

Behind the Mask:

Fundamentals of Personal Protective Equipment and Enhanced Precautions

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Lauren Musil BSN, RN



Meet Our Subject Matter Experts



Alisha Sheffield MSN, RN CIC

Alisha is an Infection Preventionist and Registered Nurse with 21 years of experience in a variety of healthcare settings including ambulatory, acute care, and surgical areas. Over the past 14 years, she has worked as an Infection Preventionist in outpatient surgery as well as at a large academic medical center. Her recent work has focused on utilizing her IPC expertise to develop infection control tools and resources to assist Infection Preventionists in under-resourced settings.



Kate Boulter MPH, BAN, RN

Kate Boulter is the Nurse Manager for the Nebraska Biocontainment Unit, where she has been actively involved since 2005. Her nursing experience includes direct involvement in the care of Ebola patients who were repatriated to the US in 2014 and the first COVID-19 patients in Nebraska. She has a longstanding passion for infection prevention, team safety and biocontainment preparedness.



Lauren Musil BSN, RN

Lauren is a Registered Nurse with a wide variety of healthcare experience in neurology, neurosurgery, ambulatory surgery, home health, infection prevention, organ transplant and with the Nebraska Biocontainment unit. As an IP, her primary focus has been in critical care, oncology, VAE prevention and as the IP to the Nebraska Biocontainment Unit. Her recent work has been spent in a grant funded role to develop innovative tools to aid IPs in rural and remote settings. Lauren has recently transitioned to being a transplant services coordinator but still contributes to IPC grant work.

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IPC Program Objectives



Review the fundamental components of PPE selection, use, and donning and doffing practices that support routine IPC practice and special pathogen preparedness



Interpret evidence-based guidelines, regulatory requirements, and industry standards related to PPE use to ensure safe care delivery, compliance, and readiness for emerging infectious threats.



Implement practical strategies to monitor, audit, and improve PPE adherence across clinical and support staff, with emphasis on risk-based decision-making and hierarchy of controls.



Discuss common challenges in PPE competency, staff education, supply management, and practice observations, and explore approaches to strengthen workforce readiness.



Synthesize PPE knowledge to build a strong preparedness foundation that supports more advanced learning in infection prevention and special pathogen response

