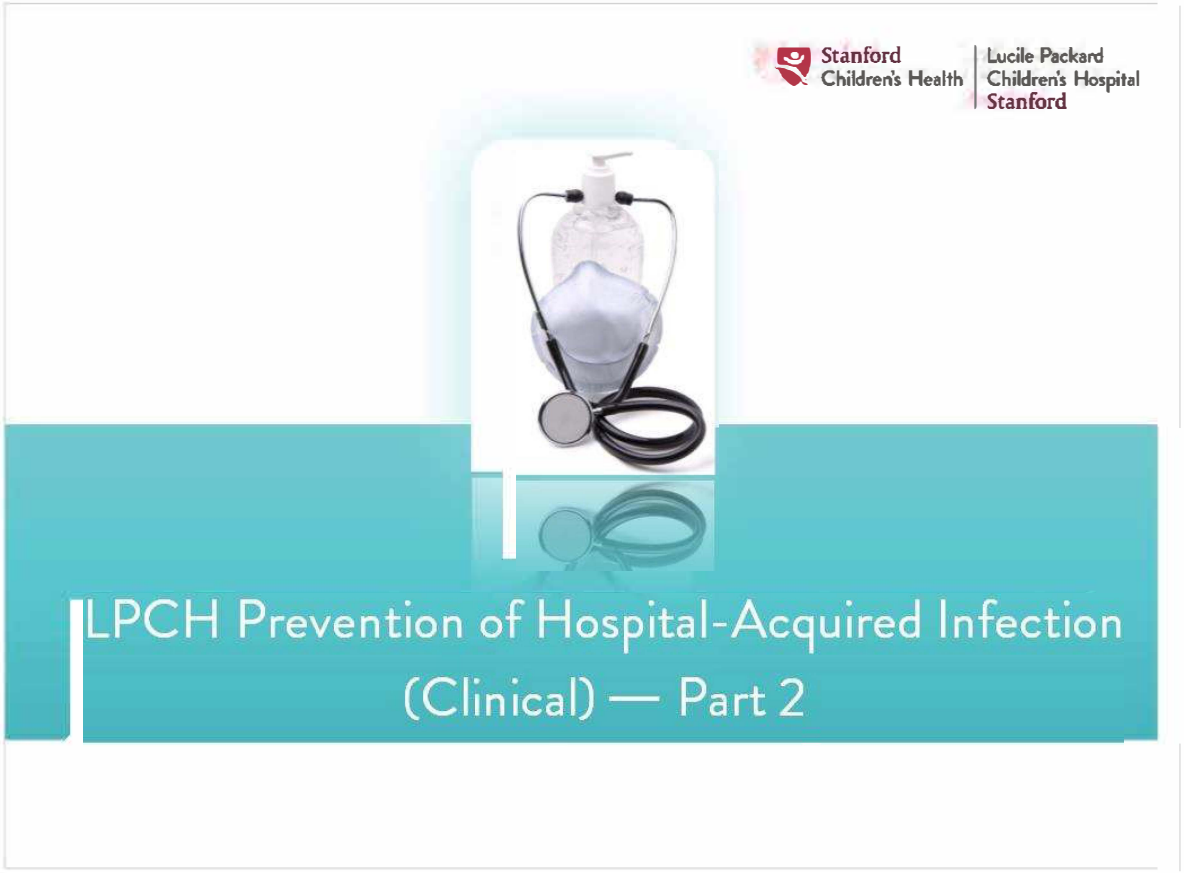
LPCH Prevention of Hospital-Acquired Infection part 2 (Clinical)

1. Introduction

1.1 Introduction



For More Information: LPCH Antimicrobial Stewardship Program Website: https://www.stanfordchildrens.org/en/for-health-professionals/antimicrobial-stewardship-program

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2. Multi-Drug Resistant Organisms

2.1 Multi-Drug-Resistant Organisms

2.2 What Happened? What Could Have Happened Instead?

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What Happened?
What Could Have Happened Instead?

Dena Gray, Registered Nurse

- Dena was a good nurse, but she was burned out from stress and didn't go the extra mile to keep patients safe
- Dena recognized that Kelly wasn't using the gloves correctly, but she didn't take the opportunity to teach her
- Dena didn't think cleaning the surface Kelly touched was her *personal responsibility*
- Another nurse then touched the contaminated surface and passed on the multi-drug resistant MRSA infection to Whitney
- If Dena had taken responsibility for infection prevention, Whitney would not have acquired MRSA

Next (Slide Layer)

2.3 What Are Multi-Drug Resistant Organisms?

Next Button (Slide Layer)

2.4 How to Prevent Multi-Drug Resistant Organisms

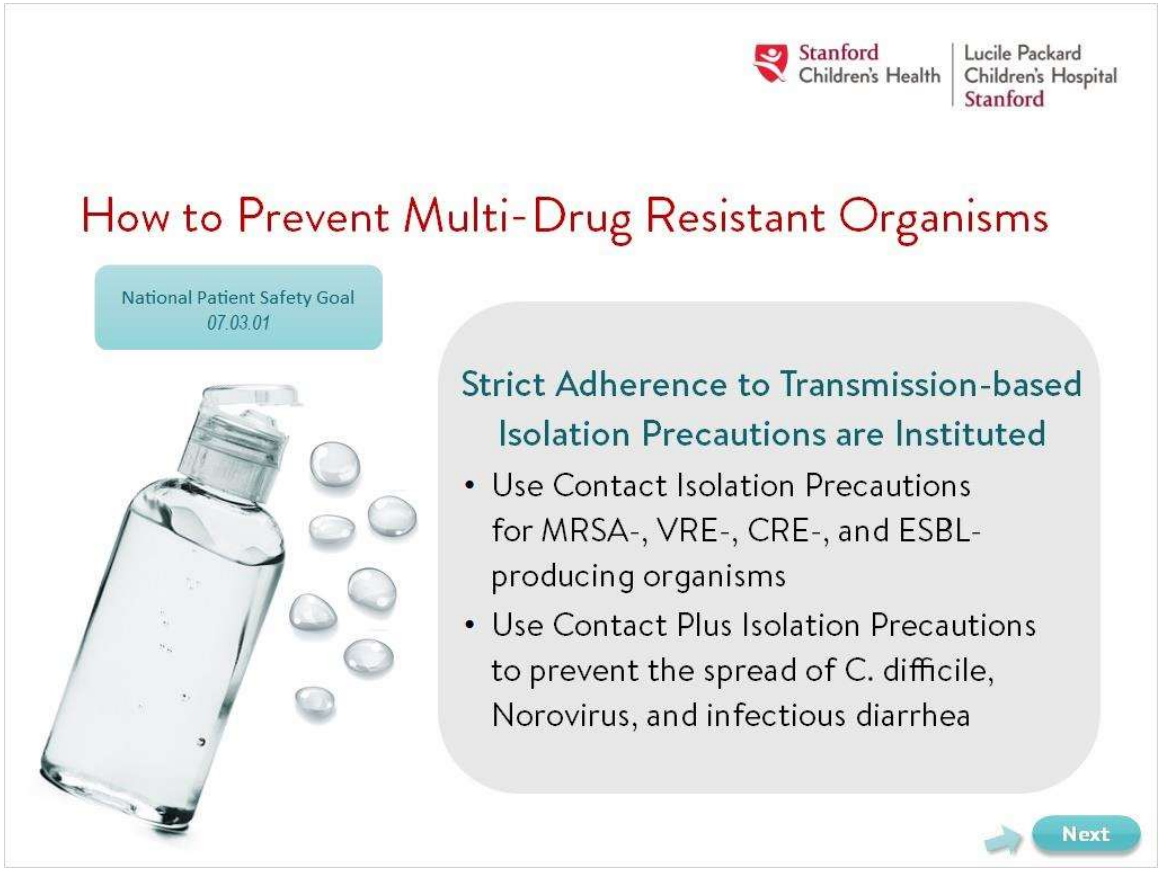
1 (Slide Layer)

2 (Slide Layer)

3 (Slide Layer)

4 (Slide Layer)

5 (Slide Layer)

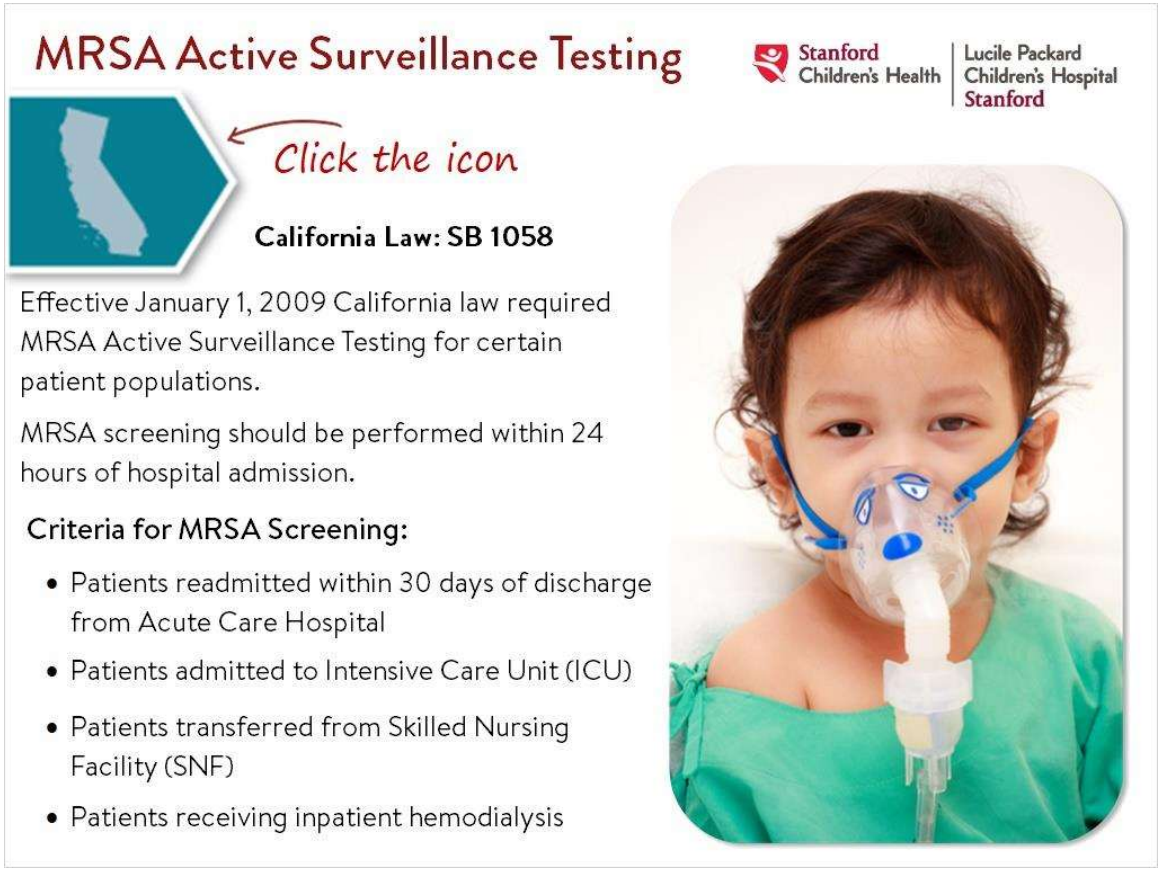


6 (Slide Layer)

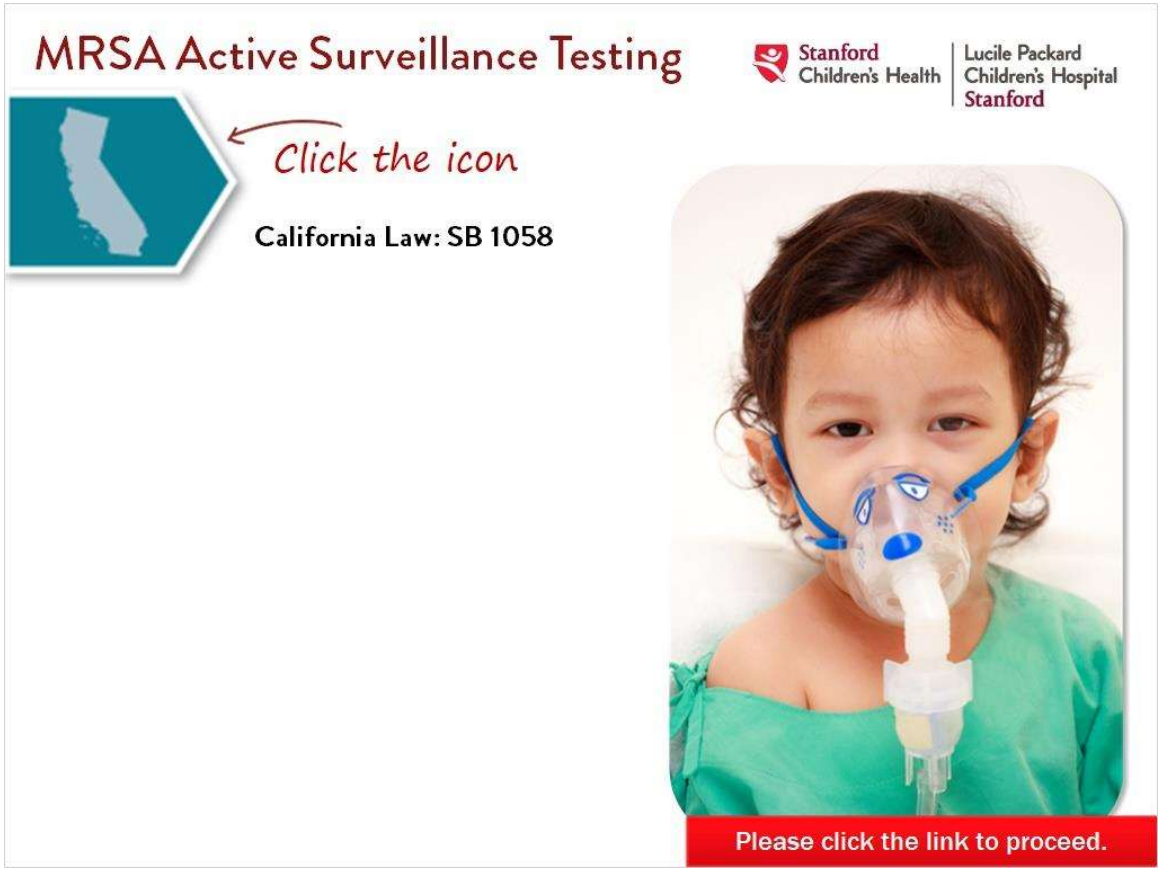
7 (Slide Layer)

2.5 MRSA Active Surveillance Testing

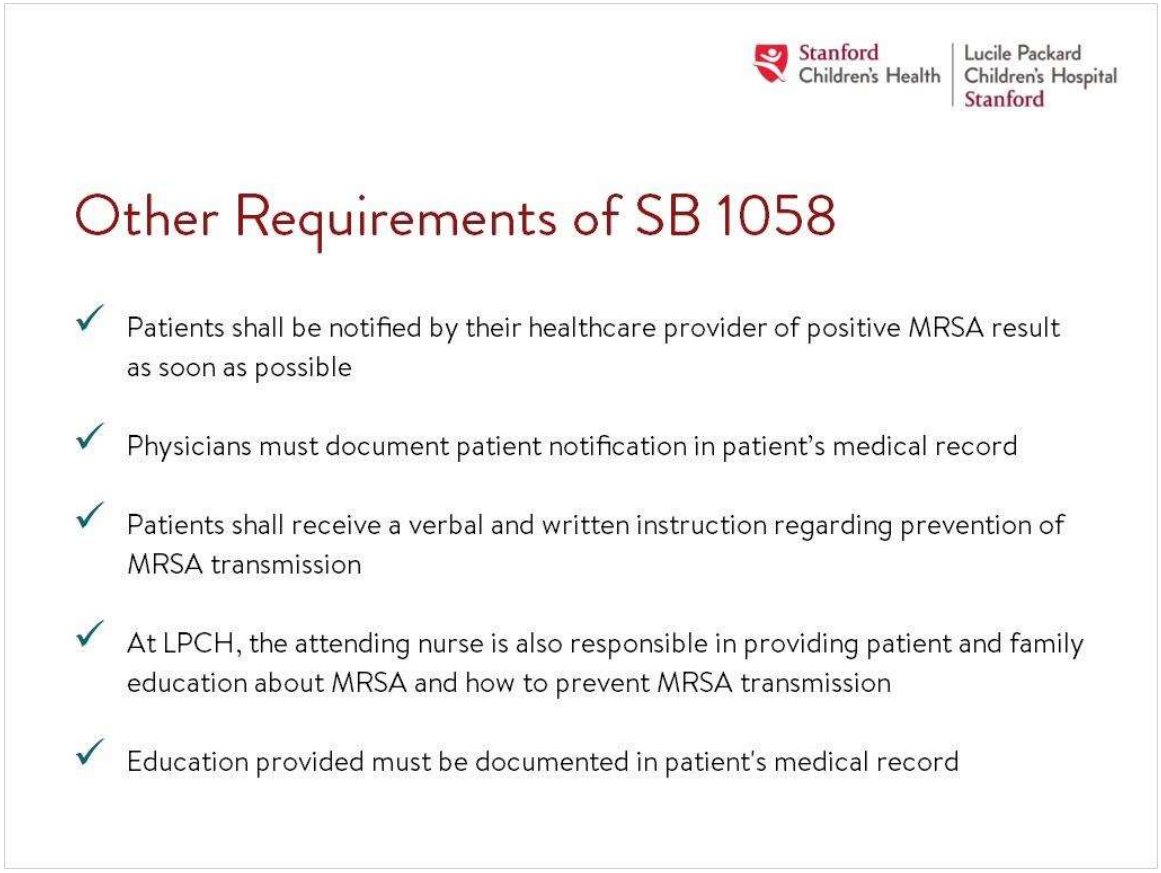
California (Slide Layer)



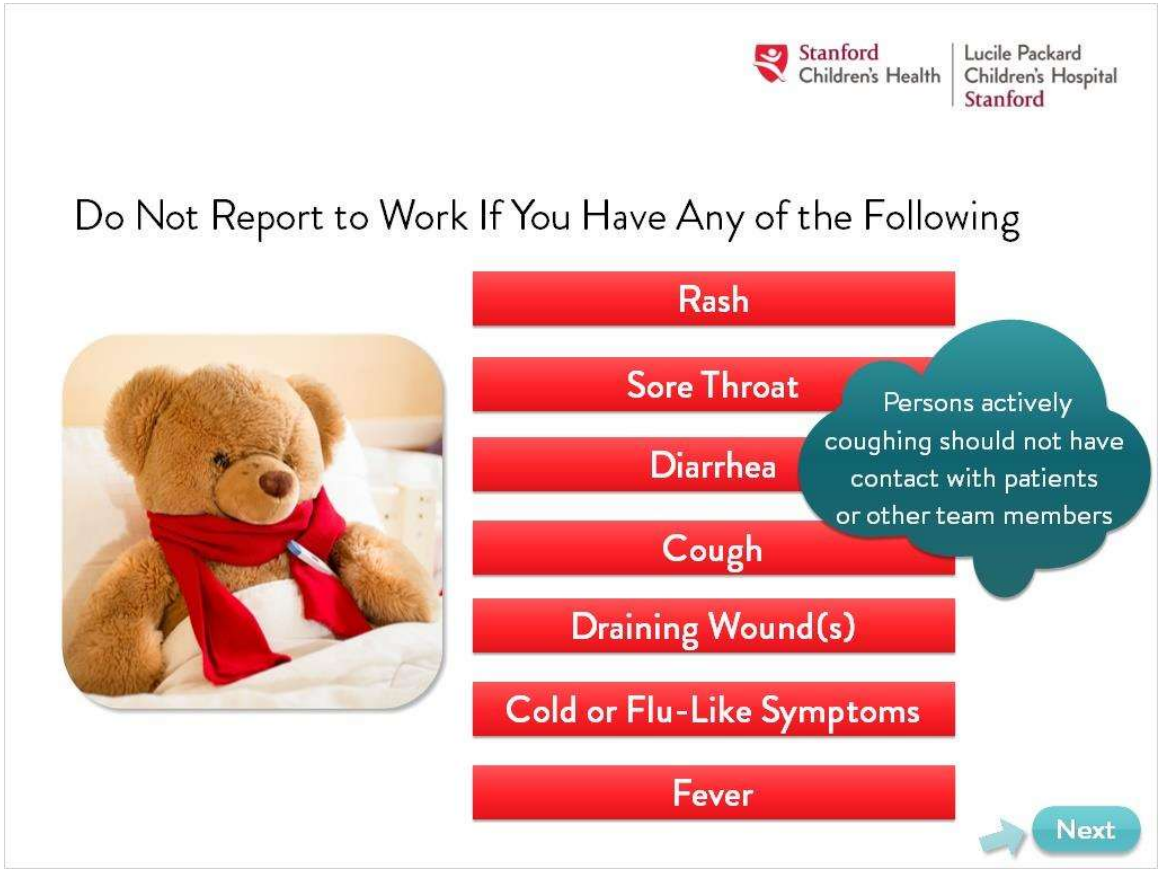
Untitled Layer 2 (Slide Layer)



2.6 Other Requirements of SB 1058



2.7 Do Not Infect Others



2.8 Standard Precautions

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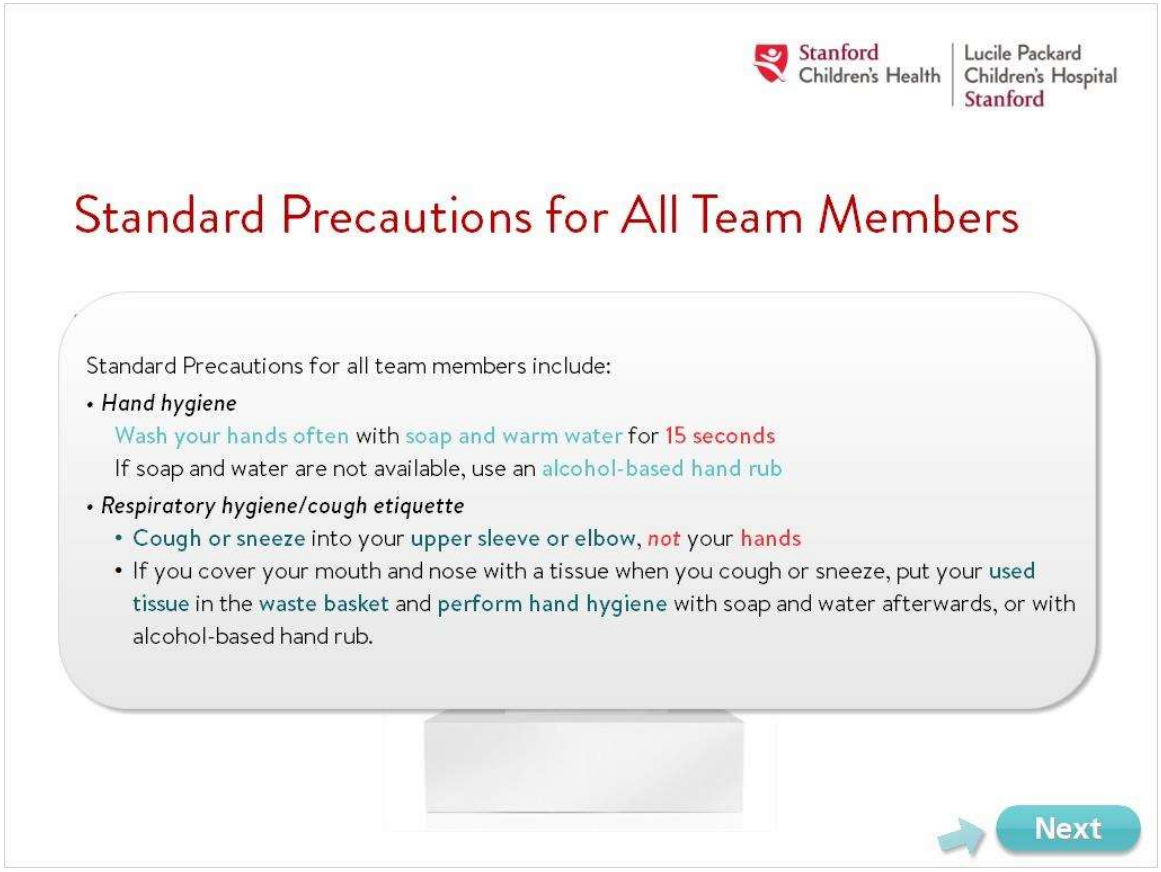
Standard Precautions for All Team Members

Standard Precautions are the minimum infection prevention practices that apply to all patient care, regardless of suspected or confirmed infection status of the patient, in any setting where healthcare is delivered

These practices are designed to both **protect the healthcare provider** (HCP) and **prevent HCP from spreading infections among patients**

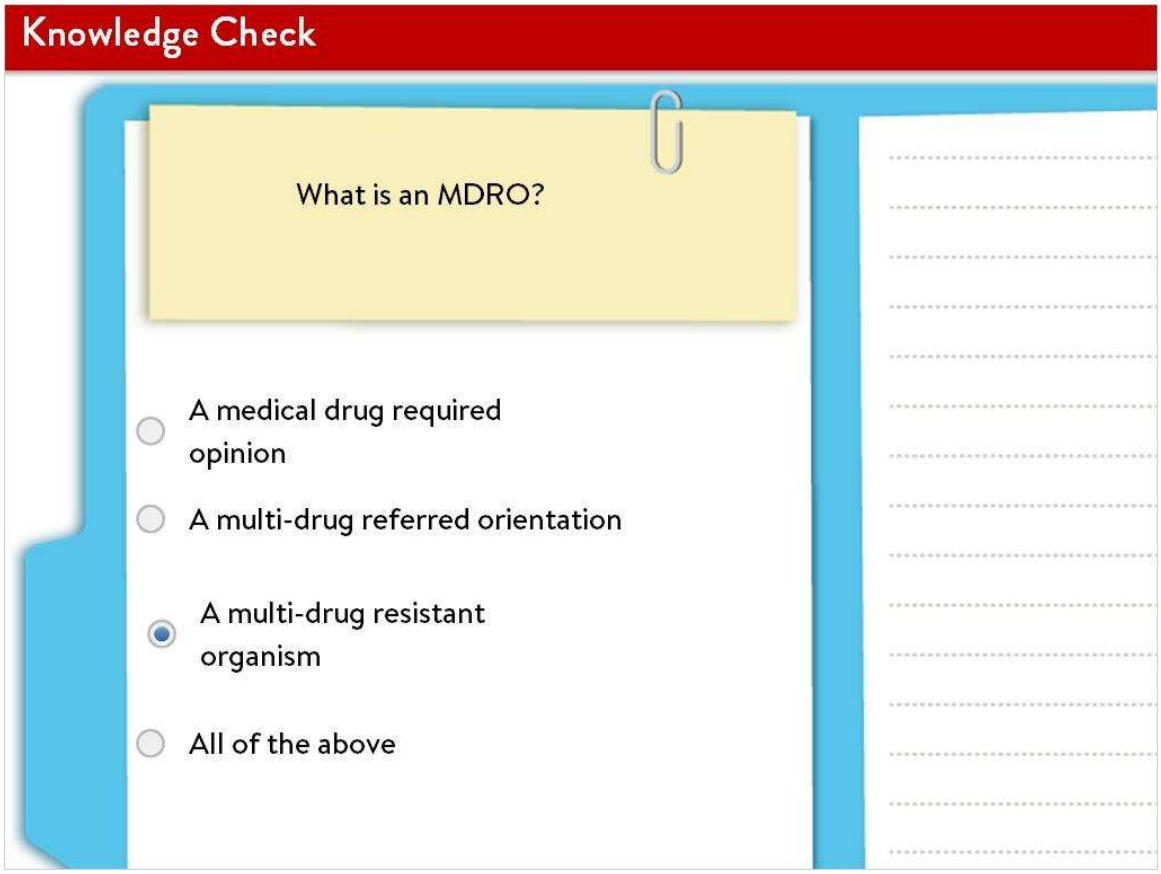
To learn more, click the tissue box:

Learn More (Slide Layer)



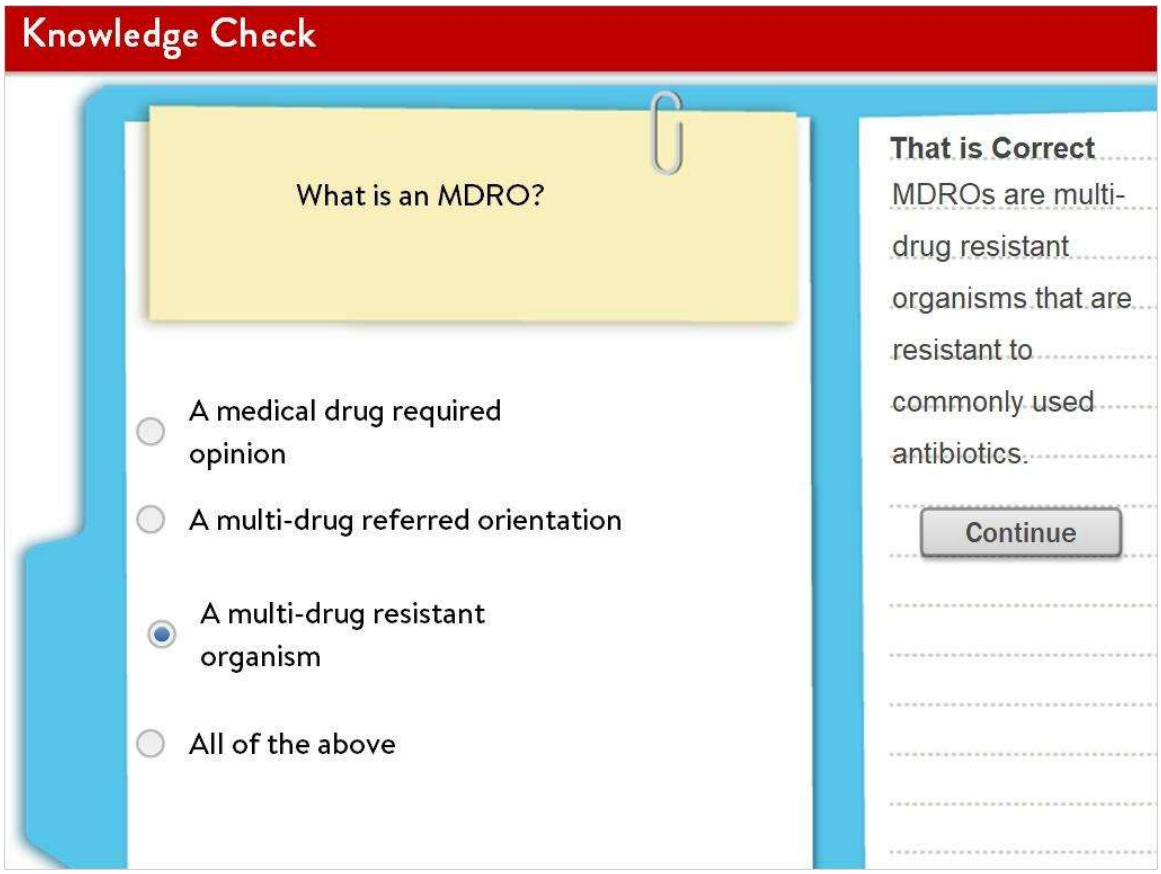
2.9 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

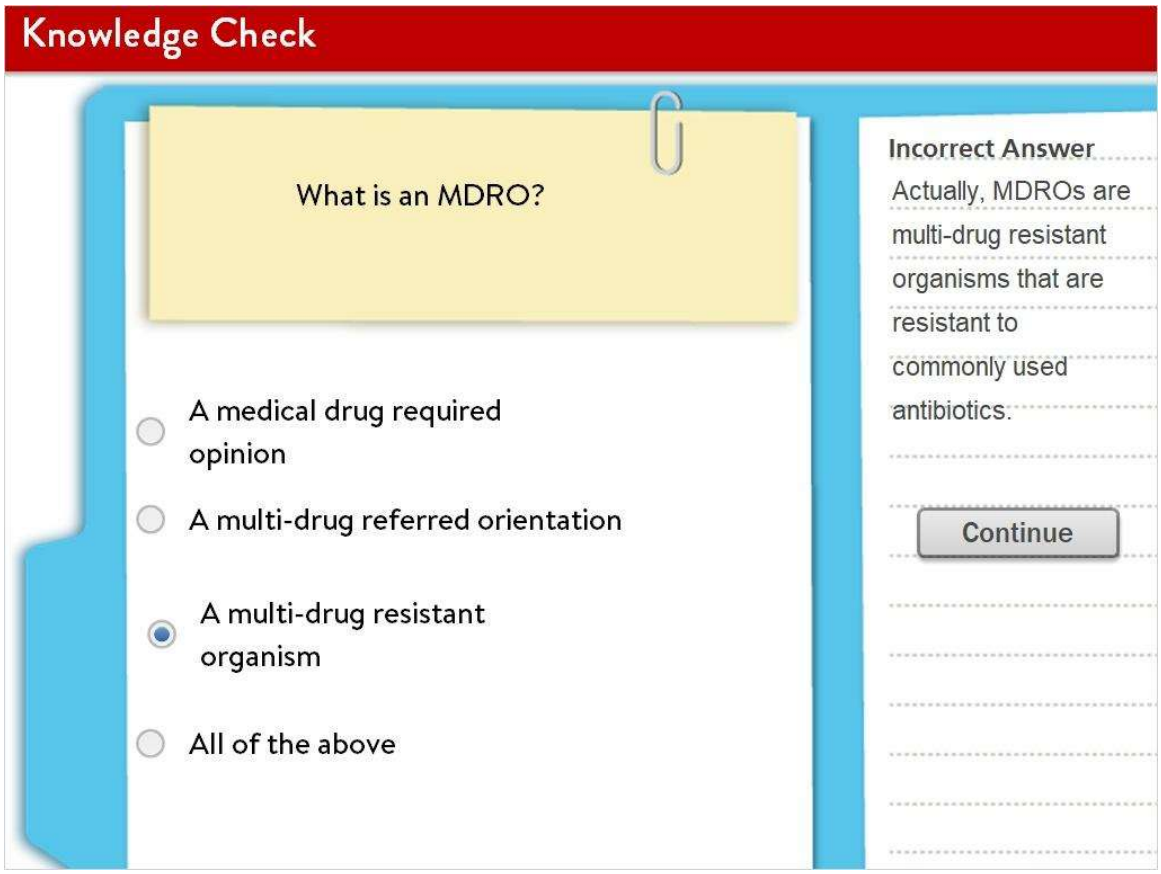


Correct	Choice
	A medical drug required opinion
	A multi-drug referred orientation
X	A multi-drug resistant organism
	All of the above

That is Correct (Slide Layer)

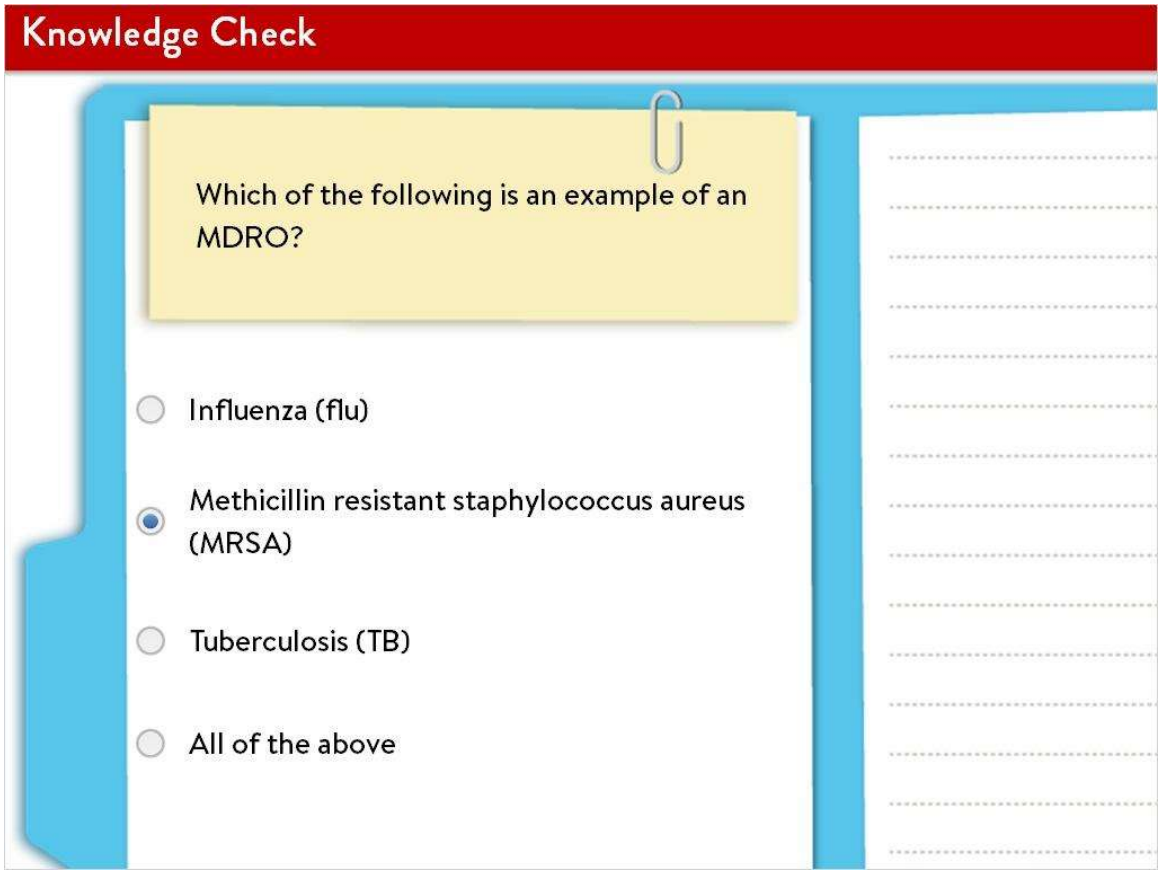


Incorrect (Slide Layer)



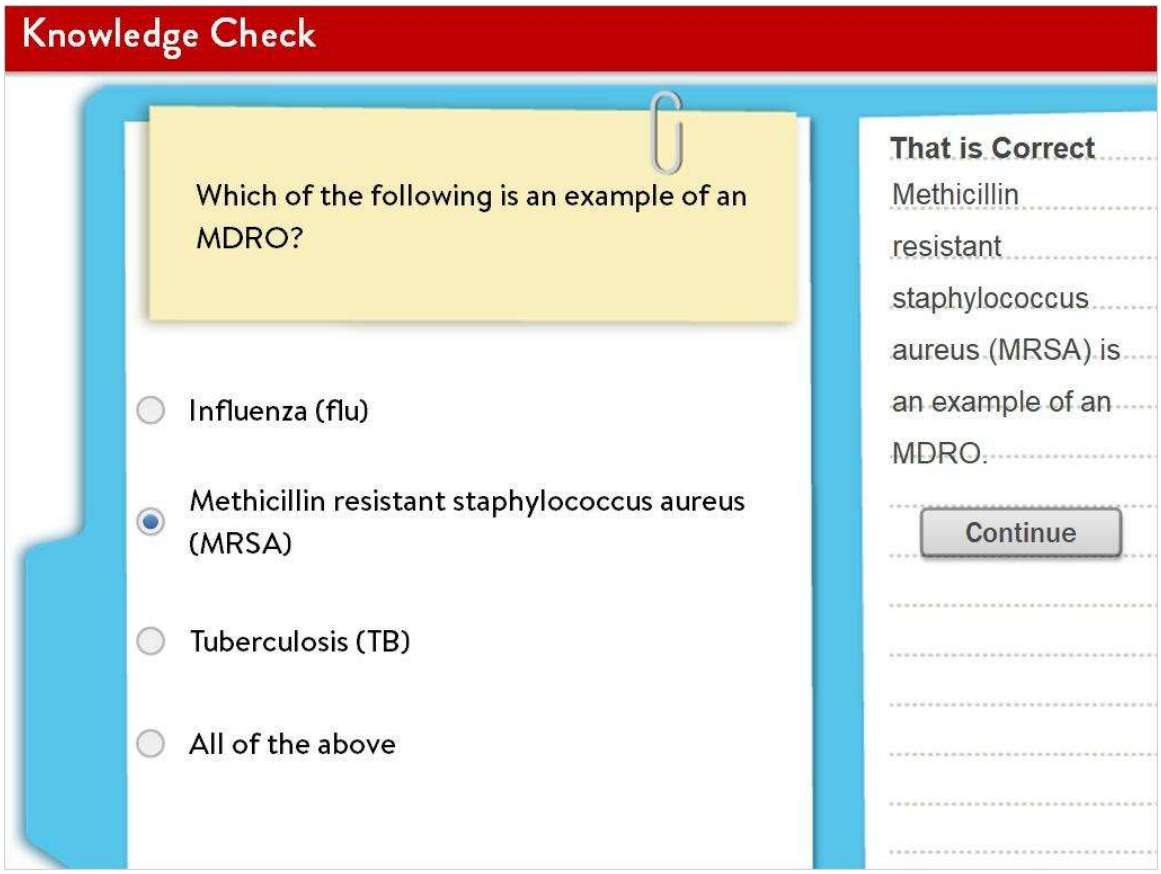
2.10 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

