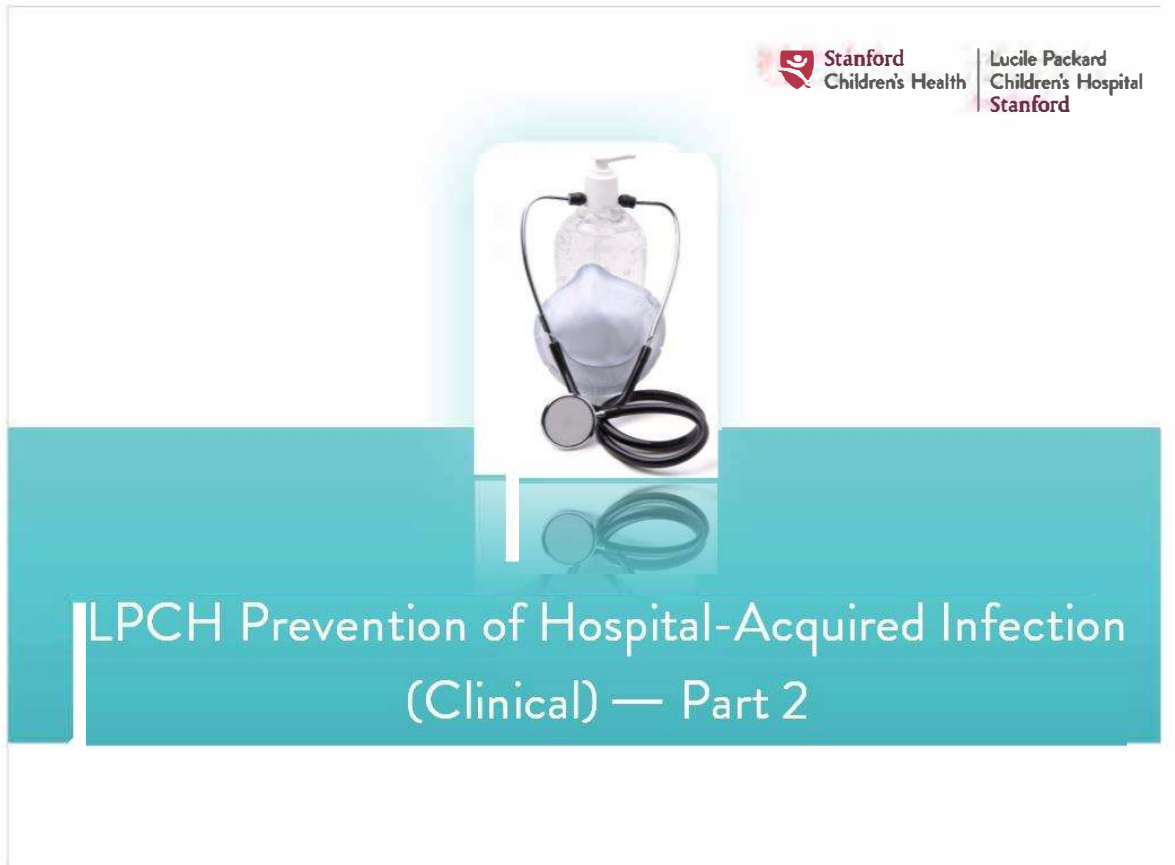


# LPCH Prevention of Hospital-Acquired Infection part 2 (Clinical)

## 1. Introduction

### 1.1 Introduction



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

## 2. Multi-Drug Resistant Organisms

### 2.1 Multi-Drug-Resistant Organisms

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Multi-Drug  
Resistant Organisms



The image features a teal horizontal band across the center. On the left side of this band, the text "Multi-Drug Resistant Organisms" is written in white. On the right side of the band, there is a rounded rectangular inset containing three items: a pair of blue nitrile gloves, a white surgical mask, and a clear plastic bottle of hand sanitizer.

## 2.2 What Happened? What Could Have Happened Instead?

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)

What Happened?

What Could Have Happened Instead?

*If you were Dena,  
what would you have done?*

*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



## 2.3 What Are Multi-Drug Resistant Organisms?

### What Are Multi-Drug Resistant Organisms?

A **multi-drug resistant organism (MDRO)** is an organism that is resistant to commonly used antibiotics; certain drug regimens will not work if an organism is resistant to multiple drugs

#### Transmission-based Isolation Precautions

- Are additional precautionary measures observed across LPCH
- Are implemented when caring for patients with suspected or confirmed communicable diseases and MDROs

#### Isolation Signs

- Are displayed outside of the patient's room and
- Are in English and Spanish and include graphics for ease of use
- Apply to all employees and medical providers
- Apply to families and visitors



*Click the button  
to see examples of  
MDROs*

## Next Button (Slide Layer)



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# What Are Multi-Drug Resistant Organisms?

A **multi-drug resistant organism (MDRO)** is an organism that is resistant to commonly used antibiotics; certain drug regimens will not work if an organism is resistant to multiple drugs

### Transmission-based Isolation Precautions

- Are additional precautionary measures observed across LPCH
- Are implemented when caring for patients with suspected or confirmed communicable diseases and MDROs

### Isolation Signs

- Are displayed outside of the patient's room and
- Are in English and Spanish and include graphics for ease of use
- Apply to all employees and medical providers
- Apply to families and visitors



*Click the button  
to see examples of  
MDROs*



Next

## 2.4 How to Prevent Multi-Drug Resistant Organisms

### How to Prevent Multi-Drug Resistant Organisms

National Patient Safety Goal  
07.03.01



There are several ways you can help prevent the spread of **Multi-Drug Resistant Organisms**

**Click each drop** on the left to learn more



Next

## 1 (Slide Layer)

# How to Prevent Multi-Drug Resistant Organisms

National Patient Safety Goal  
07.03.01



### Appropriate and Judicious Use of Antibiotics

*Your role is to verify correct antibiotics being used on your patient, check microbiology results and report results to physician accordingly so that timely initiation, de-escalation or discontinuation of antimicrobial treatment can be implemented*

- Avoid use of broad spectrum antimicrobials and/or perform prompt de-escalation of broad spectrum antimicrobial treatment once microbiology culture results are available
- Use an antimicrobial agent that targets the specific organism of

Next

## 2 (Slide Layer)

# How to Prevent Multi-Drug Resistant Organisms

National Patient Safety Goal  
07.03.01



## Excellent Hand Hygiene

- Healthcare workers hands are vehicles for organism transmission
- Meticulous hand hygiene is crucial in preventing:
  - MDROs
  - Healthcare-acquired infections

Next

### 3 (Slide Layer)

## How to Prevent Multi-Drug Resistant Organisms

National Patient Safety Goal  
07.03.01



### Proper Cleaning and Disinfection of Patient Care Equipment

- Dirty and unclean patient care equipment:
  - Can be a reservoir for microorganisms
  - Can be a vehicle for transmission of MDROs



Next

## 4 (Slide Layer)

# How to Prevent Multi-Drug Resistant Organisms

National Patient Safety Goal  
07.03.01



## Proper Cleaning and Disinfection of Patient Care Environment

Contaminated surfaces and a contaminated hospital environment can be reservoirs for microorganisms to grow



Next



## 5 (Slide Layer)

# How to Prevent Multi-Drug Resistant Organisms

National Patient Safety Goal  
07.03.01



## Strict Adherence to Transmission-based Isolation Precautions are Instituted

- Use Contact Isolation Precautions for MRSA-, VRE-, CRE-, and ESBL-producing organisms
- Use Contact Plus Isolation Precautions to prevent the spread of C. difficile, Norovirus, and infectious diarrhea

Next



## 6 (Slide Layer)

# How to Prevent Multi-Drug Resistant Organisms

National Patient Safety Goal  
07.03.01



## Educate Patients and Visitors About MDRO and How to Prevent Transmission

It is important that your patients, their family members, and visitors understand the diagnosis, infection transmission prevention, and how to comply with our isolation protocols

Next

## 7 (Slide Layer)

# How to Prevent Multi-Drug Resistant Organisms

National Patient Safety Goal  
07.03.01



## Document Proper Isolation and Education Provided in the Medical Record

Documentation serves as a proof of care provided to the patient and family members and is a very helpful tool during exposure investigation and regulatory agency surveys

Next

## 2.5 MRSA Active Surveillance Testing

**MRSA Active Surveillance Testing**

 **Stanford Children's Health** | **Lucile Packard Children's Hospital Stanford**

 *Click the icon*

California Law: SB 1058



## California (Slide Layer)

### MRSA Active Surveillance Testing

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Children's Health

Lucile Packard  
Children's Hospital  
Stanford



*Click the icon*

#### California Law: SB 1058

Effective January 1, 2009 California law required MRSA Active Surveillance Testing for certain patient populations.

MRSA screening should be performed within 24 hours of hospital admission.