3-Part Webinar Series

Foundations of Isolation: Precautions, Protection, Preparedness

November

Standard &
Transmission-
Based Precautions

February

Personal
Protective
Equipment

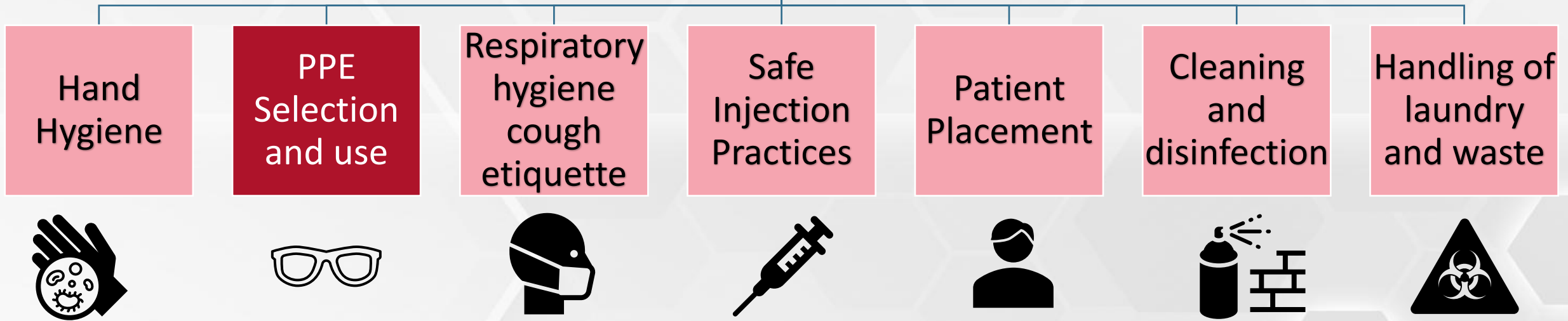
April

Identify,
Isolate,
Inform

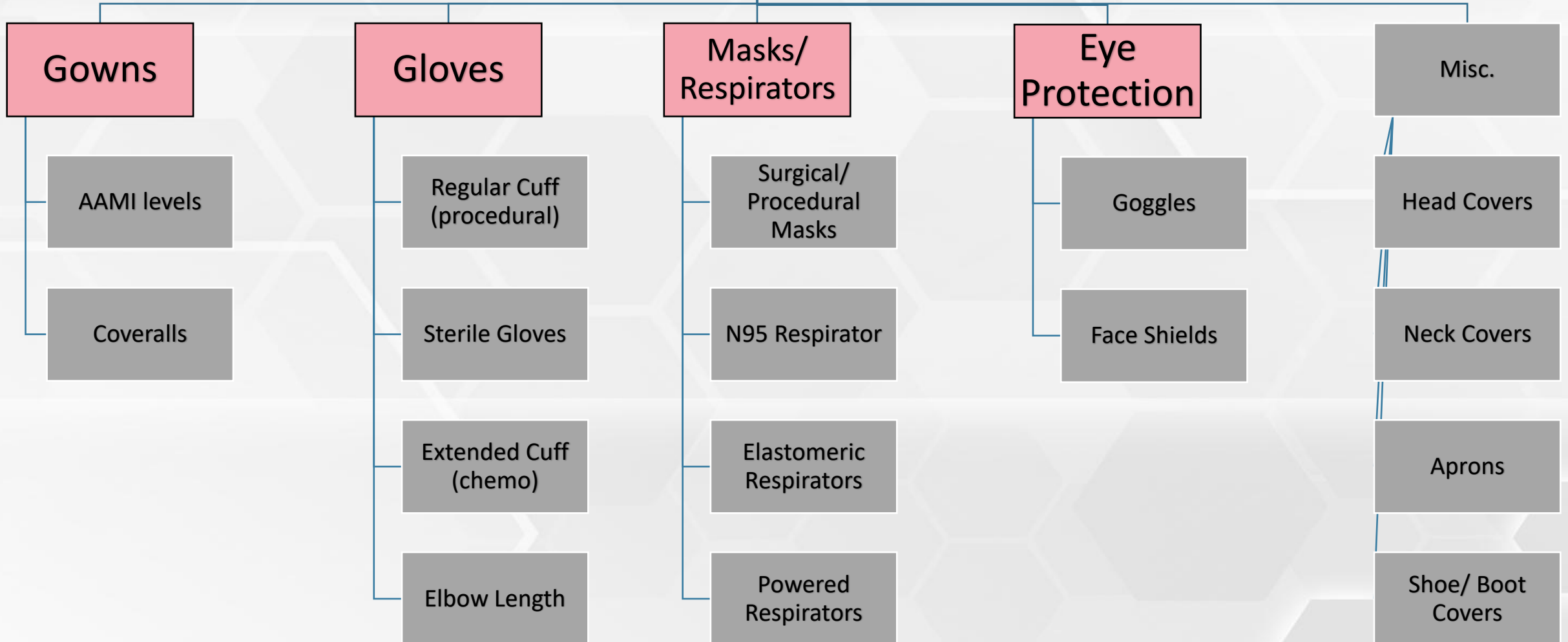
Treat all blood, body fluids, secretions and excretions as infectious-except sweat