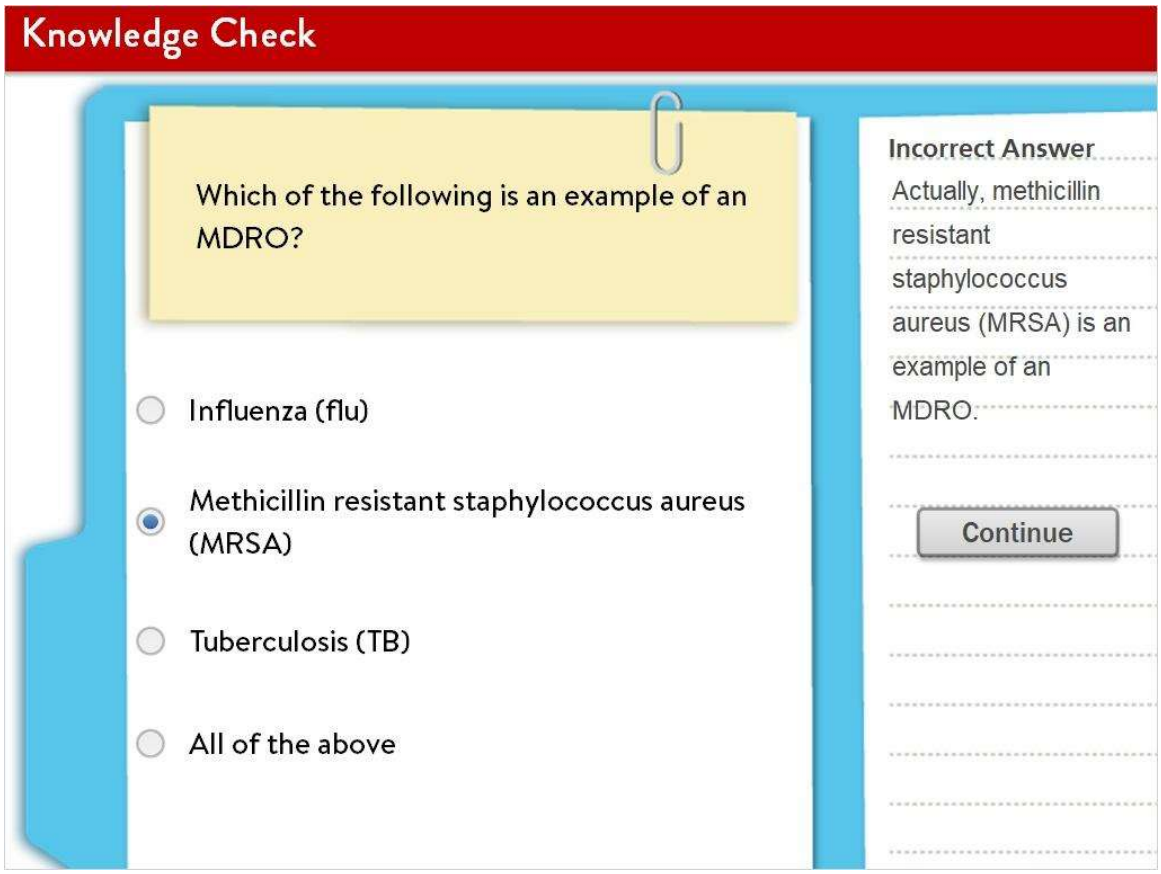


Correct	Choice
	Influenza (flu)
X	Methicillin resistant staphylococcus aureus (MRSA)
	Tuberculosis (TB)
	All of the above

That is Correct (Slide Layer)

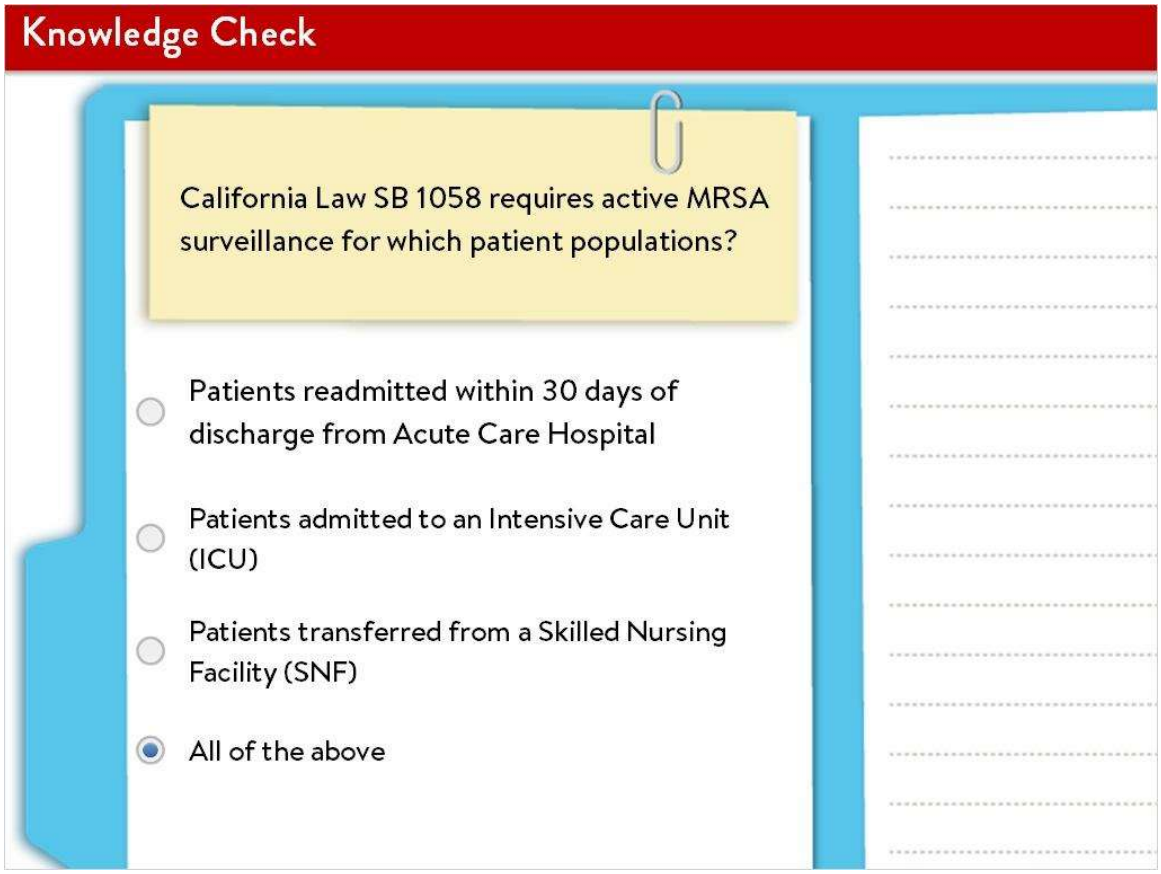


Incorrect (Slide Layer)



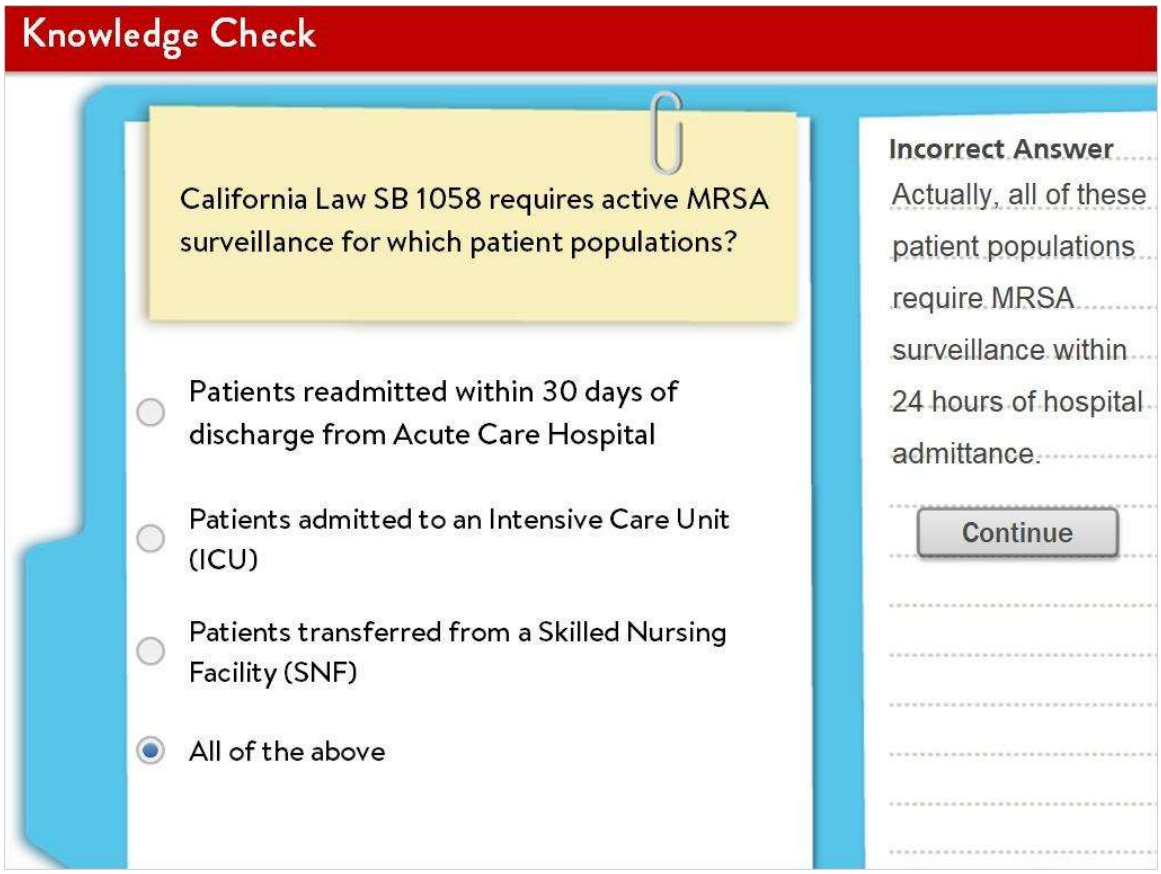
2.11 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

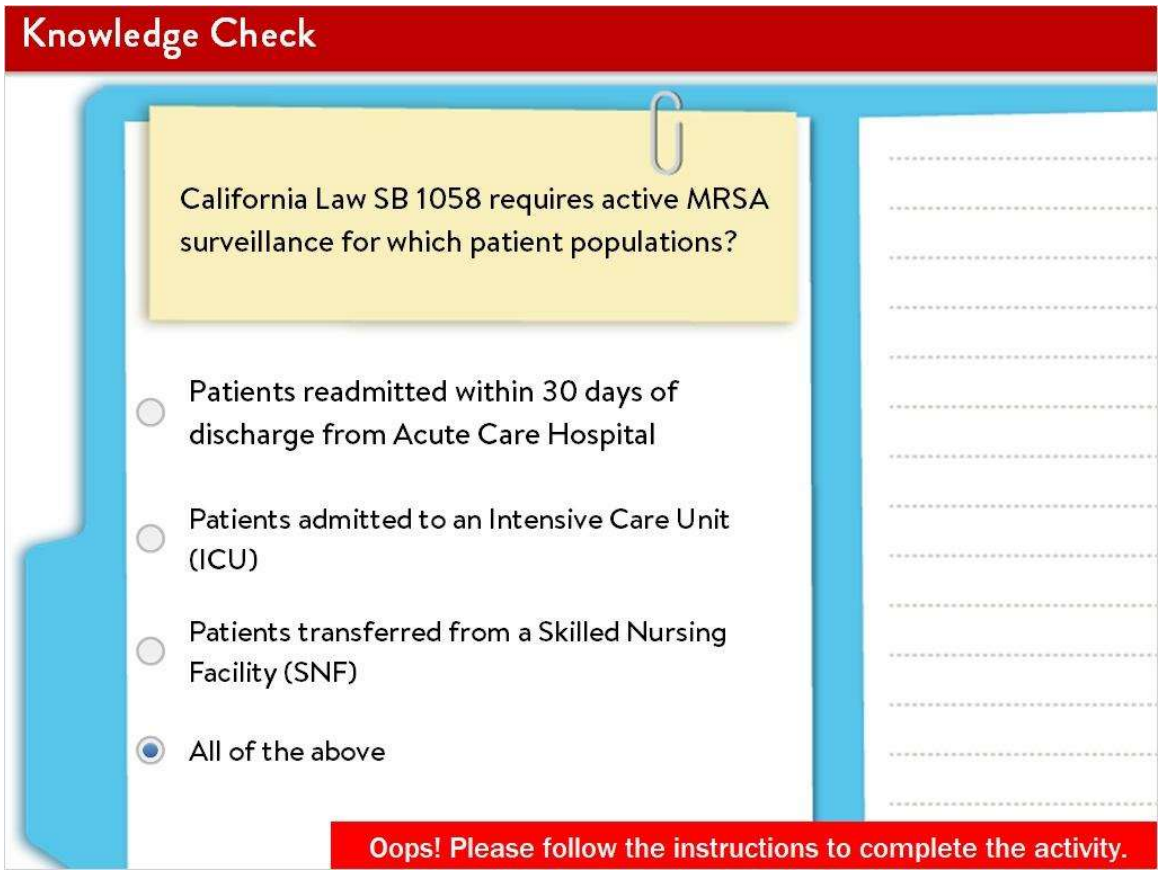


Correct	Choice
	Patients readmitted within 30 days of discharge from Acute Care Hospital
	Patients admitted to an Intensive Care Unit (ICU)
	Patients transferred from a Skilled Nursing Facility (SNF)
X	All of the above

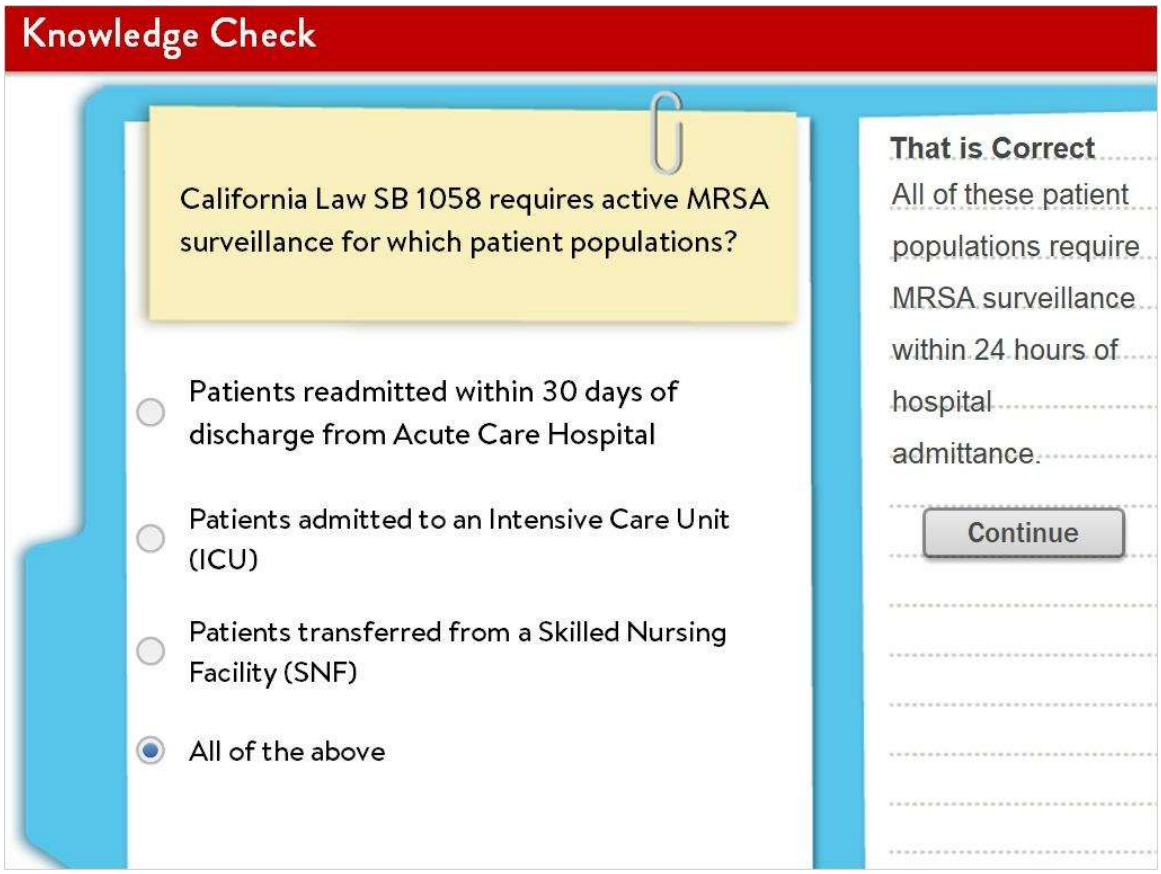
Incorrect (Slide Layer)



Oops for next button (Slide Layer)



That is Correct (Slide Layer)

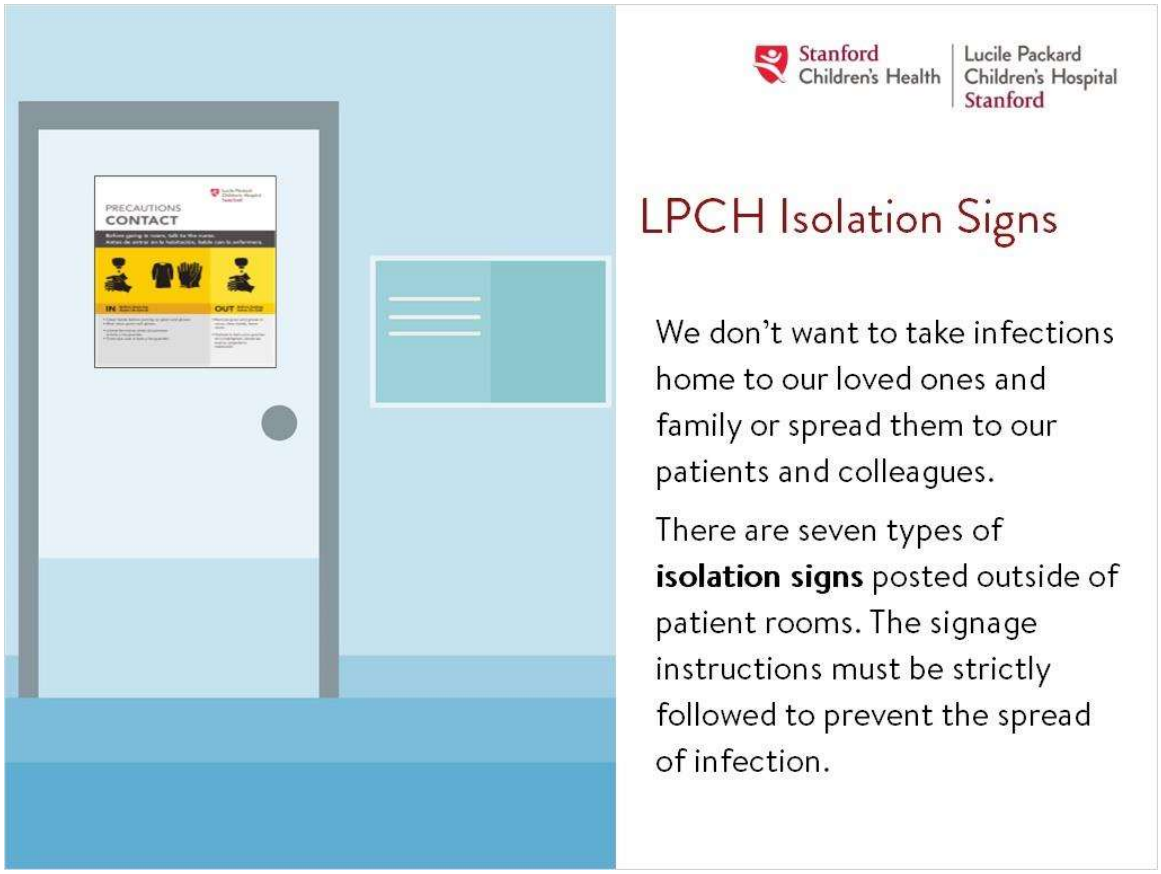


3. LPCH Isolation Signs

3.1 LPCH Isolation Signs

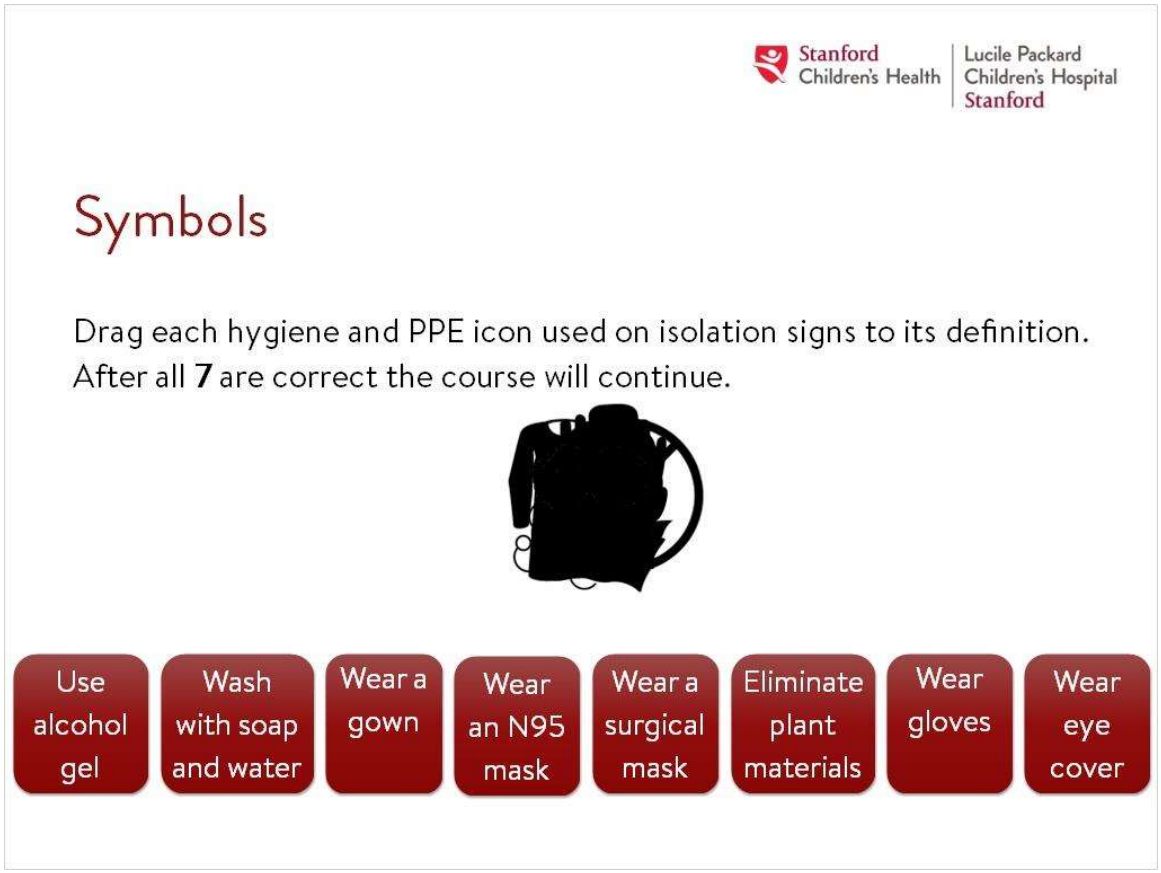
3.2 What Happened? What Could Have Happened Instead?

3.3 LPCH Isolation Signs



3.4 Sign Symbols

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
Picture 1	Wear an N95 mask
Picture 2	Wear gloves
Picture 7	Wash with soap and water
Picture 6	Use alcohol gel
Picture 4	Wear a surgicalmask
Picture 5	Eliminate plant materials
Picture 3	Wear a gown

Picture 8	Wear eye cover

Drag and drop properties
Return item to start point if dropped outside any drop target
Reveal drag items one at a time
Snap dropped items to drop target (Snap to center)
Allow only one item in each drop target
Delay item drop states until interaction is submitted

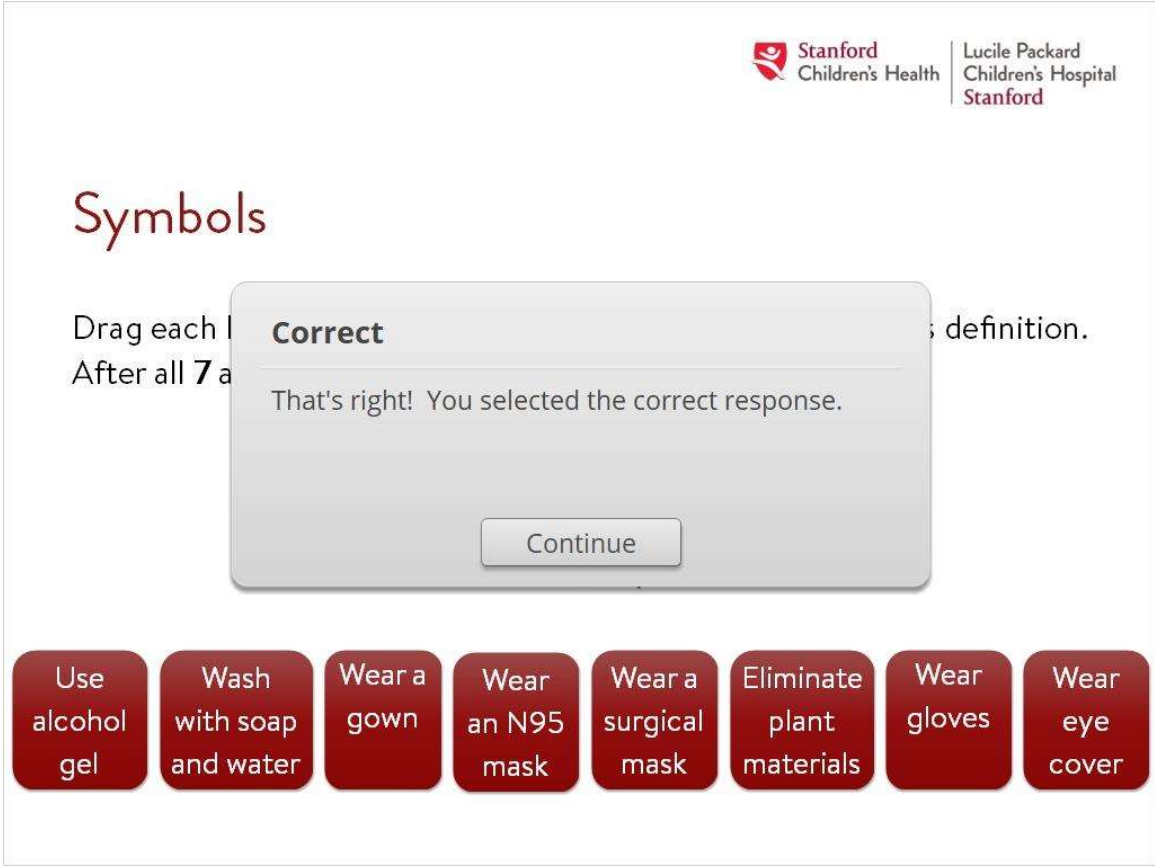
Feedback when correct:

That's right! You selected the correct response.

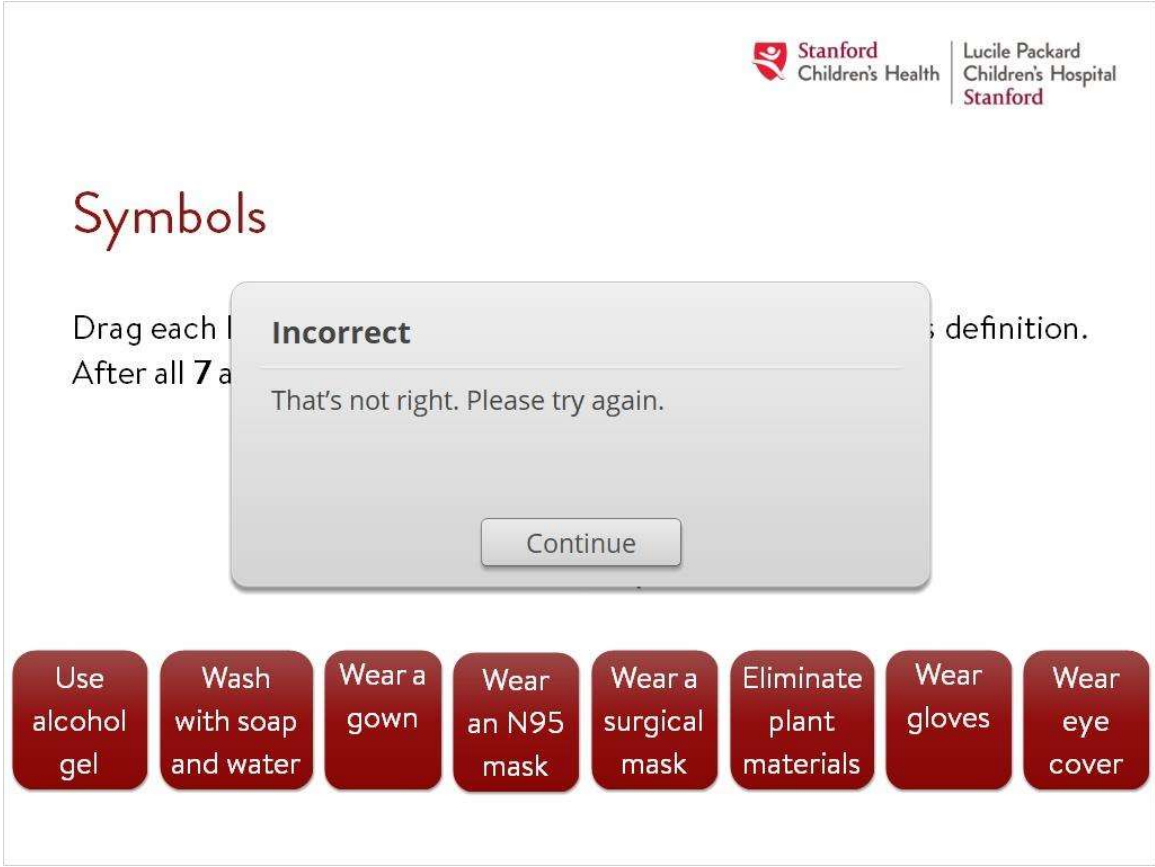
Feedback when incorrect:

That’s not right. Please try again.

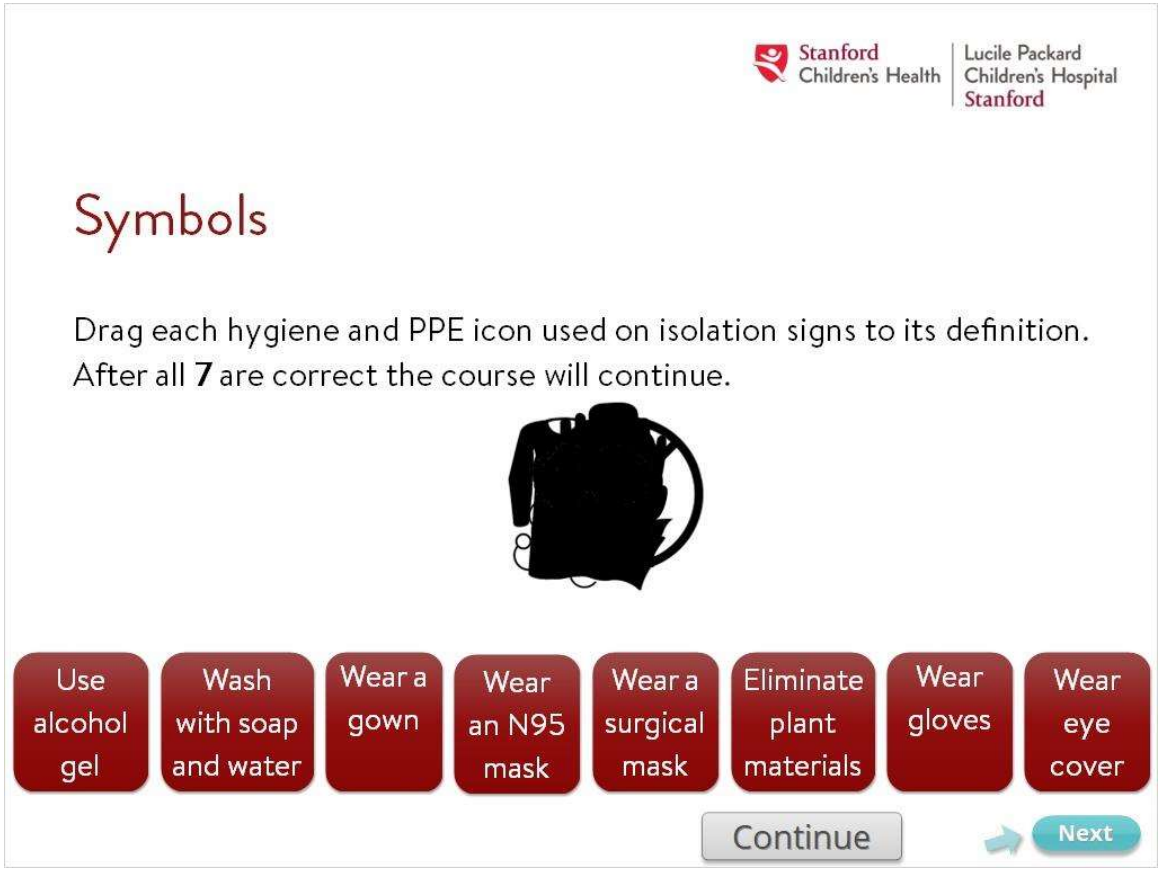
Correct (Slide Layer)



Incorrect (Slide Layer)



Next (Slide Layer)



3.5 Patient example 1

(Drag and Drop, 10 points, 1 attempt permitted)

Drag Item	Drop Target

Drag and drop properties
Return item to start point if dropped outside any drop target
Reveal drag items one at a time
Snap dropped items to drop target (Tile)
Delay item drop states until interaction is submitted

Feedback when correct:

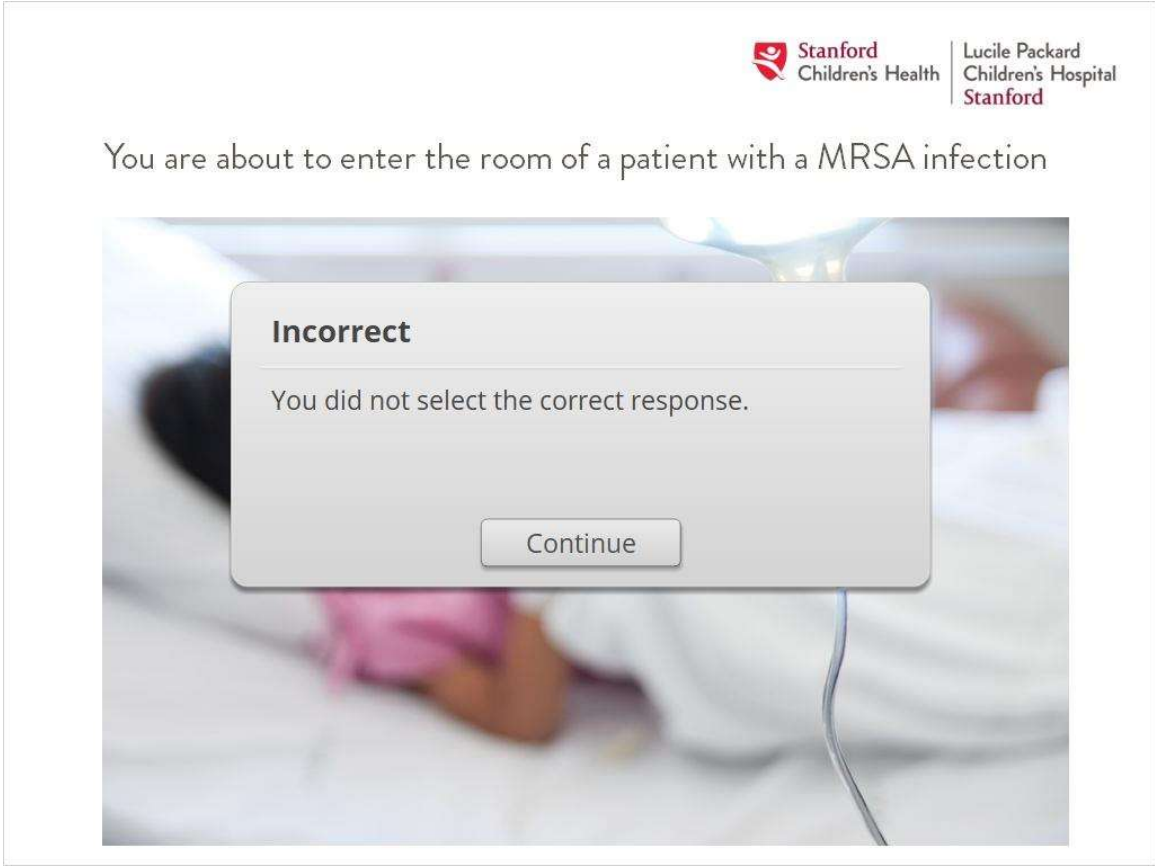
That's right! You selected the correct response.

Feedback when incorrect:

You did not select the correct response.

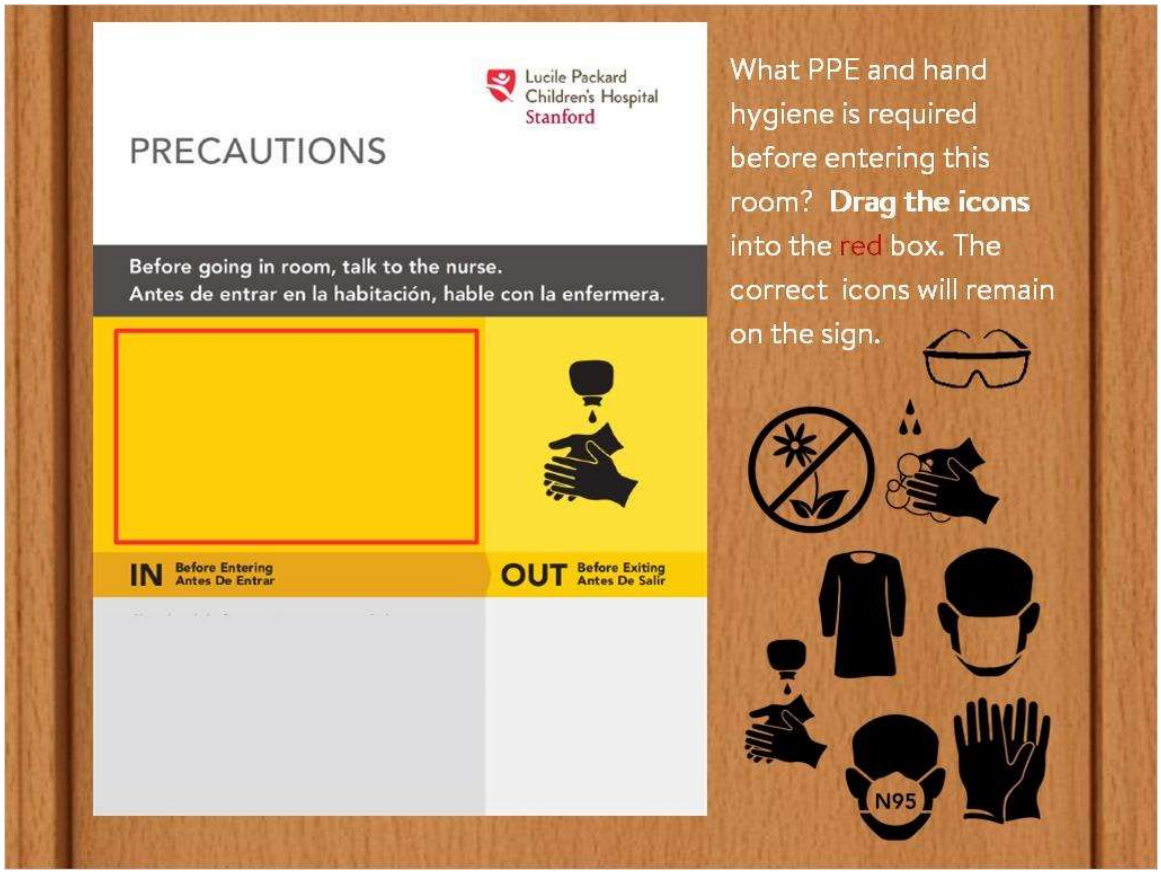
Correct (Slide Layer)

Incorrect (Slide Layer)



3.6 Contact Isolation

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
flower 1	
handgel 1	yellow dropzone 1
gown 1	yellow dropzone 1
washhands 1	
n95 1	
surgicalmask 1	
gloves 1	yellow dropzone 1
Picture 2	

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Tile)
Delay item drop states until interaction is submitted

Answr door 1 (Slide Layer)

That's right. Please review the hygiene and PPE icons on the signage.