#### Criteria for MRSA Screening:

- Patients readmitted within 30 days of discharge from Acute Care Hospital
- Patients admitted to Intensive Care Unit (ICU)
- Patients transferred from Skilled Nursing Facility (SNF)
- Patients receiving inpatient hemodialysis



Untitled Layer 2 (Slide Layer)

# MRSA Active Surveillance Testing

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Children's Health

Lucile Packard  
Children's Hospital  
Stanford



*Click the icon*

California Law: SB 1058



Please click the link to proceed.

## 2.6 Other Requirements of SB 1058

### Other Requirements of SB 1058

- ✓ Patients shall be notified by their healthcare provider of positive MRSA result as soon as possible
- ✓ Physicians must document patient notification in patient's medical record
- ✓ Patients shall receive a verbal and written instruction regarding prevention of MRSA transmission
- ✓ At LPCH, the attending nurse is also responsible in providing patient and family education about MRSA and how to prevent MRSA transmission
- ✓ Education provided must be documented in patient's medical record

## 2.7 Do Not Infect Others

Do Not Report to Work If You Have Any of the Following



Rash

Sore Throat

Diarrhea

Cough

Draining Wound(s)

Cold or Flu-Like Symptoms

Fever

Persons actively coughing should not have contact with patients or other team members

Next



## 2.8 Standard Precautions

# 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

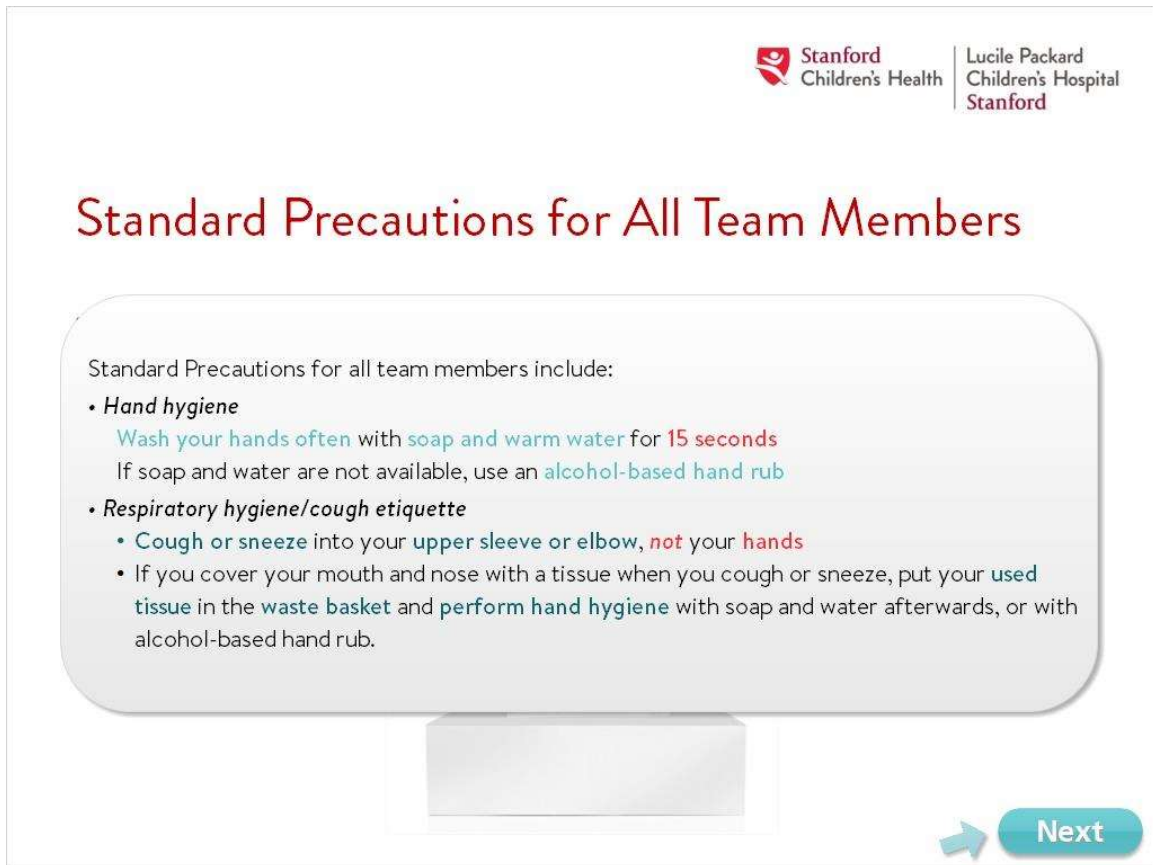
These practices are designed to both **protect the healthcare provider (HCP)** and **prevent HCP from spreading infections among patients**

*To learn more, click the tissue box:*





## Learn More (Slide Layer)



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### Standard Precautions for All Team Members

Standard Precautions for all team members include:

- **Hand hygiene**
  - Wash your hands often with soap and warm water for 15 seconds
  - If soap and water are not available, use an alcohol-based hand rub
- **Respiratory hygiene/cough etiquette**
  - Cough or sneeze into your upper sleeve or elbow, not your hands
  - If you cover your mouth and nose with a tissue when you cough or sneeze, put your used tissue in the waste basket and perform hand hygiene with soap and water afterwards, or with alcohol-based hand rub.

[Next](#)

## 2.9 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

## Knowledge Check

What is an MDRO?

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

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)

**Knowledge Check**

What is an MDRO?

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

**That is Correct**  
MDROs are multi-drug resistant organisms that are resistant to commonly used antibiotics.

Continue

**Incorrect (Slide Layer)**

**Knowledge Check**

What is an MDRO?

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

**Incorrect Answer**  
Actually, MDROs are multi-drug resistant organisms that are resistant to commonly used antibiotics.

**Continue**

**2.10 Knowledge Check**

*(Multiple Choice, 10 points, 1 attempt permitted)*

## Knowledge Check

Which of the following is an example of an MDRO?

- Influenza (flu)
- Methicillin resistant staphylococcus aureus (MRSA)
- Tuberculosis (TB)
- All of the above

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

**That is Correct (Slide Layer)**

**Knowledge Check**

Which of the following is an example of an MDRO?

- Influenza (flu)
- Methicillin resistant staphylococcus aureus (MRSA)
- Tuberculosis (TB)
- All of the above

**That is Correct**

Methicillin  
resistant  
staphylococcus  
aureus (MRSA) is  
an example of an  
MDRO.

Continue

**Incorrect (Slide Layer)**

**Knowledge Check**

Which of the following is an example of an MDRO?

- Influenza (flu)
- Methicillin resistant staphylococcus aureus (MRSA)
- Tuberculosis (TB)
- All of the above

**Incorrect Answer**  
Actually, methicillin resistant staphylococcus aureus (MRSA) is an example of an MDRO.

**Continue**

**2.11 Knowledge Check**

*(Multiple Choice, 10 points, 1 attempt permitted)*

## Knowledge Check

California Law SB 1058 requires active MRSA surveillance for which patient populations?

- 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)
- All of the above

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)**

**Knowledge Check**

California Law SB 1058 requires active MRSA surveillance for which patient populations?

- 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)
- All of the above

**Incorrect Answer**  
Actually, all of these patient populations require MRSA surveillance within 24 hours of hospital admittance.

**Continue**

Oops for next button (Slide Layer)

**Knowledge Check**

California Law SB 1058 requires active MRSA surveillance for which patient populations?

- 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)
- All of the above

Oops! Please follow the instructions to complete the activity.

**That is Correct (Slide Layer)**

**Knowledge Check**

California Law SB 1058 requires active MRSA surveillance for which patient populations?

- 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)
- All of the above

**That is Correct**

All of these patient populations require MRSA surveillance within 24 hours of hospital admittance.


Continue

## 3. LPCH Isolation Signs

### 3.1 LPCH Isolation Signs

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Children's Hospital  
**Stanford**

LPCH Isolation Signs



### 3.2 What Happened? What Could Have Happened Instead?

#### What Happened?

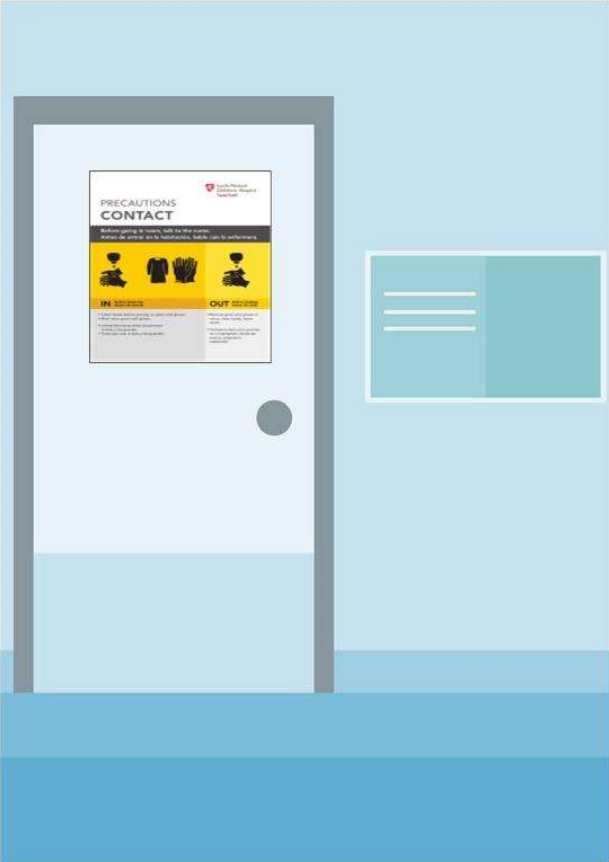
#### What Could Have Happened Instead?

