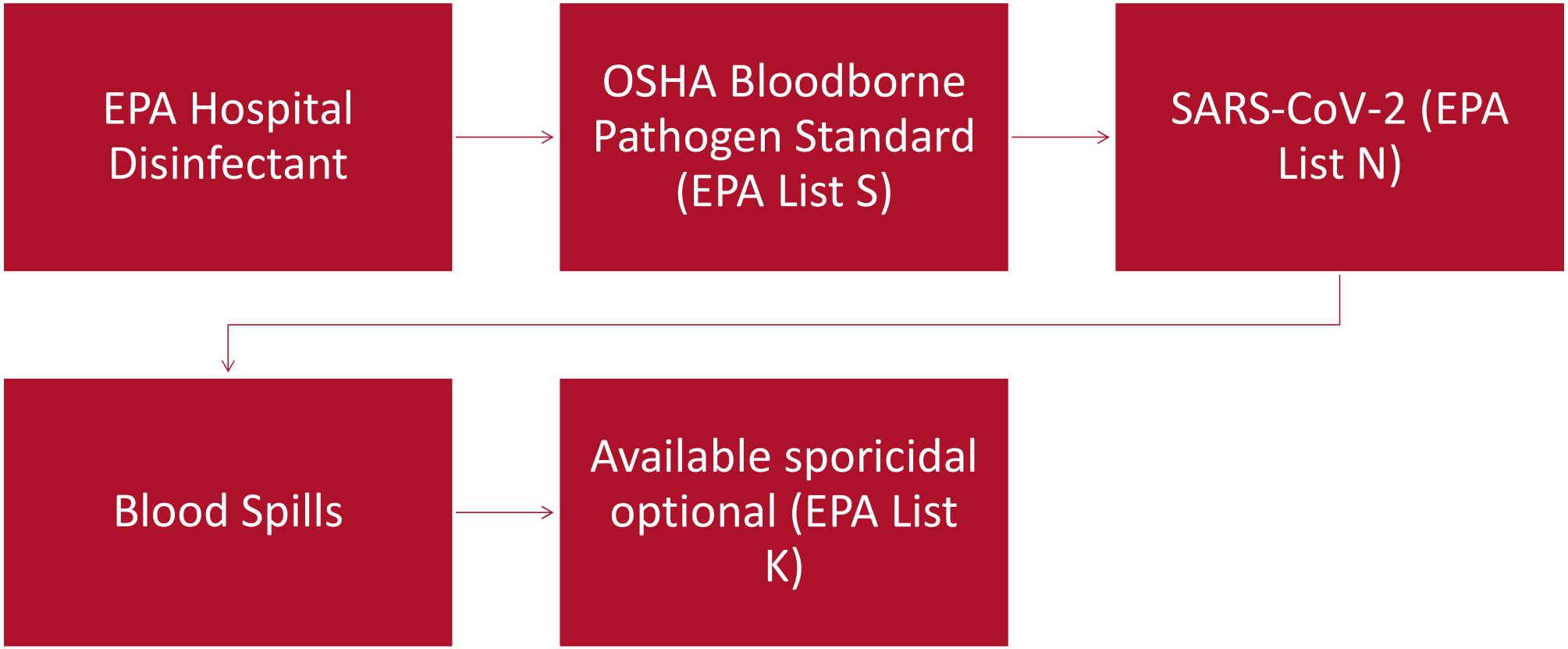
https://www.cdc.gov/infection-control/media/pdfs/Guideline-Disinfection-H.pdf