Contact isolation is meant to guard against infection caused by touching liquid particles, such as MRSA. *Masks are not required for isolation that is Contact only.*

TIPS & TRICKS

There are 7 types of isolation and ALL require require that you use hand gel and wear a gown and gloves before entering the patient room.

Next

why (Slide Layer)

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Isolation Process Mistakes

We know that an LPCH Team Member inadvertently transmitted an illness to a very sick child by not following proper patient precautions. The illness contributed to the young patient's death.

In 2016, a doctor came in with the influenza and infected four other doctor colleagues.

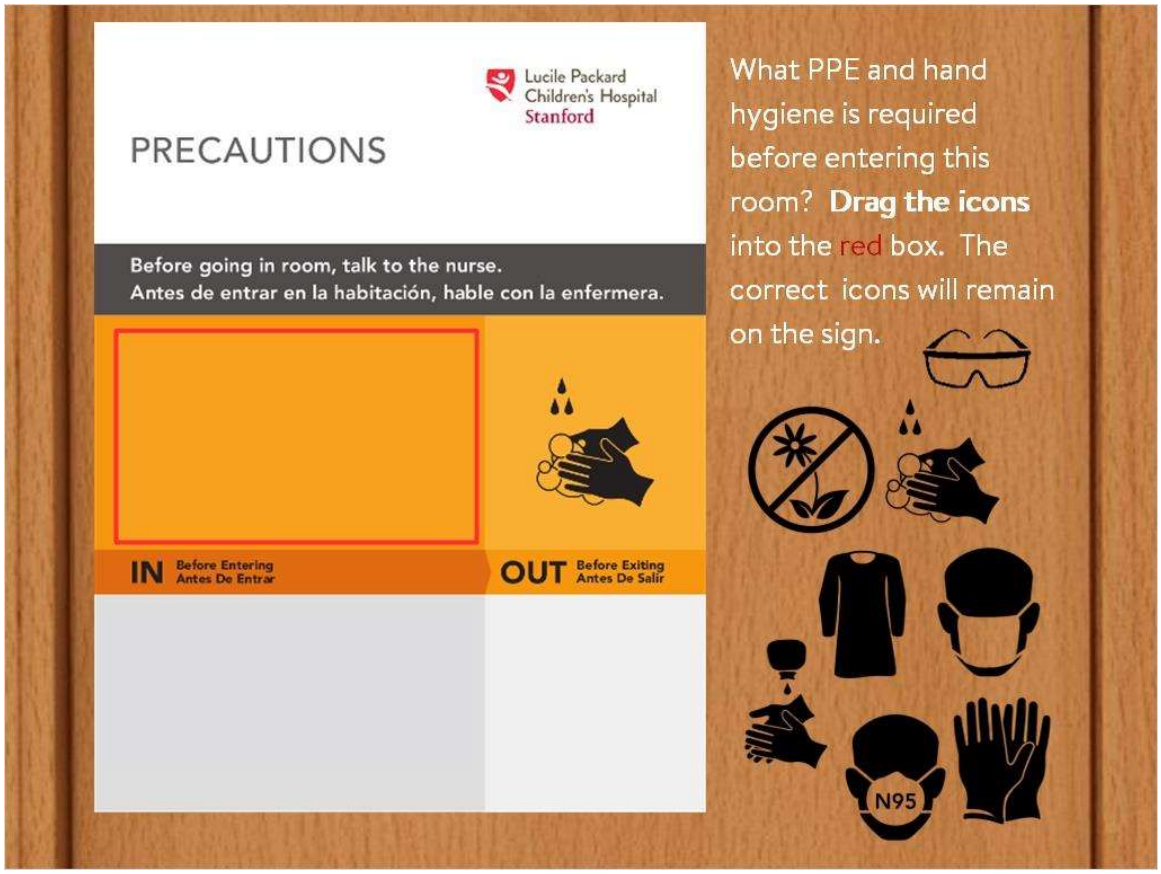
Never think that isolation procedures are unimportant.

Next

3.7 Patient Example 2

3.8 Contact Plus Isolation

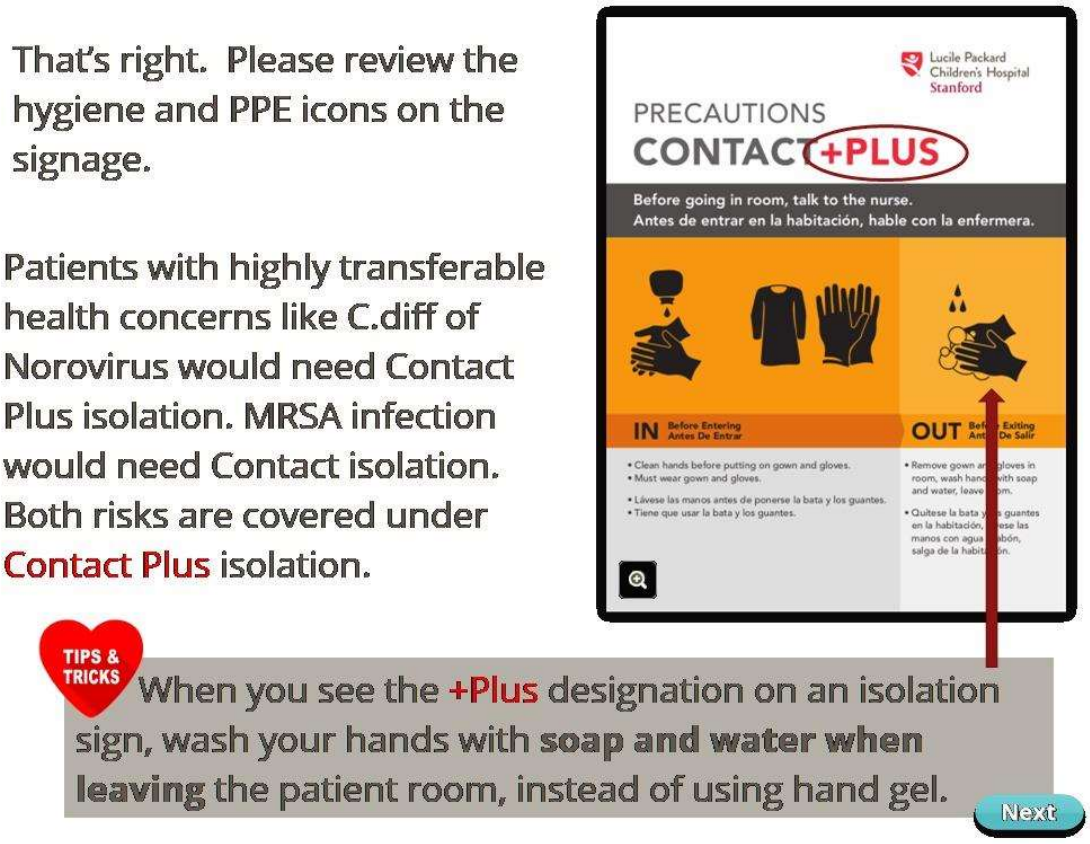
(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
flower 1	
handgel 1	yellow dropzone 1
gown 1	yellow dropzone 1
washhands 1	
n95 1	
surgicalmask 1	
gloves 1	yellow dropzone 1
Picture 2	

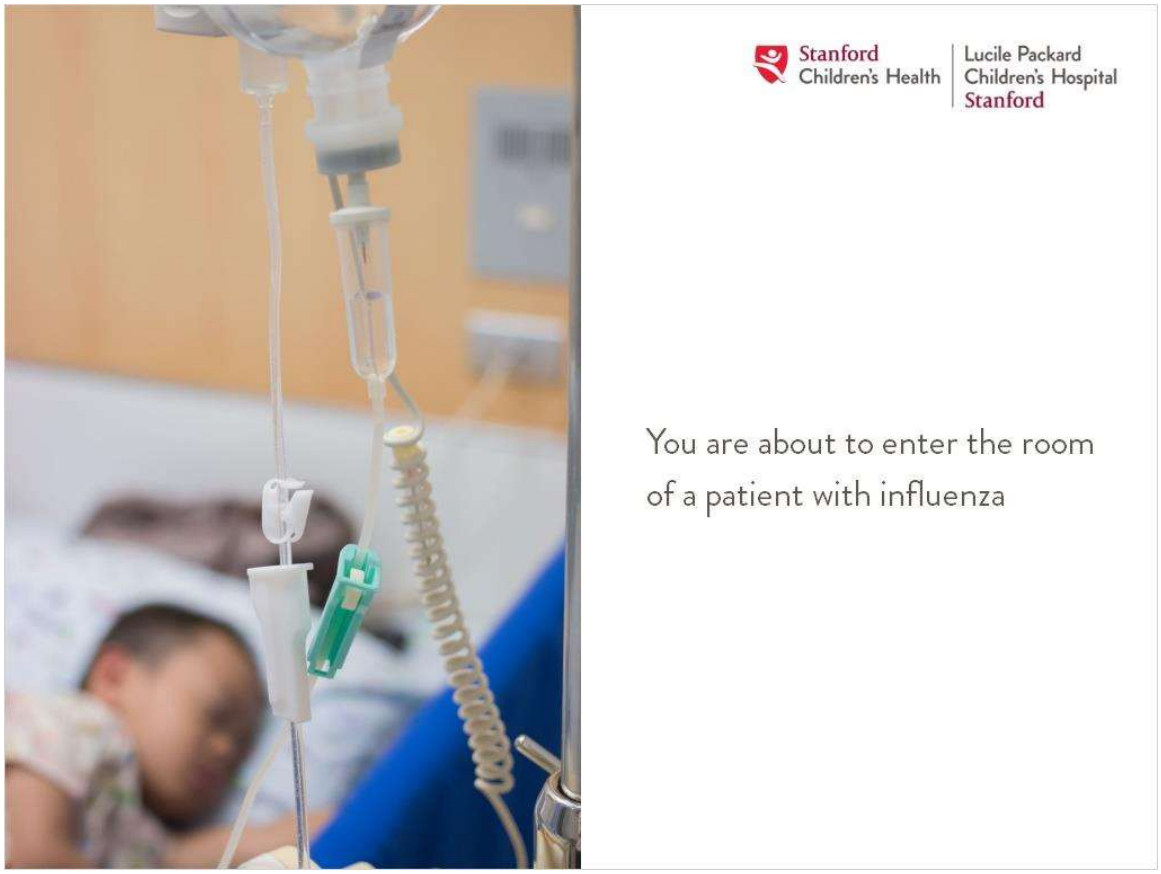
Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Tile)
Delay item drop states until interaction is submitted

Answr door 2 (Slide Layer)



3.9 Patient example 3

(Drag and Drop, 10 points, 1 attempt permitted)

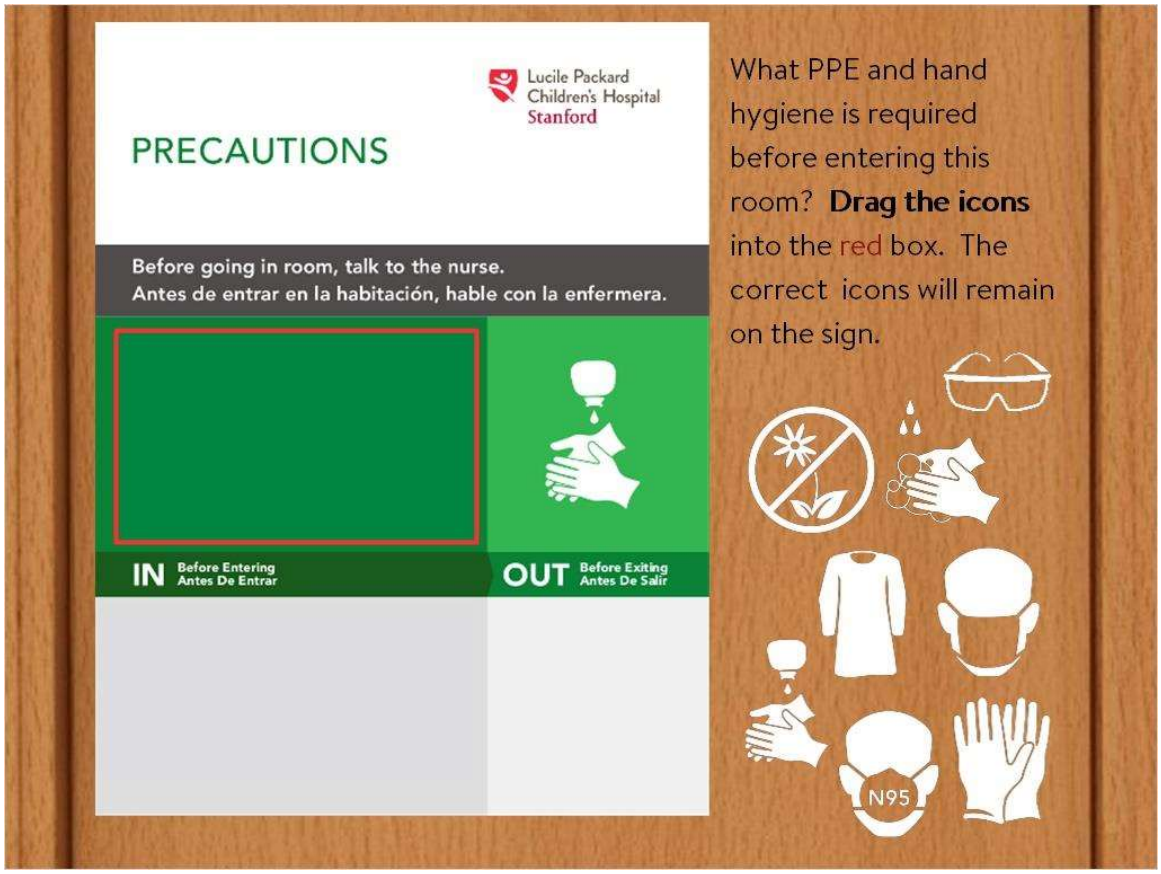


Drag Item	Drop Target

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Stack random)
Delay item drop states until interaction is submitted

3.10 Droplet Isolation

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
flower 1	
handgel 1	yellow dropzone 1
gown 1	yellow dropzone 1
washhands 1	
n95 1	
surgicalmask 1	
gloves 1	yellow dropzone 1

PPE_Glasses	yellow dropzone 1

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Tile)
Delay item drop states until interaction is submitted

Answr door 3 (Slide Layer)

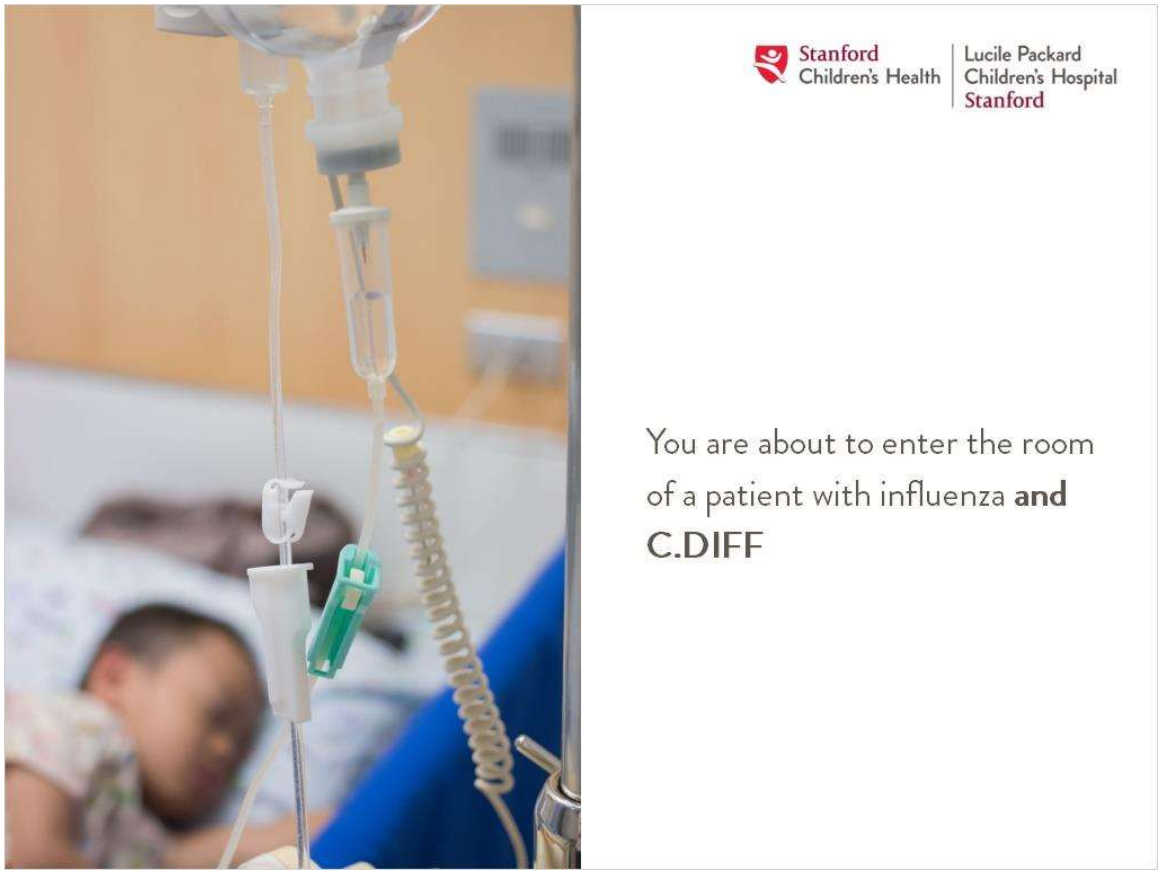
That's right. Please review the hygiene and PPE icons on the signage.

Droplet/Contact isolation is meant to guard against infection causing liquid particles that may be spread by coughing. Droplet isolation requires use of a surgical mask before entering the room.

Next

3.11 Patient example 4

(Drag and Drop, 10 points, 1 attempt permitted)

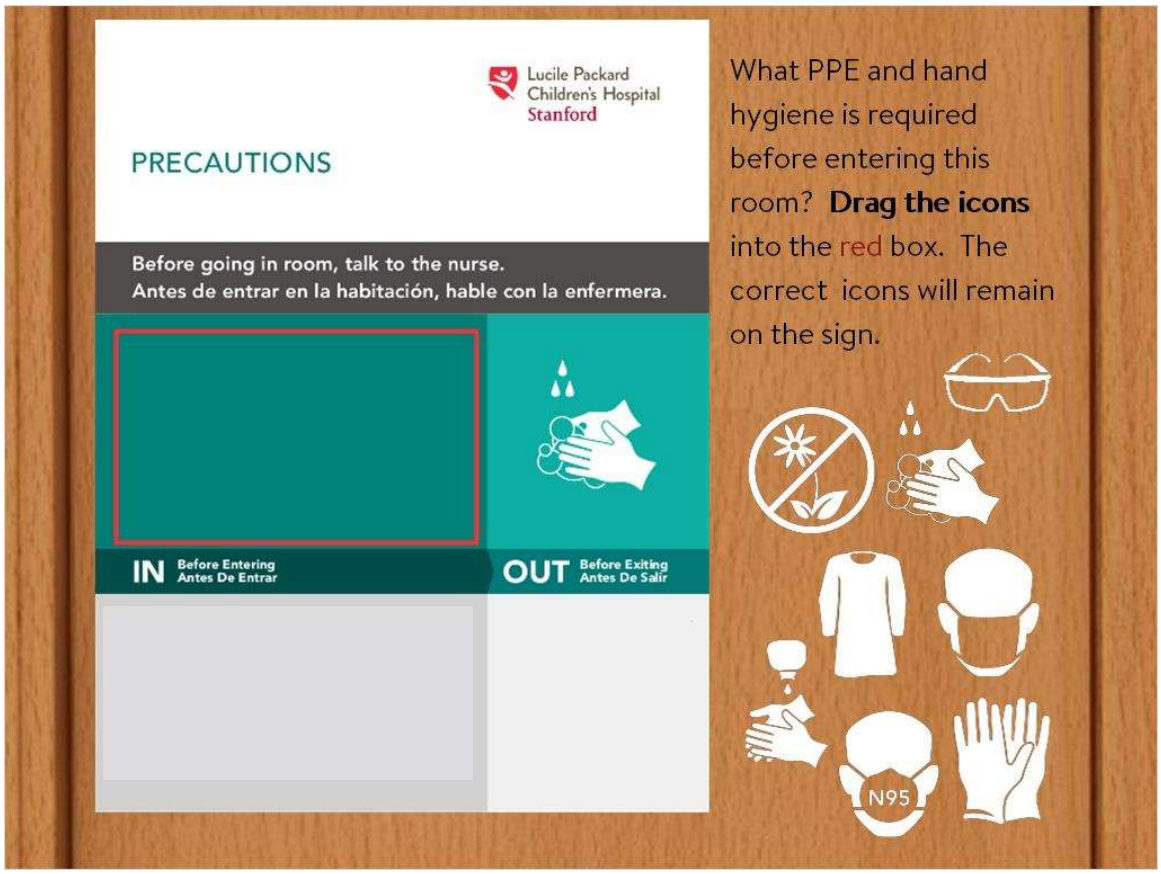


Drag Item	Drop Target

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Stack random)
Delay item drop states until interaction is submitted

3.12 Droplet Plus Isolation

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
flower 1	
handgel 1	yellow dropzone 1
gown 1	yellow dropzone 1
washhands 1	
n95 1	
surgicalmask 1	

gloves 1	yellow dropzone 1
Glasses	yellow dropzone 1

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Tile)
Delay item drop states until interaction is submitted

Answr door 4 (Slide Layer)

That's right. Please review the hygiene and PPE icons on the signage.

Because of the highly transferable C.DIFF, this isolation room is **+Plus**. Potential contact with influenza requires application of a surgical mask. When risks are combined the room becomes the Droplet/Contact+Plus type.

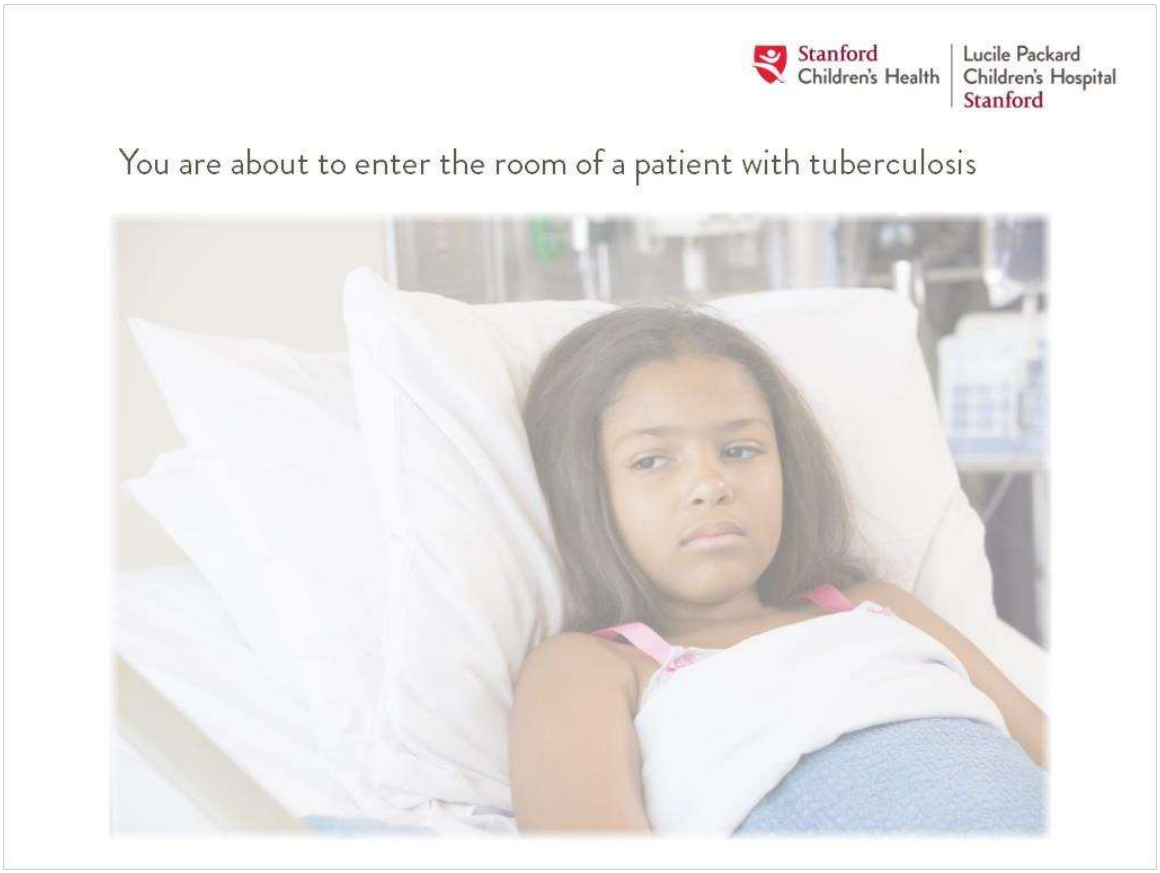
TIPS & TRICKS

The nearest sink is where you should wash your hands with soap and water.

Next

3.13 Patient example 5

(Drag and Drop, 10 points, 1 attempt permitted)

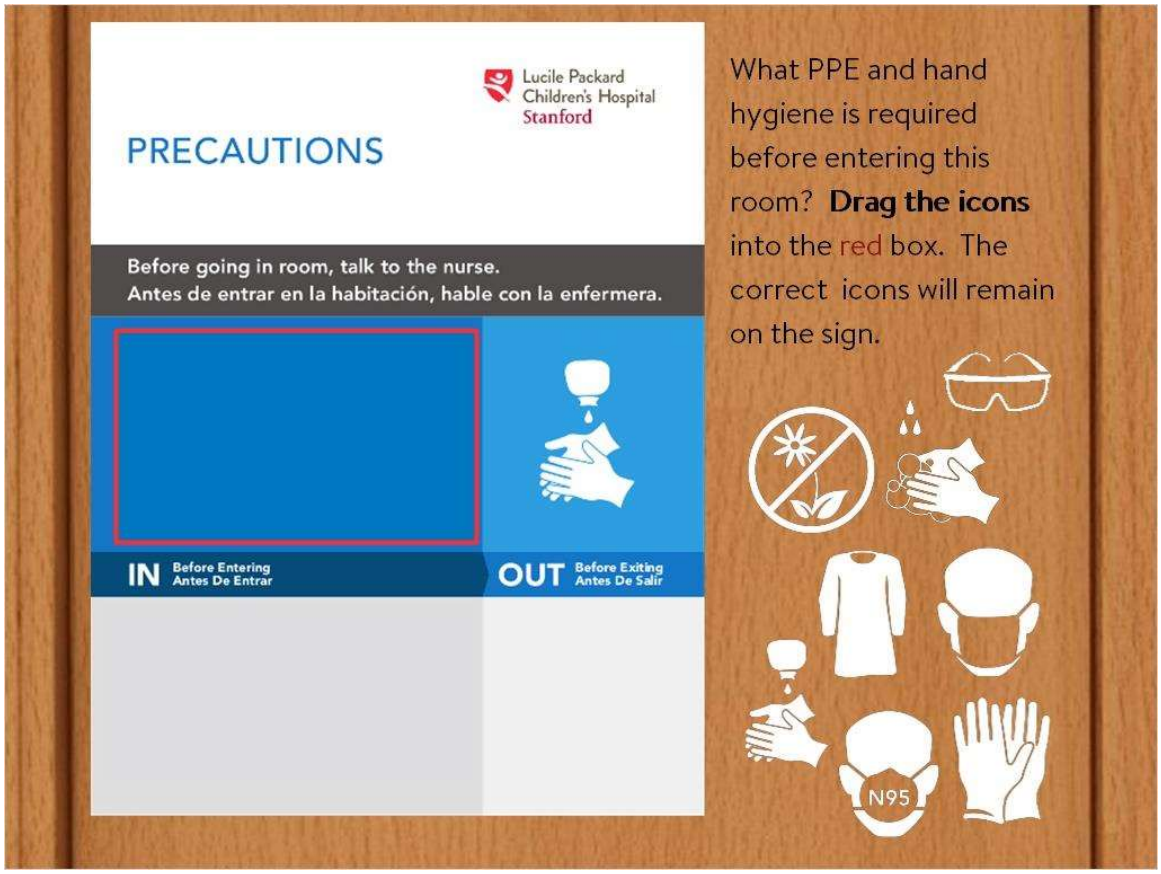


Drag Item	Drop Target

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Stack random)
Delay item drop states until interaction is submitted

3.14 Airborne Isolation

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
flower 1	
handgel 1	yellow dropzone 1
gown 1	yellow dropzone 1
washhands 1	
n95 1	yellow dropzone 1
surgicalmask 1	yellow dropzone 1
gloves 1	yellow dropzone 1

Picture 3

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Tile)
Delay item drop states until interaction is submitted

Answr door 5 (Slide Layer)

That's right. Please review the hygiene and PPE icons on the signage.

Airborne/Contact isolation is meant to guard against infection causing liquid **and airborne** particles, through use of a fitted N95 mask, while with the patient.

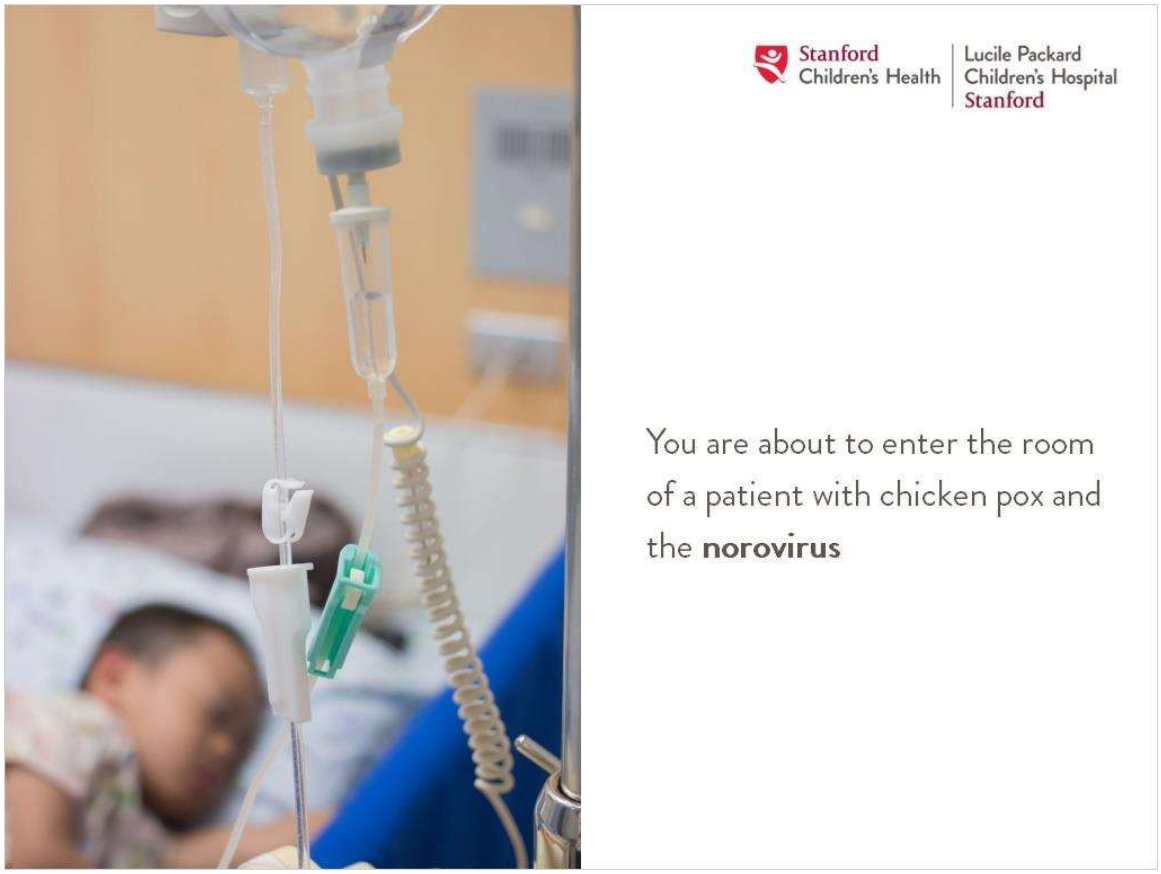
TIPS & TRICKS

Unless the room is +Plus then use hand gel when exiting the patient room.

Next

3.15 Patient example 6

(Drag and Drop, 10 points, 1 attempt permitted)

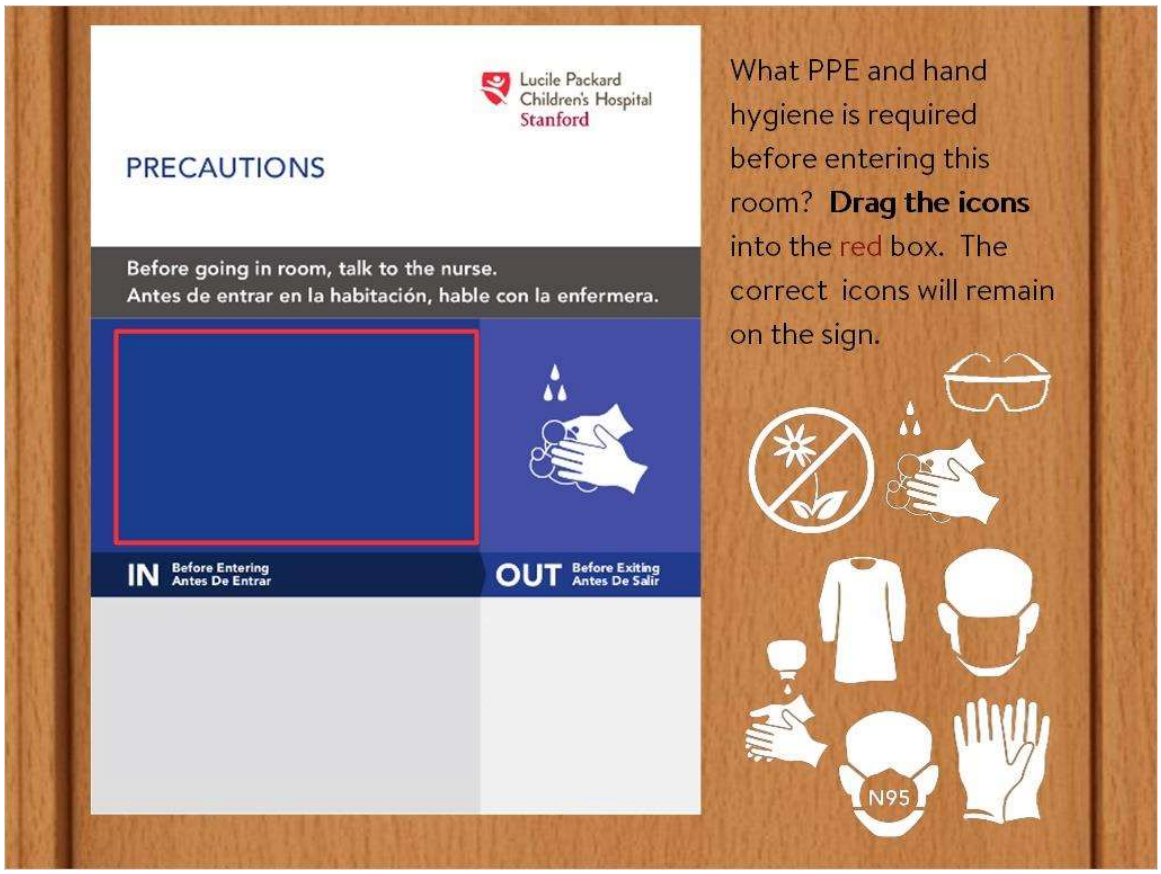


Drag Item	Drop Target

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Stack random)
Delay item drop states until interaction is submitted

3.16 Airborne Plus Isolation

(Drag and Drop, 10 points, 1 attempt permitted)



Drag Item	Drop Target
flower 1	
handgel 1	yellow dropzone 1
gown 1	yellow dropzone 1
washhands 1	
n95 1	yellow dropzone 1
surgicalmask 1	yellow dropzone 1

gloves 1	yellow dropzone 1
Picture 4	

Drag and drop properties
Return item to start point if dropped outside any drop target
Snap dropped items to drop target (Tile)
Delay item drop states until interaction is submitted

Feedback when correct:

That's right! You selected the correct response.

Feedback when incorrect:

You did not select the correct response.

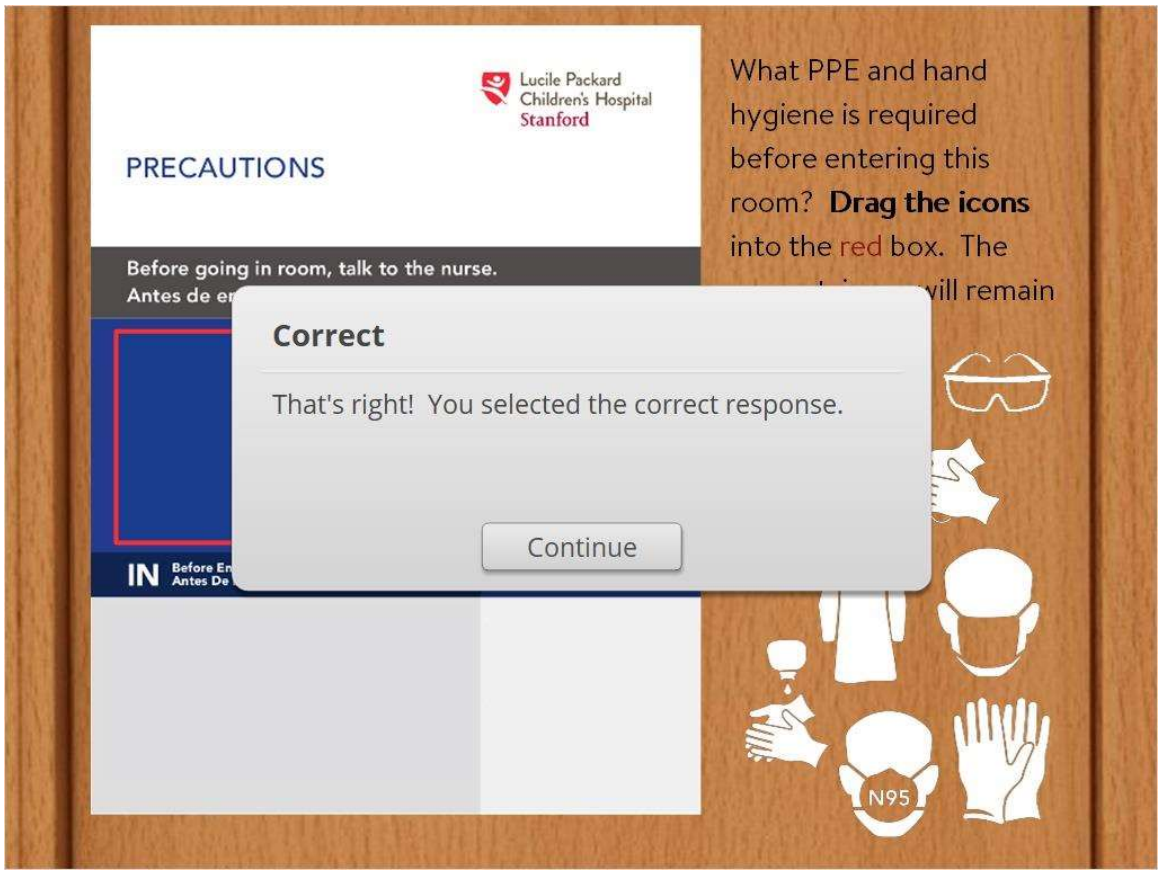
Answr door 6 (Slide Layer)

That's right. Please review the hygiene and PPE icons on the signage.