There were no *isolation signs* placed outside the room Kelly's father occupied, which resulted in many visitors and team members being unaware of the *contamination risk*

If a sign had been placed outside the room to make others aware of the patient's MRSA infection, it would have increased awareness and compliance with infection control procedures among visitors and other team members, and *Whitney would have had a positive outcome*



### 3.3 LPCH Isolation Signs



The illustration shows a light blue door with a grey frame. On the door is a white sign with a yellow header that reads 'PRECAUTIONS CONTACT'. Below the header are icons for a person, a pair of gloves, and a pair of shoes. The sign is divided into 'IN ISOLATION' and 'OUT ISOLATION' sections. To the right of the door is a teal sign holder with three horizontal lines. The background is a light blue wall and a darker blue floor.

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**Stanford**

## LPCH Isolation Signs

We don't want to take infections home to our loved ones and family or spread them to our patients and colleagues.

There are seven types of **isolation signs** posted outside of patient rooms. The signage instructions must be strictly followed to prevent the spread of infection.

### 3.4 Sign Symbols

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

## Symbols

Drag each hygiene and PPE icon used on isolation signs to its definition.  
After all 7 are correct the course will continue.



- Use alcohol gel
- Wash with soap and water
- Wear a gown
- Wear an N95 mask
- Wear a surgical mask
- Eliminate plant materials
- Wear gloves
- Wear eye cover

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)

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# Symbols

Drag each item to its definition.  
After all 7 are placed, click Continue.

**Correct**  
That's right! You selected the correct response.

Continue

Use alcohol gel    Wash with soap and water    Wear a gown    Wear an N95 mask    Wear a surgical mask    Eliminate plant materials    Wear gloves    Wear eye cover

## Incorrect (Slide Layer)

Stanford Children's Health | Lucile Packard Children's Hospital Stanford

# Symbols


Drag each [ ] to its definition.  
After all 7 are placed, click Continue.

**Incorrect**  
That's not right. Please try again.

Continue


Use alcohol gel    Wash with soap and water    Wear a gown    Wear an N95 mask    Wear a surgical mask    Eliminate plant materials    Wear gloves    Wear eye cover

## Next (Slide Layer)


 **Stanford**  
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Children's Hospital  
Stanford

# Symbols

Drag each hygiene and PPE icon used on isolation signs to its definition.  
After all **7** are correct the course will continue.



- Use alcohol gel
- Wash with soap and water
- Wear a gown
- Wear an N95 mask
- Wear a surgical mask
- Eliminate plant materials
- Wear gloves
- Wear eye cover

Continue 

### 3.5 Patient example 1

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

You are about to enter the room of a patient with a MRSA infection



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)**

Stanford Children's Health | Lucile Packard Children's Hospital Stanford

You are about to enter the room of a patient with a MRSA infection

**Correct**

That's right! You selected the correct response.

Continue

## Incorrect (Slide Layer)

Stanford Children's Health | Lucile Packard Children's Hospital Stanford

You are about to enter the room of a patient with a MRSA infection



**Incorrect**

You did not select the correct response.

Continue

### 3.6 Contact Isolation

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

Lucile Packard Children's Hospital Stanford

## PRECAUTIONS

Before going in room, talk to the nurse.  
Antes de entrar en la habitación, hable con la enfermera.

**IN** Before Entering / Antes De Entrar

**OUT** Before Exiting / Antes De Salir

What PPE and hand hygiene is required before entering this room? Drag the icons into the red box. The correct icons will remain on the sign.

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

### Answer 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.*



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

Next



why (Slide Layer)

## 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

You are about to enter the room of a patient with a MRSA infection  
and C.DIFF




### 3.8 Contact Plus Isolation

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

Lucile Packard  
Children's Hospital  
Stanford

## PRECAUTIONS









Before going in room, talk to the nurse.  
Antes de entrar en la habitación, hable con la enfermera.



IN
Before Entering  
Antes De Entrar

OUT
Before Exiting  
Antes De Salir

What PPE and hand hygiene is required before entering this room? **Drag the icons** into the red box. The correct icons will remain on the sign.

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

### Answer door 2 (Slide Layer)

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

Patients with highly transferable health concerns like C.diff or Norovirus would need Contact Plus isolation. MRSA infection would need Contact isolation. Both risks are covered under **Contact Plus** isolation.



When you see the **+Plus** designation on an isolation sign, wash your hands with **soap and water** when **leaving** the patient room, instead of using hand gel.

Next

### 3.9 Patient example 3

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



You are about to enter the room  
of a patient with influenza

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)

Lucile Packard Children's Hospital Stanford

## PRECAUTIONS

Before going in room, talk to the nurse.  
Antes de entrar en la habitación, hable con la enfermera.

**IN** Before Entering  
Antes De Entrar

**OUT** Before Exiting  
Antes De Salir

What PPE and hand hygiene is required before entering this room? **Drag the icons** into the red box. The correct icons will remain on the sign.

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

### Answer 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)



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You are about to enter the room of a patient with influenza **and** C.DIFF

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)

Lucile Packard Children's Hospital Stanford

**PRECAUTIONS**

Before going in room, talk to the nurse.  
Antes de entrar en la habitación, hable con la enfermera.

**IN** Before Entering  
Antes De Entrar

**OUT** Before Exiting  
Antes De Salir

What PPE and hand hygiene is required before entering this room? **Drag the icons** into the **red box**. The correct icons will remain on the sign.

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

## Answer 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.



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)

You are about to enter the room of a patient with tuberculosis



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)

Lucile Packard Children's Hospital Stanford

## PRECAUTIONS

Before going in room, talk to the nurse.  
Antes de entrar en la habitación, hable con la enfermera.

**IN** Before Entering  
Antes De Entrar

**OUT** Before Exiting  
Antes De Salir

What PPE and hand hygiene is required before entering this room? **Drag the icons** into the red box. The correct icons will remain on the sign.

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

### Answer 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.




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)



Stanford Children's Health | Lucile Packard Children's Hospital Stanford

You are about to enter the room of a patient with chicken pox and the **norovirus**

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)

Lucile Packard Children's Hospital Stanford

**PRECAUTIONS**

Before going in room, talk to the nurse.  
Antes de entrar en la habitación, hable con la enfermera.

**IN** Before Entering  
Antes De Entrar

**OUT** Before Exiting  
Antes De Salir

What PPE and hand hygiene is required before entering this room? **Drag the icons** into the red box. The correct icons will remain on the sign.

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.

## Answer 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)

The screenshot shows an interactive learning interface with a wooden background. At the top left is the logo for Lucile Packard Children's Hospital Stanford. Below it, the word "PRECAUTIONS" is displayed. A dark grey banner contains the text "Before going in room, talk to the nurse." and "Antes de entrar en la habitación, hable con la enfermera." Below this is a blue rectangular area with a red border. To the right, a question asks: "What PPE and hand hygiene is required before entering this room? Drag the icons into the red box. The correct answer will remain in the red box." Below the question are several white icons representing PPE: safety goggles, a hand sanitizer bottle, a white lab coat, a white face shield, a pair of white gloves, and an N95 respirator mask. A grey feedback box is overlaid in the center, containing the text "Correct" and "That's right! You selected the correct response." with a "Continue" button below it.

## Incorrect (Slide Layer)

Lucile Packard Children's Hospital Stanford

### PRECAUTIONS

Before going in room, talk to the nurse.  
Antes de entrar en la habitación, hable con la enfermera.

What PPE and hand hygiene is required before entering this room? **Drag the icons** into the **red box**. The **correct response** will remain in the red box.

**Incorrect**  
You did not select the correct response.

Continue

IN Before Entering Room  
Antes de Entrar en la Habitación

N95

### 3.17 Protective Isolation



Sometimes there is a special isolation request for patients that have compromised immune systems or have had transplants

Next

## protective (Slide Layer)



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)

Lucile Packard Children's Hospital Stanford

### PRECAUTIONS AIRBORNE/CONTACT+PLUS

Before going in room, talk to the nurse.  
Antes de entrar en la habitación, hable con la enfermera.