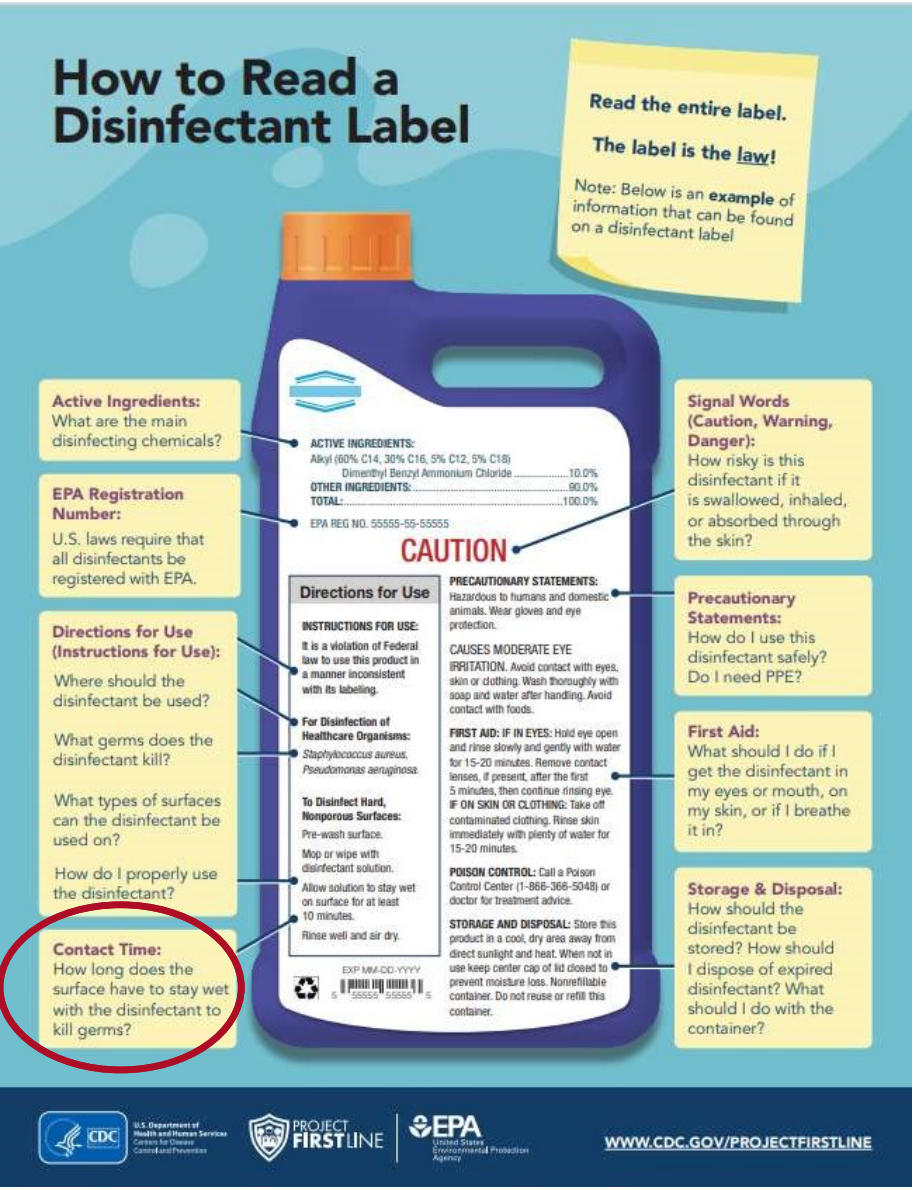
Too many disinfectants?

Image made with ChatGPT

- The team has an increased chance of choosing the wrong thing
- More likely to have things on the shelf that are expired
- “watering-down” the team’s knowledge of how to use each one

Consideration for Disinfectant Selection





How to Read a Disinfectant Label & Instructions for Use

On the disinfectant label it should have:

- Active ingredients
- EPA registration number
- Instructions for use (IFU)
- Contact time
  - Sometimes called “dwell time,” this is the amount of time a disinfectant needs to sit on a surface, without being wiped away or disturbed, to effectively kill germs.
- Precautions and hazard warnings
- First aid
- Storage & Disposal

How to Read a Disinfectant Label

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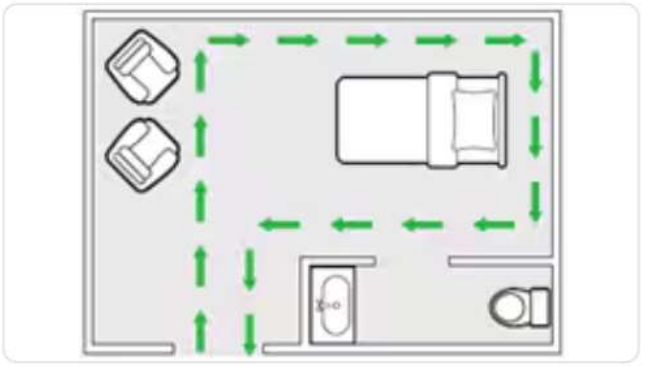
Standard Operating Procedures (SOPs)