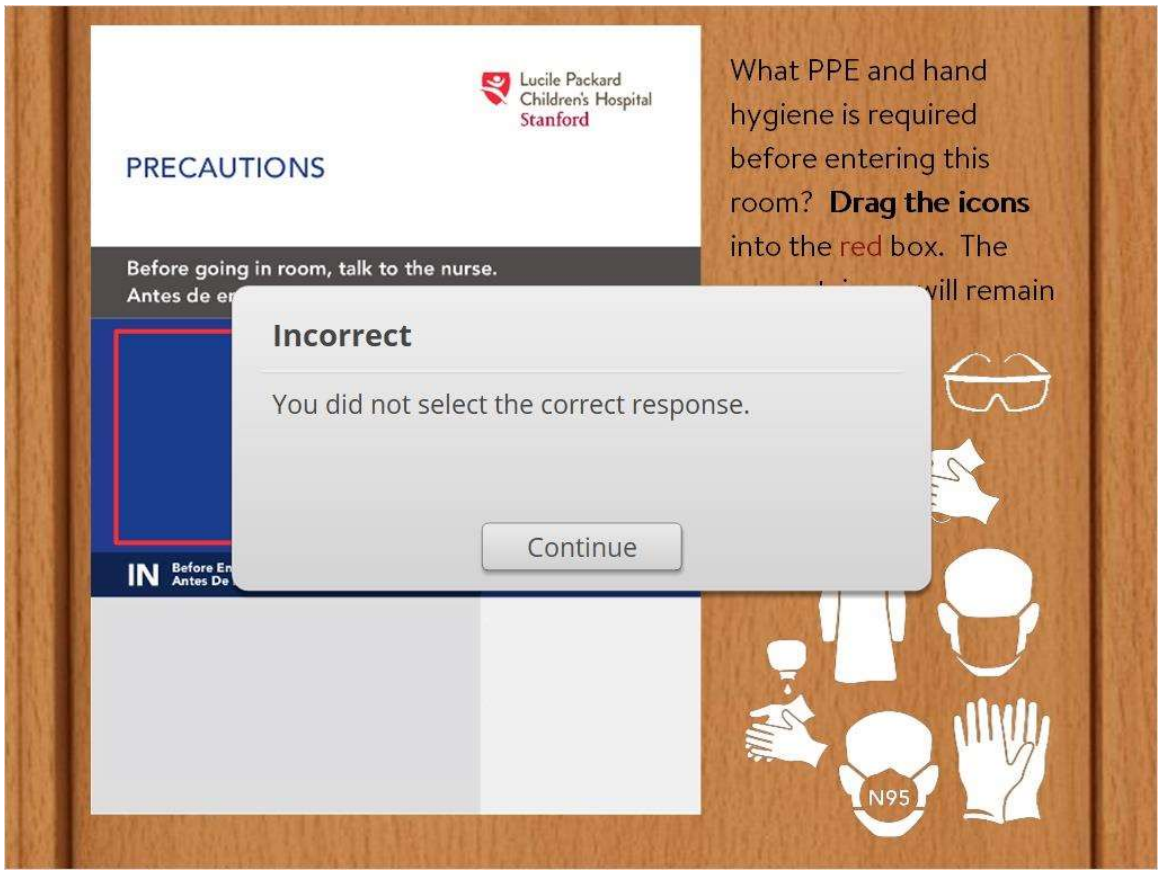
Because the norovirus is highly contagious like C.DIFF, the patient room is **+Plus** and requires washing your hands with **soap and water** when exiting.

Next

Correct (Slide Layer)



Incorrect (Slide Layer)



3.17 Protective Isolation

protective (Slide Layer)

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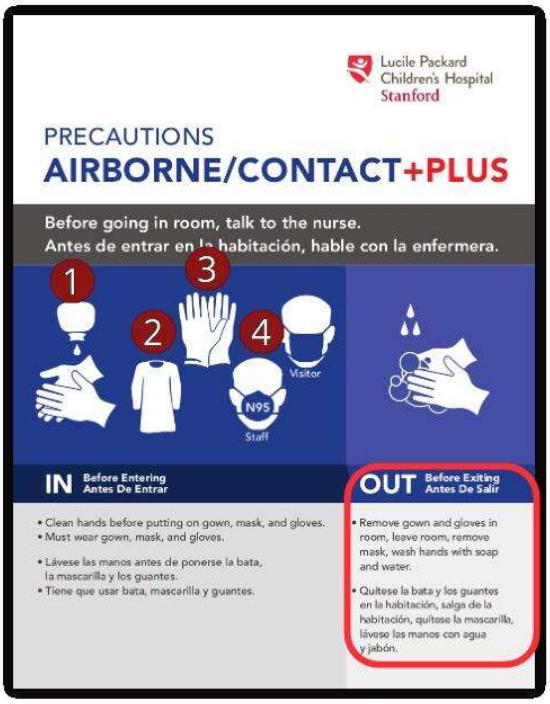
This **Protective** type isolation may be used in that instance and in conjunction with other isolation types.

If you see this sign, ensure that flowers or plants are **not** anywhere near the patient.

Next

Reading (Slide Layer)



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Lastly, make sure before entering the room that you apply PPE in the shown order from left to right.

Remove PPE and apply hand hygiene in the order listed on the isolation sign.

Next

4. Airborne Transmissible Diseases

4.1 Airborne Transmissible Diseases

4.2 What Happened? What Could Have Happened Instead?

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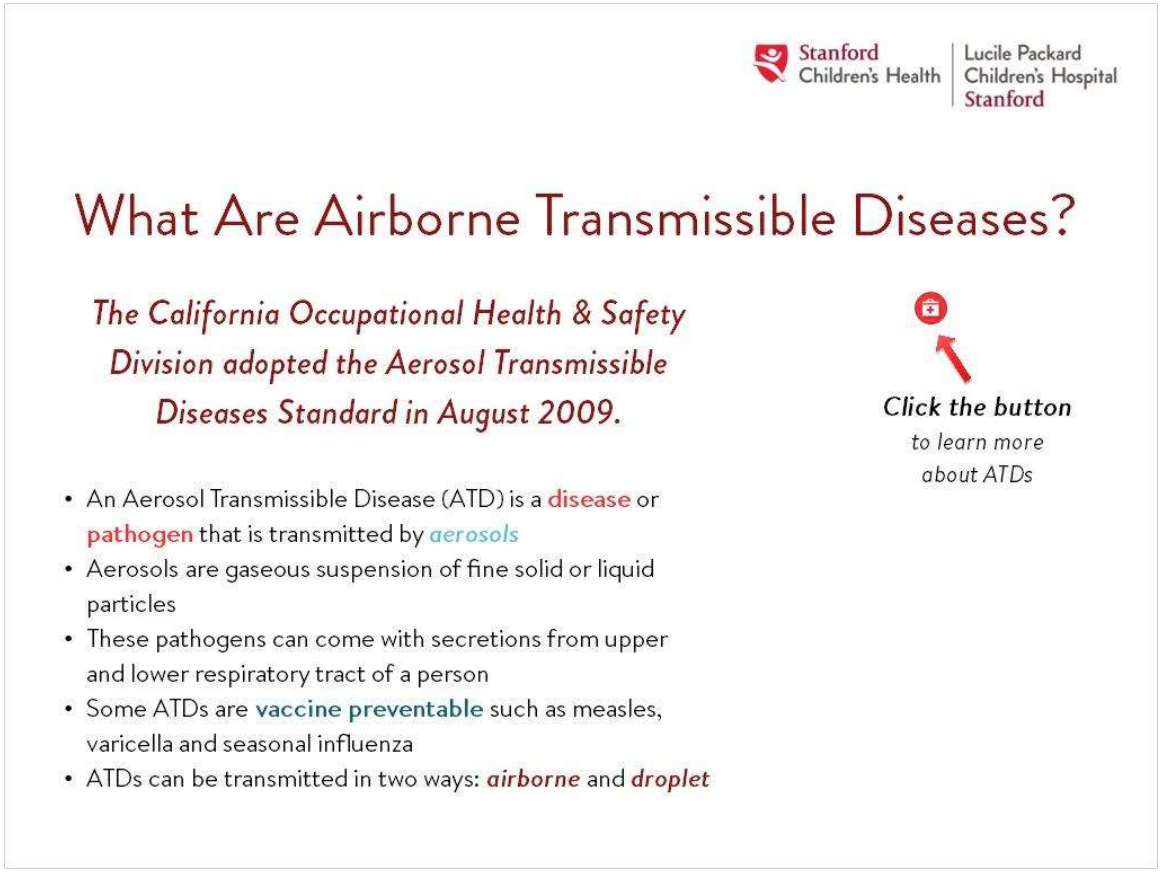
What Happened?
What Could Have Happened Instead?

Janice Upshaw, Infection Preventionist

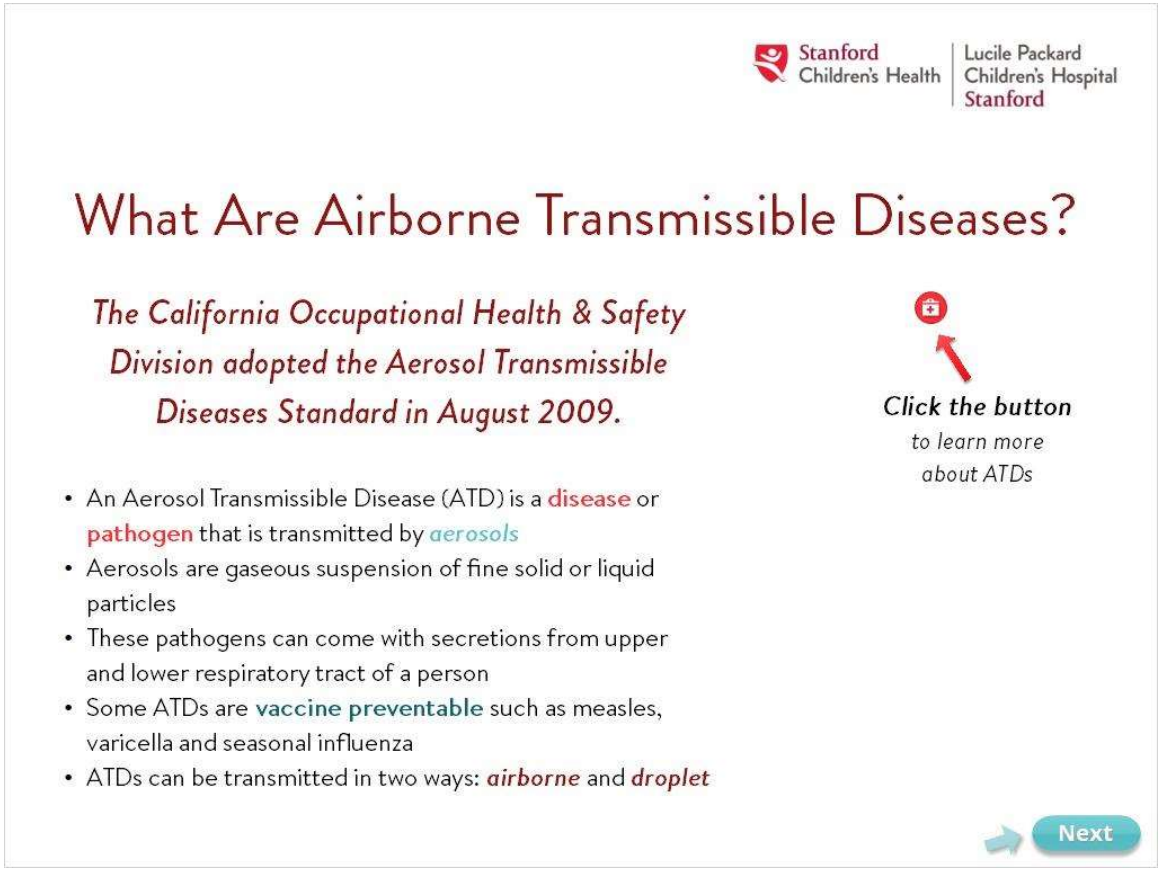
- Janice needed to implement a team approach to infection prevention in the hospital, but she lacked the skills to successfully *coach team members*
- The team members were not aware of the necessary exposure precautions for infections such as MRSA
- As a result, Whitney contracted a hospital-acquired infection
- If Janice had been successful in coaching team members members about infection control, Whitney would have had a positive outcome

Next (Slide Layer)

4.3 What Are Airborne Transmissible Diseases?

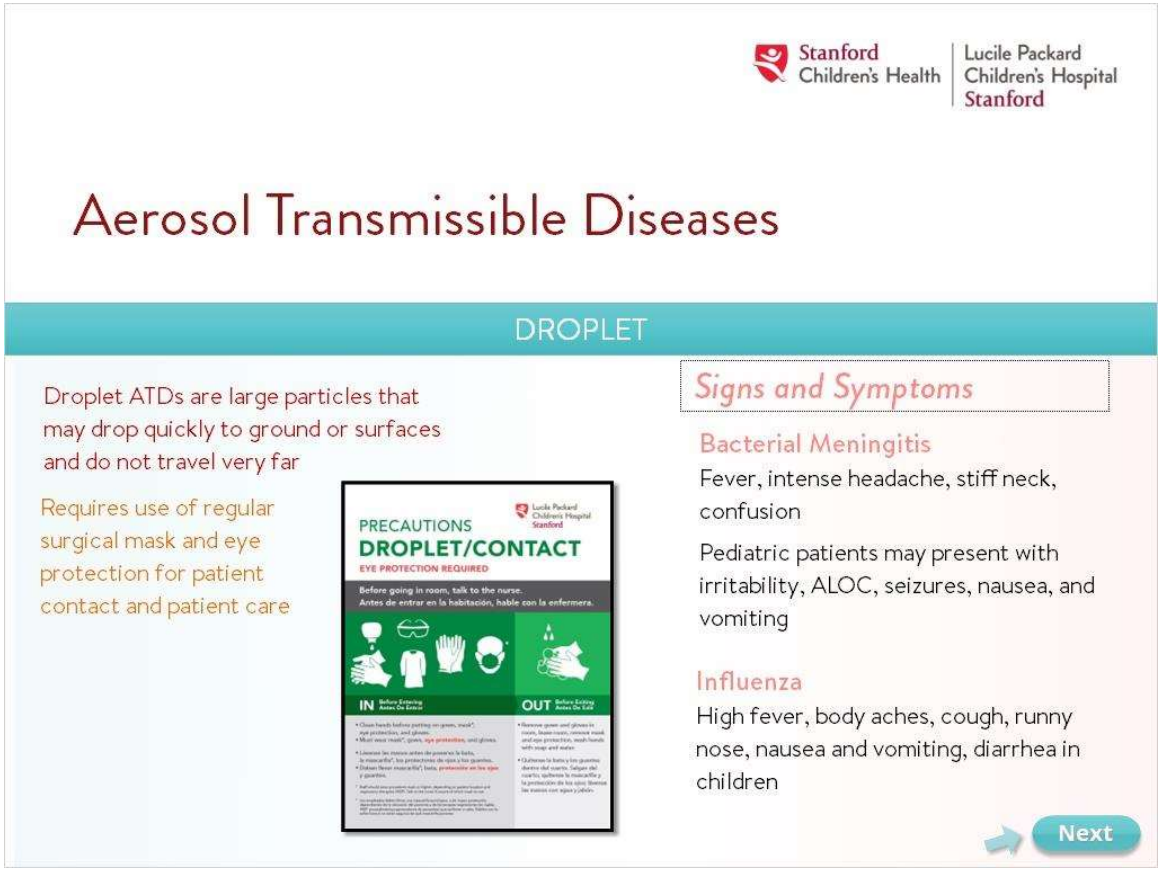


Next (Slide Layer)

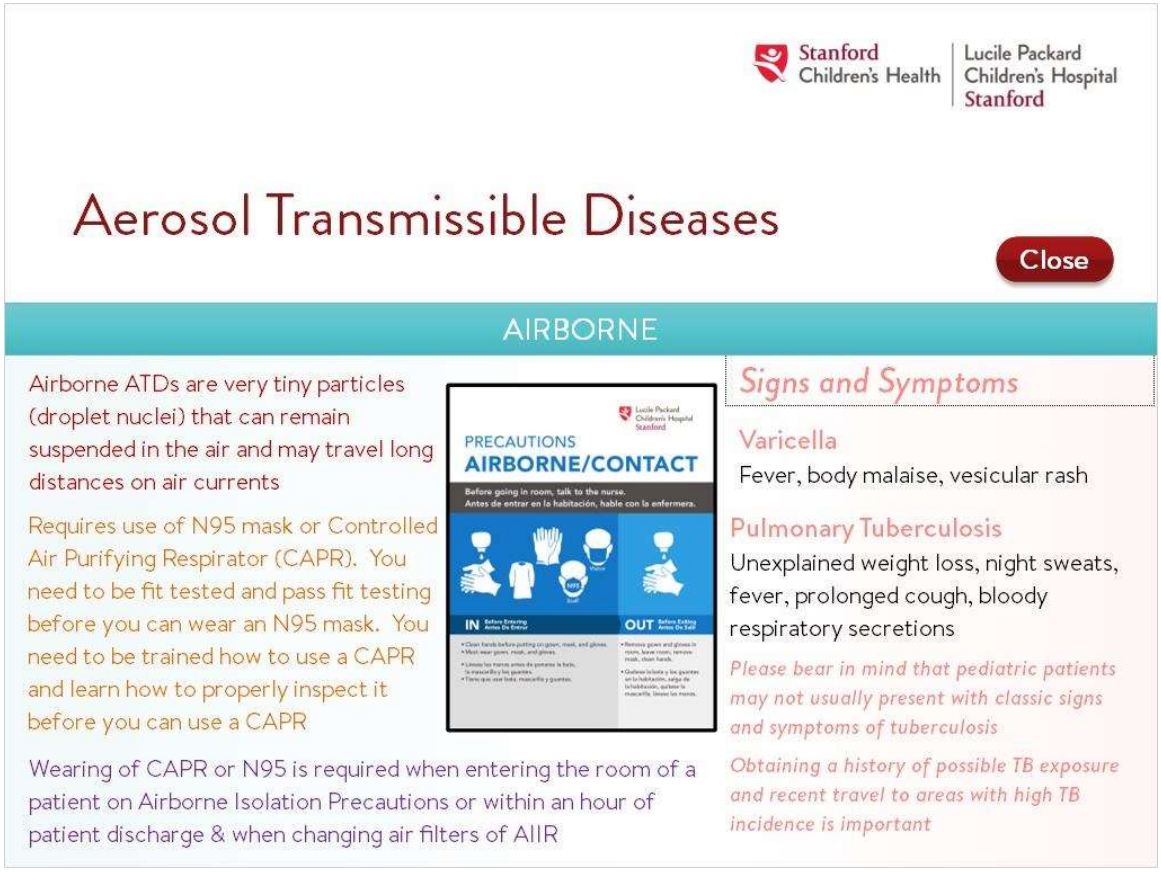


4.4 Airborne Transmissible Diseases: Airborne vs. Droplet

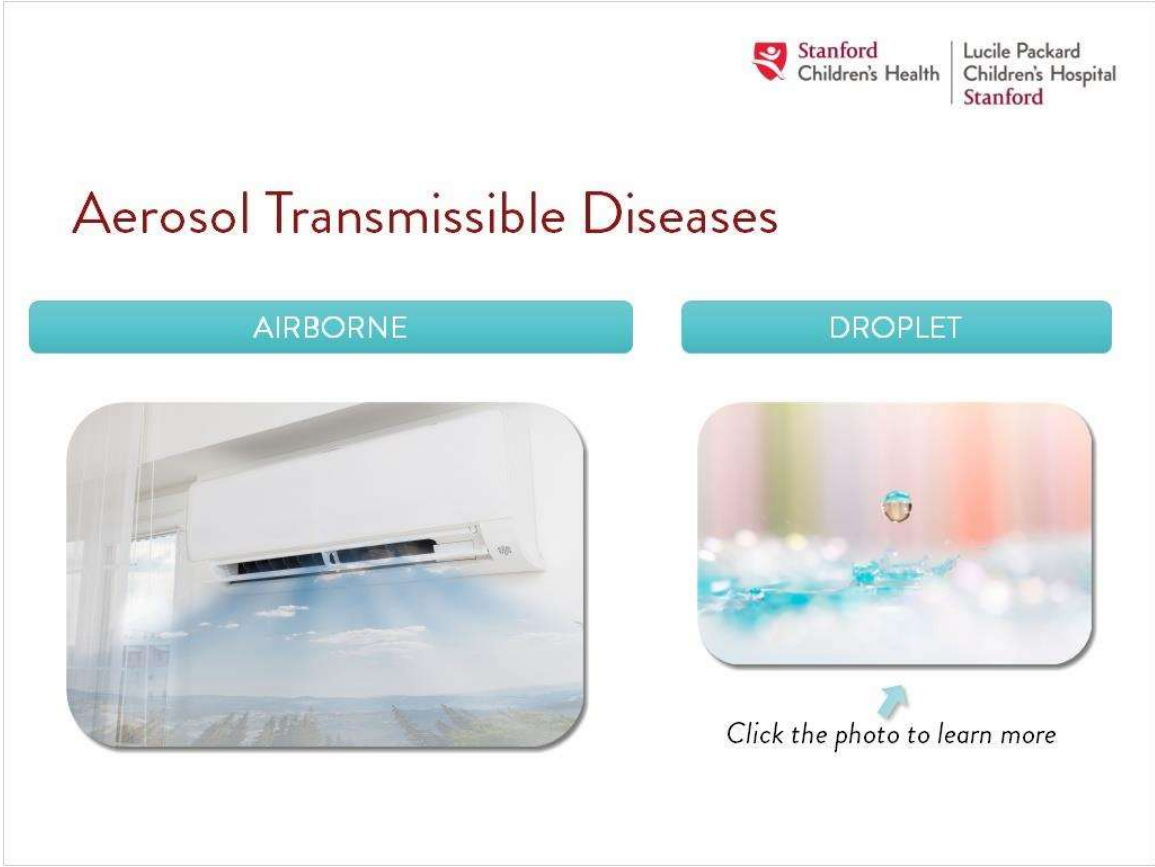
Droplet (Slide Layer)



Airborne (Slide Layer)

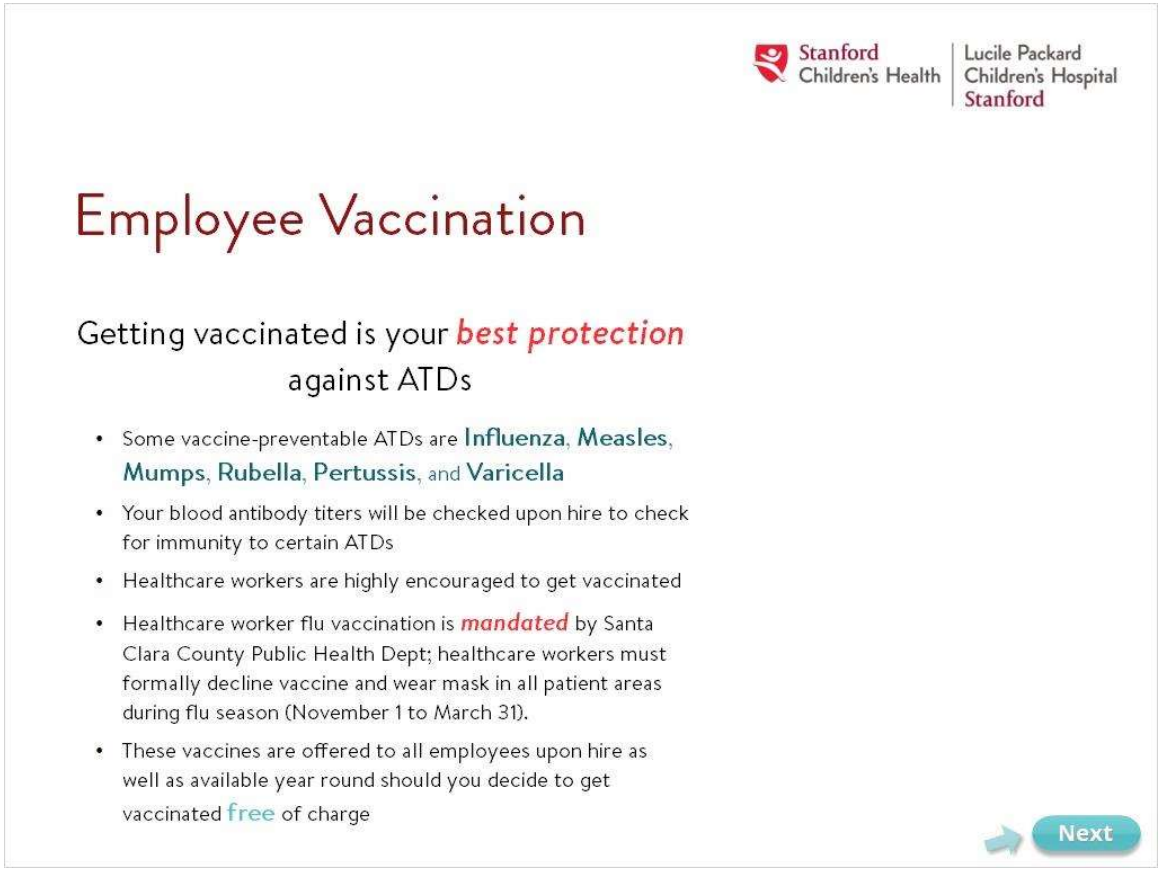


Base Layer 2 (Slide Layer)

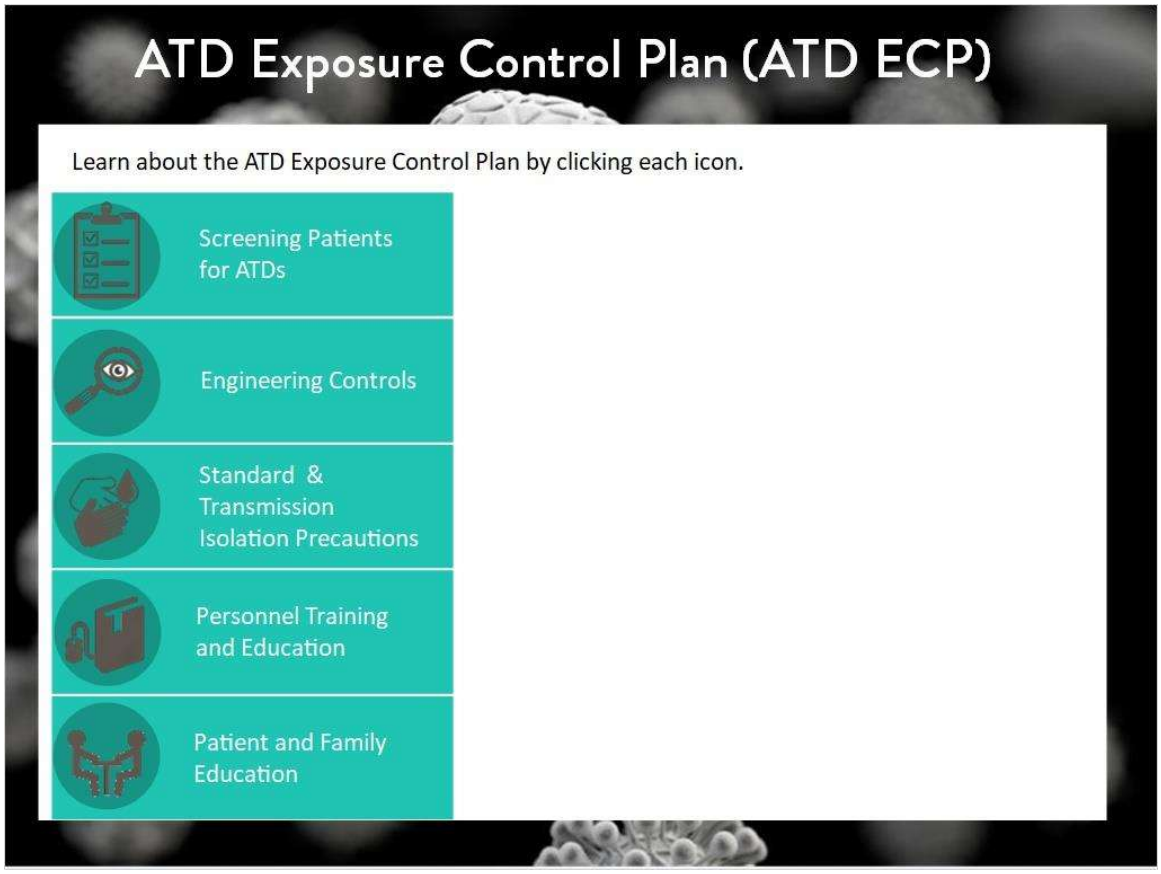


4.5 Employee Vaccination

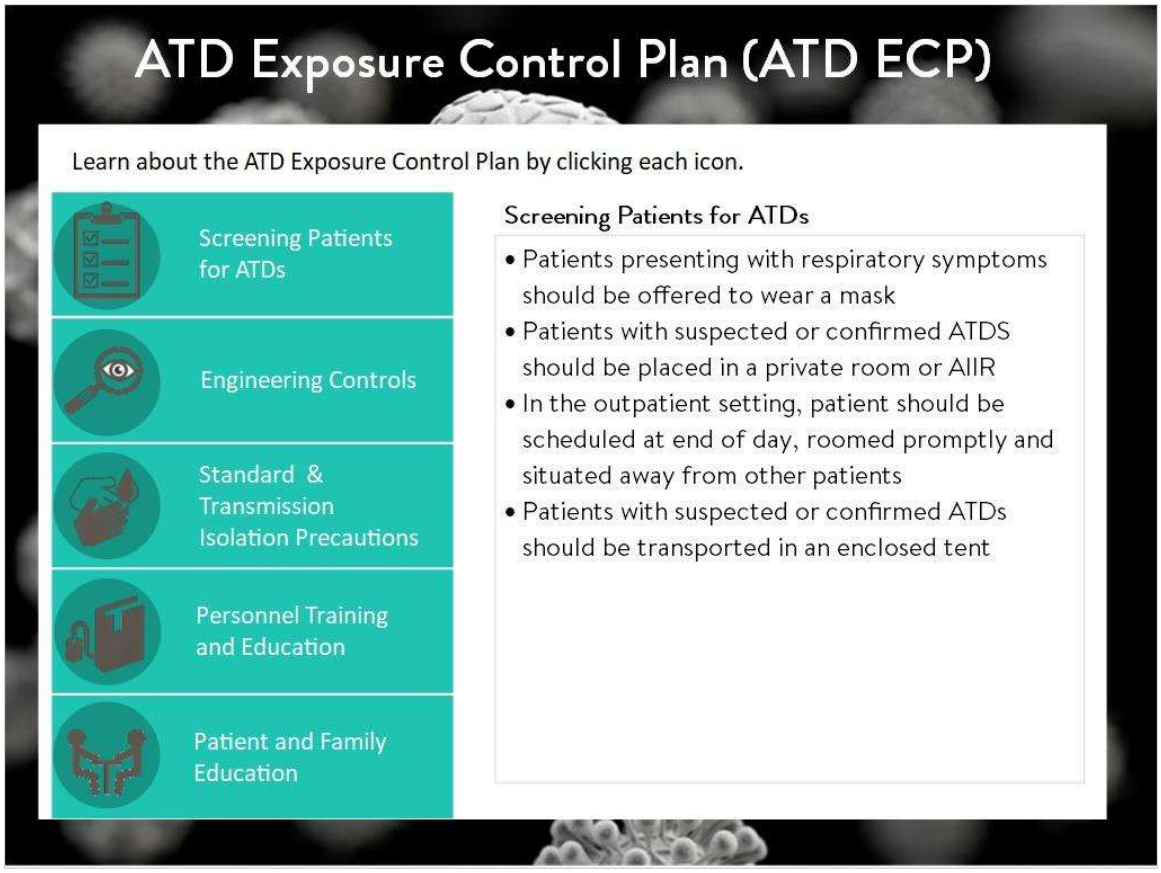
Next (Slide Layer)



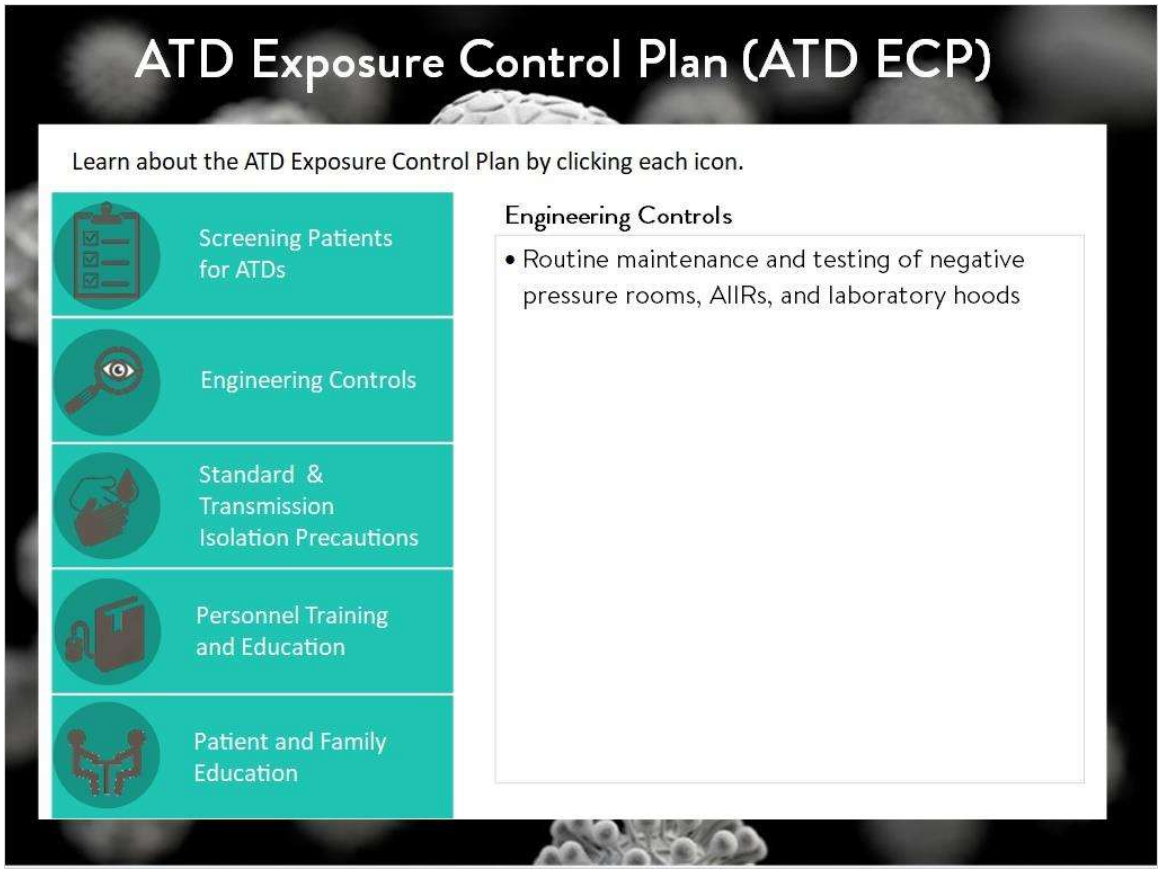
4.6 ATD Exposure Control Plan (ATD ECP)



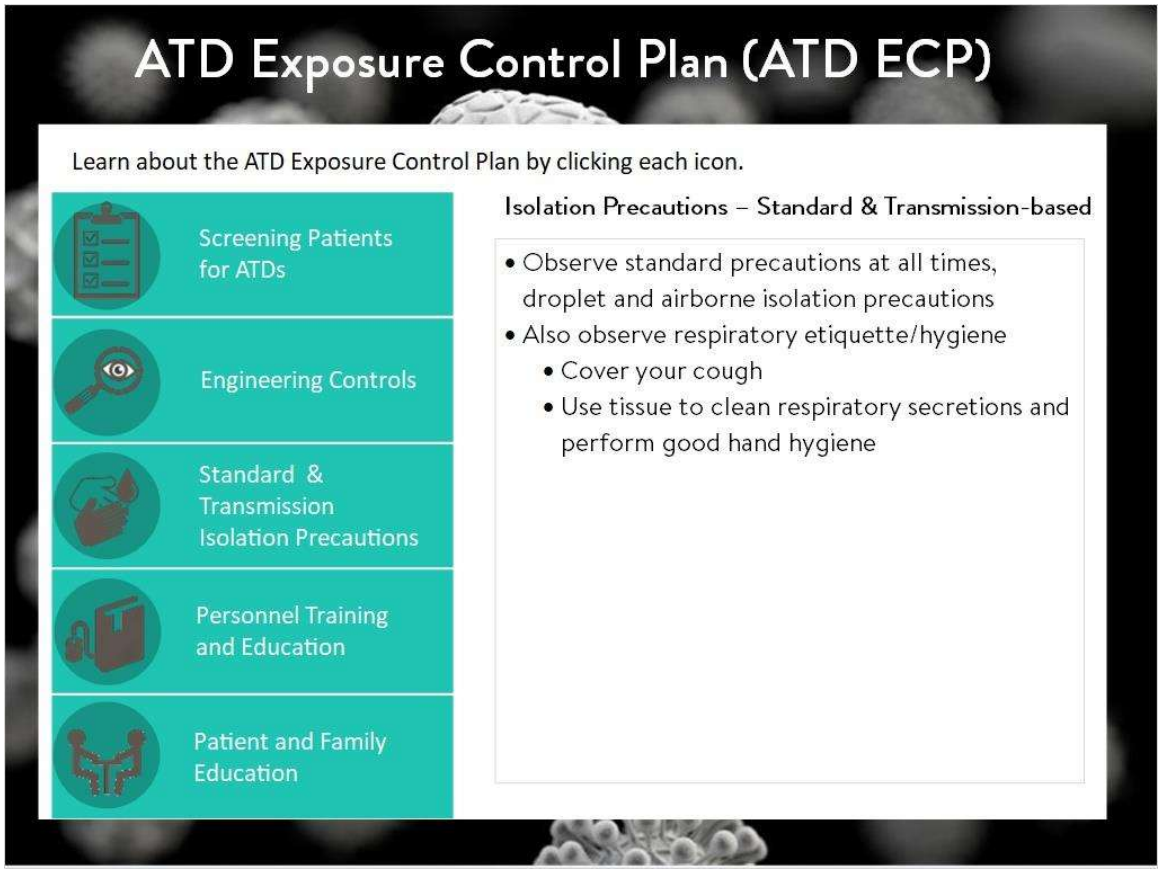
Screening (Slide Layer)