1. Hand hygiene
2. Gown
3. Gloves
4. N95 Mask (Staff)

Visitor

**IN** Before Entering  
Antes De Entrar

- Clean hands before putting on gown, mask, and gloves.
- Must wear gown, mask, and gloves.
- Lávese las manos antes de ponerse la bata, la mascarilla y los guantes.
- Tiene que usar bata, mascarilla y guantes.

**OUT** Before Exiting  
Antes De Salir

- Remove gown and gloves in room, leave room, remove mask, wash hands with soap and water.
- Quite la bata y los guantes en la habitación, salga de la habitación, quite la mascarilla, lávese las manos con agua y jabón.

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

Stanford  
Children's Health | Lucile Packard  
Children's Hospital  
Stanford

Aerosol Transmissible  
Diseases

A stack of three blue surgical masks with white ear loops, arranged in a slightly overlapping manner. The masks are set against a white background within a rounded rectangular frame.



## 4.2 What Happened? What Could Have Happened Instead?

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)

What Happened?

What Could Have Happened Instead?

*If you were Janice,  
what would you have done?*

- 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

## 4.3 What Are Airborne Transmissible Diseases?

# What Are Airborne Transmissible Diseases?

*The California Occupational Health & Safety  
Division adopted the Aerosol Transmissible  
Diseases Standard in August 2009.*



**Click the button**  
to learn more  
about ATDs

- An Aerosol Transmissible Disease (ATD) is a **disease** or **pathogen** that is transmitted by **aerosols**
- Aerosols are gaseous suspension of fine solid or liquid particles
- These pathogens can come with secretions from upper and lower respiratory tract of a person
- Some ATDs are **vaccine preventable** such as measles, varicella and seasonal influenza
- ATDs can be transmitted in two ways: **airborne** and **droplet**

## Next (Slide Layer)

# What Are Airborne Transmissible Diseases?

*The California Occupational Health & Safety  
Division adopted the Aerosol Transmissible  
Diseases Standard in August 2009.*

- An Aerosol Transmissible Disease (ATD) is a **disease** or **pathogen** that is transmitted by **aerosols**
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- Some ATDs are **vaccine preventable** such as measles, varicella and seasonal influenza
- ATDs can be transmitted in two ways: **airborne** and **droplet**



**Click the button**  
to learn more  
about ATDs



## 4.4 Airborne Transmissible Diseases: Airborne vs. Droplet

# Aerosol Transmissible Diseases

AIRBORNE



[Click the photo](#) to learn more

DROPLET



## Droplet (Slide Layer)

# Aerosol Transmissible Diseases

## DROPLET

Droplet ATDs are large particles that may drop quickly to ground or surfaces and do not travel very far

Requires use of regular surgical mask and eye protection for patient contact and patient care



### Signs and Symptoms

#### Bacterial Meningitis

Fever, intense headache, stiff neck, confusion

Pediatric patients may present with irritability, ALOC, seizures, nausea, and vomiting

#### Influenza

High fever, body aches, cough, runny nose, nausea and vomiting, diarrhea in children



## Airborne (Slide Layer)

# Aerosol Transmissible Diseases

Close

## AIRBORNE

Airborne ATDs are very tiny particles (droplet nuclei) that can remain suspended in the air and may travel long distances on air currents

Requires use of N95 mask or Controlled Air Purifying Respirator (CAPR). You need to be fit tested and pass fit testing before you can wear an N95 mask. You need to be trained how to use a CAPR and learn how to properly inspect it before you can use a CAPR

Wearing of CAPR or N95 is required when entering the room of a patient on Airborne Isolation Precautions or within an hour of patient discharge & when changing air filters of AIIR



## Signs and Symptoms

### Varicella

Fever, body malaise, vesicular rash

### Pulmonary Tuberculosis

Unexplained weight loss, night sweats, fever, prolonged cough, bloody respiratory secretions

*Please bear in mind that pediatric patients may not usually present with classic signs and symptoms of tuberculosis*

*Obtaining a history of possible TB exposure and recent travel to areas with high TB incidence is important*



## Base Layer 2 (Slide Layer)

# Aerosol Transmissible Diseases

AIRBORNE



DROPLET



  
*Click the photo to learn more*



## 4.5 Employee Vaccination

# Employee Vaccination

Getting vaccinated is your **best protection**  
against ATDs

- Some vaccine-preventable ATDs are **Influenza, Measles, Mumps, Rubella, Pertussis, and Varicella**
- Your blood antibody titers will be checked upon hire to check for immunity to certain ATDs
- Healthcare workers are highly encouraged to get vaccinated
- Healthcare worker flu vaccination is **mandated** by Santa Clara County Public Health Dept; healthcare workers must formally decline vaccine and wear mask in all patient areas during flu season (November 1 to March 31).
- These vaccines are offered to all employees upon hire as well as available year round should you decide to get vaccinated **free** of charge

## Next (Slide Layer)

# Employee Vaccination

Getting vaccinated is your *best protection*  
against ATDs






- Some vaccine-preventable ATDs are **Influenza, Measles, Mumps, Rubella, Pertussis, and Varicella**
- Your blood antibody titers will be checked upon hire to check for immunity to certain ATDs
- Healthcare workers are highly encouraged to get vaccinated
- Healthcare worker flu vaccination is **mandated** by Santa Clara County Public Health Dept; healthcare workers must formally decline vaccine and wear mask in all patient areas during flu season (November 1 to March 31).
- These vaccines are offered to all employees upon hire as well as available year round should you decide to get vaccinated **free** of charge



## 4.6 ATD Exposure Control Plan (ATD ECP)

# ATD Exposure Control Plan (ATD ECP)






Learn about the ATD Exposure Control Plan by clicking each icon.

-  Screening Patients for ATDs
-  Engineering Controls
-  Standard & Transmission Isolation Precautions
-  Personnel Training and Education
-  Patient and Family Education

## Screening (Slide Layer)

# ATD Exposure Control Plan (ATD ECP)

Learn about the ATD Exposure Control Plan by clicking each icon.

-  Screening Patients for ATDs
-  Engineering Controls
-  Standard & Transmission Isolation Precautions
-  Personnel Training and Education
-  Patient and Family Education






### Screening Patients for ATDs

- Patients presenting with respiratory symptoms should be offered to wear a mask
- Patients with suspected or confirmed ATDS should be placed in a private room or AIIR
- In the outpatient setting, patient should be scheduled at end of day, roomed promptly and situated away from other patients
- Patients with suspected or confirmed ATDs should be transported in an enclosed tent

## Engineering (Slide Layer)

# ATD Exposure Control Plan (ATD ECP)

Learn about the ATD Exposure Control Plan by clicking each icon.

-  Screening Patients for ATDs
-  Engineering Controls
-  Standard & Transmission Isolation Precautions
-  Personnel Training and Education
-  Patient and Family Education






### Engineering Controls

- Routine maintenance and testing of negative pressure rooms, AIIRs, and laboratory hoods

## Precautions (Slide Layer)

# ATD Exposure Control Plan (ATD ECP)

Learn about the ATD Exposure Control Plan by clicking each icon.

-  Screening Patients for ATDs
-  Engineering Controls
-  Standard & Transmission Isolation Precautions
-  Personnel Training and Education
-  Patient and Family Education



### Isolation Precautions – Standard & Transmission-based

- Observe standard precautions at all times, droplet and airborne isolation precautions
- Also observe respiratory etiquette/hygiene
  - Cover your cough
  - Use tissue to clean respiratory secretions and perform good hand hygiene

## Personnel Training (Slide Layer)

# ATD Exposure Control Plan (ATD ECP)

Learn about the ATD Exposure Control Plan by clicking each icon.

-  Screening Patients for ATDs
-  Engineering Controls
-  Standard & Transmission Isolation Precautions
-  Personnel Training and Education
-  Patient and Family Education

### Personnel Training and Education






- CA ATD standard requires employers to provide employees with
  - New hire training, annual mandatory training and whenever there is a new information available
  - Respiratory training-fit testing, CAPR training



## PatientFamilyTraining (Slide Layer)

# ATD Exposure Control Plan (ATD ECP)

Learn about the ATD Exposure Control Plan by clicking each icon.

-  Screening Patients for ATDs
-  Engineering Controls
-  Standard & Transmission Isolation Precautions
-  Personnel Training and Education
-  Patient and Family Education

### Patient and Family Education






- It is important for our patients and family members to understand the diagnosis, ways to prevent transmission of ATDs and follow isolation protocols
- Documentation of patient and family education should be entered into the electronic record by clinical team members



## Oops (Slide Layer)

# ATD Exposure Control Plan (ATD ECP)

Learn about the ATD Exposure Control Plan by clicking each icon.