- Develop standardized protocols (SOPs) for routine (e.g., daily) and discharge/transfer (also known as terminal) cleaning and disinfection for each major patient care room type or ward (i.e., ICU, OR, emergency department, radiology suite).
- Have protocols are readily available (e.g., post online or hard copy in key areas).
- Clearly define responsibilities for the cleaning and disinfection of noncritical equipment and shared medical equipment including electronics
  - Ensure staff involved in cleaning and disinfection are aware of their responsibilities and are appropriately trained.
  - Ensure cleaning and disinfection supplies are easily accessible (e.g., cleaning cart and patient care areas are adequately stocked).

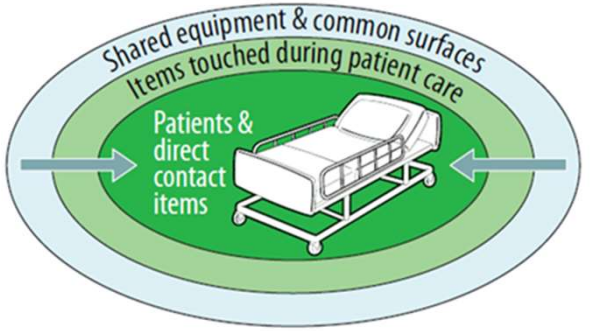
Clean and Disinfect in a Systematic Order from clean to dirty, and from top to bottom

- To avoid spreading dirt and microorganisms, recommended practice is to proceed from top to bottom and from cleaner to dirtier areas (e.g., clean toilets last). However, spills of blood or body fluids should be cleaned immediately.
- In a multi-bed area, clean each patient zone in the same manner—for example, starting at the foot of the bed and moving clockwise.
- When multiple staff are assigned have clear defined roles to avoid duplication or missing items.