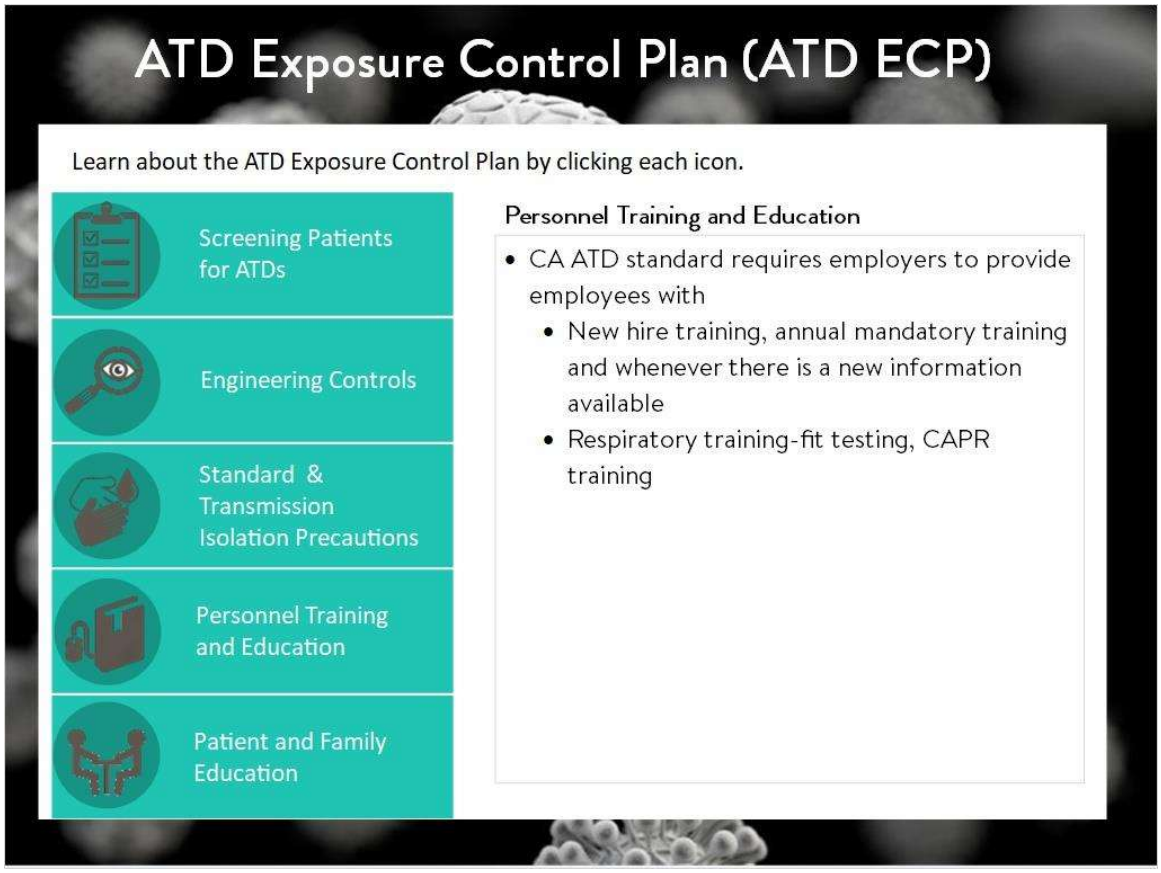
Engineering (Slide Layer)



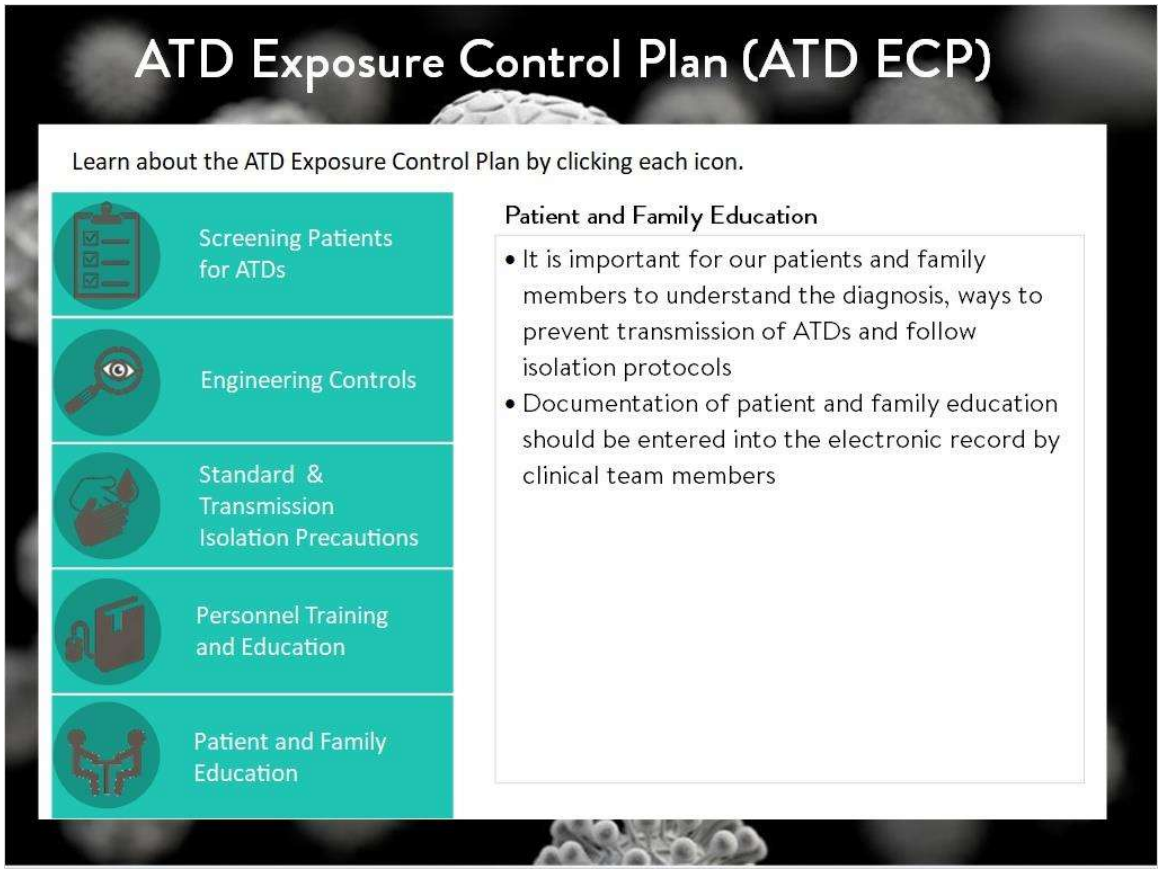
Precautions (Slide Layer)



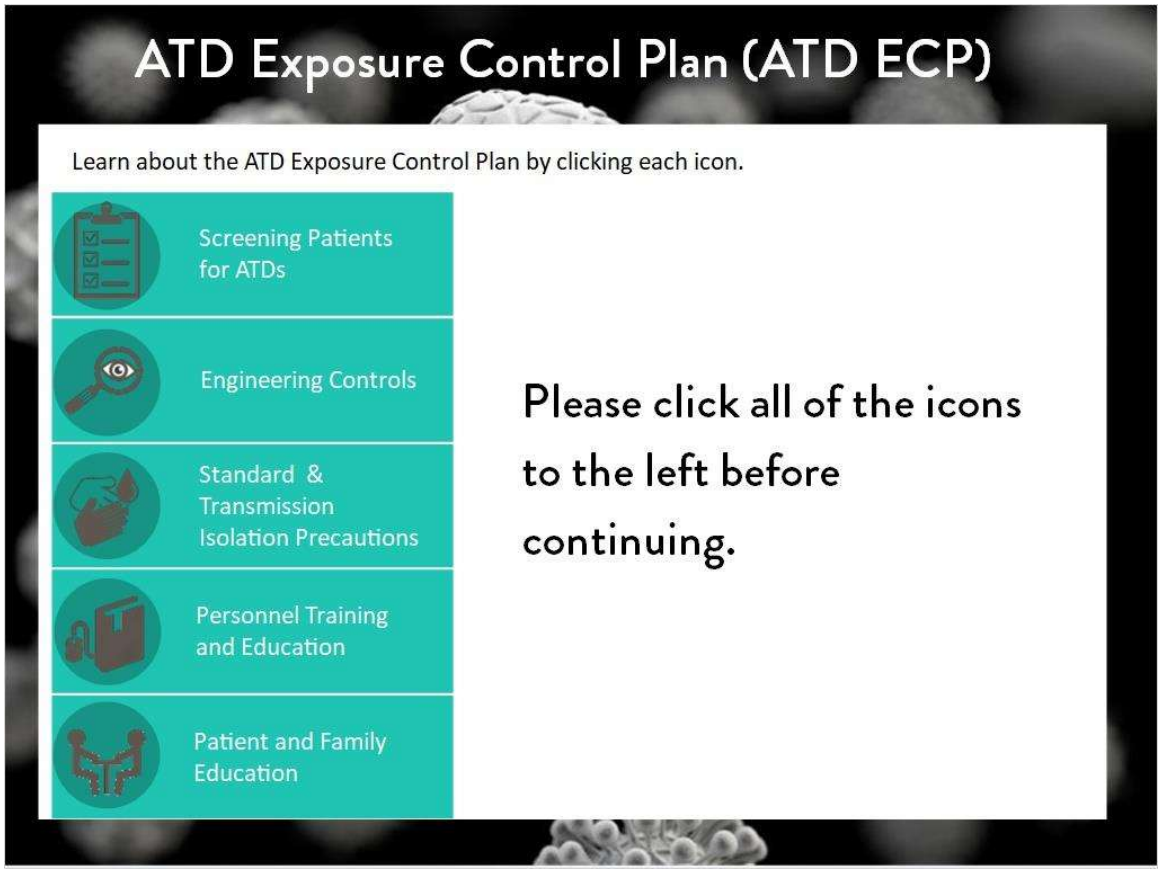
PersonnelTraining (Slide Layer)



PatientFamilyTraining (Slide Layer)



Oops (Slide Layer)



4.7 ATD Exposure Prevention

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ATD Exposure Prevention

Wearing of CAPR, N95, or equivalent is required when performing high hazard procedures (HHPs) or when you are present in the room while an HHP is being done

Examples of HHP are:

- Sputum induction
- Bronchoscopy
- Intubation
- Open suctioning, tracheostomy suctioning
- Administration of aerosolized pentamidine
- Laboratory procedures/specimen processing
- Autopsy
- Any other clinical, surgical, or laboratory procedures that may cause aerosolization

Report exposure incident to your manager or supervisor immediately

You may be asked to report to Occupational Health Services for post-exposure medical evaluation, post-exposure prophylaxis, and follow-up

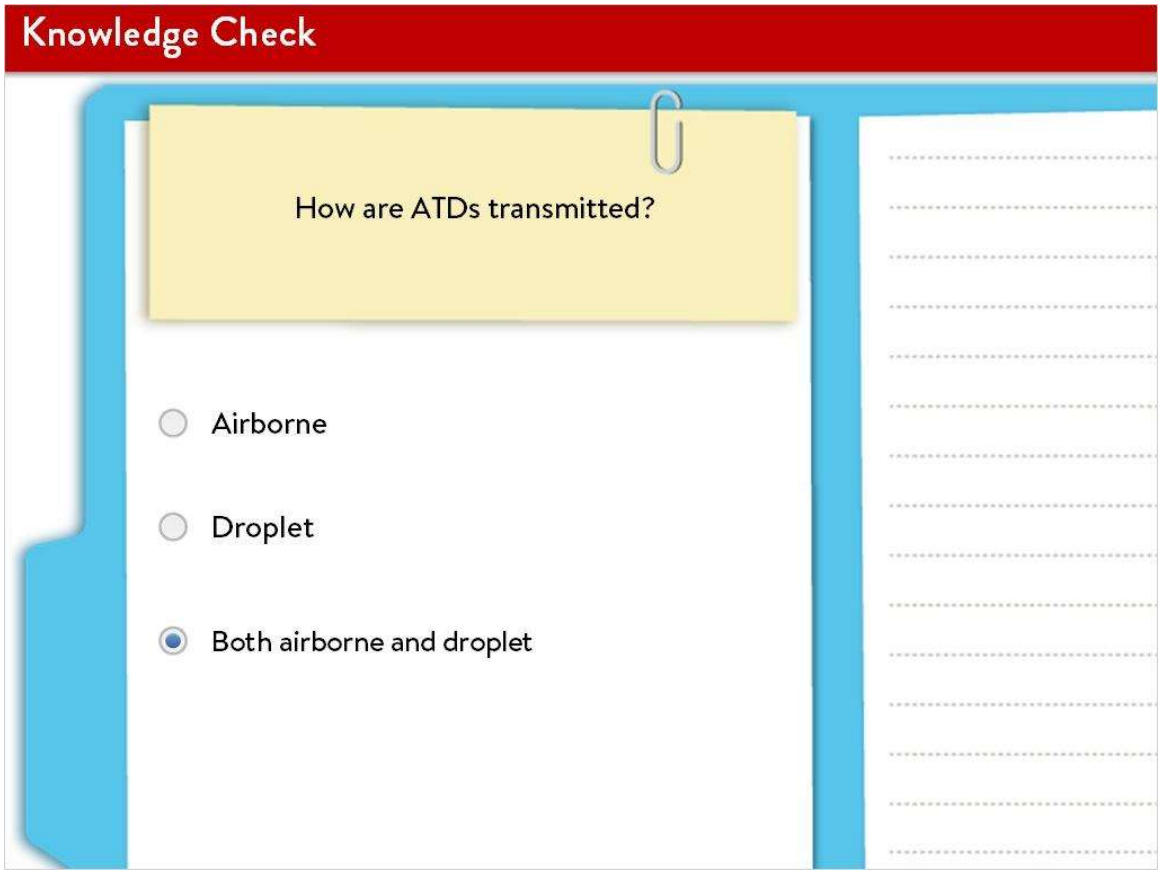
Next

4.8 ATD Exposure Prevention

4.9 Access ATD Standard

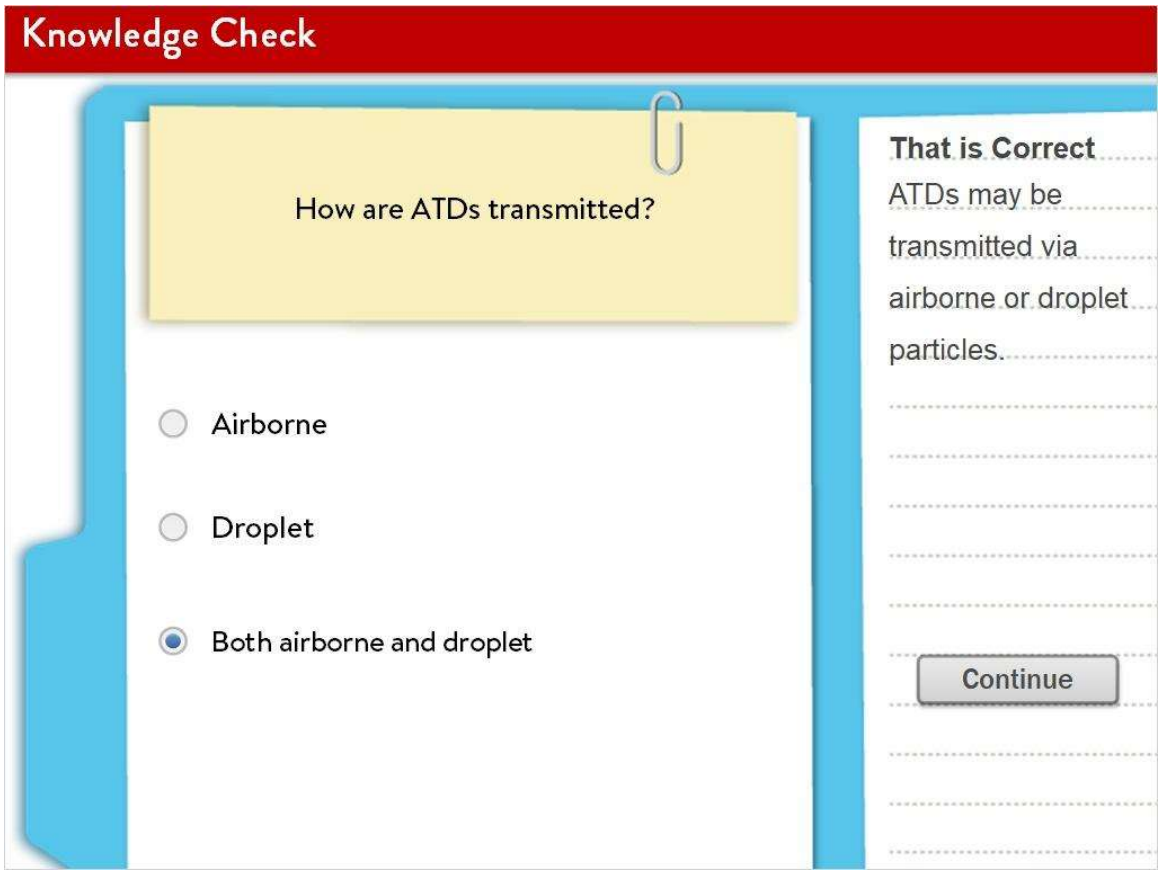
4.10 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

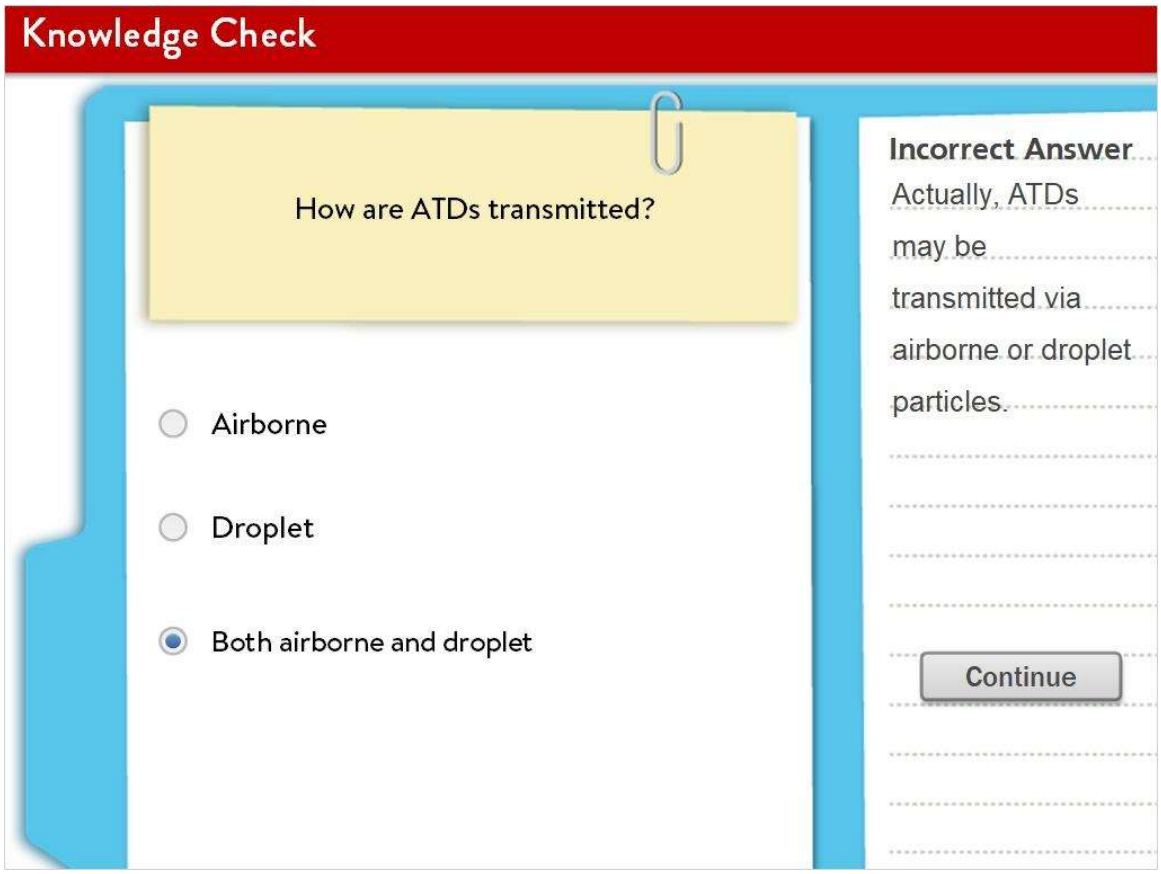


Correct	Choice
	Airborne
	Droplet
X	Both airborne and droplet

That is Correct (Slide Layer)

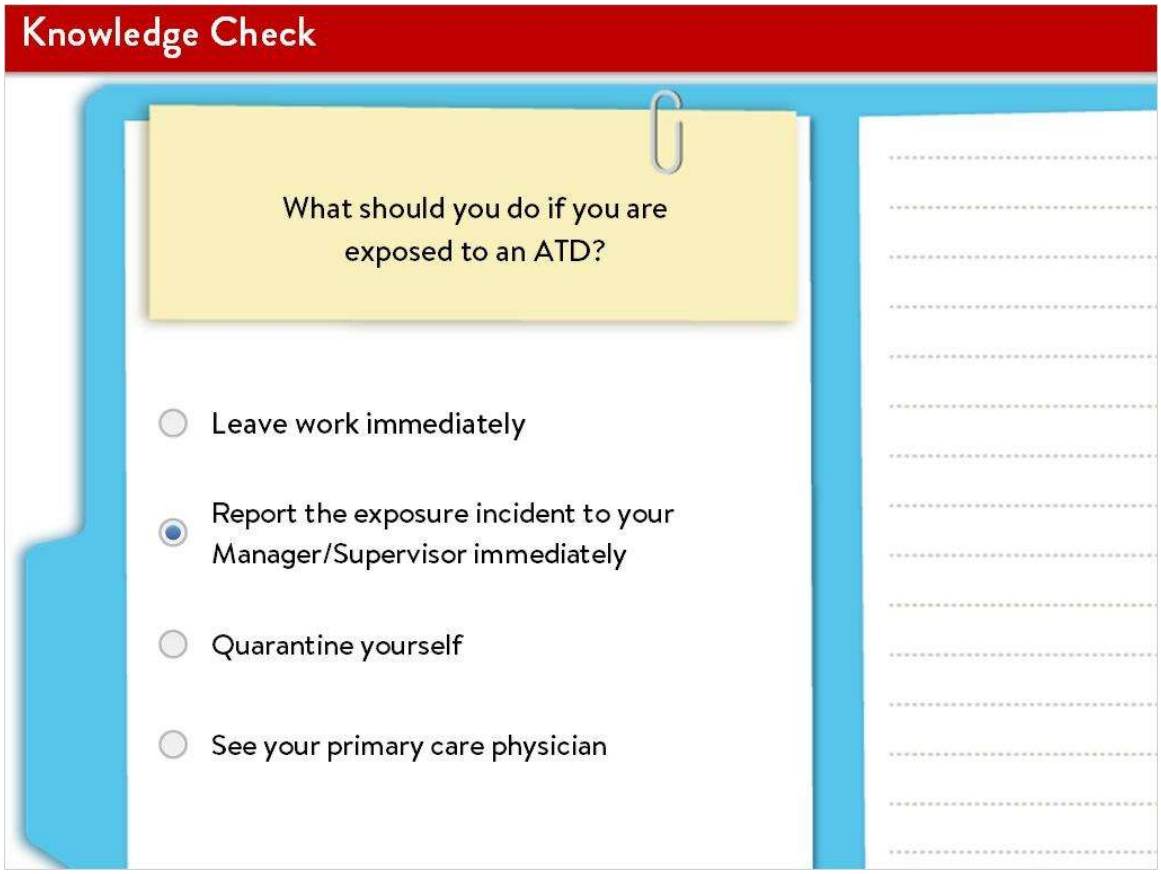


Incorrect (Slide Layer)



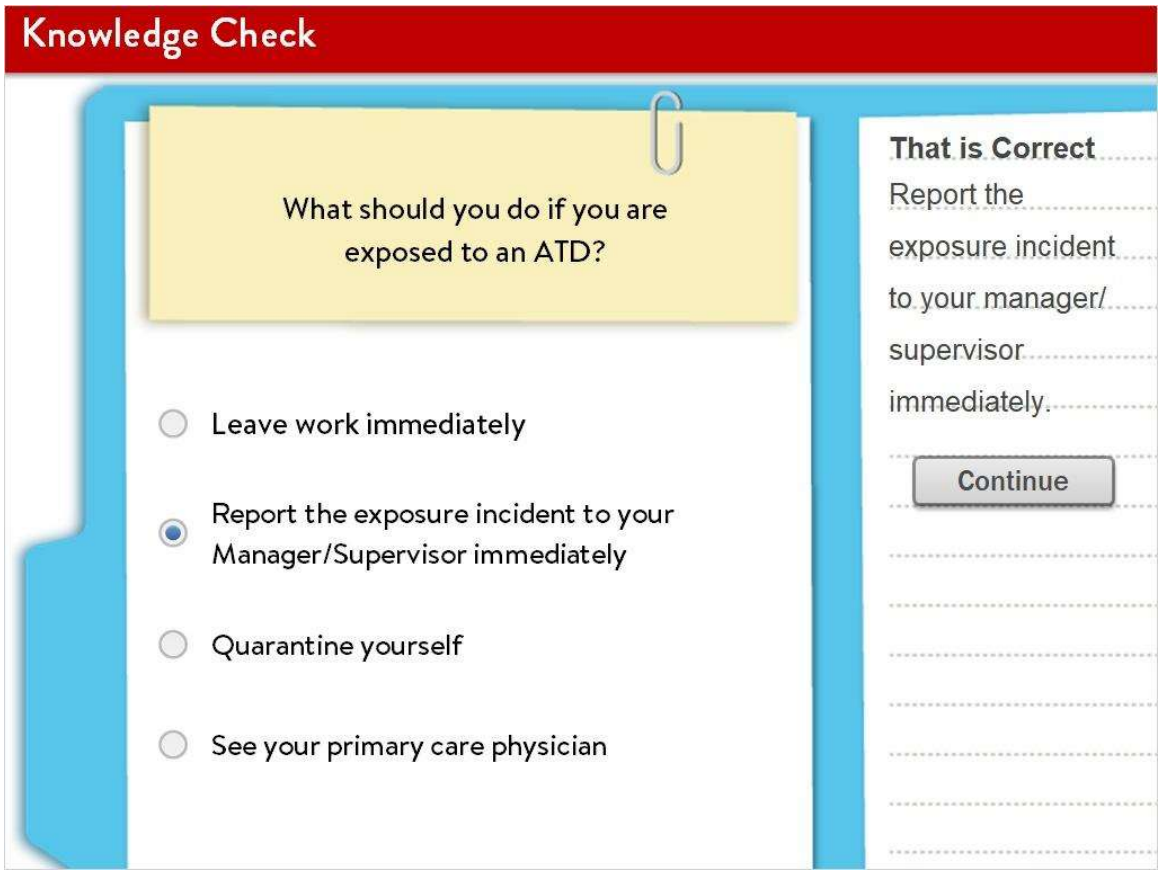
4.11 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

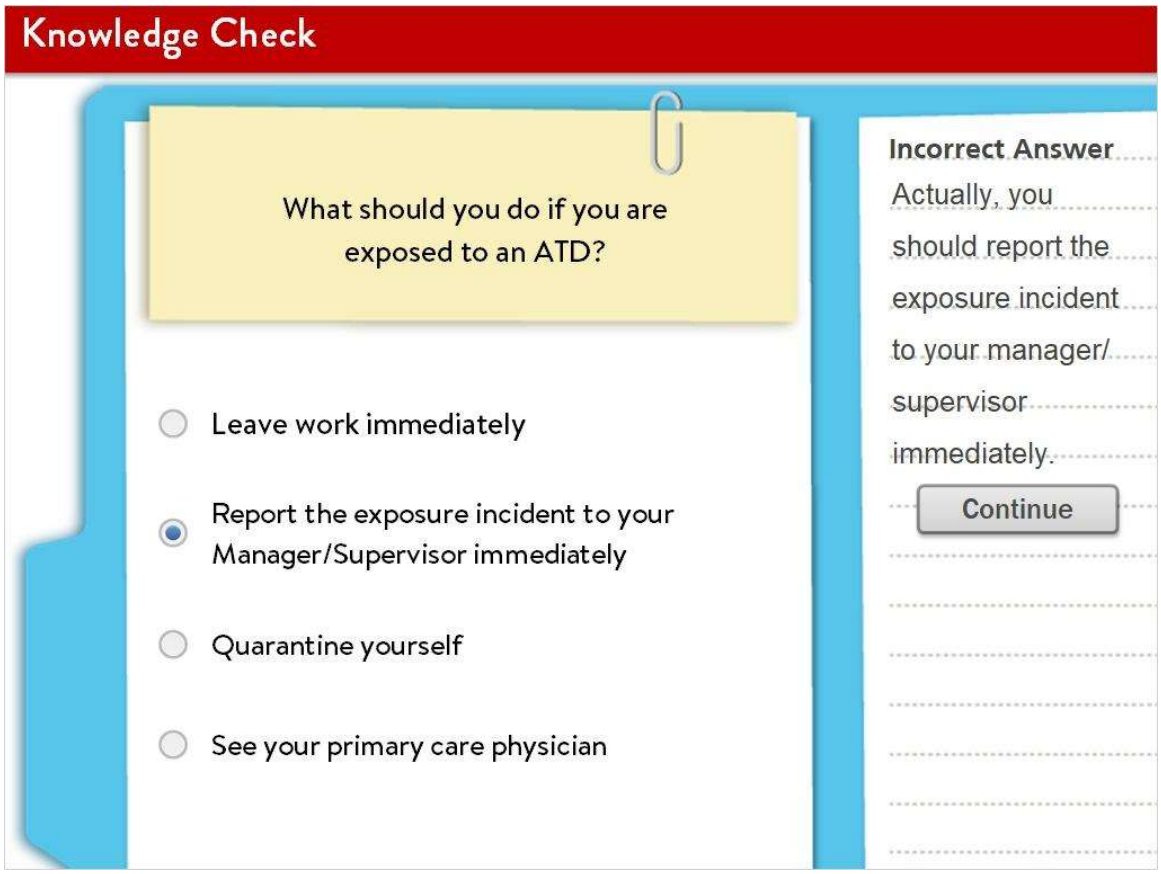


Correct	Choice
	Leave work immediately
X	Report the exposure incident to your Manager/Supervisor immediately
	Quarantine yourself
	See your primary care physician

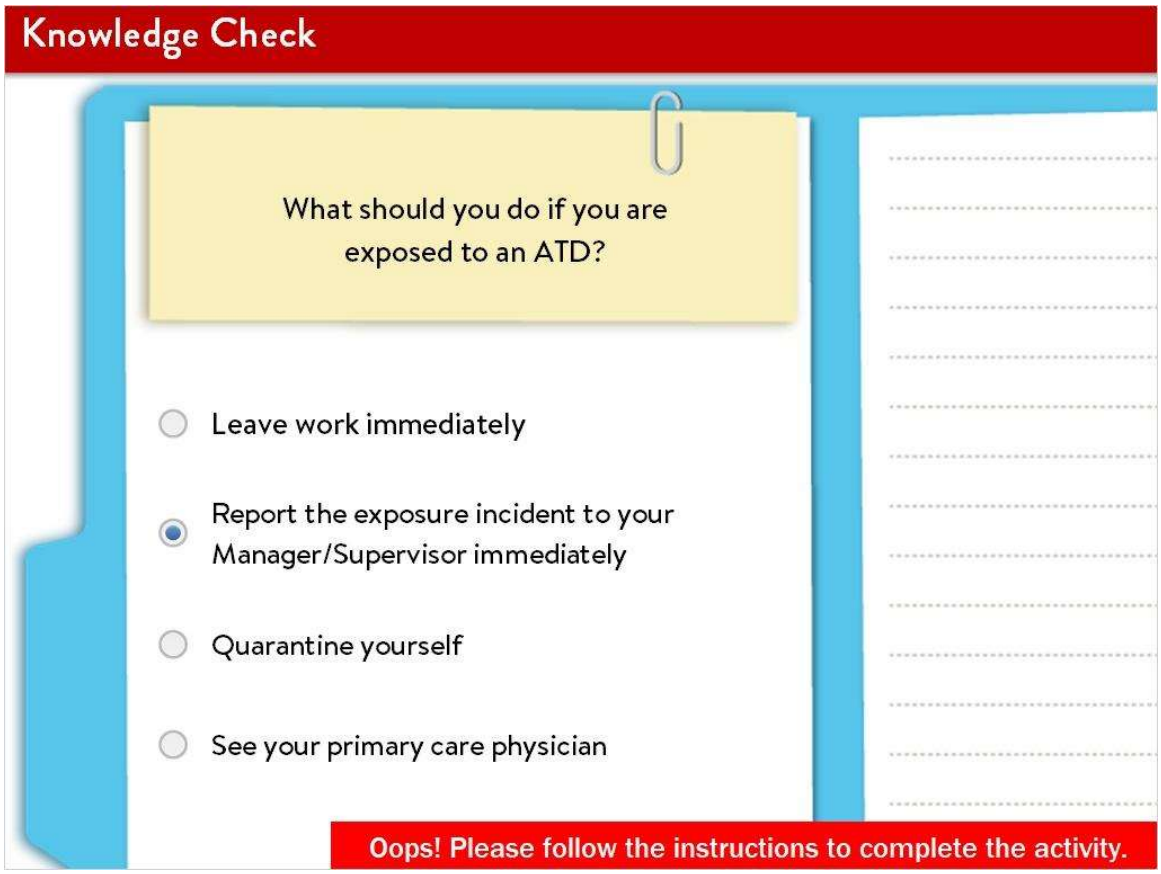
That is Correct (Slide Layer)



Incorrect (Slide Layer)



Oops layer for next button (Slide Layer)



5. Prevention and Elimination of Hospital-Acquired Infections

5.1 Prevention and Elimination of Hospital-Acquired Infections

5.2 What Happened? What Could Have Happened Instead?

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What Happened?
What Could Have Happened Instead?

Manuel Hernandez, Medical Student

- Manuel suspected that Whitney was getting worse, but he accepted the attending's course of action *without objection*
- He didn't speak up even though he saw a problem and could have made a difference
- When Whitney's vitals were off, he just recorded it and didn't bother Dr. Kennedy because it was the weekend
- By the time Dr. Kennedy reached the ICU, Whitney was suffering from ***organ failure*** due to sepsis
- If Manuel had spoken up, Whitney could have survived

Next (Slide Layer)

5.3 Introduction to CLABSI

Central Line Associated Bloodstream Infection (CLABSI)

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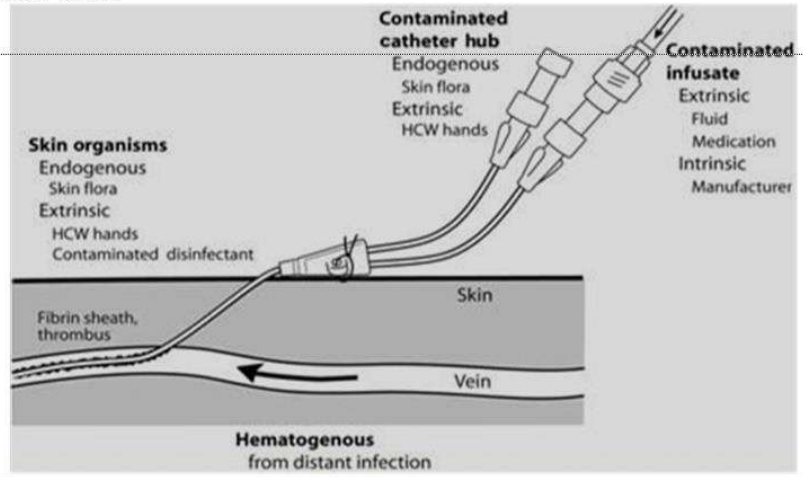
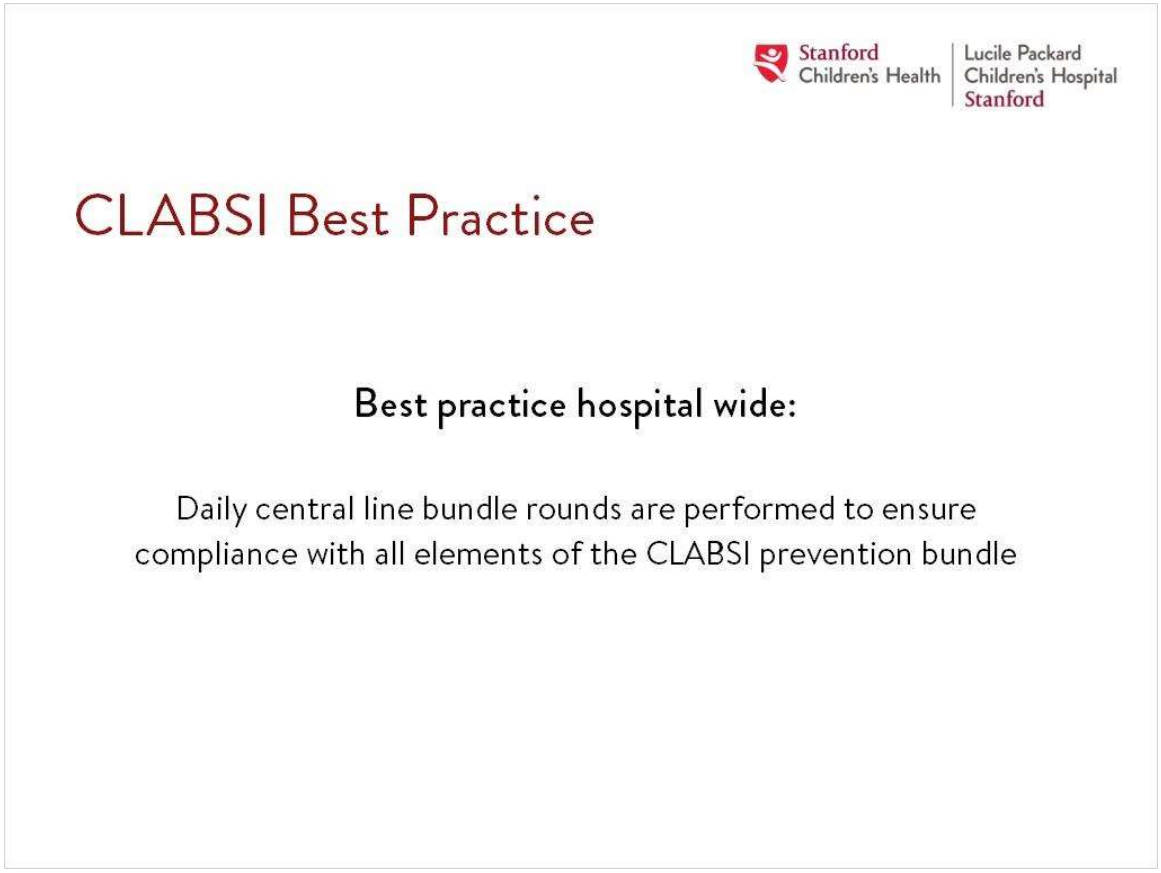
NPSG 07.04.01

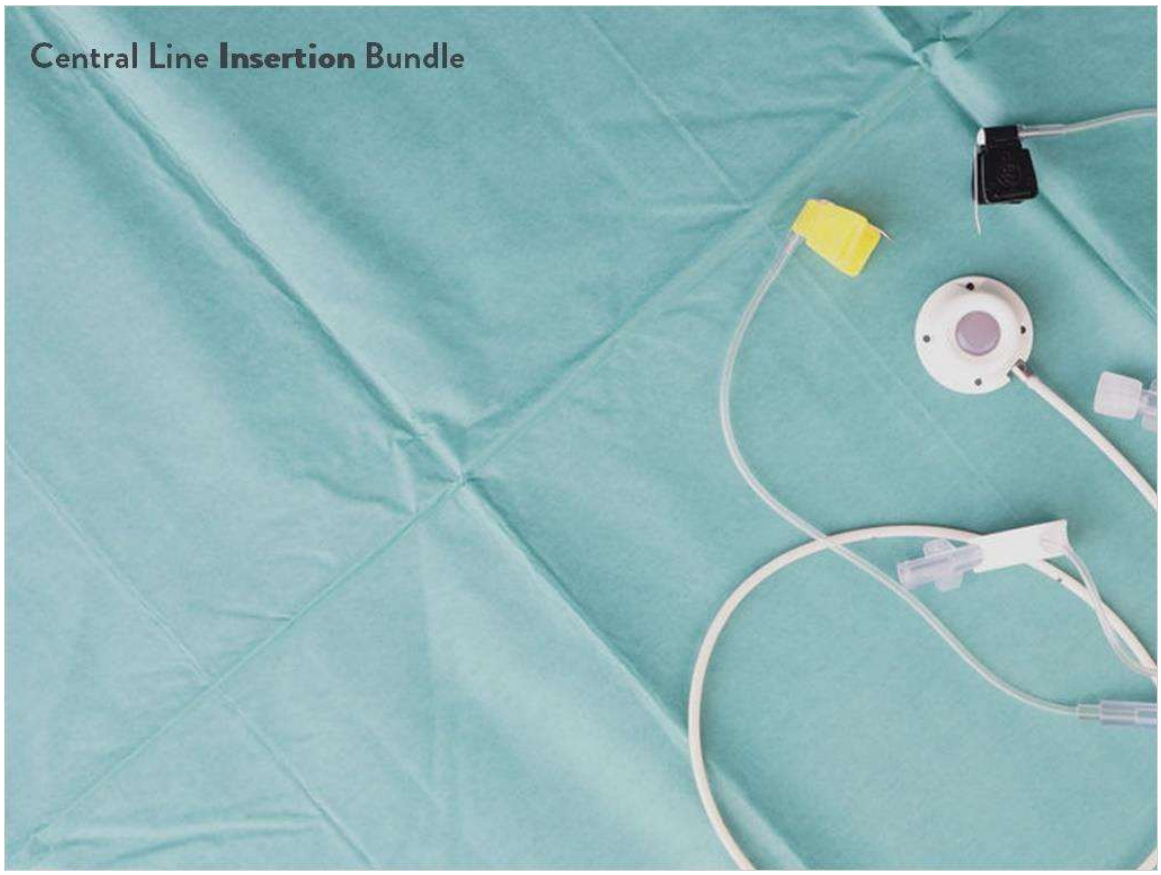
A CLABSI is a serious infection that occurs when germs enter the bloodstream through a central line. A central line is a catheter placed in a large vein in the neck, chest or groin that terminates close to the heart. It is used to deliver parenteral medications, parenteral nutrition, or a blood transfusion. A central line can be also used to collect blood for medical tests.