-  Screening Patients for ATDs
-  Engineering Controls
-  Standard & Transmission Isolation Precautions
-  Personnel Training and Education
-  Patient and Family Education

**Please click all of the icons to the left before continuing.**

## 4.7 ATD Exposure Prevention

# 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*



## 4.8 ATD Exposure Prevention

### What To Do If You Are Exposed

1. Report exposure incident to your Manager or Supervisor immediately
2. You may be asked to report to Occupational Health Services for post-exposure medical evaluation, post-exposure prophylaxis and follow up

## 4.9 Access ATD Standard

### Access ATD Standard

The California Aerosol Transmissible Diseases Standard is accessible online [here](#)

LPCH ATD Exposure Control Plan is available on the [intranet](#) and under the [Resources](#) tab on right top corner. Policies and procedures are available online [here](#)

## 4.10 Knowledge Check

*(Multiple Choice, 10 points, 1 attempt permitted)*

## Knowledge Check

How are ATDs transmitted?

- Airborne
- Droplet
- Both airborne and droplet

Correct	Choice
	Airborne
	Droplet
X	Both airborne and droplet

**That is Correct (Slide Layer)**

**Knowledge Check**

How are ATDs transmitted?

- Airborne
- Droplet
- Both airborne and droplet

**That is Correct**  
ATDs may be transmitted via airborne or droplet particles.

Continue

**Incorrect (Slide Layer)**

**Knowledge Check**

How are ATDs transmitted?

- Airborne
- Droplet
- Both airborne and droplet

**Incorrect Answer**  
Actually, ATDs may be transmitted via airborne or droplet particles.

Continue

**4.11 Knowledge Check**

*(Multiple Choice, 10 points, 1 attempt permitted)*



## Knowledge Check

What should you do if you are exposed to an ATD?

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

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)**

**Knowledge Check**

What should you do if you are exposed to an ATD?

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

**That is Correct**.....  
Report the  
exposure incident.....  
to your manager/  
supervisor.....  
immediately.....

**Continue**

## Incorrect (Slide Layer)

### Knowledge Check

What should you do if you are exposed to an ATD?

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

**Incorrect Answer**  
Actually, you should report the exposure incident to your manager/supervisor immediately.

**Continue**

## Oops layer for next button (Slide Layer)

**Knowledge Check**

What should you do if you are exposed to an ATD?

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

Oops! Please follow the instructions to complete the activity.

## 5. Prevention and Elimination of Hospital-Acquired Infections

### 5.1 Prevention and Elimination of Hospital-Acquired Infections



# Prevention and Elimination of HAIs



## 5.2 What Happened? What Could Have Happened Instead?

### 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)

What Happened?

What Could Have Happened Instead?

*If you were Kelly,  
what would you have done?*

- 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

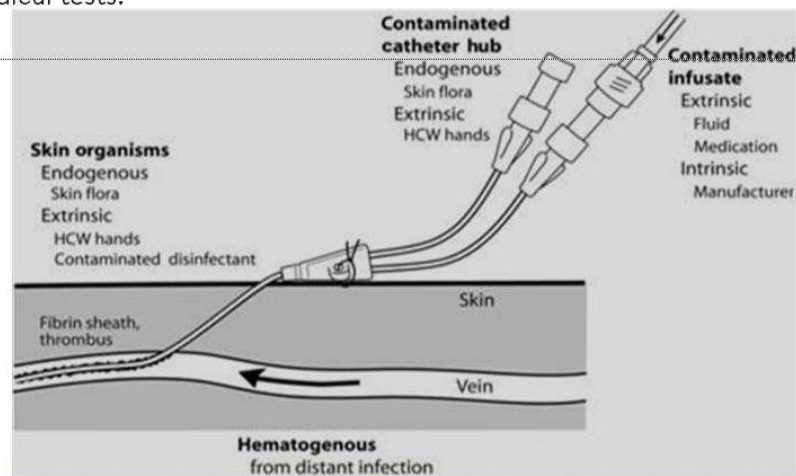


### 5.3 Introduction to CLABSI

## Central Line Associated Bloodstream Infection (CLABSI)

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.



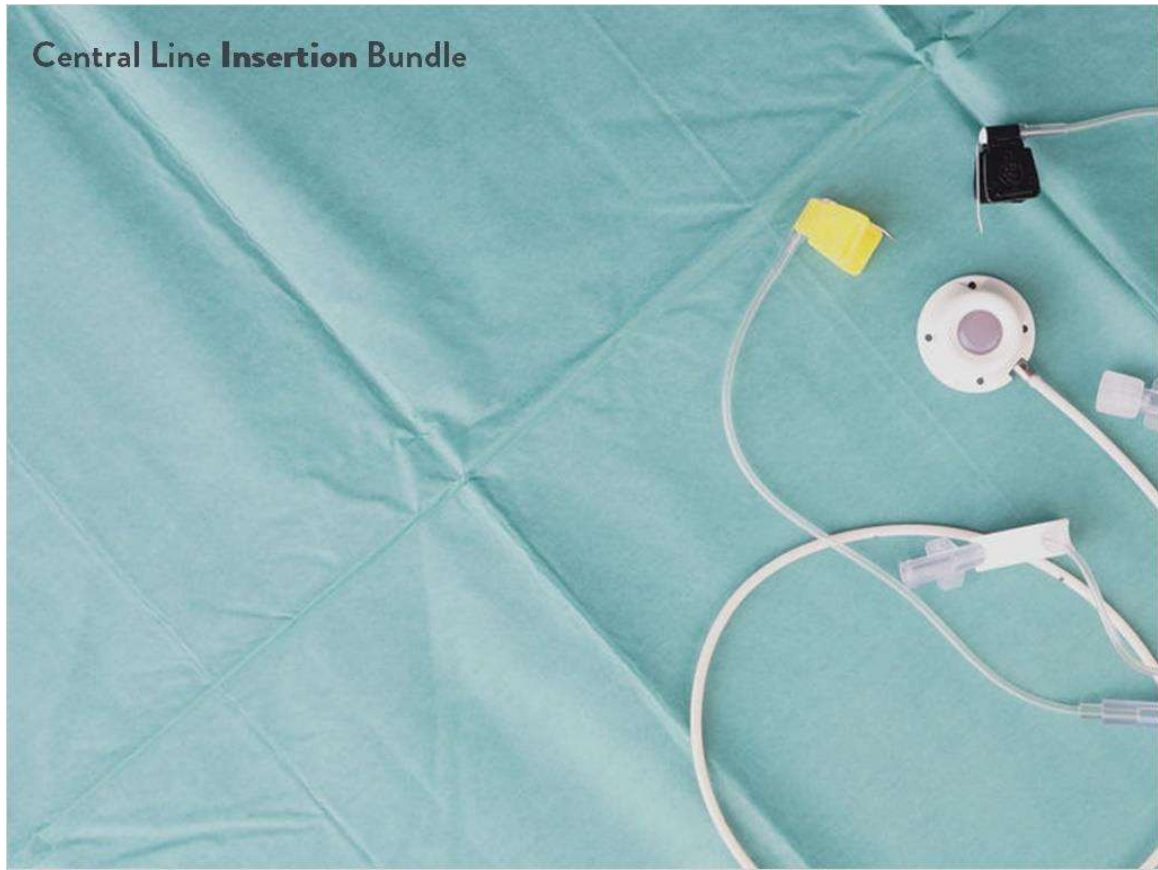
## 5.4 CLABSI Prevention

# CLABSI Best Practice

## Best practice hospital wide:

Daily central line bundle rounds are performed to ensure compliance with all elements of the CLABSI prevention bundle

## 5.5 Central Line Insertion Bundle



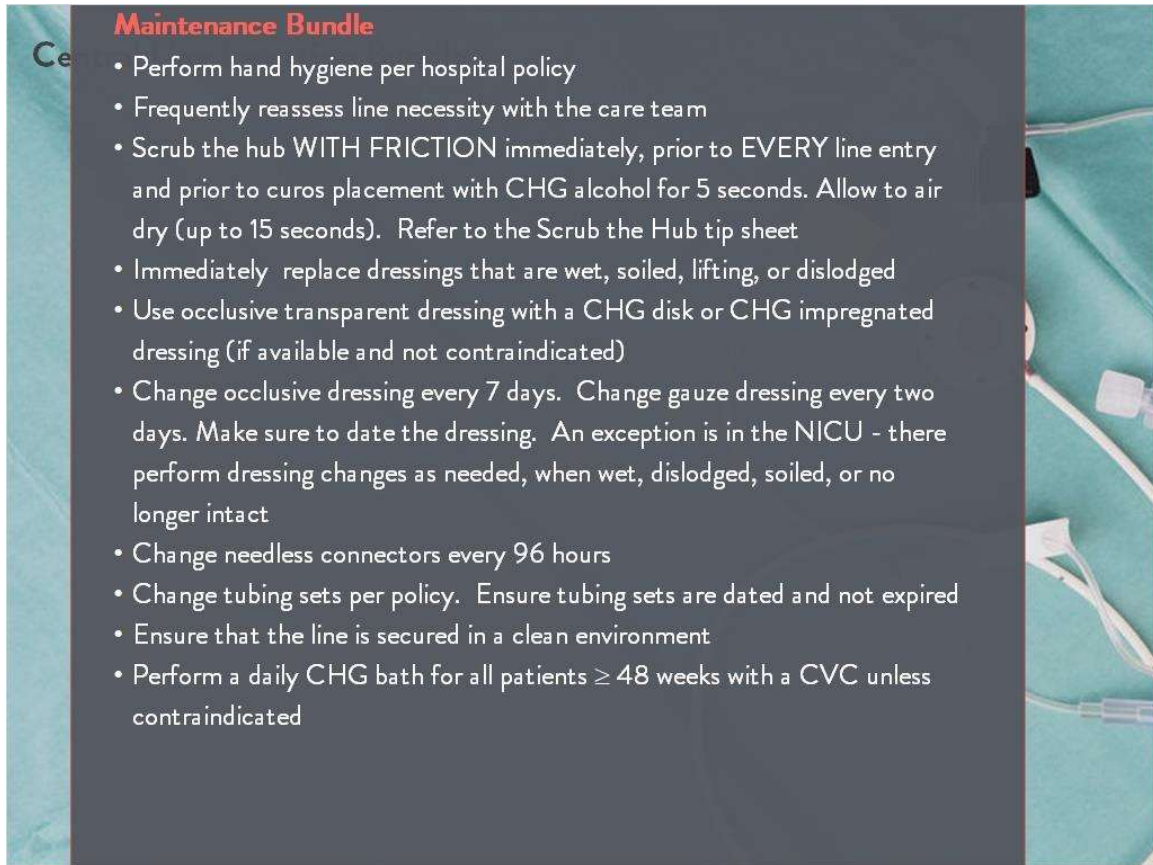
## Insertion Bundle (Slide Layer)