Top → Bottom

Clean → Dirty



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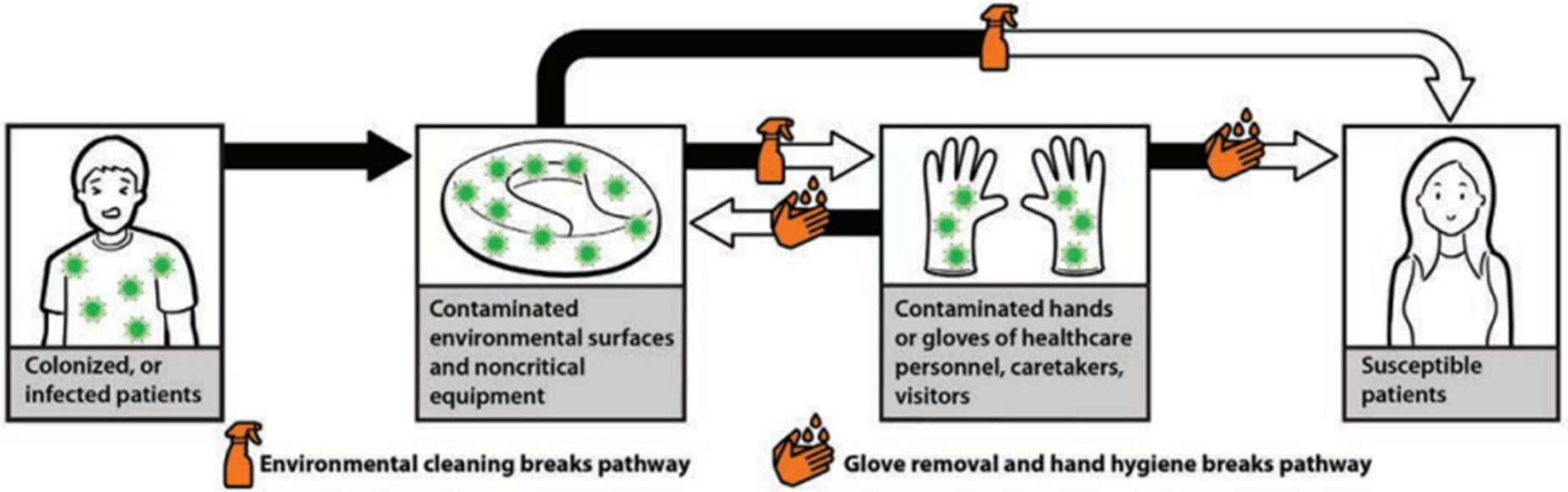
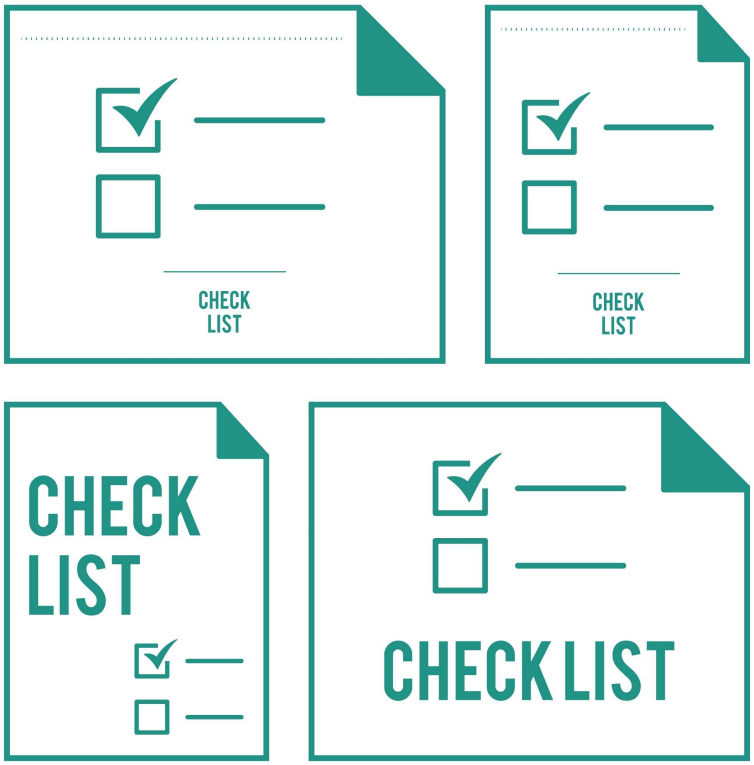
Transmission from Surfaces & Equipment

Figure 1. Contact transmission pathway showing role of environmental surfaces, role of environmental cleaning, and hand hygiene in breaking the chain of transmission



Consider the Use of Checklists or Job Aides



- Cleaning checklists are an interactive tool that can help ensure that all steps of an SOP are completed.
  - For example, a checklist with the individual high-touch surfaces can supplement a SOP for routine cleaning in a specific patient care area.
  - Have checklists in order

Nebraska HAI-AR Advisory Council SSI Subcommittee Perioperative Auditing Tool (Before First Procedure & Scheduled Cleaning Checklist)

OPERATING ROOM	BEFORE FIRST PROCEDURE	YES	NO
Review Record	1. Records of previous evening terminal clean required; if not or if no surgeries on the day prior, perform terminal clean (as below) 2. Ensure staff are able to describe the appropriate dwell/wet/contact time for the disinfectant being used		
Disinfect (damp dust) all horizontal surfaces before case carts, supplies, and equipment is brought into the room	furniture		
	surgical lights		
	operating bed		
	equipment		
	boom		
	countertops		
Clean and Disinfect Portable Equipment Not Stored in OR	case carts		
	supplies		
	other equipment		
	suction regulators		
	anesthesia trolley		
	compressed gas tanks		
	x-ray machines		
	lead gowns		

https://icap.nebraskamed.com/facilities/acute-care/acute-facility-resources/

Under Prevention of Surgical Site Infection (SSI)

OPERATING ROOM	Scheduled Basis (e.g., weekly)	YES	NO
Clean and Disinfect low-touch surfaces on scheduled	inside of cupboards		
	ceilings		
	walls		