- All patients
- All the time

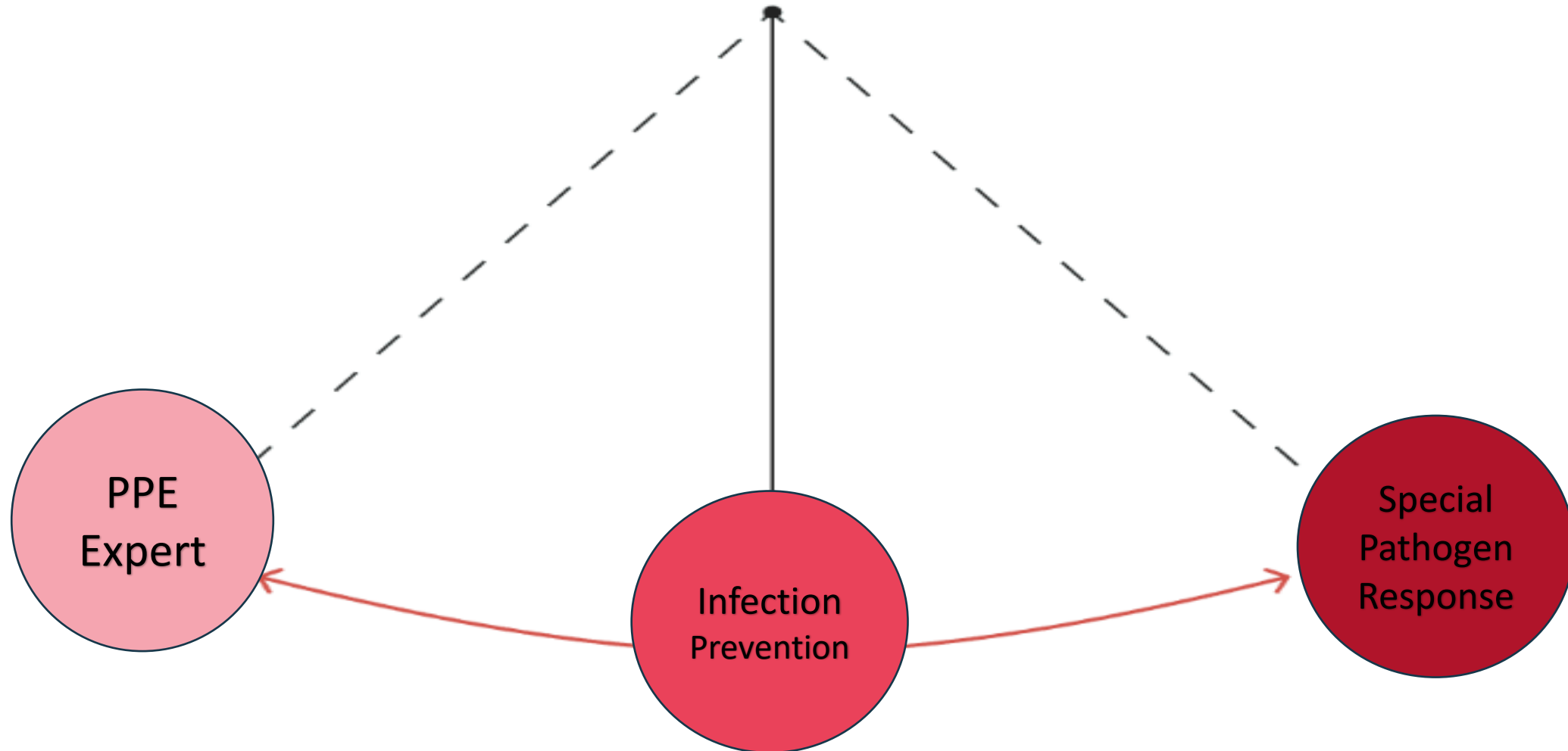
Core Elements of Standard Precautions



Personal Protective Equipment



Core Role of the IP in Special Pathogen PPE



Shared ownership - Distinct Roles

Special Pathogen Response

Preparedness planning

Coordination- Internal and external management

Exercises, drills, and activation

Facility designation (Level 1-4)

PPE Expert

Donning and Doffing

PPE Selection

Route of Transmission

Supply Chain

Infection Prevention

Transmission expertise

Facility specific info

PPE standards/escalation triggers

IPC related protocols

Support real-time events

IP Role in PPE



Policy & Procedure

- Develop and update policies and implement procedures for proper PPE use based on the latest guidelines and evidence-based practice

Education & Training

- Partner with education teams to identify and address gaps in training and education
- Ensure training is sufficient for healthcare workers on PPE use
- Partner with education teams for *Just In Time Training* when emerging pathogens occur

Performance Monitoring & Evaluation

- Monitor and audit compliance with PPE and adherence to standard and transmission-based precautions (TBP)
 - Ensure PPE is accessible at point of use and stock is sufficient
 - Confirm proper isolation and PPE use while TBPs are active
 - Verify appropriate discontinuation of TBP
 - Validate proper room and device cleaning and disinfection
- Utilize audit data to identify and recommend areas for improvement
- Ensure IP practices are in place to effectively address identified gaps and risks related to PPE usage

Communication & Collaboration

- Provide immediate coaching when PPE gaps are observed
- Communicate trends, gaps in practice, and opportunities for improvement to leadership
- Collaborate with teams and units to address opportunities and mitigate identified gaps

Product Selection & Evaluation

- Stay informed of new technologies related to PPE and their application in the facility
- Evaluate PPE for the suitability of different types of PPE for specific uses within the facility
- Partner with supply management to ensure adequate backstock of PPE, particularly during potential product interruption (e.g., *pandemics*)

IP Role in PPE for Special Pathogens

Before

- Interpret guidance
- Participate in planning
- Define PPE requirements
- Review PPE supply
- Develop donning/doffing procedure and trained observer process
- Support training/drills