### Central Line Insertion Bundle

#### Insertion Evidence-Based Bundle

- Any provider that will be inserting a line must have Insertion training
- Frequently reassess line necessity with the care team
- Perform hand hygiene per hospital policy
- Use maximal barrier precautions (i.e., mask, cap, gown, sterile gloves, sterile full body drape)
- Use >0.5% chlorhexidine gluconate (CHG) with alcohol to prepare insertion site. Scrub for 30 seconds (2 minutes for femoral line) and allow to dry for 30-60 seconds. If use of CHG is contraindicated, use povidone iodine or 70% alcohol to prepare the insertion site
- Use prepackaged or filled insertion cart, tray, or box
- Choose the best insertion site to minimize infectious and noninfectious complications
- Use sterile gauze dressing or a sterile, transparent, semipermeable dressing over the insertion site
- Use the insertion checklist and empower Team Member to stop non-emergent insertion if proper procedures are not followed

## Maintenance Bundle (Slide Layer)



**Maintenance Bundle**

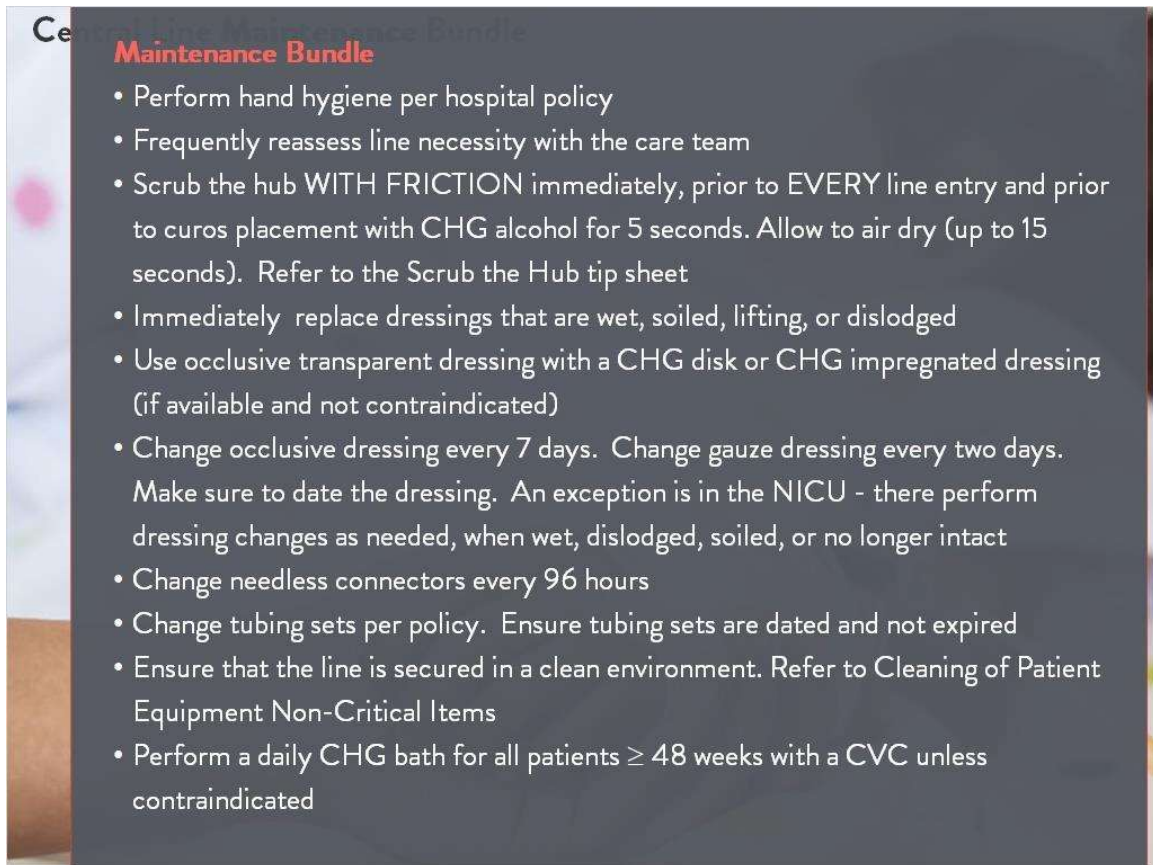
- Perform hand hygiene per hospital policy
- Frequently reassess line necessity with the care team
- Scrub the hub **WITH FRICTION** immediately, prior to **EVERY** line entry and prior to cap placement with CHG alcohol for 5 seconds. Allow to air dry (up to 15 seconds). Refer to the Scrub the Hub tip sheet
- Immediately replace dressings that are wet, soiled, lifting, or dislodged
- Use occlusive transparent dressing with a CHG disk or CHG impregnated dressing (if available and not contraindicated)
- Change occlusive dressing every 7 days. Change gauze dressing every two days. Make sure to date the dressing. An exception is in the NICU - there perform dressing changes as needed, when wet, dislodged, soiled, or no longer intact
- Change needless connectors every 96 hours
- Change tubing sets per policy. Ensure tubing sets are dated and not expired
- Ensure that the line is secured in a clean environment
- Perform a daily CHG bath for all patients  $\geq 48$  weeks with a CVC unless contraindicated

## **5.6 Central Line Maintenance Bundle**





## Maintenance Bundle (Slide Layer)



**Maintenance Bundle**

- Perform hand hygiene per hospital policy
- Frequently reassess line necessity with the care team
- Scrub the hub WITH FRICTION immediately, prior to EVERY line entry and prior to curosp placement with CHG alcohol for 5 seconds. Allow to air dry (up to 15 seconds). Refer to the Scrub the Hub tip sheet
- Immediately replace dressings that are wet, soiled, lifting, or dislodged
- Use occlusive transparent dressing with a CHG disk or CHG impregnated dressing (if available and not contraindicated)
- Change occlusive dressing every 7 days. Change gauze dressing every two days. Make sure to date the dressing. An exception is in the NICU - there perform dressing changes as needed, when wet, dislodged, soiled, or no longer intact
- Change needless connectors every 96 hours
- Change tubing sets per policy. Ensure tubing sets are dated and not expired
- Ensure that the line is secured in a clean environment. Refer to Cleaning of Patient Equipment Non-Critical Items
- Perform a daily CHG bath for all patients  $\geq$  48 weeks with a CVC unless contraindicated

## Insertion Bundle (Slide Layer)

### Central Line **Maintenance** Bundle

#### Insertion Evidence-Based Bundle

- Any provider that will be inserting a line must have Insertion training
- Frequently reassess line necessity with the care team
- Perform hand hygiene per hospital policy
- Use maximal barrier precautions (i.e., mask, cap, gown, sterile gloves, sterile full body drape)
- Use >0.5% chlorhexidine gluconate (CHG) with alcohol to prepare insertion site. Scrub for 30 seconds (2 minutes for femoral line) and allow to dry for 30-60 seconds. If use of CHG is contraindicated, use povidone iodine or 70% alcohol to prepare the insertion site
- Use prepackaged or filled insertion cart, tray, or box
- Choose the best insertion site to minimize infectious and noninfectious complications
- Use sterile gauze dressing or a sterile, transparent, semipermeable dressing over the insertion site
- Use the insertion checklist and empower Team Member to stop non-emergent insertion if proper procedures are not followed