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OPERATING ROOM	BETWEEN CASES (After Patient Leaves - Before Next Case)
Policy/Procedure	1. Written policy for what is cleaned, who cleans it, when and how; between cases and end of day terminal cleaning. 2. All items stored up off the floor 3. Shared patient equipment cleaned per IFU or policy
Remove trash, waste, and linen	all used linen
	surgical drapes
	waste (including suction canisters)
	3/4 filled sharps containers
	kick buckets (for reprocessing or disposal)
Clean and Disinfect High-Touch Surfaces, Soiled Surfaces, All Surfaces Inside Surgical Field, & All Items Used	*high-touch surfaces
	light switches
	door handles and push plates
	*any surface visibly soiled with blood or body fluids
	*all surfaces and noncritical equipment and the floor inside the surgical
	overhead surgical lights
	reflective portion of surgical lights
	suction regulators
	tourniquet cuffs and leads
	anesthesia trolley (including top and drawer handles)
	anesthesia equipment (IV poles and IV pumps)
	anesthesia machines (including dials, knobs, and valves)
	patient monitors including cables
	operating table from top to bottom
	reusable table straps
	OR bed attachments (e.g., arm boards, stirrups, head rests)
	positioning devices (check integrity)
	patient transfer devices (e.g., roll boards)
	tables and Mayo stands
	* all items used and mobile and fixed equipment (varies but may include) compressed gas tanks, radiology equipment including lead gowns, sitting or standing stools, suction regulators, pneumatic tourniquets, imaging viewers, viewing monitors, electrosurgical units, microscopes, robots, lasers)
Anesthesia Carts	Carts are disinfected between patients; carts are not entered with contaminated hands or gloves
Walls	Spot clean and disinfect the walls after each surgical or invasive procedure when visibly soiled
Floor	Clean and disinfect the floor with a mop after each surgical or invasive procedure when visibly soiled or potentially soiled by blood or body fluids (e.g., splash, splatter, dropped item)

Nebraska HAI-AR Advisory Council SSI Subcommittee Perioperative Auditing Tool

(Between Cases Checklist)

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Nebraska HAI-AR Advisory Council SSI Subcommittee Perioperative Auditing Tool (Terminal Cleaning Checklist)

OPERATING ROOM	Terminal Clean or End of Day - Each Day Room Is Used	YES	NO
Remove trash, waste, and linen	all used linen		
	surgical drapes		
	waste (including suction canisters)		
	3/4 filled sharps containers		
	kick buckets (for reprocessing or disposal)		
Clean and Disinfect All* exposed surfaces (high-touch & low-touch) and fixed equipment in the room, including booms and wheels and casters of any equipment (e.g., carts) Thoroughly clean and disinfect portable patient-care equipment that is not stored within the operating room before removal from the operating room.	light switches		
	door handles and push plates		
	overhead surgical lights		
	reflective portion of surgical lights		
	suction regulators		
	tourniquet cuffs and leads		
	anesthesia trolley (including top and drawer handles)		
	anesthesia equipment (IV poles and IV pumps)		
	anesthesia machines (including dials, knobs, and valves)		
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	* all items used and mobile and fixed equipment (varies but may include) compressed gas tanks, radiology equipment including lead gowns, sitting or standing stools, suction regulators, pneumatic tourniquets, imaging viewers, viewing monitors, electrosurgical units, microscopes, robots, lasers)		
	storage cabinets, supply carts, and furniture		
	telephones and mobile communication devices		
	computer accessories (e.g. keyboards, mouse, touch screen)		
	chairs, stools, and step stools		
	trash and linen receptacles		
Clean and Disinfect Vertical Surfaces	walls		
	windows		
Clean and Disinfect Ventilation (Ducts)	ventilation (ducts)		
Clean and Disinfect Sinks	handwashing sinks, scrub and utility areas/sinks		
Clean and Disinfect Entire Floor Including Baseboards	Clean and disinfect entire floor using a wet vacuum or mop, including baseboards taking care to move the operating table and any mobile equipment to make sure to reach the floor areas underneath		