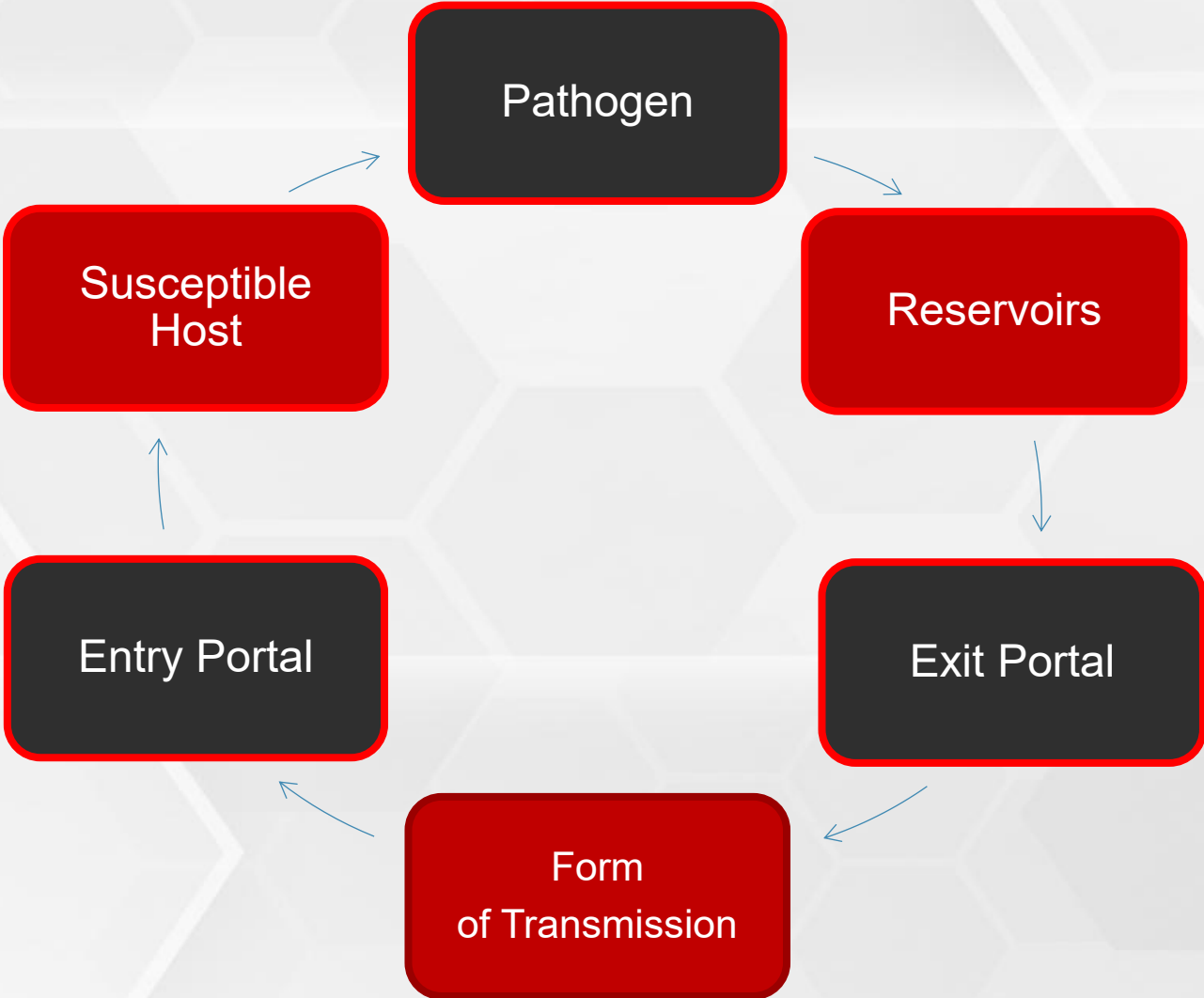
During

- Real time guidance
- Support safe donning/doffing
- Advise leadership
- Assist with exposure RA
- Address staff concerns
- Reinforce correct practices