## ***5.7 Preventing SSIs***



## 5.8 SSI Prevention Strategies

### Additional SSI Prevention Strategies



## 5.9 Introduction to CAUTI

# Catheter-Associated Urinary Tract Infection

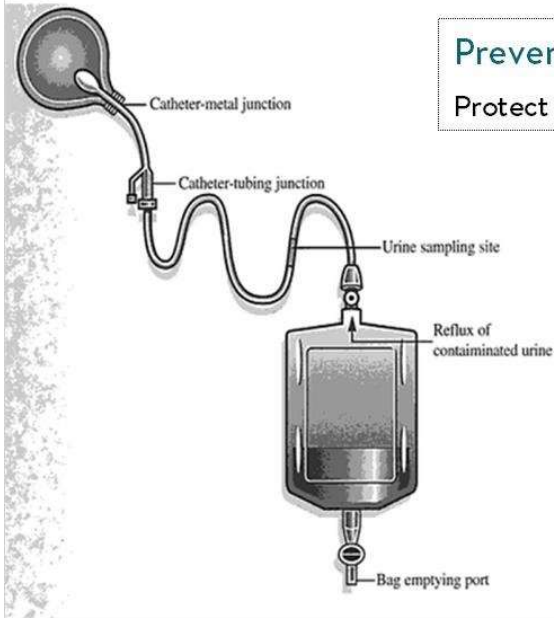
Best practices must be implemented to prevent CAUTI:

### 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

# CAUTI Prevention Evidence-Based Bundle






Learn about CAUTI control by clicking each icon.

-  Daily Review
-  Hand Hygiene
-  Insertion Procedure
-  Maintenance
-  Best Practices

## Step 01 (Slide Layer)

# CAUTI Prevention Evidence-Based Bundle

Learn about CAUTI control by clicking each icon.

-  Daily Review
-  Hand Hygiene
-  Insertion Procedure
-  Maintenance
-  Best Practices






### Bundle Step

- Review urinary catheter necessity daily and remove promptly
- Review and document indication on a daily basis

## Step 02 (Slide Layer)

# CAUTI Prevention Evidence-Based Bundle

Learn about CAUTI control by clicking each icon.

-  Daily Review
-  Hand Hygiene
-  Insertion Procedure
-  Maintenance
-  Best Practices






### Bundle Step

- Follow hand hygiene guidelines

### Step 03 (Slide Layer)

# CAUTI Prevention Evidence-Based Bundle

Learn about CAUTI control by clicking each icon.

-  Daily Review
-  Hand Hygiene
-  Insertion Procedure
-  Maintenance
-  Best Practices

**Bundle Step**

- Insert urinary catheters using aseptic technique

## Step 04 (Slide Layer)

# CAUTI Prevention Evidence-Based Bundle

Learn about CAUTI control by clicking each icon.



Daily Review



Hand Hygiene



Insertion Procedure



Maintenance



Best Practices

### Bundle Step

- Maintain urinary catheters based on recommended guidelines
- Maintain a sterile, continuously closed drainage system
- Keep catheter properly secured
- Maintain unobstructed urine flow
- Keep collection bag below the level of the bladder at all times. Keep the bag off the floor!
- Practice daily patient genital/meatal hygiene.
- Empty collection bag regularly
- Carefully drain urine making sure draining spigot does not come in contact with collecting container



## Step 05 (Slide Layer)

# CAUTI Prevention Evidence-Based Bundle

Learn about CAUTI control by clicking each icon.



### Bundle Step

- Provide daily bath, meticulous perineal care daily and as needed
- Catheters are not to be changed at fixed intervals; they may remain in the patient as long as they are functioning properly AND medically necessary

### Avoid unnecessary use of urinary catheters

- Use indwelling catheters only when medically necessary
- Remove indwelling catheter 24 hours after surgery

## Oops (Slide Layer)

# CAUTI Prevention Evidence-Based Bundle

Learn about CAUTI control by clicking each icon.



Daily Review



Hand Hygiene



Insertion Procedure



Maintenance



Best Practices

**Please click all of the icons  
to the left before  
continuing.**

## 5.11 Ventilator Associated Pneumonia (VAP)

### Ventilator-Associated Pneumonia (VAP) Prevention



- Excellent hand hygiene and standard precautions
- Elevation of head of bed to reduce risk of aspiration of secretions unless otherwise contraindicated
- Daily evaluation of sedation medications and readiness to wean from ventilator
- Peptic Ulcer Disease (PUD) prophylaxis
- Oral hygiene every 4 hours and as needed
- Ventilator and endotracheal tube care:
  - Use of closed suctioning (inline)
  - Minimize ventilator circuit disconnections
  - Use of heated wire ventilator circuits to decrease condensation
  - Assess and drain condensation Q4 hours, prior to repositioning patient, and as needed
  - Use of separate suction tubing and canisters for oral and ET tube suctioning
  - Ventilator circuit change Q30 days or machine malfunction or soiled

## 5.12 Breast Milk Safety

# Human Milk Safety



Stanford Children's Health | Lucile Packard Children's Hospital Stanford

Always take extra precautions when handling human milk to prevent errors in the preparation, labeling and administration of human milk

Follow these steps when handling human milk:

- ✓ Ensure milk storage container is properly labeled with patient's name, MRN, DOB, date and mother's initials
- ✓ Check patient identifiers prior to administration
- ✓ Check human milk identifiers prior to administration

*Immediately* give human milk to correct patient/mother after scanning

*Never* leave human milk bottle unattended

*Discard* remaining human milk after 7 days

Follow the [policy](#) on human milk storage and thawing

**Remember – Human milk is not just a food, it is a body fluid**  
**Report human milk exposure to Manager or Supervisor immediately**

- Notify Infection Prevention & Control Department
- Initiate patient exposure investigation

## 5.13 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)

## Knowledge Check

LPCH best practices for CAUTI prevention includes daily review of catheter necessity and prompt removal.

- True
- False

Correct	Choice
X	True
	False

**That is Correct (Slide Layer)**

**Knowledge Check**

LPCH best practices for CAUTI prevention includes daily review of catheter necessity and prompt removal.

True

False

**That is Correct**  
Catheter necessity should be reviewed daily and promptly removed to prevent CAUTI.

Continue

**Incorrect (Slide Layer)**

The screenshot shows a 'Knowledge Check' interface with a red header. On the left, a yellow sticky note with a paperclip icon contains the text: 'LPCH best practices for CAUTI prevention includes daily review of catheter necessity and prompt removal.' Below the note are two radio button options: 'True' (selected) and 'False'. On the right, the 'Incorrect Answer' section shows the correct answer: 'Actually, catheter necessity should be reviewed daily and promptly removed to prevent CAUTI.' Below this text is a 'Continue' button and several horizontal dashed lines for additional feedback.

**5.14 Knowledge Check**

*(Multiple Choice, 10 points, 1 attempt permitted)*

## Knowledge Check

Which of the following precautions should be taken to ensure human milk safety?

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

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)**

**Knowledge Check**

Which of the following precautions should be taken to ensure human milk safety?

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

**That is Correct**  
All of these are standard precautions.

**Continue**

**Incorrect (Slide Layer)**

**Knowledge Check**

Which of the following precautions should be taken to ensure human milk safety?

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

**Incorrect Answer**.....  
Actually, all of.....  
these are standard.....  
precautions.....

**Continue**

## Oops layer for Next button (Slide Layer)

**Knowledge Check**

Which of the following precautions should be taken to ensure human milk safety?

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

Oops! Please follow the instructions to complete the activity.

### 5.15 Knowledge Check

*(Multiple Choice, 10 points, 1 attempt permitted)*

## Knowledge Check

To ensure compliance with all elements of CLABSI prevention bundle, it is best practice to perform daily central line bundle rounds.

- True
- False

Correct	Choice
X	True
	False

**That is Correct (Slide Layer)**

**Knowledge Check**

To ensure compliance with all elements of CLABSI prevention bundle, it is best practice to perform daily central line bundle rounds.

- True
- False

**That is Correct**

Daily central line bundle rounds is a best practice for prevention of CLABSI.

Continue

**Incorrect (Slide Layer)**

**Knowledge Check**

To ensure compliance with all elements of CLABSI prevention bundle, it is best practice to perform daily central line bundle rounds.

True

False

**Incorrect Answer**  
Daily central line bundle rounds is a best practice for prevention of CLABSI.

Continue

**5.16 Knowledge Check**

*(Multiple Choice, 10 points, 1 attempt permitted)*

## Knowledge Check

Which of the following are essential elements in preventing SSIs?

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

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)**

**Knowledge Check**

Which of the following are essential elements in preventing SSIs?

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

**That is Correct**

All of these are essential elements in preventing SSI.

Continue



**Incorrect (Slide Layer)**

**Knowledge Check**

Which of the following are essential elements in preventing SSIs?

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

**Incorrect Answer**  
Actually, all of these are essential elements in preventing SSI.

**Continue**

## Oops layer for next button (Slide Layer)

### Knowledge Check

Which of the following are essential elements in preventing SSIs?