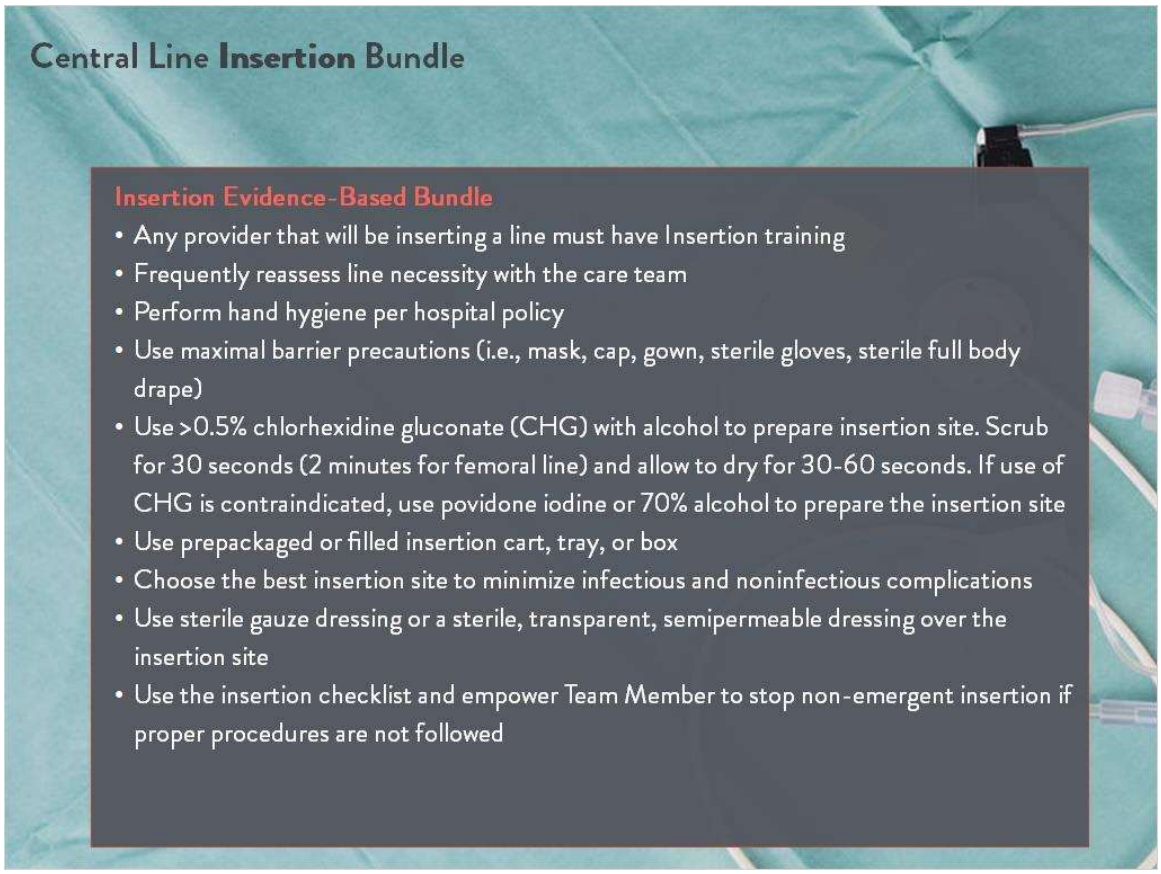
5.4 CLABSI Prevention



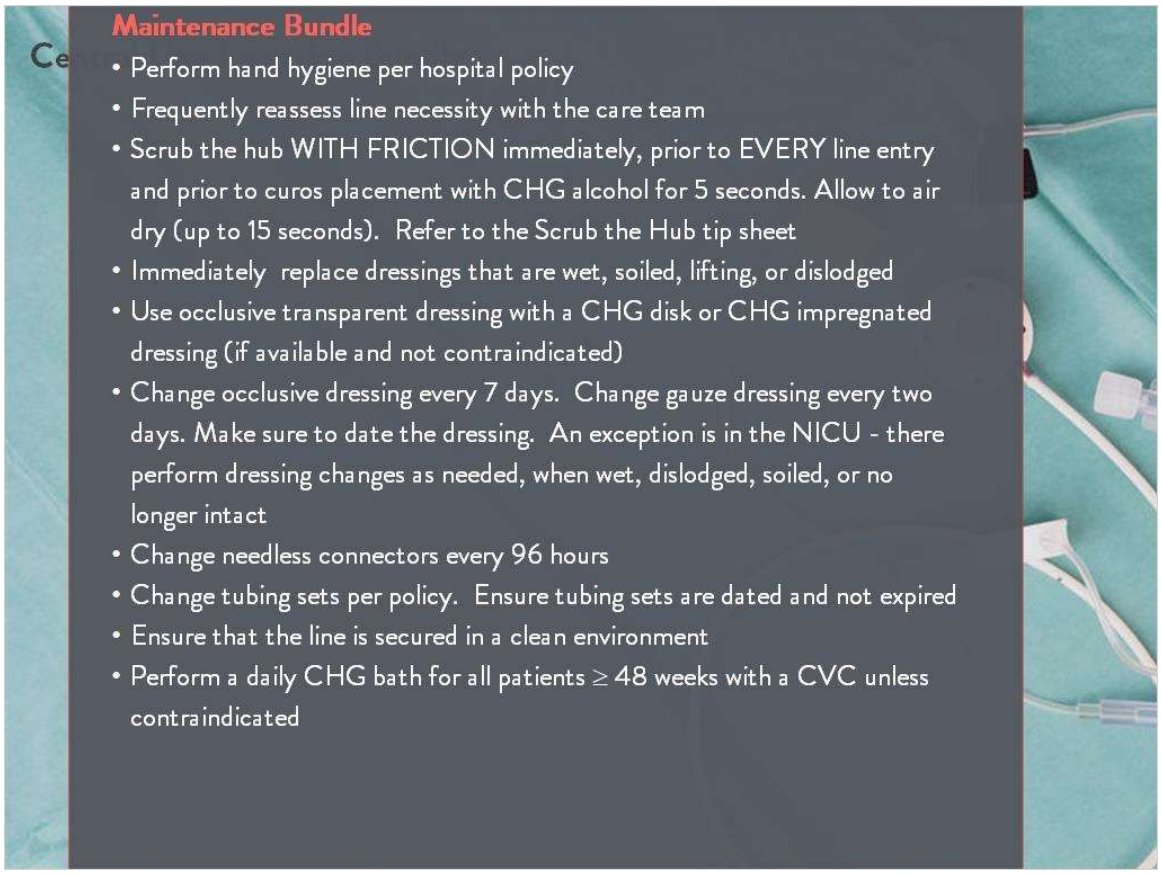
5.5 Central Line Insertion Bundle



Insertion Bundle (Slide Layer)

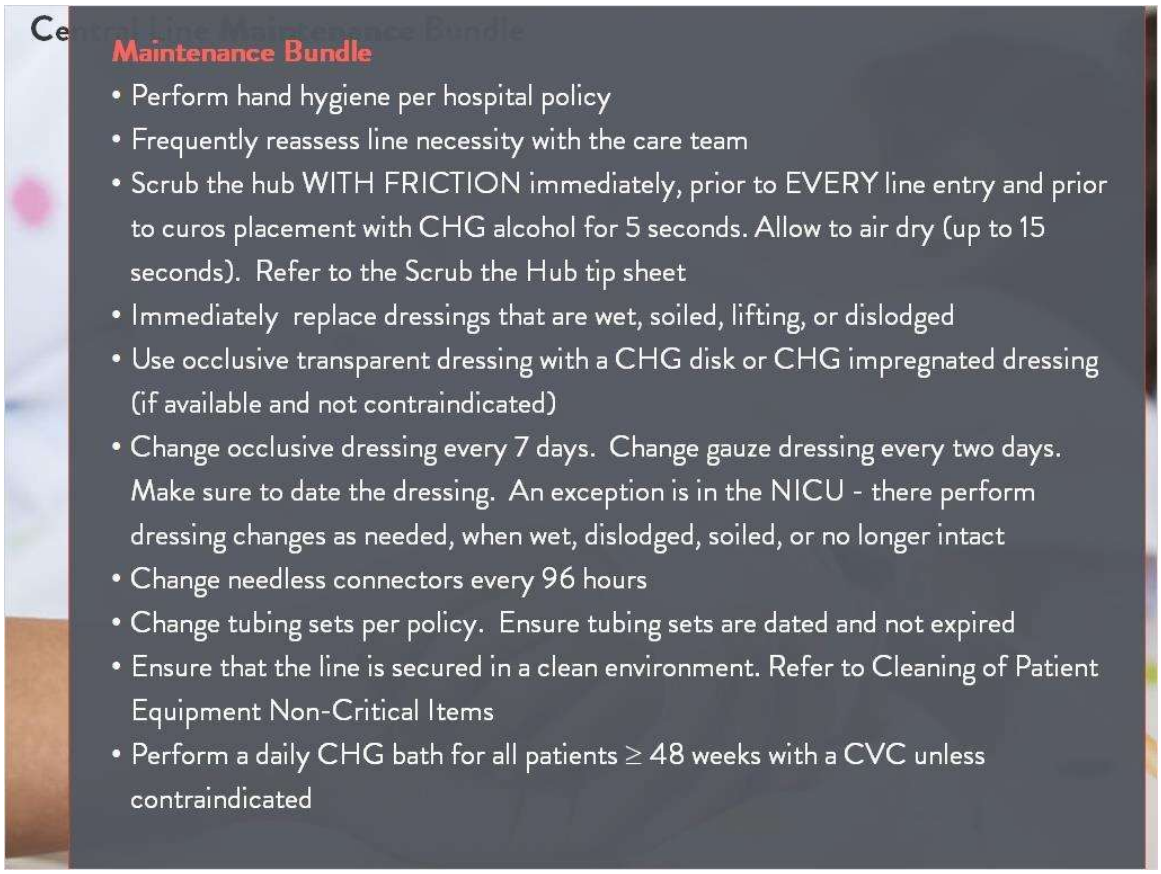


Maintenance Bundle (Slide Layer)

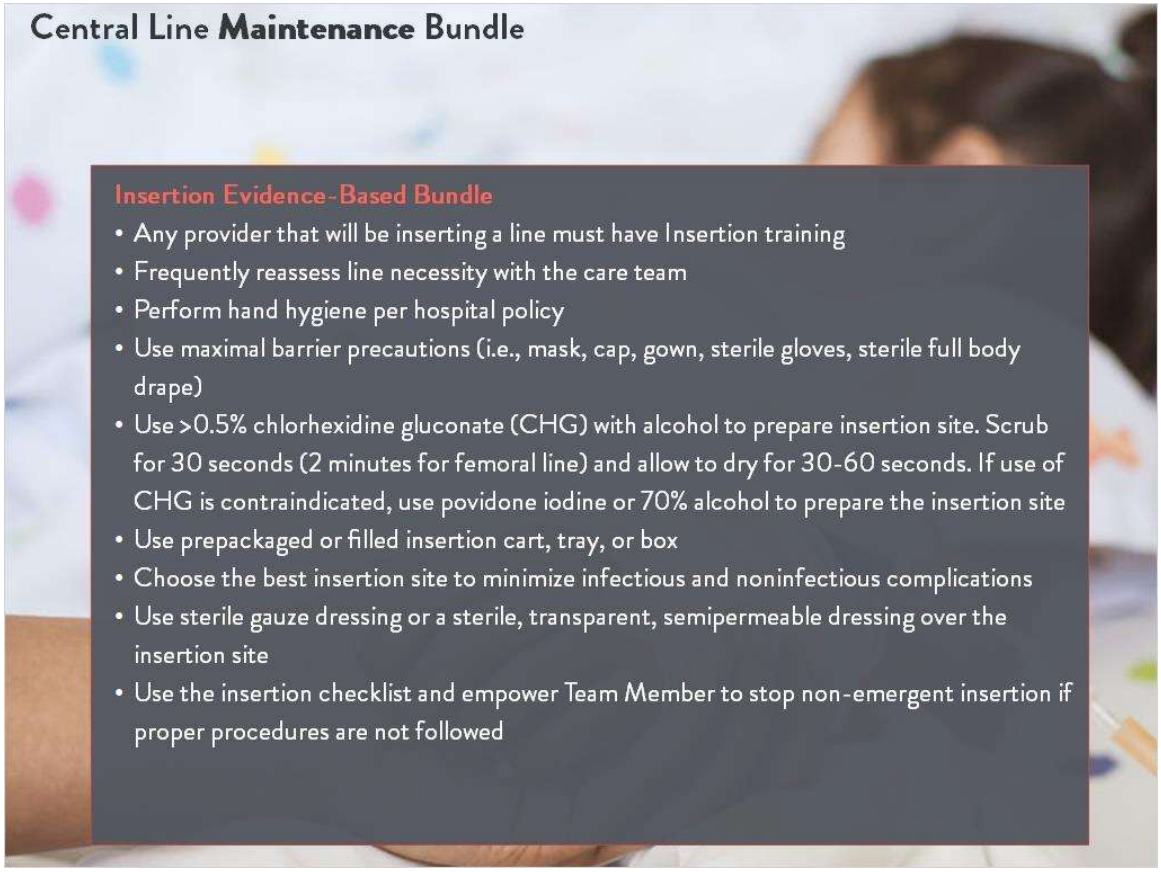


5.6 Central Line Maintenance Bundle

Maintenance Bundle (Slide Layer)



Insertion Bundle (Slide Layer)



5.7 Preventing SSIs

5.8 SSI Prevention Strategies

5.9 Introduction to CAUTI

Catheter-Associated Urinary Tract Infection

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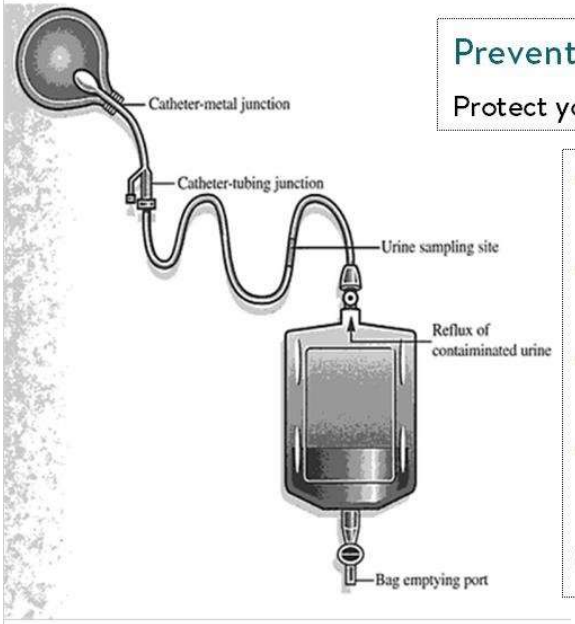
Best practices must be implemented to prevent CAUTI:



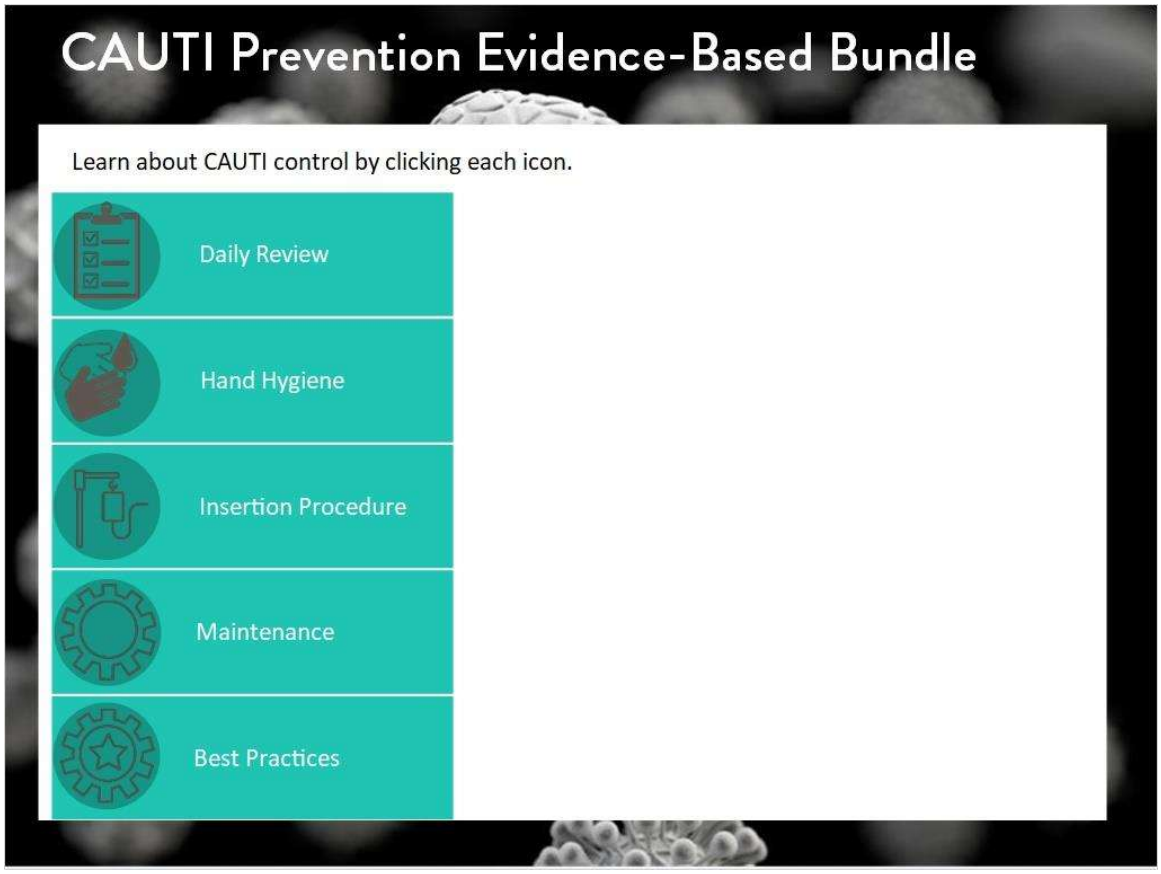
Prevention Practices

Protect your patient by avoiding the following:

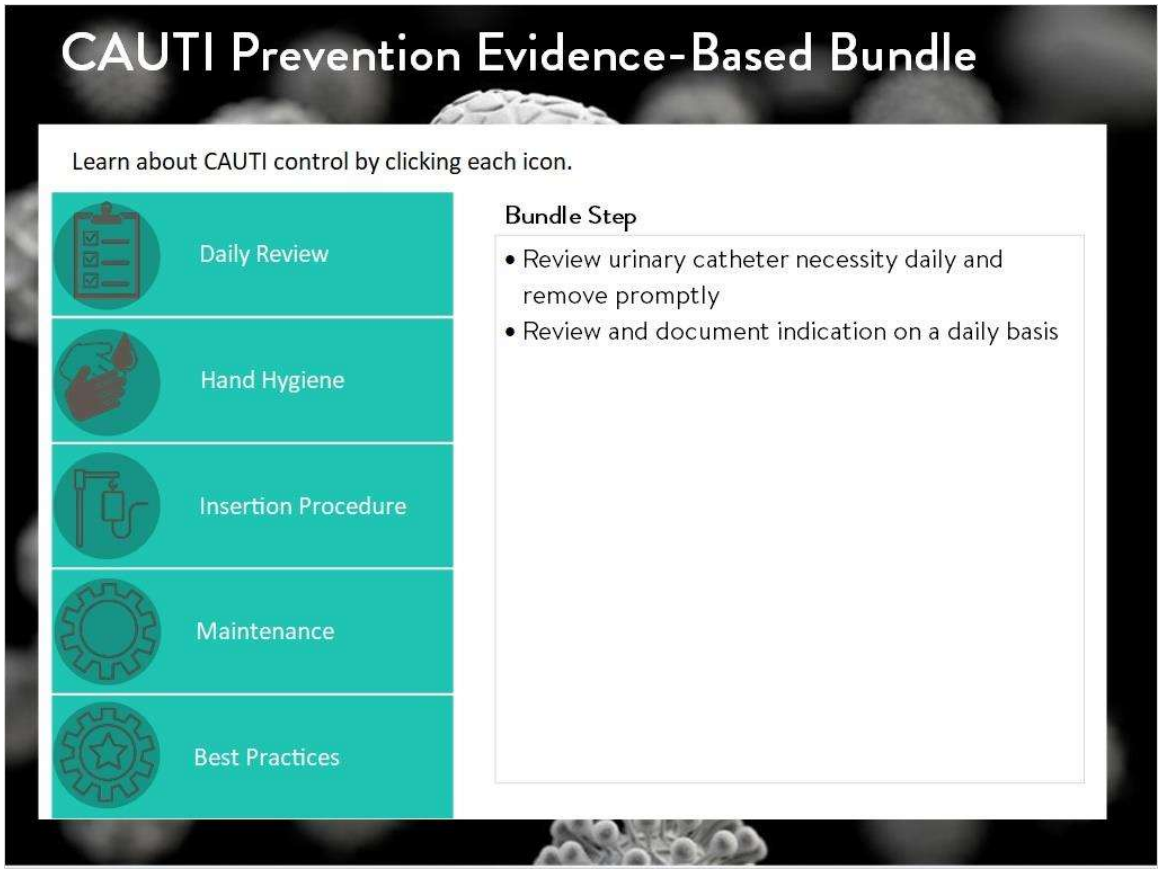
- Irrigating catheters, except in cases of catheter obstruction
- Disconnecting the catheter from the drainage tubing
- Replacing catheters routinely (in absence of obstruction or infection)
- Replacing the collection system

If any of these are absolutely necessary, use aseptic technique

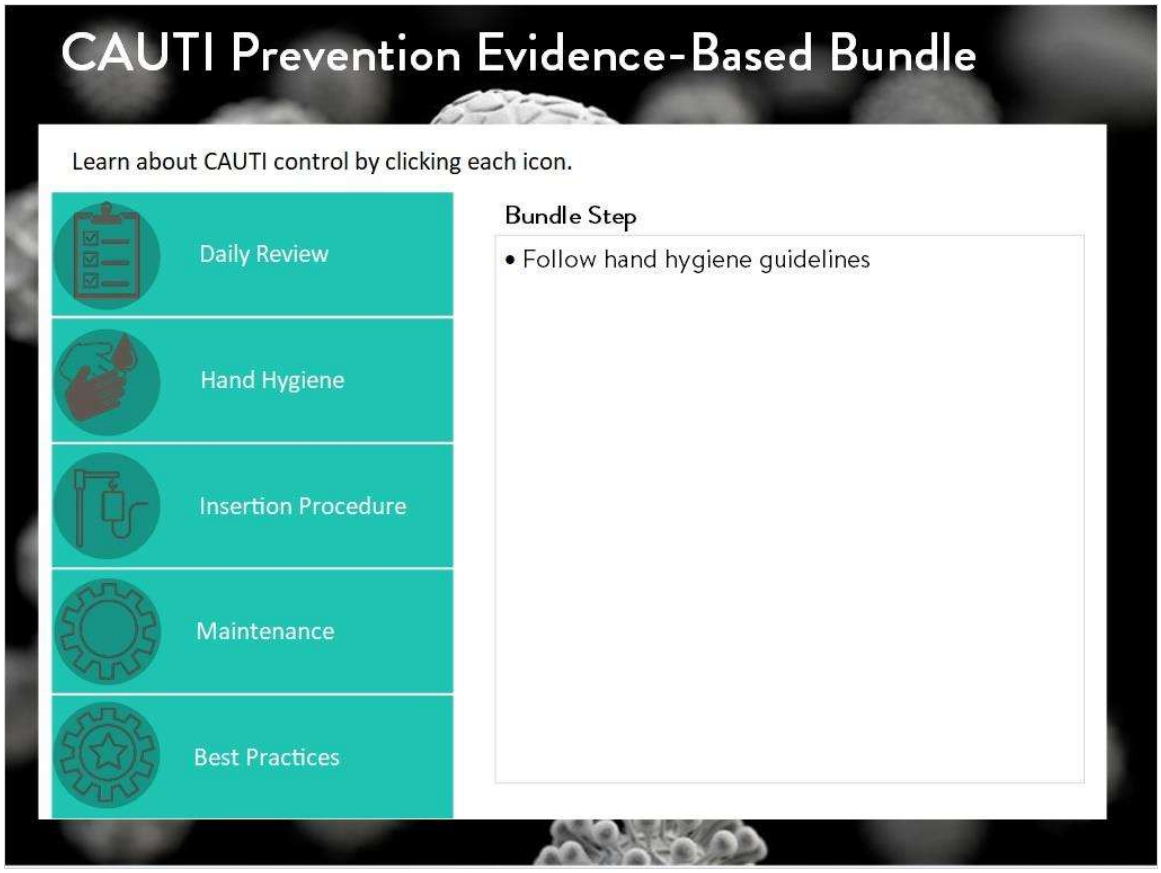
5.10 CAUTI Prevention Evidence-Based Bundle



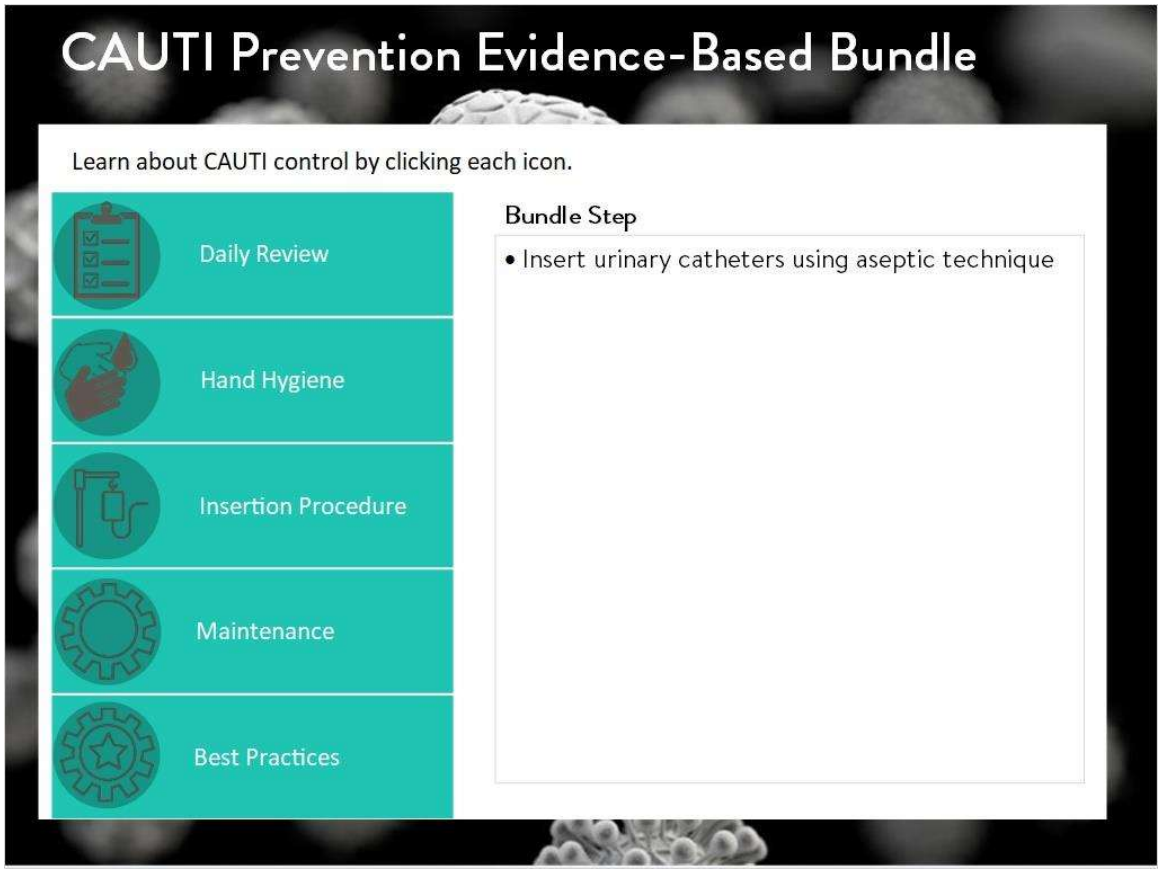
Step 01 (Slide Layer)



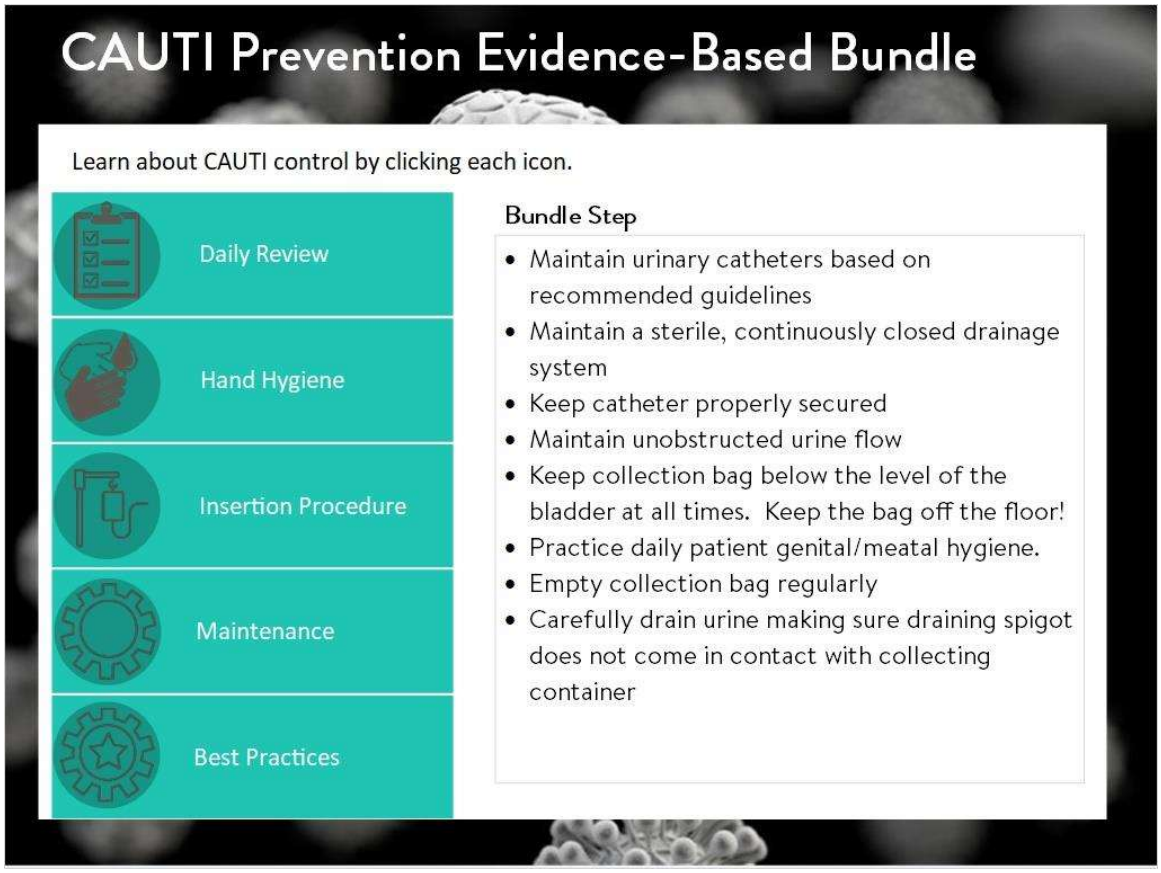
Step 02 (Slide Layer)



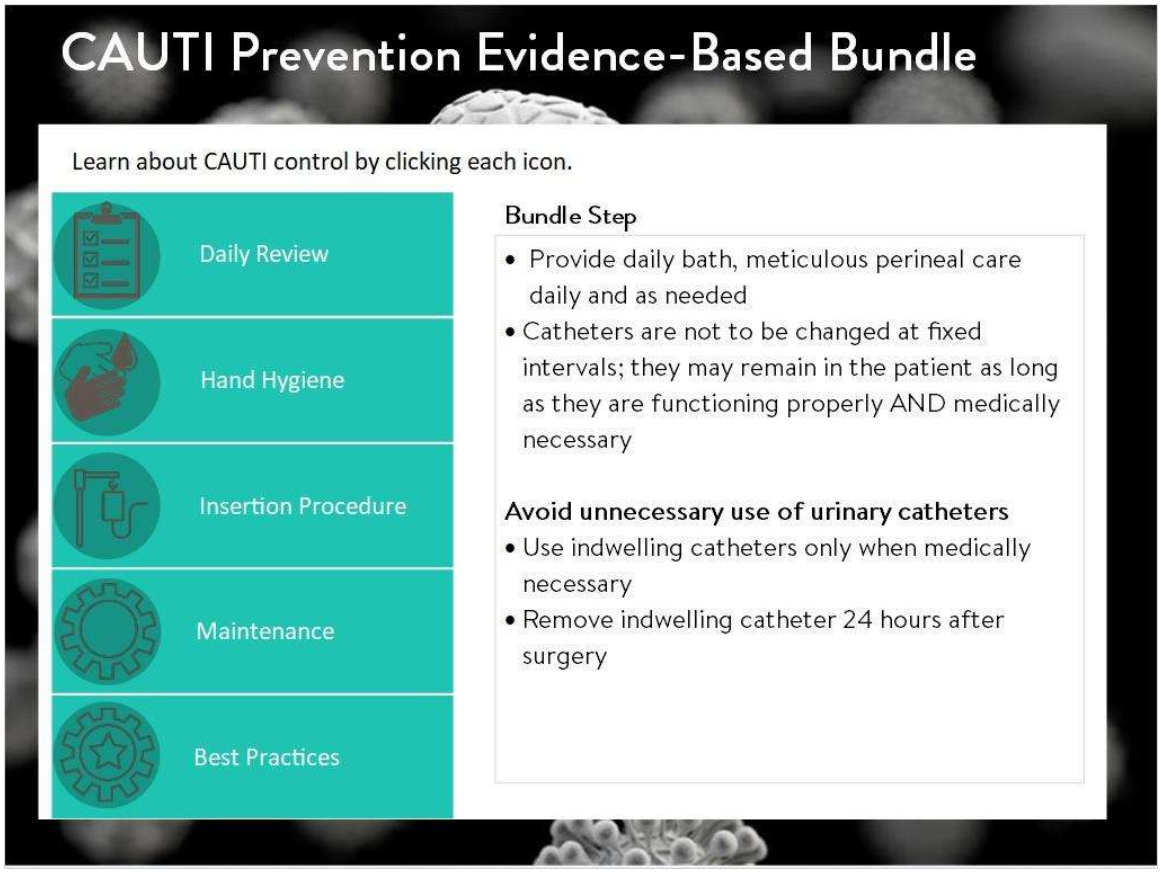
Step 03 (Slide Layer)



Step 04 (Slide Layer)



Step 05 (Slide Layer)



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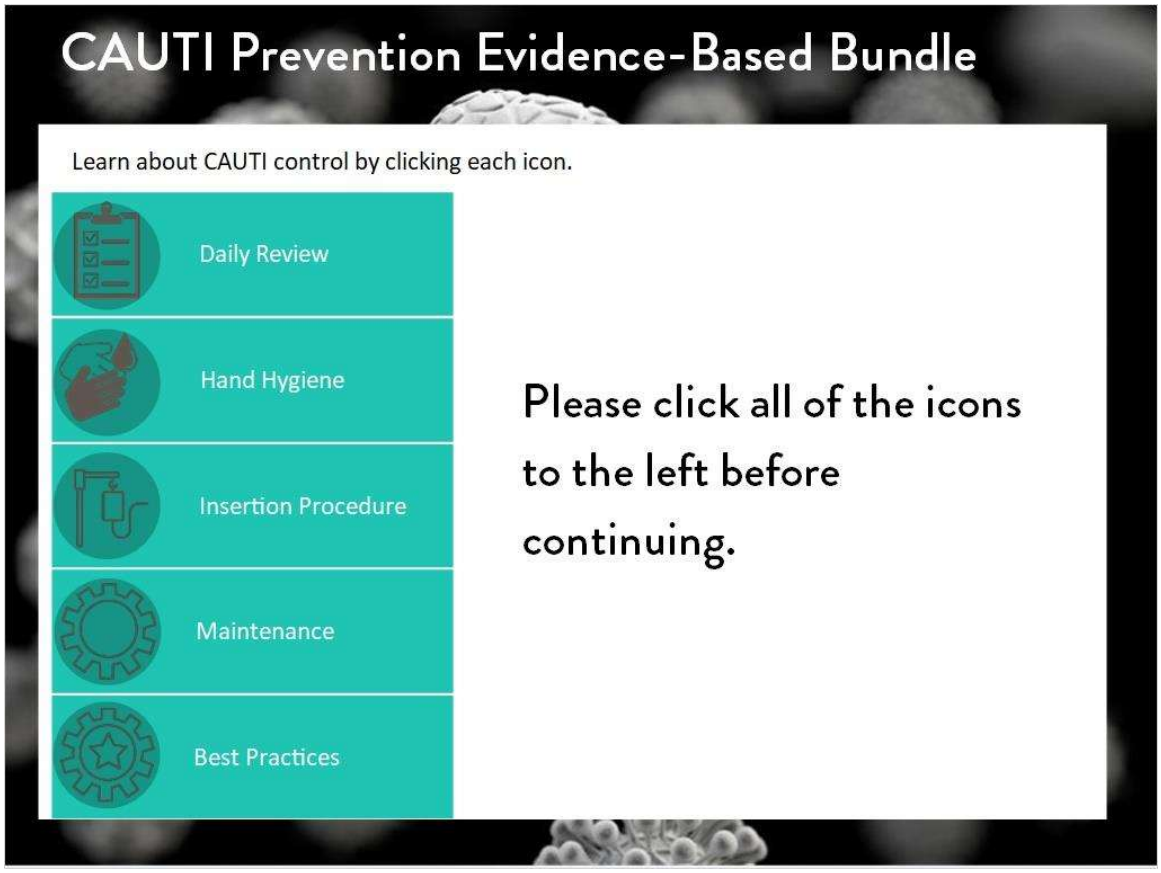
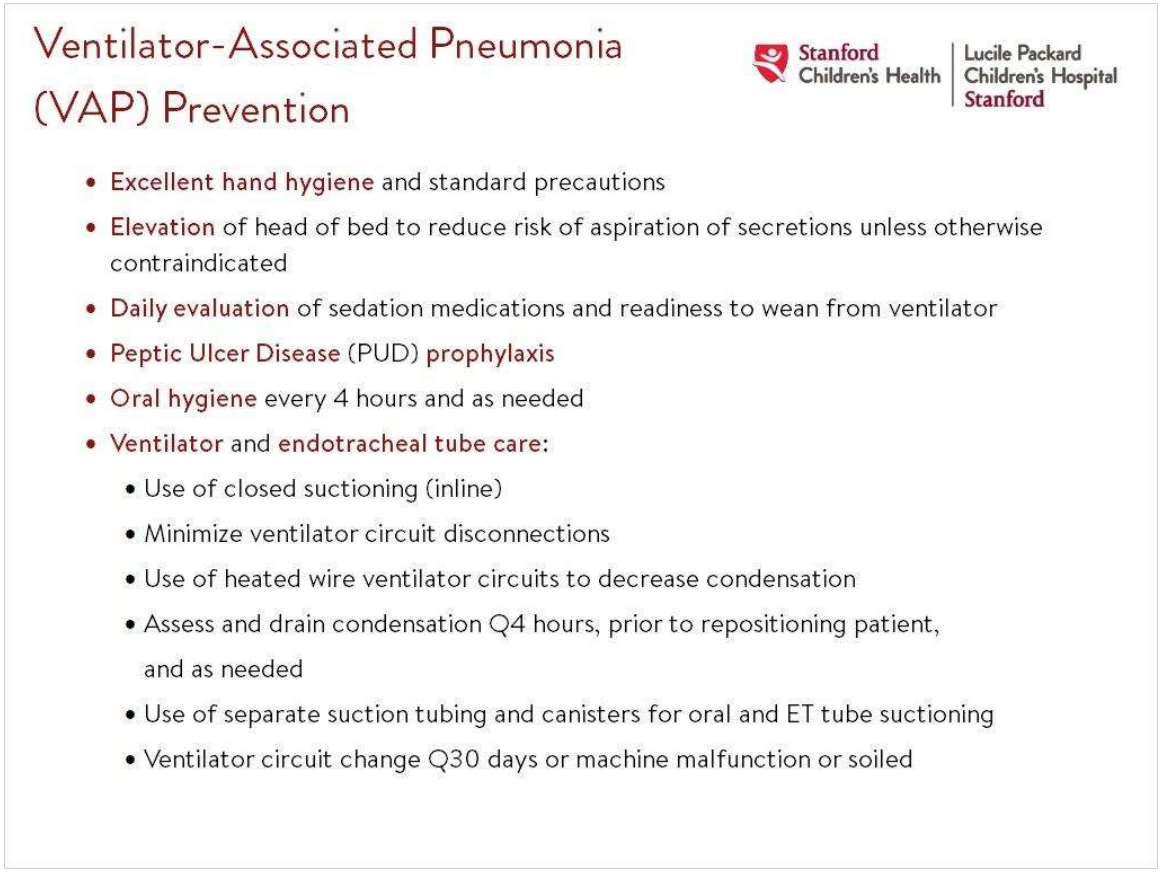