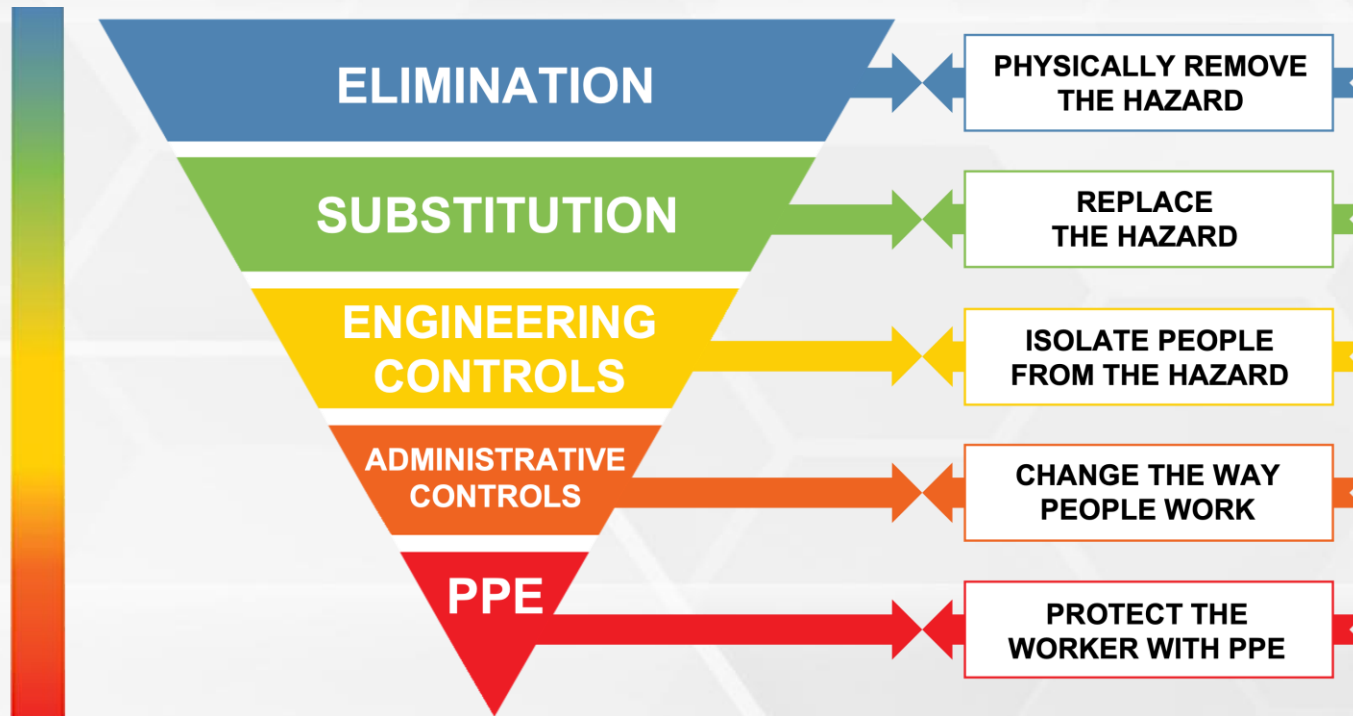
After

- Evaluate PPE performance and compliance
- Participate in after action reviews
- Identify gaps in PPE, training, processes
- Update policies and plans based on lessons learned

The Chain of Infection



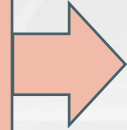
Hierarchy of Controls



- Developed by the National Institute for Occupational Safety and Health (NIOSH) as a tool to reduce injury and illnesses in all workplaces.
- It displays controls from most effective to least effective.
- Helpful when developing plans to avoid occupational injury or illness.

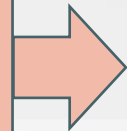
What PPE Does (when works properly)

**Proper
Use of PPE**



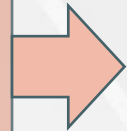
Minimizes exposures to hazards.

**Proper
Use of PPE**



Provides a barrier between the worker and the hazard when other controls alone do not reduce the risk to acceptable levels.

**Proper
Use of PPE**



Reduces the risk of injury and illness.

Training, practice, competence assessment , and observation is key to safe and effective use of PPE.

PPE can prevent us touching our eyes, nose and mouth – which happens more often than we realize.

What PPE does NOT do

CAUTION



PPE does **not** eliminate the need for additional controls, such as engineering and administrative.

CAUTION



PPE does **not** protect what is not covered, when it is not donned correctly, or when it was not designed for the job.

CAUTION



It does **not** address the hazard directly but provides layers of protection from it.

The use of PPE does NOT guarantee protection from the hazard.
This is especially true if the donning/doffing process is performed incorrectly.

Dress for Transmission

Contact

Gloves, eye
protection,
gown/apron*

Droplet

Gloves,
apron/gown*,
mask, eye
protection

Airborne

Gloves,
gown/apron*,
respirator,
eye
protection



Transmission Mode

A Lot to Choose From!