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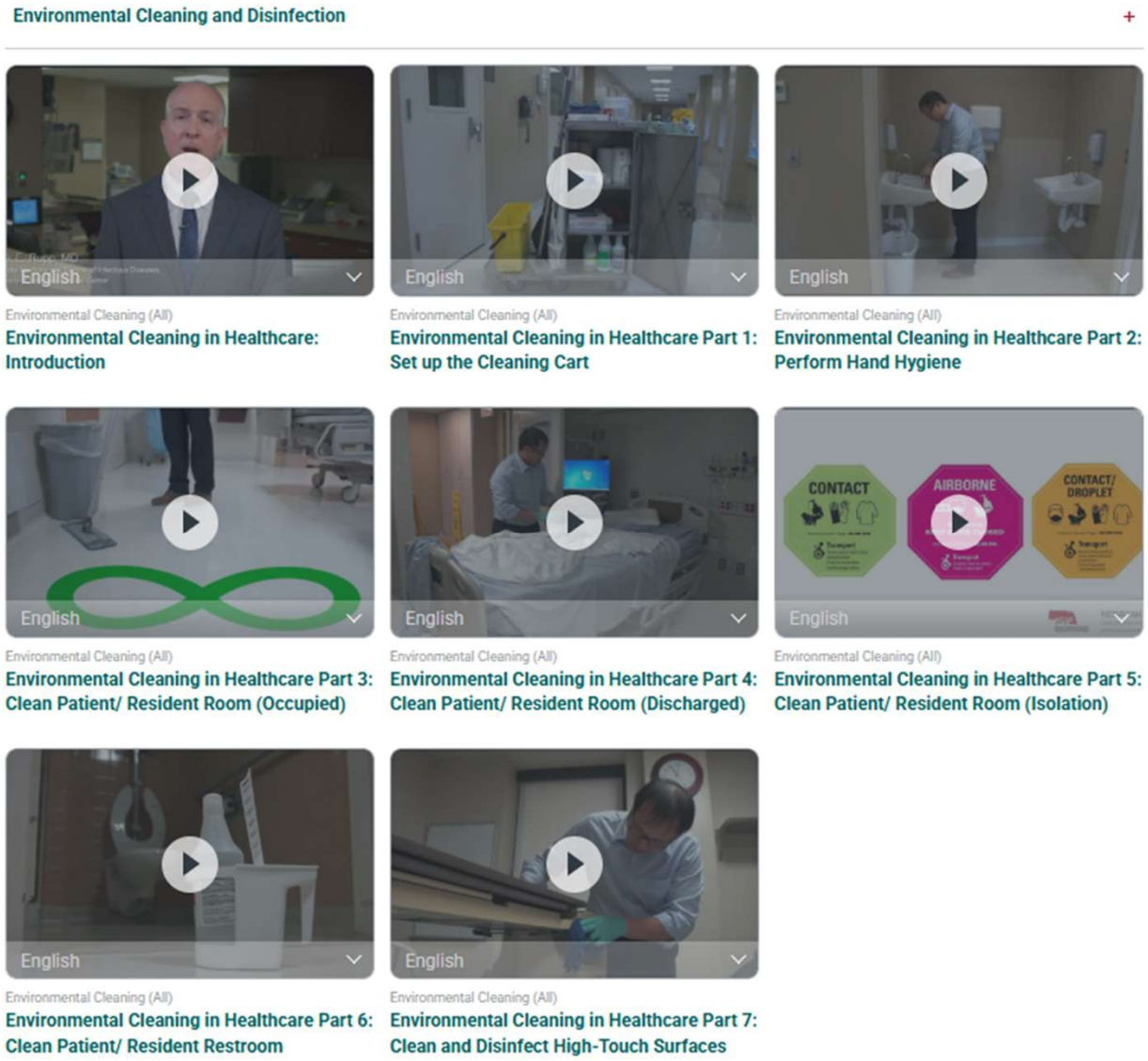

NE ICAP Environmental Cleaning in Healthcare Short Videos

Multiple Languages:

- ✓ English
- ✓ Spanish
- ✓ French
- ✓ Arabic

https://www.youtube.com/@nebraska_icap_asap/playlists

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Prepare Medications in a Clean Area

Injections should be prepared in a designated clean area that is not adjacent to potential sources of contamination, including sinks. Any item that could have come in contact with blood or body fluids should not be in the medication preparation area.

The medication preparation area should be cleaned and disinfected on a regular basis and any time there is evidence of soiling.