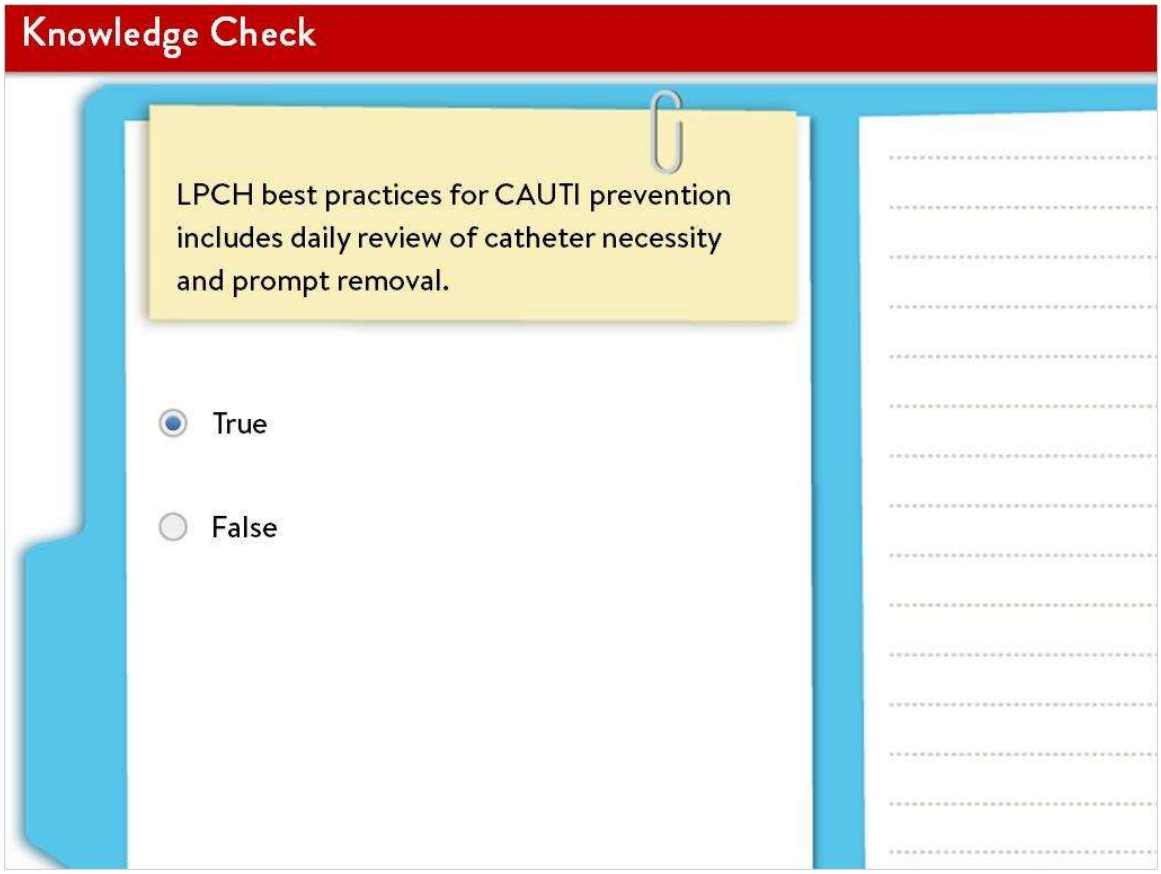
5.11 Ventilator Associated Pneumonia (VAP)



5.12 Breast Milk Safety

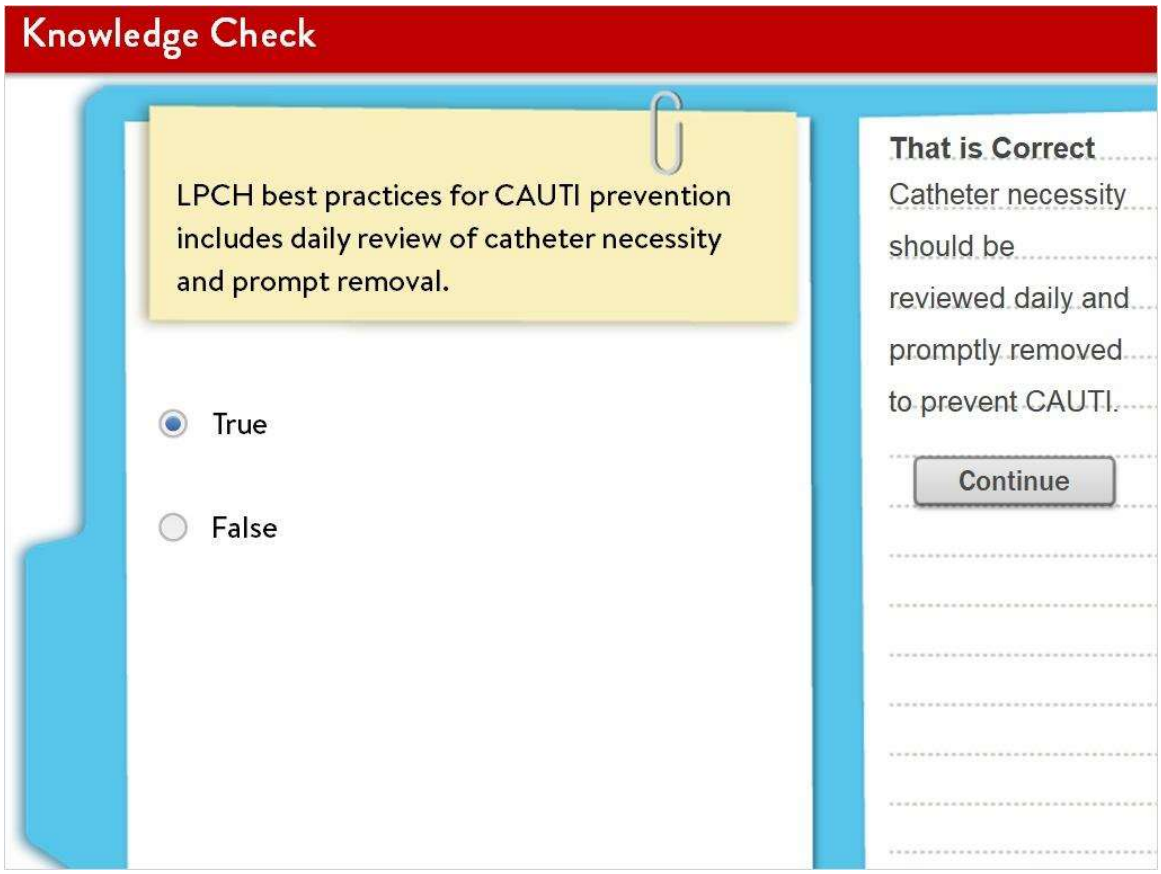
5.13 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

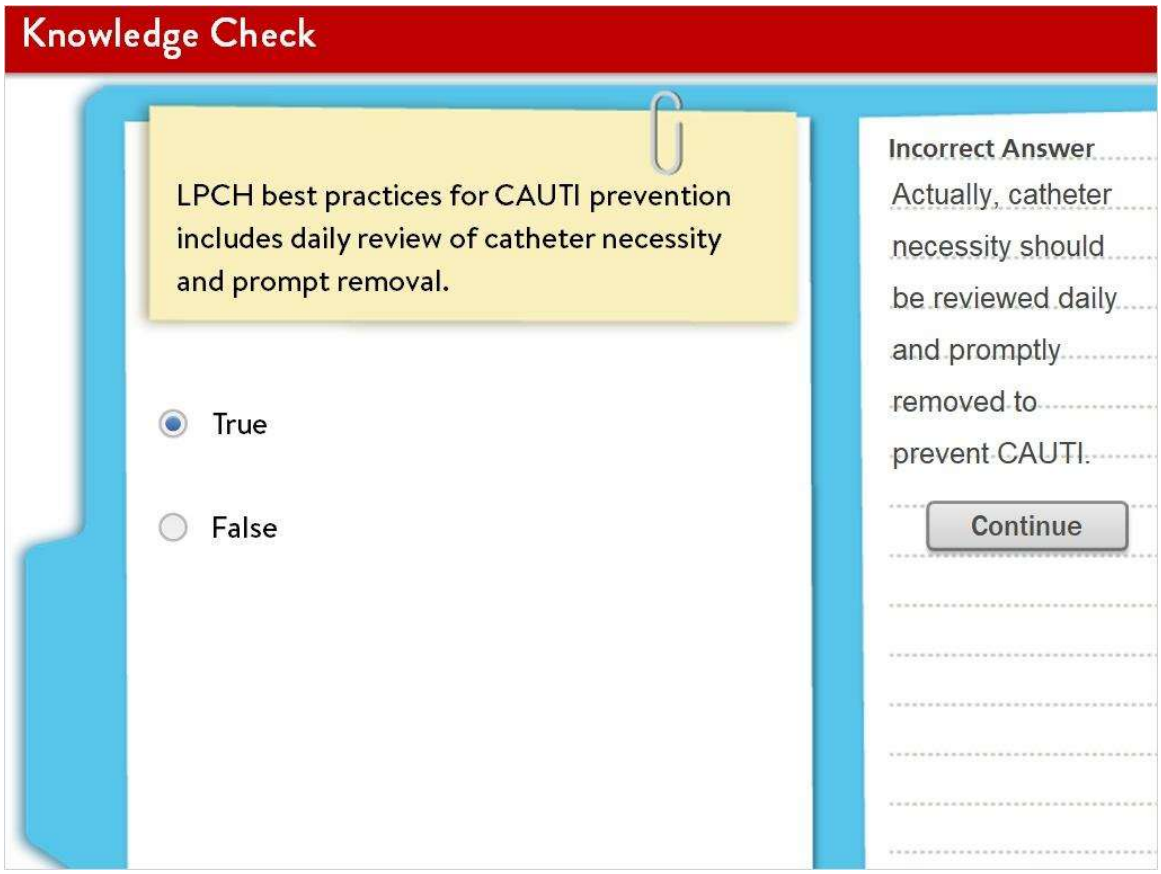


Correct	Choice
X	True
	False

That is Correct (Slide Layer)

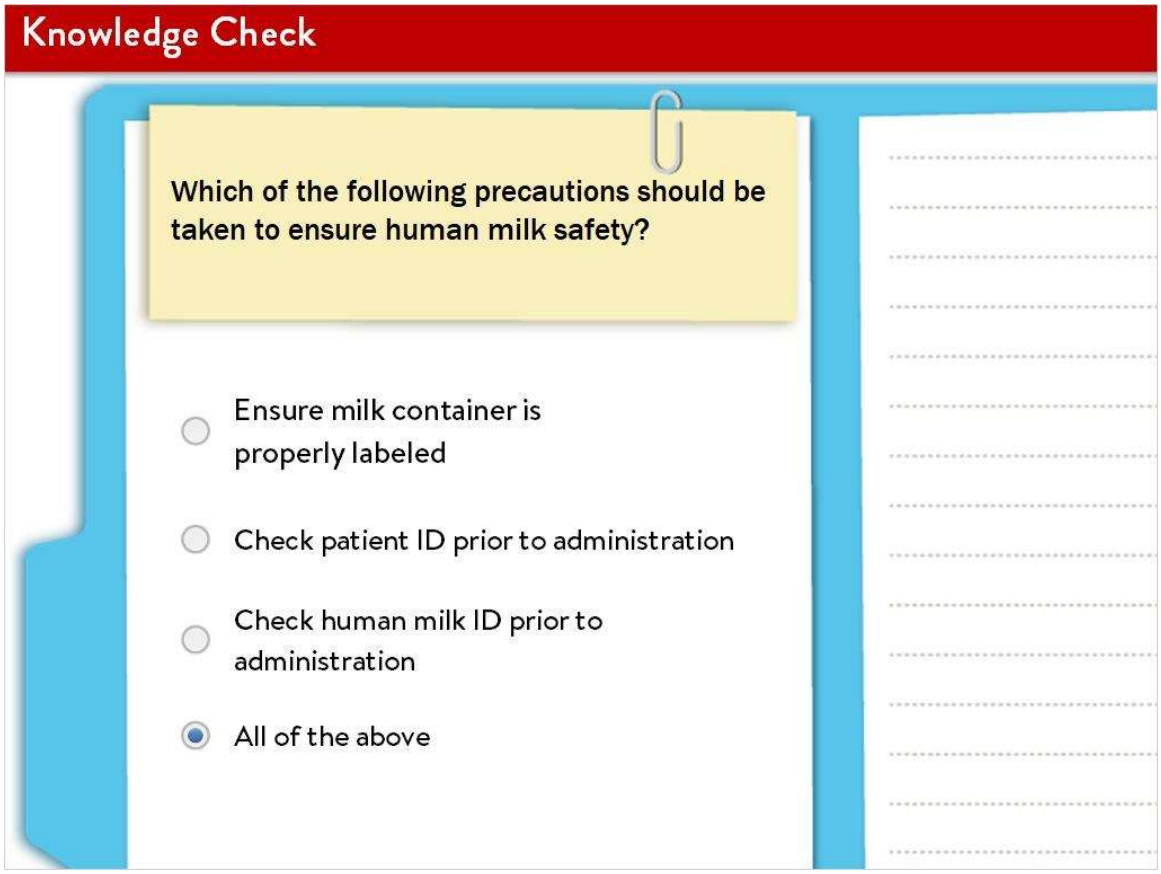


Incorrect (Slide Layer)



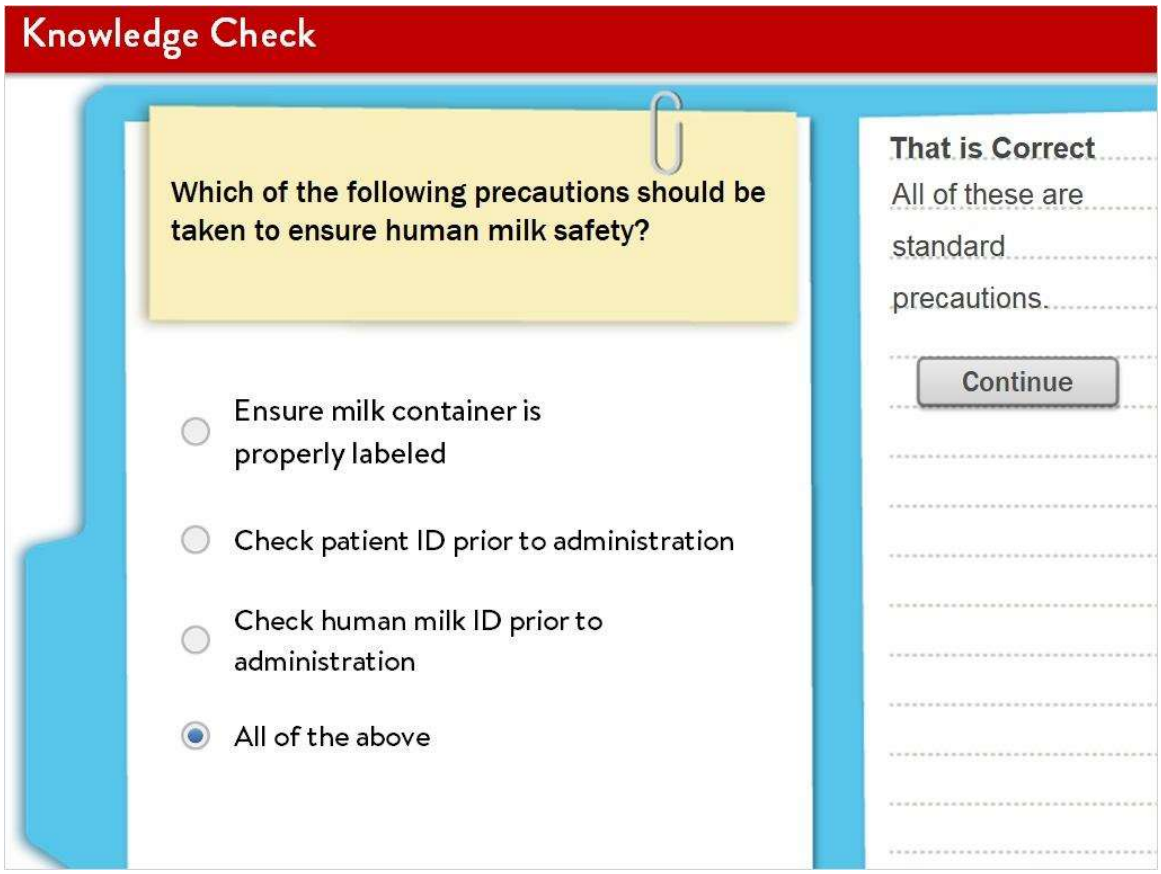
5.14 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

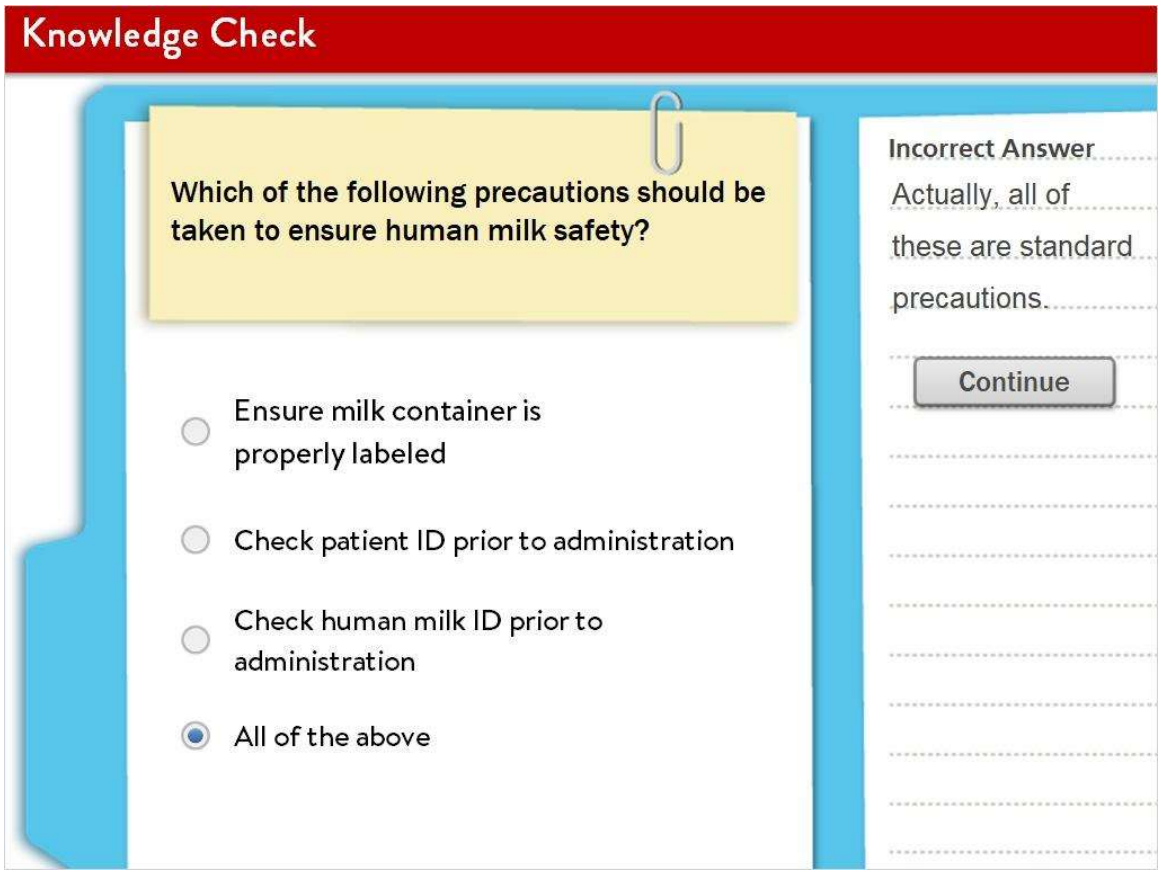


Correct	Choice
	Ensure milk container is properly labeled
	Check patient ID prior to administration
	Check human milk ID prior to administration
X	All of the above

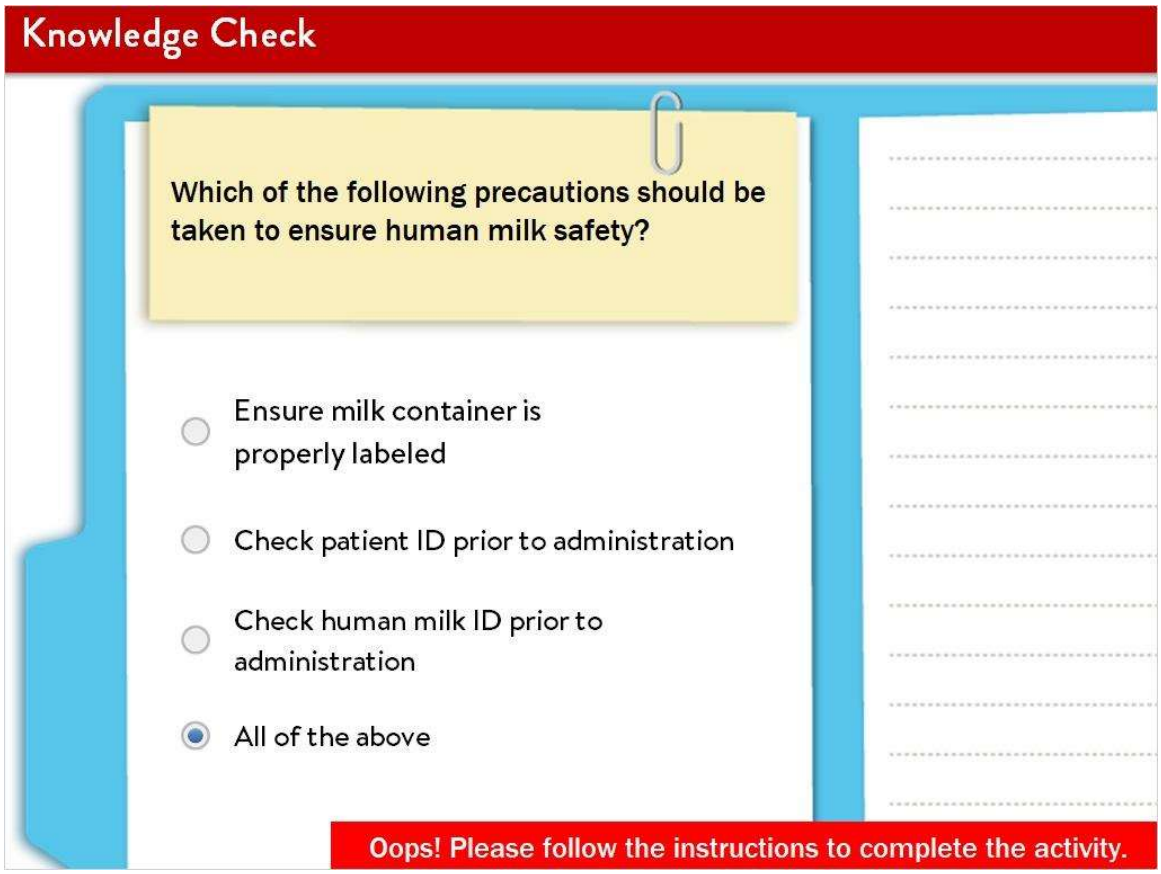
That is Correct (Slide Layer)



Incorrect (Slide Layer)

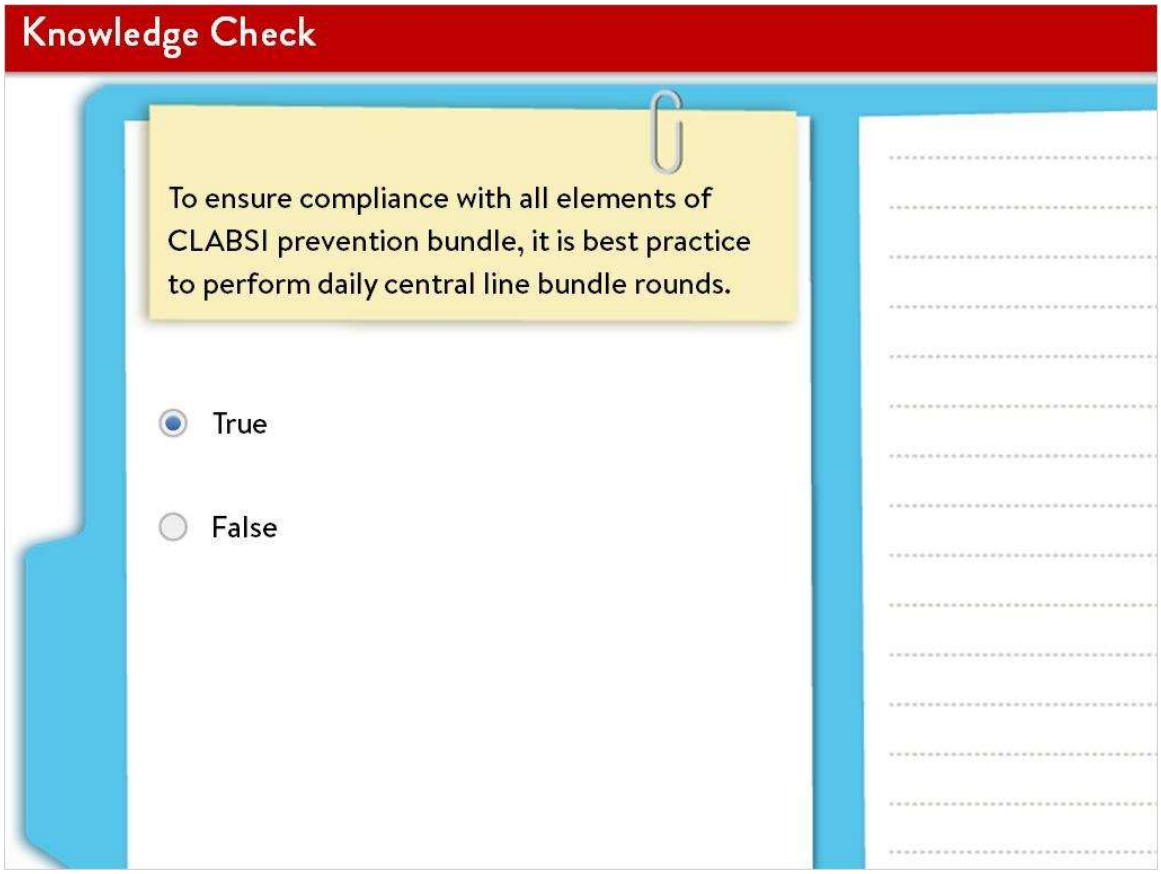


Oops layer for Next button (Slide Layer)



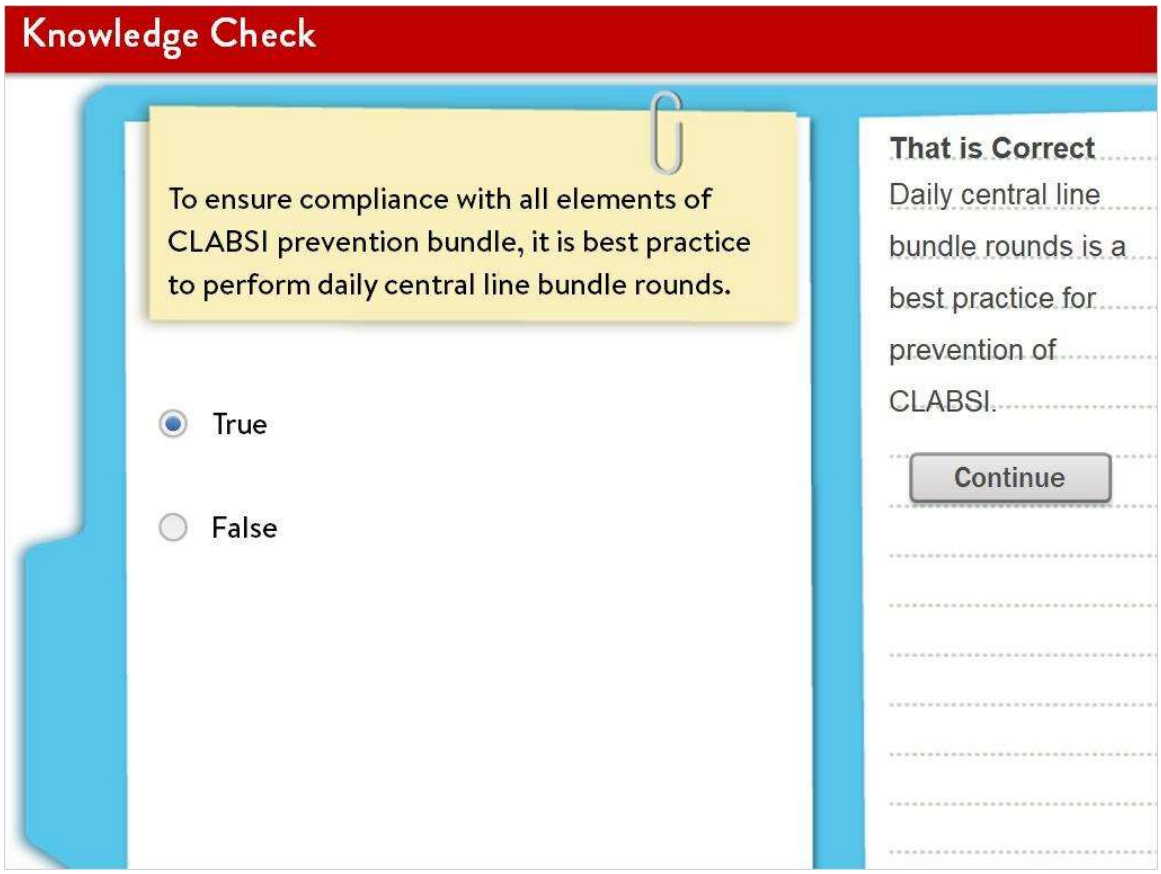
5.15 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)



Correct	Choice
X	True
	False

That is Correct (Slide Layer)



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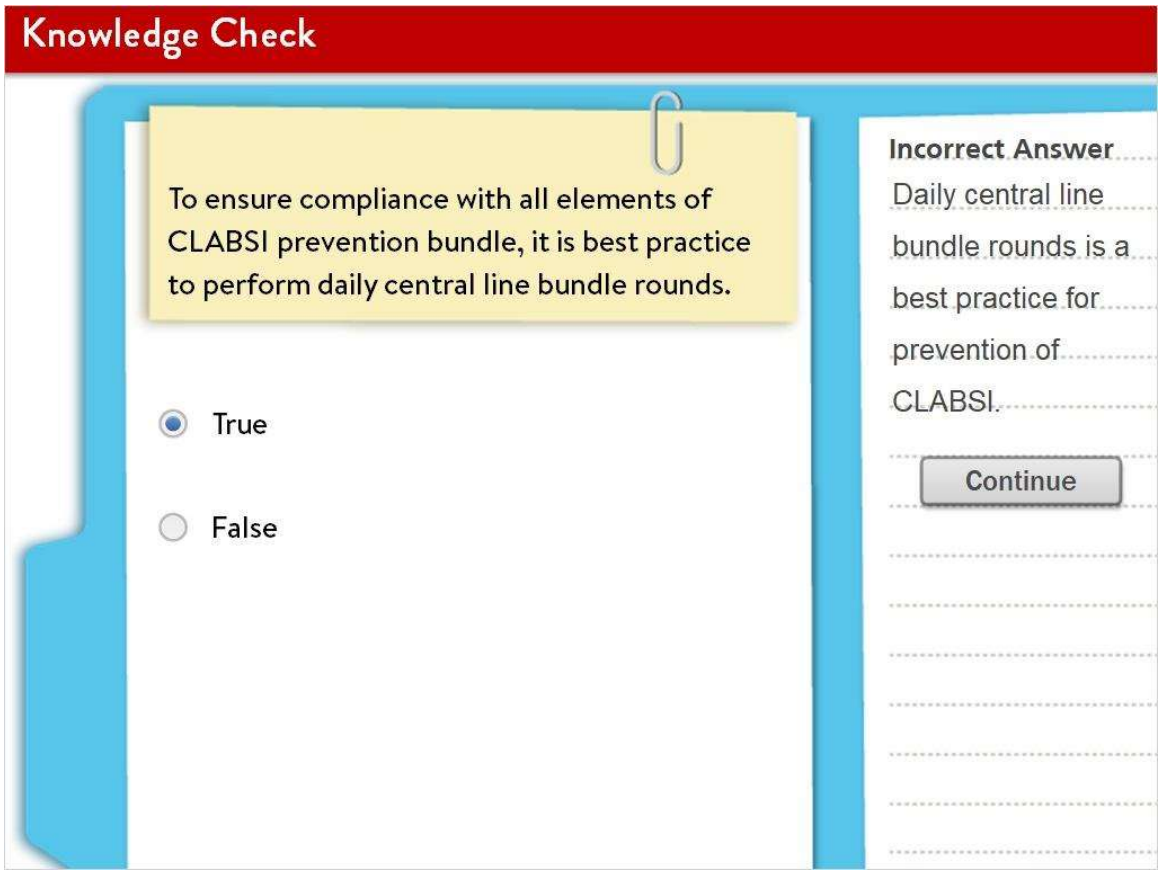
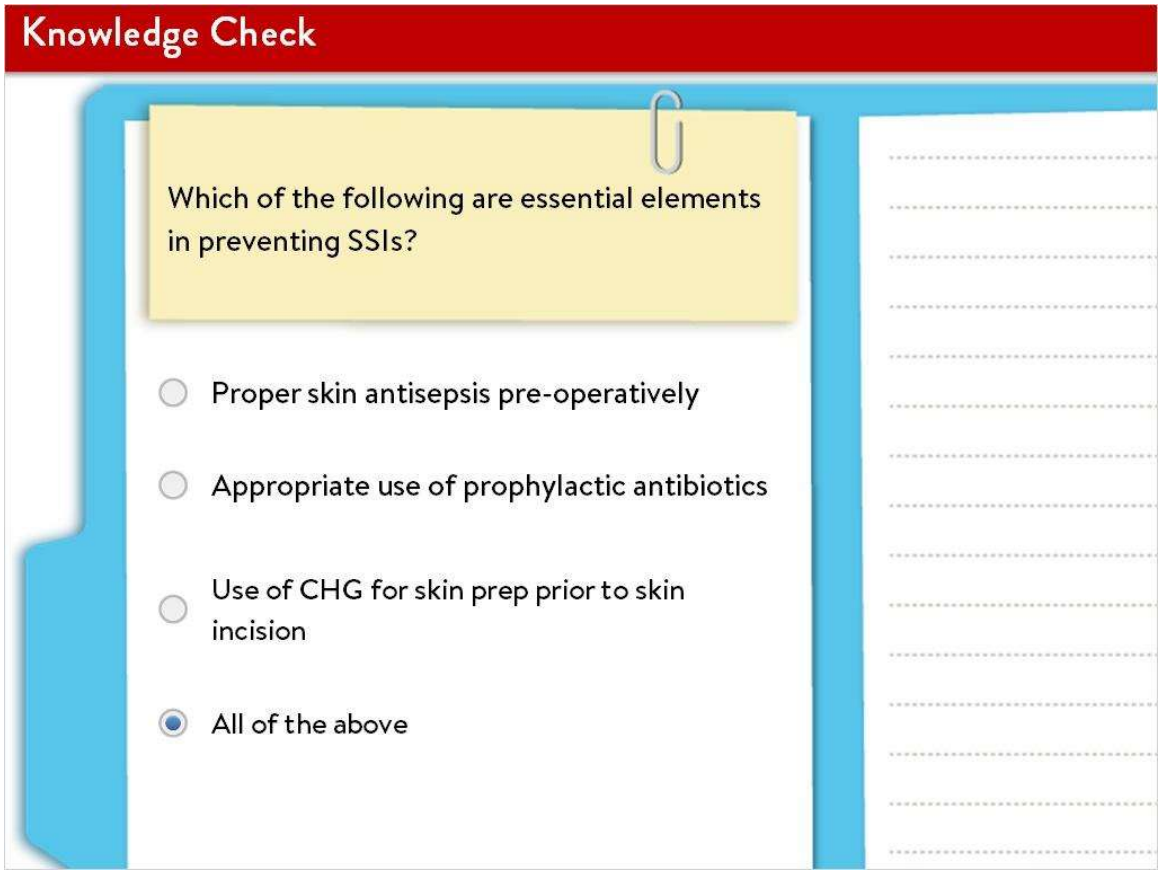


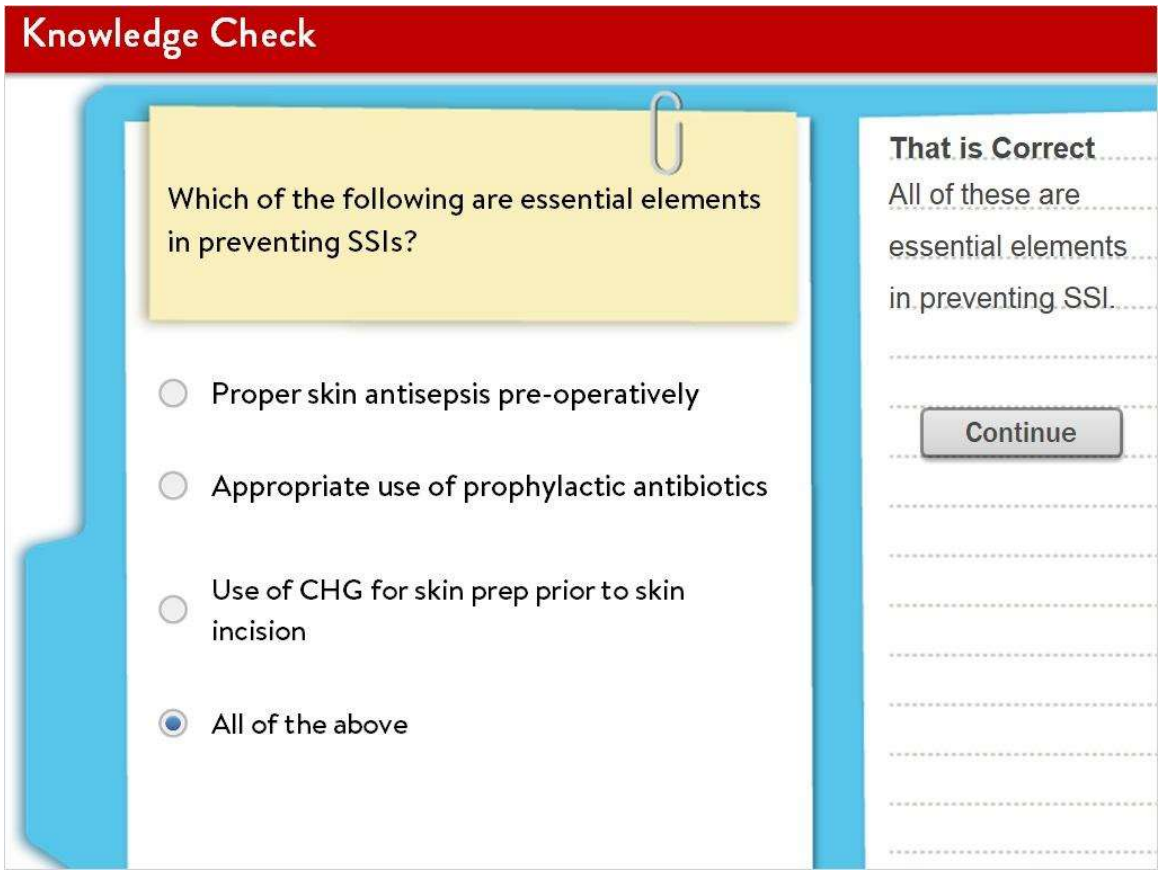
5.16 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