- ✓ Head Covers
- ✓ Masks
- ✓ Respirators
- ✓ Eye Protection
- ✓ Gloves
- ✓ Gowns
- ✓ Coveralls
- ✓ Disposable Boots



What to Consider When Selecting PPE

- ➔ Disease transmission characteristics
- ➔ Expert guidance
- ➔ Staff safety and comfort
- ➔ Supply chain and item availability
- ➔ Standardization of PPE for all staff
- ➔ Layout of patient care area



Sometimes More is Needed

- Face shield or goggles
- N95 respirator

- Single use or launderable fluid resistant gown

- Gloves: single or double layer

- Scrubs and no shoe coverings



- Fluid-resistant hood extending to shoulders
- Eye/Face protection
- N95 respirator

- Single use gown or coverall that is at a minimum fluid resistant
- Gloves: double layer with extended cuffs as the first layer
- Optional - single use fluid-resistant apron

- Single use fluid-resistant shoe coverings

Escalating the PPE ensemble

The Zones

Green Zone/
Cold Zone

Very low/minimal risk
for contamination

- Donning area
- Tertiary waste management

No PPE requirements

Yellow Zone/
Warm Zone

Controlled area with a
risk for contamination

- Doffing area
- Secondary waste management

- PPE required
- Stringent infection prevention measures required

Red Zone/
Hot Zone

High Risk for
Contamination

- Patient Care Area
- Primary waste management

- Full PPE
- Stringent infection prevention measures required

Each facility will be unique as to how zones are allocated

Procedure Masks



- Procedure masks protect against large particle droplets, splashes, sprays, and splatter.
- They are effective as source control by preventing droplets entering the environment.
- Does not require Fit Testing.
- Procedure masks must be worn correctly.

Procedure masks are not respiratory protection!

Filtering Face Piece Respirator aka N95



For reliable protection, individuals must be fitted to a NIOSH-certified N95 model annually.

- Hair should be securely pulled back away from the face.
- Facial hair that interferes/overlaps the border/boundary of the respirator will affect its ability to properly seal.
- Always perform a user seal check.

FFPs provide respiratory protection when worn properly!

Powered Air Purifying Respirator (PAPRS)



- Should have a disposable head cover with cape/shroud that extends over the shoulders and fully covers the neck.
- All components must be compatible with the PAPR unit.
- Can have an internal or external blower with filtration system.
- Considerations on storage and disinfecting reusable parts must be made.

Face Shield or Goggles



Use eye protection when individuals show signs of infection and/or when there is a risk for splash.

Face shields protect the eyes, face, and front of neck against respiratory droplets. Must be worn correctly.



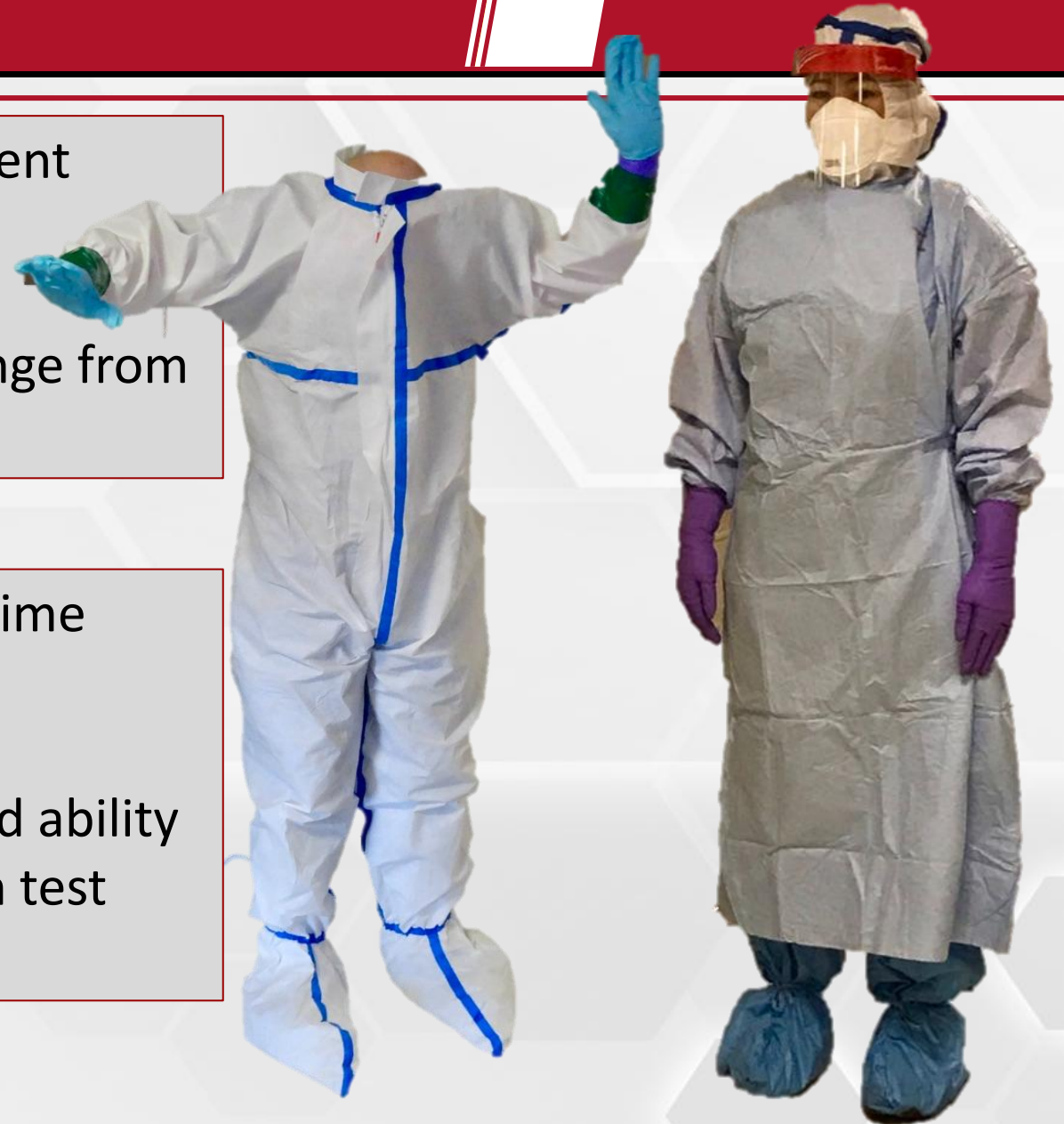
Goggles protect the eyes against respiratory droplets but provide minimal protection for the rest of the face.