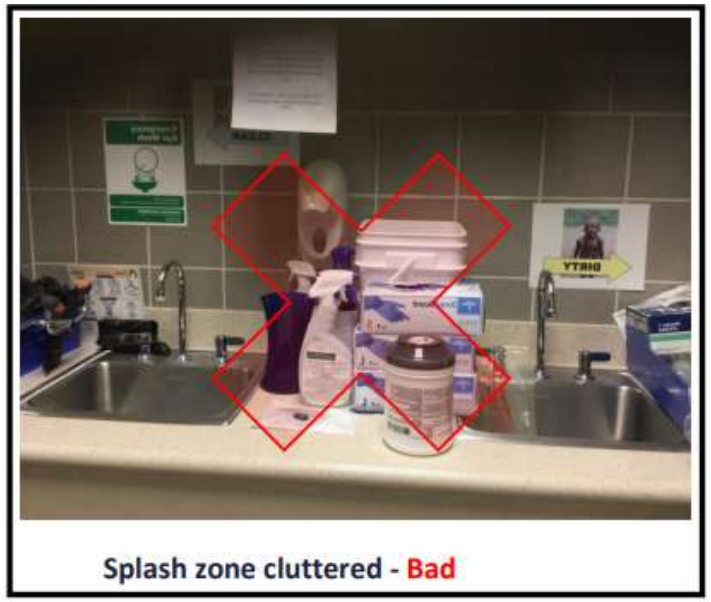
There should be ready access to necessary supplies (such as alcohol-based hand rub, needles and syringes in their sterile packaging, and alcohol wipes) to ensure that staff can adhere to aseptic technique.

CDC Preventing Unsafe Injection Practices

CDC Train Module 8 Injection Safety LTC IPC

Don’t Prepare Medication in Splash Zones

- Outbreaks of infection have been associated with medications like injections contaminated with tap water.
- Do not prepare medications near areas of splashing water (e.g., within 3 feet of a sink).
- Make sure sink splash zones do not contain any items which could become contaminated from hand washing/water splash.
- Mount a splash guard when workspace is limited.



Splash zone cluttered - Bad

Splash zone empty – Good

Sink with Plexiglass splash guard - Good

NE ICAP - In the Zone - The Splash Zone

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Don’t Forget About Equipment

- Where are medications prepared in your facility?
- Who is meant to clean those surfaces?
- How often is cleaning/disinfection occurring?
- Are low-level disinfectant wipes available on the cart?
- Who restocks the wipes?

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Use Audits and Rounding to Give and Get Feedback

- Offer feedback to team members immediately (but privately) when you see them miss a hand hygiene opportunity or not clean a piece of shared equipment
- Look for ways to "make it easy to do the right thing." Things like:
  - Disinfectant wipes stored with shared equipment
  - Alcohol-based hand rub (ABHR) is available where team members need it, like outside the room and inside the resident room
  - Define processes to refill wipes, soap, paper towels and ABHR dispensers
    - Assign checking levels at routine intervals
  - Job aides are posted [such as checklists, PPE instructions, manufacturers' instruction tools]

Food Surfaces

Due to the complexity of food safety, defer to Nebraska Food Code and USDA ServSafe Food Handler training for kitchen and café cleaning strategies.

- A cleaning detergent that removes dirt and allergenic protein matter, and high quality microfiber cloths/mops should be used.
- Sponges are **not** recommended due to their potential to spread contamination.
- Recommended cleaning & sanitizing schedule: Clean after each use, before the next group arrives.
- During rounding, ensure that the sanitizer bucket fluid is clear and clean.

USDA ServSafe Food Handler Program
https://professionalstandards.fns.usda.gov/content/servsafe%C2%AE-food-handler-program

https://nda.nebraska.gov/regulations/foods/food_code.pdf

NE ICAP Website

Acute Facility Resources

Welcome to your resource page!

Here you can find resources organized into categories based on the infection control domains Nebraska ICAP uses during facility reviews.

- Resources in each domain are alphabetized.
- There is a glossary of acronyms at the bottom of this page if you are unsure of the source or type of resource.

If you have questions, feel free to reach out to us to be connected with an experienced Acute Care Infection Preventionist. You can reach us at (402)552-2881 or nebraskaicap@nebraskamed.com.

https://icap.nebraskamed.com/facilities/acute-care/acute-facility-resources/

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Summary

- Cleaning and disinfection touches everyone in the facility
- Though sometimes considered simple, there are specific steps and practices that require education, practice, and competency assessment and environmental rounding
- The best lessons in cleaning and disinfection come from seeing team member practices and finding ways to help them do the right thing

Questions?