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

Oops! Please follow the instructions to complete the activity.

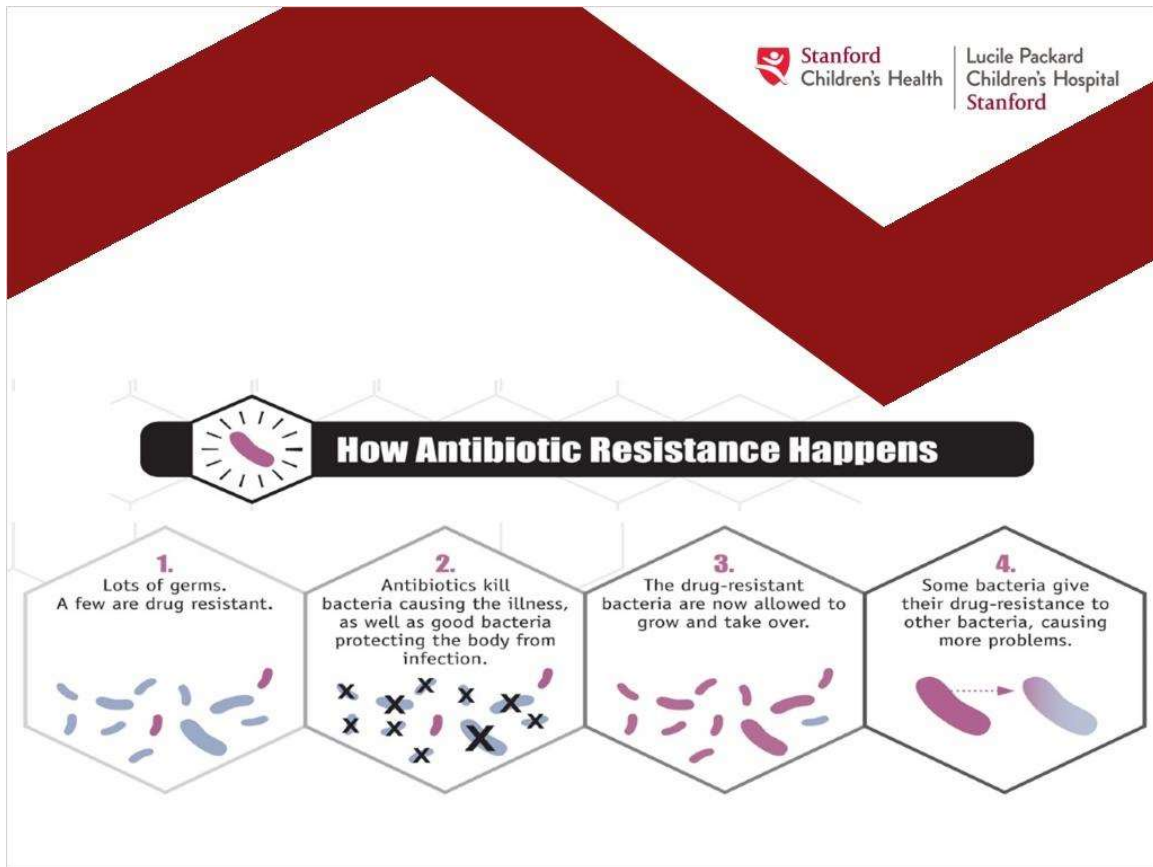
## 6. Antimicrobial Stewardship

### 6.1 Antimicrobial Stewardship

# Antimicrobial Stewardship



## 6.2 The Cause of Antibiotic Resistance



## 6.3 Antimicrobial Stewardship Program (ASP) at LPCH Stanford

### Antimicrobial Stewardship Program (ASP) at LPCH Stanford

What is antimicrobial stewardship?

- Antimicrobial stewardship is designed to promote the appropriate **selection**, **dosing**, **route**, and **duration** of antimicrobials
- Antimicrobials include antibiotic, antifungal, and antiviral medications

## 6.4 Why is ASP Important



## 6.5 Formulary Restriction and Authorization

# 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  $\geq 48$  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



# Examples of Restricted Antimicrobial Formulary



These drugs are restricted antimicrobials at LPCHS



- Linezolid
- Colistin
- Tigecycline
- Daptomycin
- Micafungin
- Posaconazole
- Cidofovir

**Due to:**

- Potential for development of resistance
- Toxicities
- Limited pediatric data, including dosing information



## Item 01 (Slide Layer)





# Restricted Antimicrobial Formulary

**Instruction 01**  
This is the area where you place your instructional content for the learner. Your instructions could really cover a wide range of topics.

**Due to:**

- Potential for development of resistance
- Toxicities
- Limited pediatric data, including dosing information

## Item 02 (Slide Layer)



# Restricted Antimicrobial Formulary

**Instruction 02**

For example, you might wish to mention that there is a quiz at the end of the course. Or that there are resources available in the resources tab.

**Due to:**

- Potential for development of resistance
- Toxicities
- Limited pediatric data, including dosing information

## Item 03 (Slide Layer)



# Restricted Antimicrobial Formulary

### Instruction 03

Or, you might describe how much time the learner should expect to spend completing the course. You might also list prerequisites.

#### **Due to:**

- Potential for development of resistance
- Toxicities
- Limited pediatric data, including dosing information

## Item 04 (Slide Layer)



# Restricted Antimicrobial Formulary

### Instruction 04

And, to motivate learners, you could tell them how they will benefit personally and professionally from taking the course.

#### **Due to:**

- Potential for development of resistance
- Toxicities
- Limited pediatric data, including dosing information

## 6.7 Antibiotic Fun Facts

**Did you know?**

For these reasons and others, we work to use the correct antibiotic at the right time

- 

Antibiotics are **LIFE-SAVING** drugs
- 

Antibiotics only treat **BACTERIAL** infections
- 

Some ear infections **DO NOT** require an antibiotic
- 

Most sore throats **DO NOT** require an antibiotic
- 

Green colored mucus is **NOT** a sign that an antibiotic is needed
- 

There are potential **RISKS** when taking any prescription drug

## 6.8 Strategies for optimizing antimicrobial use at LPCH

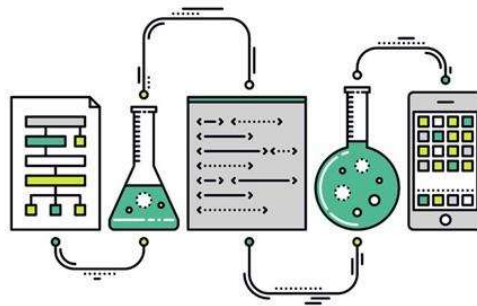
### Strategies for optimizing antimicrobial use at LPCH

#### 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



### 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](mailto:pediatricasp@stanford.edu)

## 7. Conclusion

### 7.1 Conclusion

Stanford  
Children's Health | Lucile Packard  
Children's Hospital  
Stanford

Conclusion





## 7.2 Reflect on Key Lessons Learned

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



### Reflect on Key Lessons Learned

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



*Click the lake to reflect on what you learned*

## Reflect (Slide Layer)

*You learned about...*

The importance of **hand hygiene**, including proper hand-washing technique and the five moments for hand hygiene

**Bloodborne pathogens** and our *Bloodborne Pathogen Control Plan*

**Multi-drug resistant organisms** and how to prevent them

The seven **LPCH isolation signs**: *Contact, Contact+Plus, Droplet/Contact, Droplet/Contact+Plus, Airborne/Contact, Airborne/Contact+Plus, Protective*

**Airborne transmissible diseases**, signs and symptoms, employee vaccination, and our *ATD Exposure Control Plan*

**CLABSI, SSI, CAUTI, and VAP** prevention and exposure control planning



### 7.3 How to reach the IPC team via Email

## How to reach the IPC team via Email



For non-urgent issues, email:  
[DL-LPCH-IPC@stanfordchildrens.org](mailto:DL-LPCH-IPC@stanfordchildrens.org)

## 7.4 How to reach the on-call IPC

### 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

### Additional Policies



From the Patient Care Manual [here](#), you are able to search for the latest version of plans, policies and procedures such as these below, which are also listed in the Resources link (...) in the upper right corner of this course. Those document topics include:

- Hand Hygiene - Transmission Based Precautions and Standard Precautions
- Multi-Drug Resistant Organisms - Aerosol Transmissible Disease (ATD) Exposure Control Plan
- Influenza - Seasonal Influenza Plan
- CLABSIs - Prevention of Central Line Associated Blood Stream Infections (CLABSIs)
- SSI - Guidelines for Prevention of Surgical Site Infections (SSI) and Post-operative Wound Care

#### Human Resources Quick Links



Employee Toolkit



Manager Toolkit



Policies



Human Resources Forms



HealthStream



Transportation

## 7.6 Be the Change

# Clean Spaces = Healthy People

To change culture, we must

**be the change**

we wish to see

Exit