Gowns/Coveralls

- Gowns/coveralls cover a large area to prevent contamination to clothing and skin.
- There are different levels of gowns that range from being fluid resistant to fluid impervious.

- Fluid resistant will allow penetration with time and pressure.
- Fluid impervious fabrics have demonstrated ability to prevent liquid penetration under certain test conditions.



Choosing the Right Gown








PERSONAL PROTECTIVE EQUIPMENT: LIQUID BARRIER PROTECTION FOR GOWNS

- When selecting a gown: ✓ Consider your risk of exposure to blood and body fluids.
 ✓ Check the packaging for **AAMI Level** and **Gown Type** to ensure that you will be protected.

ANSI/AAMI PB70:2022

AAMI Level	Test	Implications for Use
Unrated	None: Protective qualities are unknown	Tasks with no anticipated exposure to blood or body fluids in covered areas.
Least Protection ↓ Most Protection	1 AATCC: 42: Water resistance, impact penetration	Tasks with limited fluid exposure, minimal splash risk.
	2 AATCC 42, AATCC 127, (or NWSP 80.3) 20cm: Water resistance, impact penetration, hydrostatic pressure	Tasks with some fluid exposure, splash risk; some resistance to pressurized water.
	3 AATCC 42, AATCC 127, (or NWSP 80.3) 50cm: Water resistance, impact penetration, increased hydrostatic pressure	Tasks with some fluid exposure, splash risk; increased resistance to pressurized water.
	4 F1670/F1671: Synthetic blood and viral penetration	Resists penetration of pressurized synthetic blood and viral-sized particles; tasks with anticipated exposure to blood and body fluids.

Gown Type

Isolation	Procedure	Surgical	Surgical-E	Decontamination
<p>Coverage - entire gown, except cuffs, ties, and attachment points, offer the same level of protection.</p>  <p>Minimum protection level = AAMI Level 1</p>	<p>Full Coverage - entire garment protective and intends to cover back of wearer.</p> <p>Non-Protective Back - front and sleeves offer protection; the back of the gown does not.</p> <p>Open back - does not intend to cover the back of wearer.</p>  <p>Minimum protection level = AAMI Level 1</p>	<p>Critical zones - will be noted on packaging and indicate the portions of the garment that offer protection level claimed. The remainder of the garment may not be protective.</p>  <p>Minimum protection level = AAMI Level 1</p>	<p>Extended critical zone - includes the shoulders, arms, and entire front of garment from neckline to hem. The back of the garment may not be protective.</p>  <p>Minimum protection level = AAMI Level 1</p>	<p>Coverage - entire gown, except cuffs, ties, and attachment points, offer the same level of protection.</p>  <p>Minimum protection level = AAMI Level 3</p>

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Gown High Risk Zones



Risk zones

**Full Coverage
Non-Protective Back**

When working in a gown, there are certain areas that are more likely to become contaminated:



**Right
sleeve**



Front



**Left
sleeve**

Expert tip: Read the label for manufacturers information

Gloves act as a barrier to prevent contamination to your hands.