CDC Project Firstline

Rebecca Martinez, BSN, BA, RN, CIC
Infection Preventionist, NE ICAP

NE ICAP

CDC’s Project Firstline (PFL)

CDC's Project Firstline

Project Firstline offers easy-to-use, accurate and free infection control training resources in multiple formats to align with healthcare workers' learning needs and preferences.

By meeting healthcare workers where they are, Project Firstline supports frontline healthcare workers in better understanding and applying infection control as part of their role.

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CDC Project Firstline Training Resources

Germs in Blood

Germs on Wet Surfaces

Germs in the Gut

Print Materials and Job Aids from Project Firstline | Infection Control | CDC

ICAP

Misc. Updates & Upcoming Educational Opportunities

Jenna Preusker, PharmD, BCPS, BCIDP

Pharmacist Program Coordinator
Nebraska ASAP

Healthcare Associated Infections/
Antimicrobial Resistance Program Pharmacist,
Nebraska Department of
Health and Human Services

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2025 Nebraska ASAP Antimicrobial Stewardship Summit

This year's general session topics include:

- 2025 Nebraska Antimicrobial Stewardship Update
- DHHS Healthcare Associated Infections Update
- Keynote Address: Diagnostic Stewardship
- Hot Topics in Antimicrobial Stewardship
- Implementation Science in Antimicrobial Stewardship
- Communicating with Patients about Antibiotic Use
- Whole Genome Sequencing
- Approach to Immunocompromised Patients with Infectious Diseases
- Newly Approved Antibiotic Therapies

Click Here to Register! 2025 Nebraska Antimicrobial Stewardship Summit

Sharing for Awareness – Upcoming Multi-Disciplinary Educational Opportunities from Nebraska Partners

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Register Now: Workshop for Healthcare Facility Water System Safety

8:00 am	Welcome by Nebraska DHHS
8:15 am	From Plumbing to Patients: Christine Yount
8:45 am	Pathophysiology of Waterborne Pathogens: Richard Hankins
10:20 am	Water Treatment Basics: Mike Ballmer
12:20 pm	Plumbing Basics: Jeffrey Bergers
1:20 pm	Ensuring Safe Water: Comprehensive Strategies for Legionella Prevention in Healthcare Facilities: Jen Vogelsberg
3:00 pm	Uh-oh, Mitigation Approaches and Technology to Remediate When Your Water System is Implicated: Dr. Brooke Decker
4:00 pm	Closing: Lacey Pavlovsky

Friday June 6
Lincoln

To register, click on or scan the QR code!

Registration Link

ICAP Contact Information

Call 402-552-2881

Office Hours are Monday – Friday
8:00 AM - 4:00 PM Central Time
Weekends and Holidays 10:00-4:00
On-call hours are available for emergencies only

Scan the QR Code to be taken to our NE ICAP Contact Form.
You can request to be connected to an Infection Preventionist that specializes in your area, get added to our setting specific communication list for webinar and training invites, sign up for newsletters and reminders, or request an ICAR review for your facility.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Infection prevention and control is a team effort. Thank you!

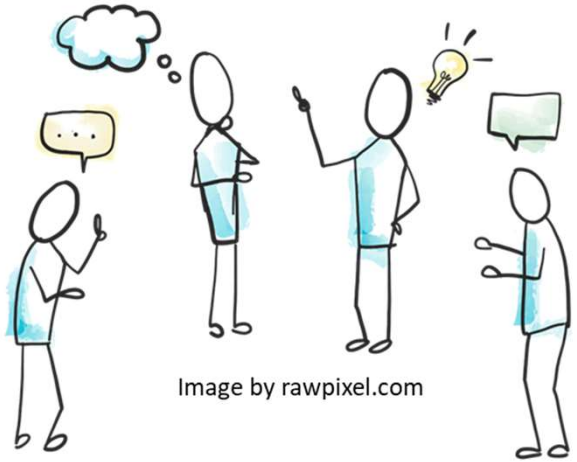

Image by rawpixel.com

Please feel free to contact me for any questions now or in the future.

remartinez@nebraskamed.com

ICAP