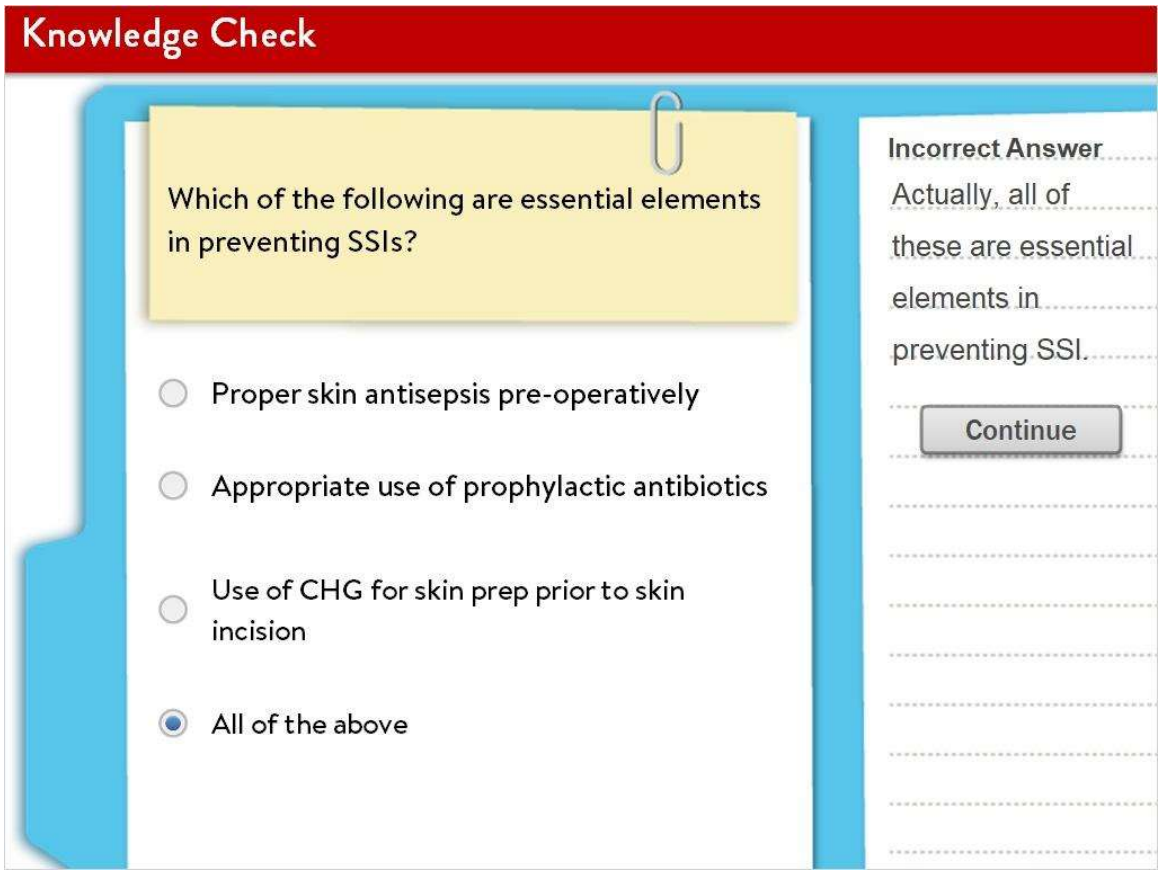


Correct	Choice
	Proper skin antisepsis pre-operatively
	Appropriate use of prophylactic antibiotics
	Use of CHG for skin prep prior to skin incision
X	All of the above

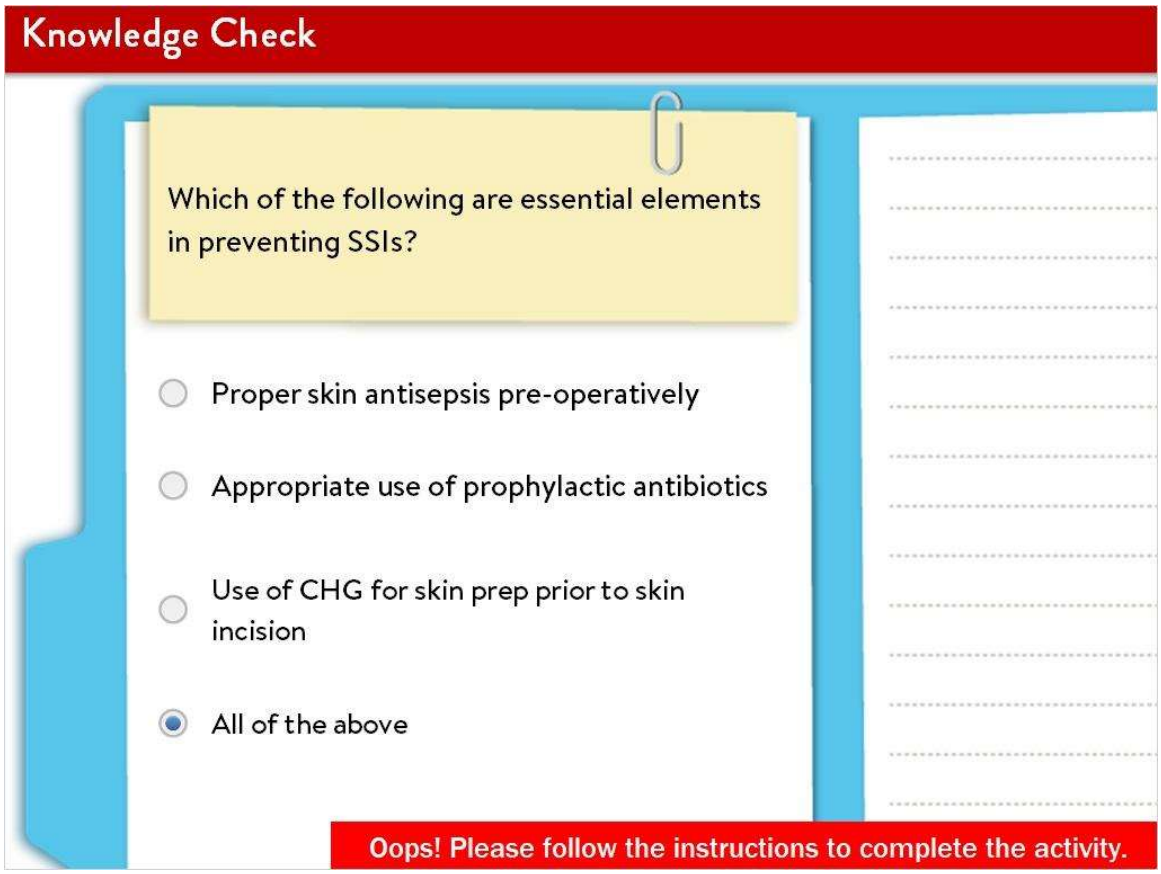
That is Correct (Slide Layer)



Incorrect (Slide Layer)



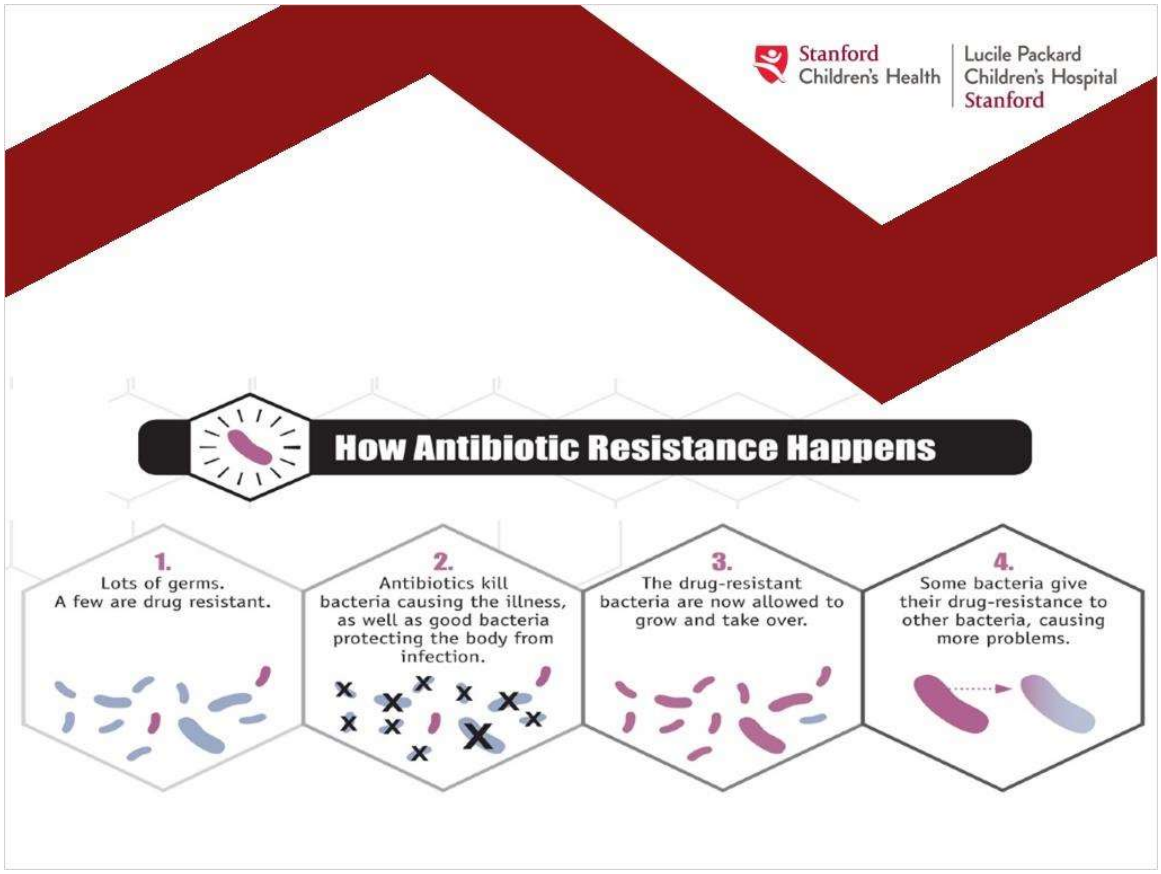
Oops layer for next button (Slide Layer)



6. Antimicrobial Stewardship

6.1 Antimicrobial Stewardship

6.2 The Cause of Antibiotic Resistance



6.3 Antimicrobial Stewardship Program (ASP) at LPCH Stanford

6.4 Why is ASP Important

6.5 Formulary Restriction and Authorization

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Formulary Restriction and Authorization

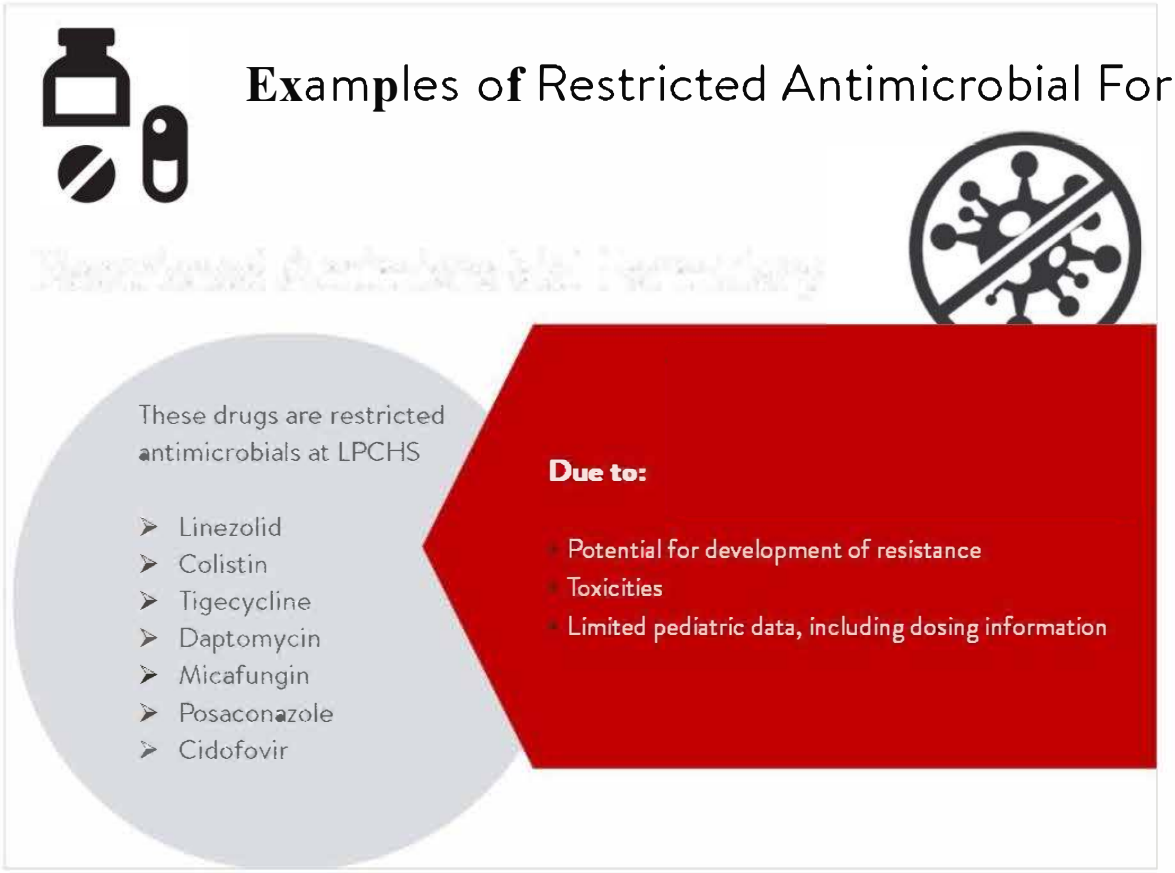
Formulary restriction and authorization

- The use of certain high-risk or expensive antimicrobials requires Pediatric Infectious Disease approval or consultation
- When you are ordering these medications in Epic, you are required to document the approving Infectious Disease Provider

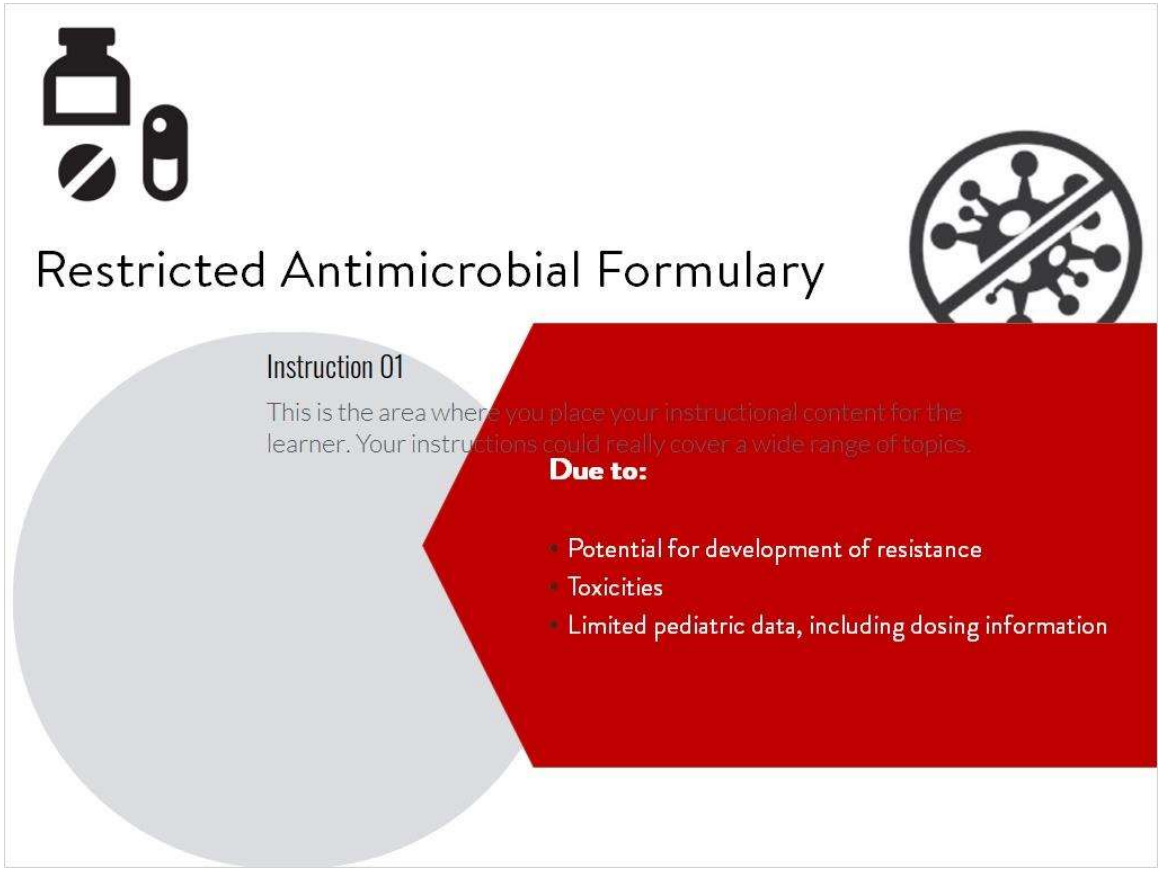
Prospective audit with intervention and feedback

- Active antimicrobial orders ≥48 hours are reviewed by the ASP team
- If the ASP team identifies opportunities to optimize antimicrobial use, these recommendations are communicated directly to the care team
- ASP recommendations are also visible within the Epic ASP Navigator

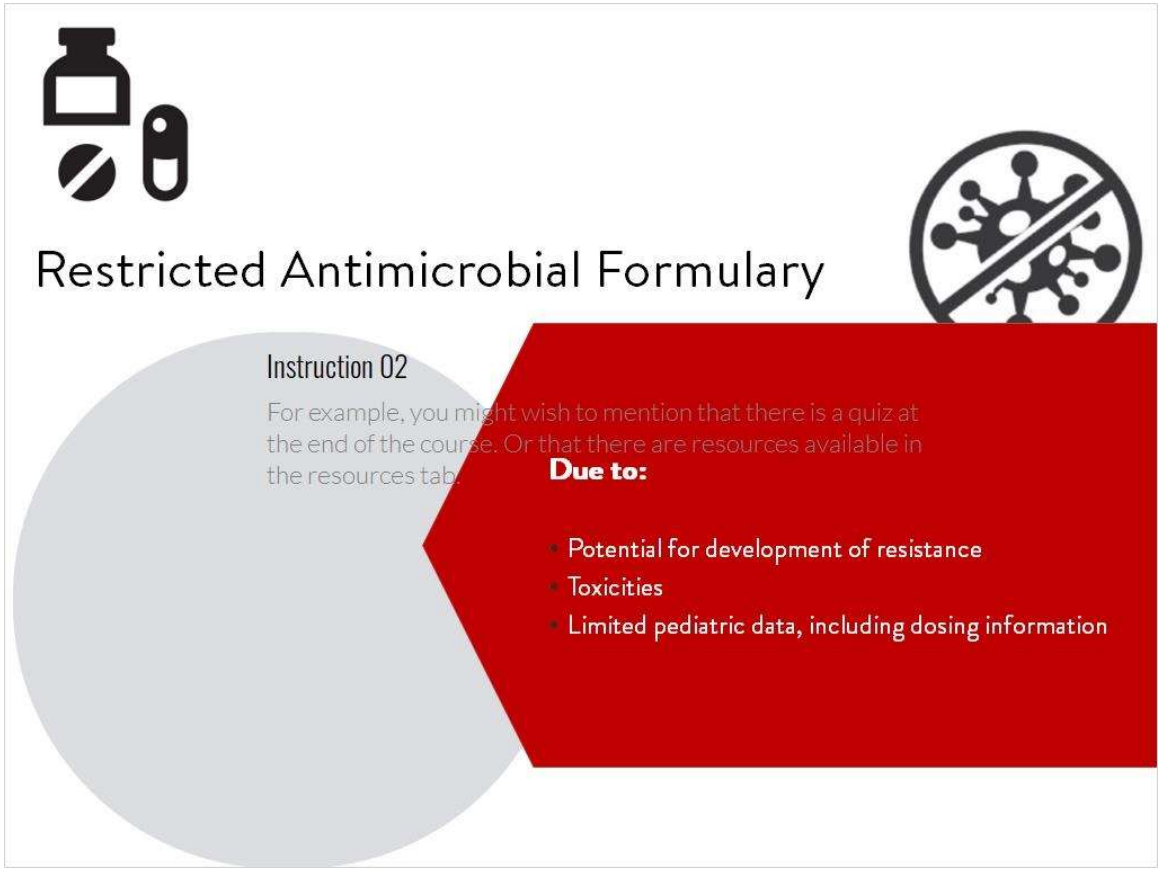
6.6 Restricted Antimicrobials



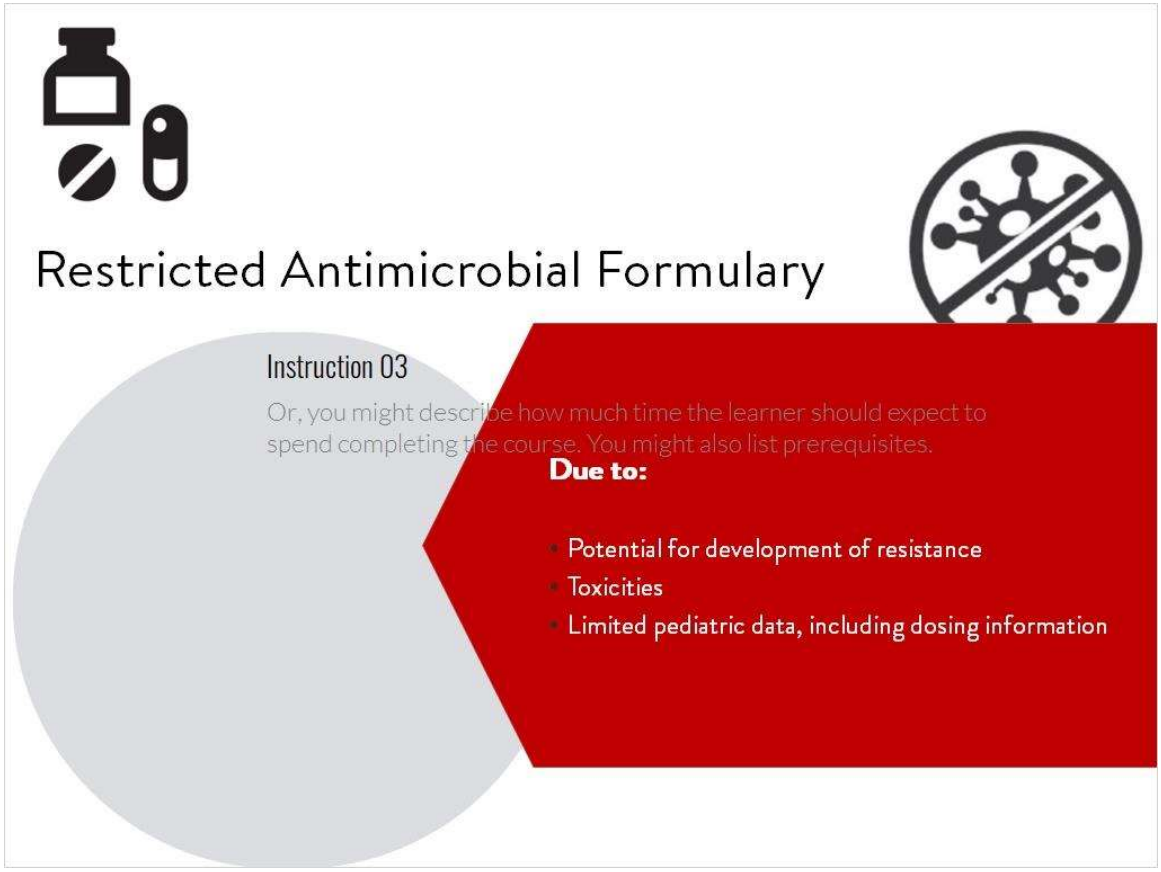
Item 01 (Slide Layer)



Item 02 (Slide Layer)



Item 03 (Slide Layer)



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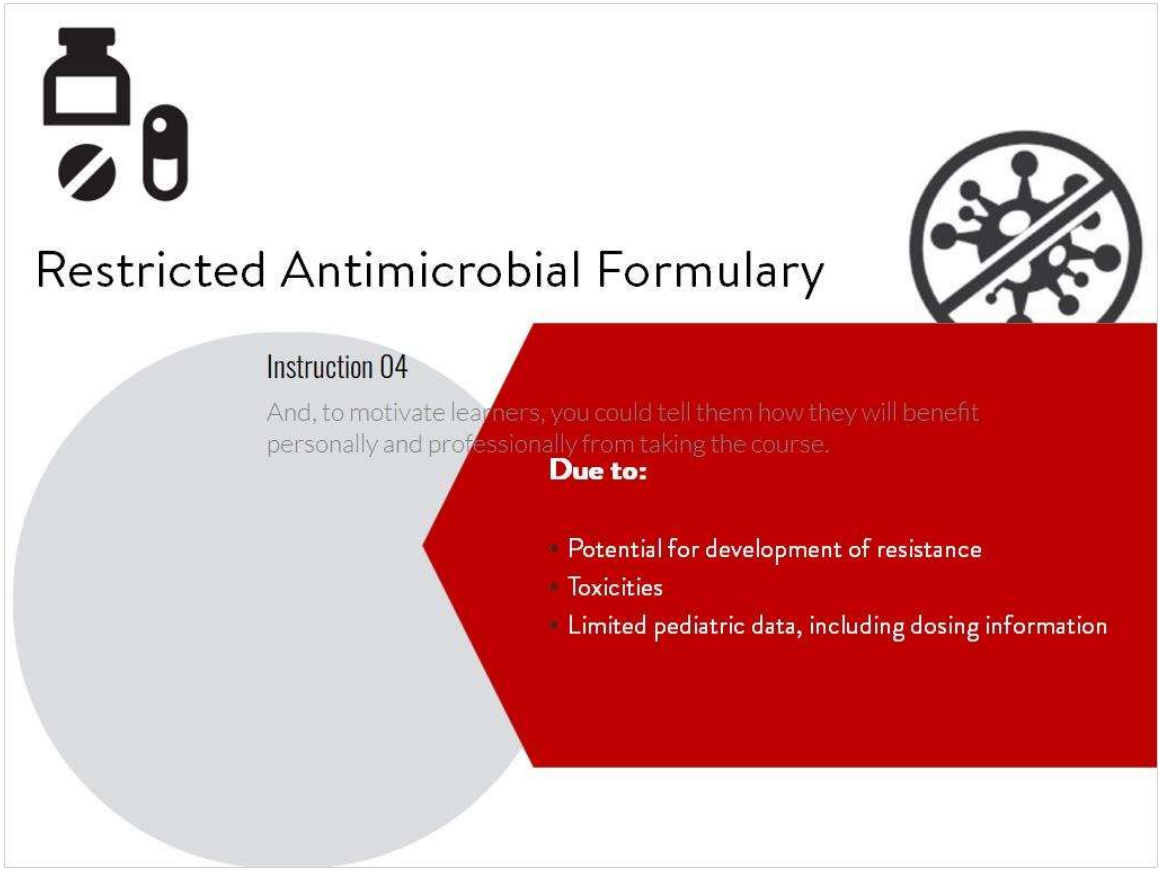
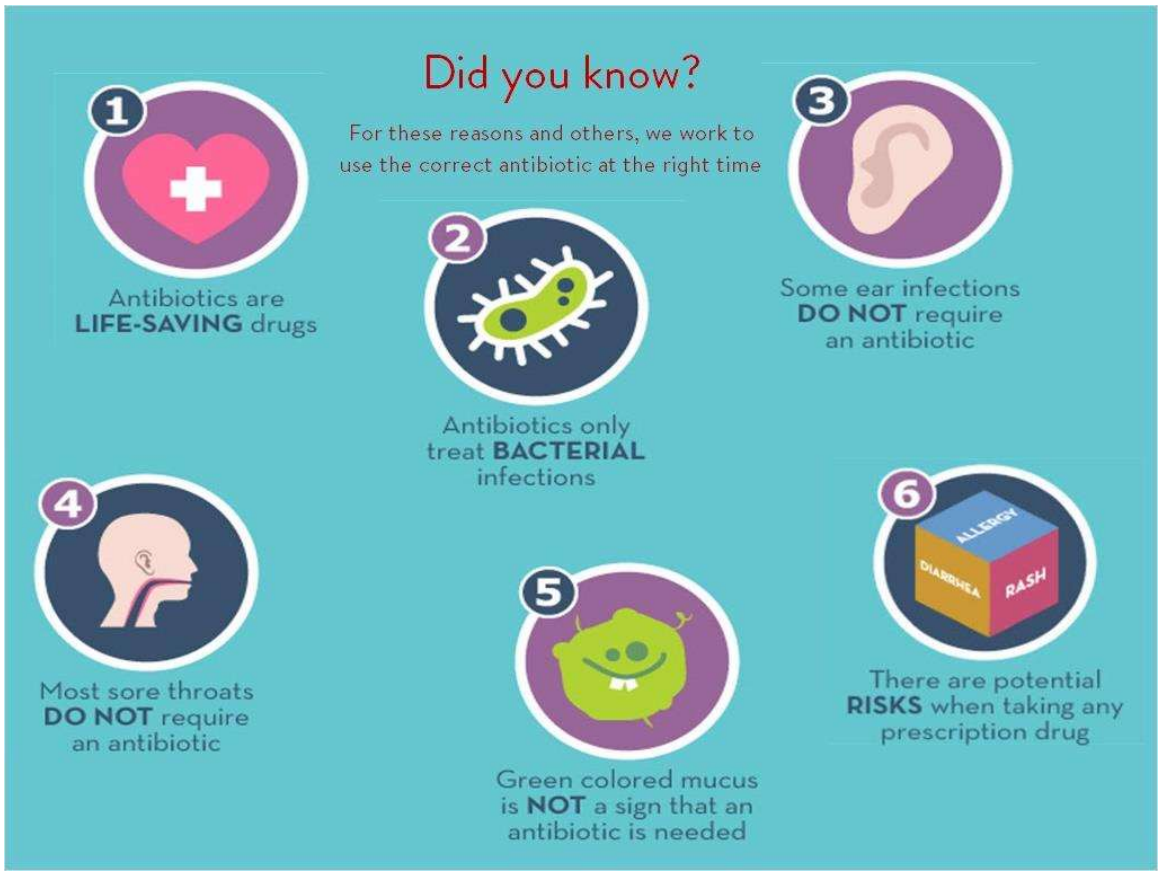


6.7 Antibiotic Fun Facts



6.8 Strategies for optimizing antimicrobial use at LPCH

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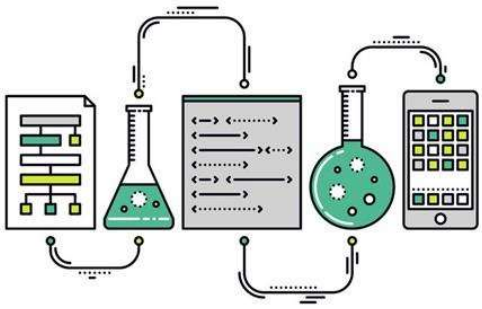
Strategies for optimizing antimicrobial use at LPCH

Antibiogram development and annual update

- The LPCH antibiogram contains valuable information regarding institutional bacterial resistance patterns
- The antibiogram is updated annually and can be accessed as a weblink within Epic or via the Lane Library

Education

- Clinician
- Patient and family



6.9 More about the Antimicrobial Stewardship Program

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More about the Antimicrobial Stewardship Program

Team members

- Medical Director & Associate Medical Director
- Clinical Pharmacists
- Specialist, Analytics & Clinical Effectiveness
- Other team members: Infection Prevention and Control, Clinical Microbiology, and medical team members

Contact information

- Please refer to the LPCH Antimicrobial Stewardship Policy for more information
- Please direct ASP-related questions to:
  - The main email inbox of pediatricasp@stanford.edu

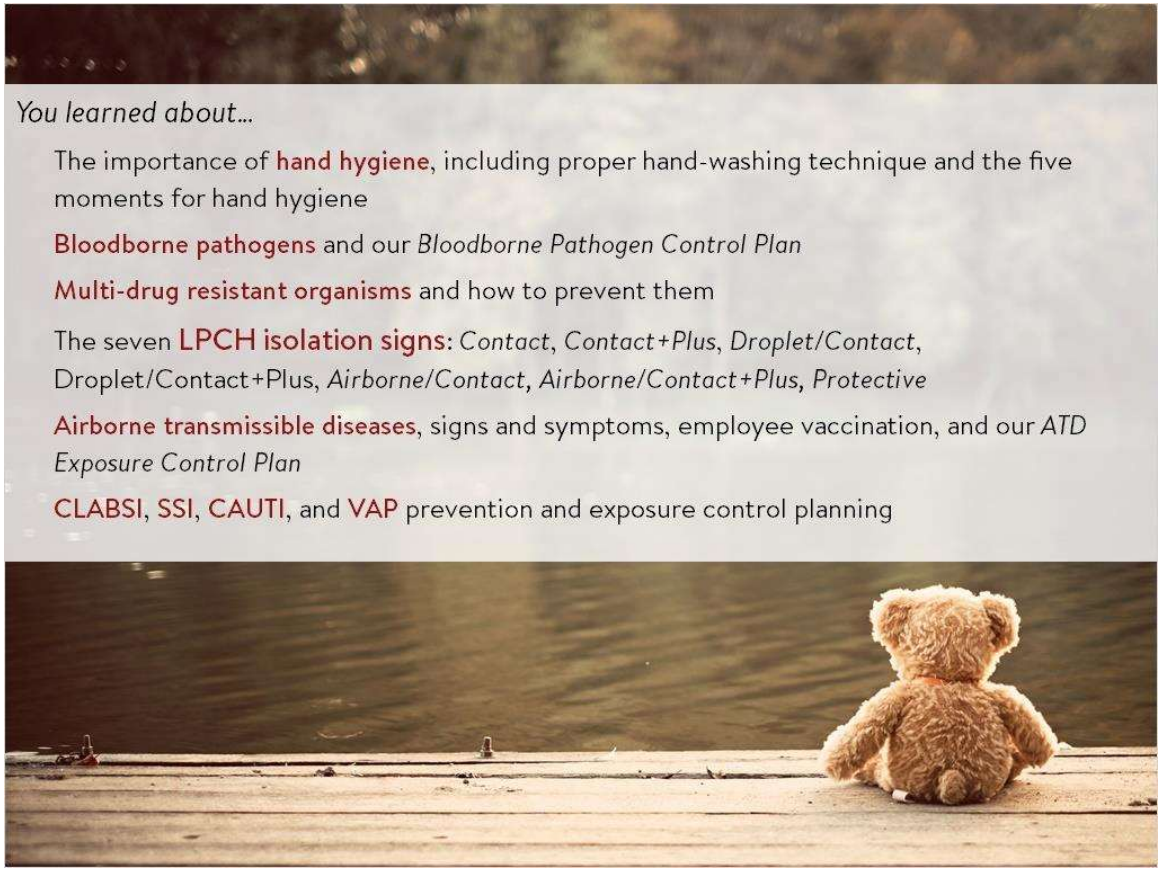
7. Conclusion

7.1 Conclusion

7.2 Reflect on Key Lessons Learned

How can you apply infection control best practices to your job?

Reflect (Slide Layer)



7.3 How to reach the IPC team via Email

7.4 How to reach the on-call IPC

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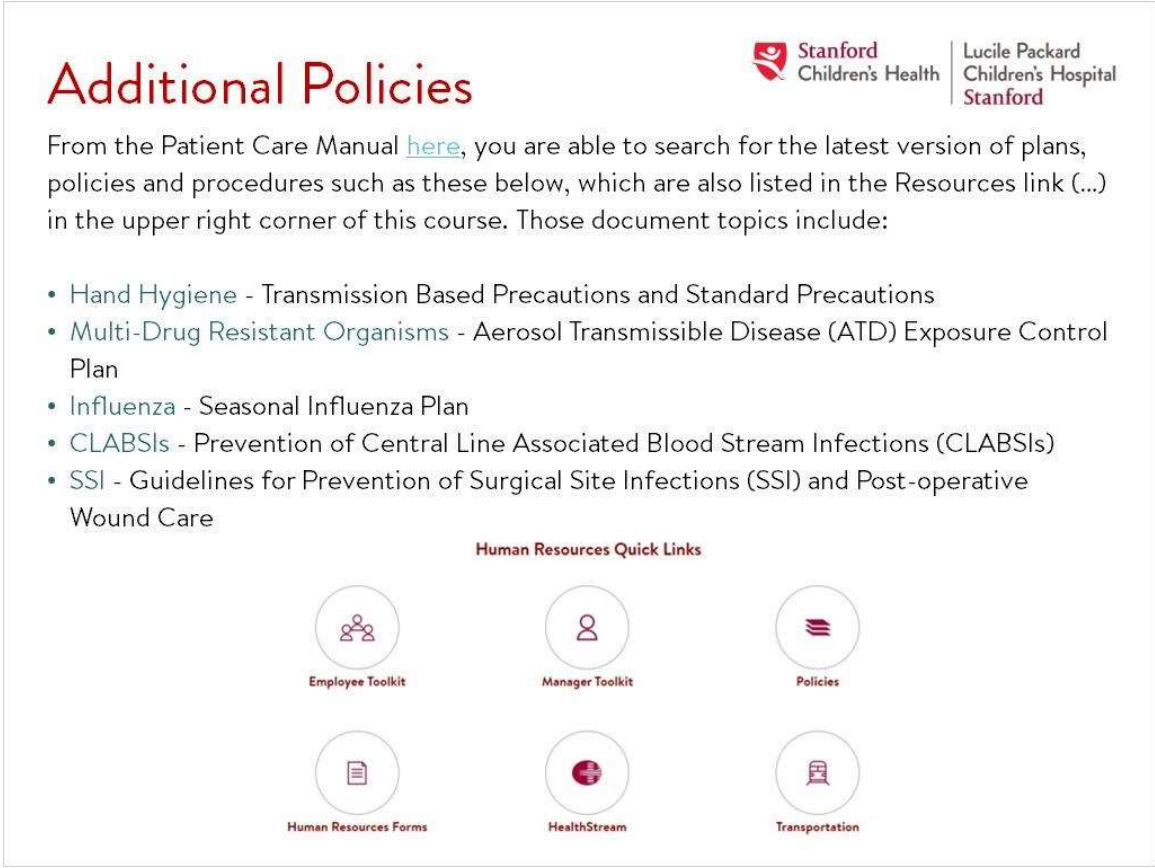
How to reach the on-call IPC

For urgent issues, please either:

- Page 28199
- Call the Hospital Operator and ask for the Pediatric Infection Prevention and Control Specialist to be paged
- Send a Voalte message for non-urgent issues

7.5 Additional Policies



7.6 Be the Change