Use when:

- Providing patient care.
- Handling items that are potentially contaminated.



Considerations:

- Wear long cuff gloves to cover the wrist band on your gown.
- Perform hand hygiene on your gloves prior to removing them.

Gloves are not a substitute for hand hygiene.

Head Covers



- Should be impermeable to fluids
- Hoods should fully cover hair, forehead, neck to jaw but should not interfere with fit or function of the N95 respirator
- Some may come too close to eyes on wearer's face – consider wearing safety goggles for comfort and safety

Tuck in or Tuck out???

Disposable Boots and Shoe Covers

- Single-use (disposable) shoe or boot covers that extend to at least mid-calf
- Should have non-skid soles
- Should be impermeable to fluids



Prior to Donning PPE

- ➔ Identify safe areas for donning and doffing PPE.
- ➔ Inspect all components of PPE.
- ➔ If any components of the PPE are reusable, prepare what is needed for proper decontamination, care, and maintenance.
- ➔ Establish a plan for proper and safe disposal of PPE.

Don PPE in a manner that facilitates safe doffing
Doff in a manner that prevents contamination



Role of Safety Observer or Donning/Doffing Partner

- ➔ **Safety Observer:** Team member that is responsible for safely guiding healthcare workers in the process of donning/doffing PPE and/or ensuring safe patient care operations.

- ➔ **Safety is the priority**
 - Reading out step-by-step instructions
 - Actively observes and assists with donning/doffing process
 - Knowledgeable on how to adapt processes if needed

- ➔ **Monitors team members to ensure safe practices**
 - Observes PPE for contamination
 - Observes contamination points during patient care
 - Redirects when unsafe practices/behavior are observed

Potential Failure Points of PPE

- 1. Insufficient training:** Proper training is required on PPE components.
- 2. Improper Donning:** Can reduce PPE's effectiveness, complicate doffing, increase risk of contamination.
- 3. PPE that is ill-fitting:** Can increase risk of exposures
- 4. Incorrect PPE:** Incorrect PPE selection reduces protection from hazard, environment.
- 5. Inappropriate reuse:** Only PPE items that are meant for reuse and can be appropriately decontaminated should be reused.
- 6. Inappropriate Disposal:** PPE should be gently placed in an appropriately sized container. Waste container liner should be replaced at 3/4 full.
- 7. Hair and Facial Hair:** Hair should be pulled securely back away from the face.

Join Us Next Time:

**Office Hours: March 19th, 2026
12-1 CST**

**Next Webinar: Identify, Isolate,
Inform**

**April 16, 2026
12-1 CST**



90-Day Survival Guide



The Infection Preventionist's Orientation Workbook

WEEK THREE

Personal Protective Equipment



Self-Led Infection Control Evaluation SLICE



SLICE Domains	
Infection Prevention & Control Program	Transmission-based & Standard Precautions
Hand Hygiene	PPE
Surveillance	CAUTI
Injection Safety	CLABSI
Environment of Care	VAE
Environmental Cleaning	Non-Ventilator Associated Pneumonia
Non-Critical Device Reprocessing	SSI
Semi-Critical Device Reprocessing	Clostridioides difficile
Critical Device Reprocessing	

Questions

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PPE Audit Tools	PPE-audit-tool-version-2.docx.pdf Personal Protective Equipment (PPE) Observational Tool
Duration of Isolation	Appendix A: Type and Duration of Precautions Recommended for Selected Infections and Conditions Infection Control CDC
Cover your Cough Poster	https://www.cdc.gov/flu-resources/php/resources/cover-your-cough-health-care-poster.html
Fundamentals of Injection Safety Webinar	Webinars innovateIPC.org
Environmental Cleaning & Non-Critical Device Reprocessing	Webinars innovateIPC.org
Respiratory Protection Program	Hospital Respiratory Protection Program Toolkit NIOSH CDC
Sharps Injury Prevention Toolkit	Workbook for Designing, Implementing & Evaluating a Sharps Injury Prevention Program Infection Control CDC

- If you have a questions
 - Raise hand and our admin will take you off mute
 - OR
 - Enter your question into the chat
-
- If you have additional questions that are not answered, you can email us at infoforipslice@nebraskamed.com

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