Preventing Transmission of Airborne Diseases and Using Respiratory Protection

1. Base

1.1 Preventing Transmission of Airborne Diseases & Using Respiratory Protection



1.2 Objectives Layout

OBJECTIVES

- 1 Understanding Tuberculosis as a disease
- 2 Describe the TB program
- 3 Know why and when to wear a respirator
- **4** Describe how to use a N95/PAPR

1.3 WHAT IS TUBERCULOSIS?



WHAT IS TUBERCULOSIS?

- Tuberculosis (TB) is a contagious & potentially life threatening disease
- TB is spread from person to person through the air
- People can breathe the infectious particles called droplet nuclei

1.4 WHAT IS THE DIFFERENCE BETWEEN

LATENT & ACTIVE TB?

WHAT IS THE DIFFERENCE BETWEEN LATENT & ACTIVE TB?



Click on each section of the wheel to review.

Latent TB Infection (Slide Layer)

WHAT IS THE DIFFERENCE BETWEEN LATENT & ACTIVE TB?



Click on each section of the wheel to review.

Latent TB Infection

- TB disease lies dormant (asleep) in your body
- · This phase can last for a long time
- You don't look or feel sick and you do not have any symptoms
- You can't spread TB to other people
- Your provider will provide you with treatment recommendations

WHAT IS THE DIFFERENCE BETWEEN LATENT & ACTIVE TB?

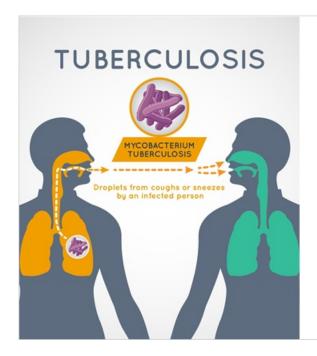


Click on each section of the wheel to review.

Active TB Disease

- TB is reproducing and spreading in your body
- · You usually feel sick. Typical symptoms include:
 - Cough lasting >3 weeks, weight loss, night sweats, and fever. A chest x-ray and other tests are needed to diagnose TB disease
- TB is in the lungs and you may spread TB to other people by coughing, sneezing, talking, or singing
- Treated by medications as directed by your provider. Treatment can last up to 6 months

1.5 HOW IS TB SPREAD?



HOW IS TB SPREAD?

- TB is spread from person to person through the air
- TB usually affects the lungs, but it also can affect other parts of the body: brain, kidneys, or spine
- During surgical procedures, TB can be aerosolized from a mass or tumor

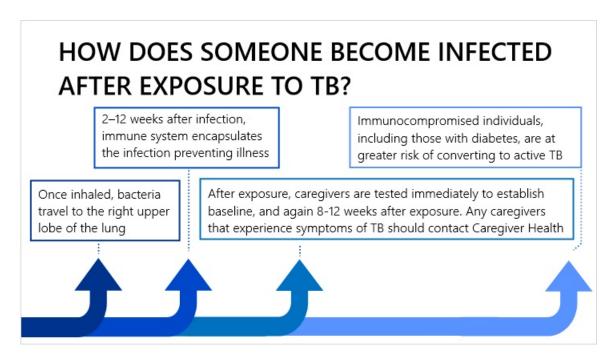
1.6 DID YOU KNOW?



DID YOU KNOW?

- Healthcare workers are at increased risk of infection
- Follow precautions listed in this training module to protect yourself
- Exposure occurs at any time:
 - An individual does not wear appropriate PPE (N-95 or PAPR respirator)
 - The infected person is not wearing a face mask or the infected person is not in airborne isolation

1.7 Graphic Metaphor



1.8 RISK FACTORS FOR TB

RISK FACTORS FOR TB

- The Centers for Disease Control & Prevention (CDC) and the World Health Organization (WHO) acknowledge that TB disease is challenging to diagnose, treat and control
- To reduce disparities related to TB, and to reduce TB rates worldwide and in the United States, it is critical to target prevention and control efforts in certain populations
- There are certain areas in the world with higher incidents of Tuberculosis, and if you have lived or traveled to the high-risk areas, you are at greater risk

1.9 RISK FACTORS FOR TB

RISK FACTORS FOR TB

- Caregivers should be aware of common symptoms that may be indicative of a patient with active TB:
 - o Coughing
 - Weight loss
 - o Fever
 - Night sweats
 - Environmental exposures: homelessness, incarceration



1.10 HOW IS TB RISK DETERMINED IN THE HOSPITAL SETTING?

HOW IS TB RISK DETERMINED IN THE HOSPITAL SETTING?

- Risk is assessed in each hospital annually and varies by:
 - o TB prevalence in health-care setting
 - o TB prevalence in community
 - Health-care worker occupational group
 - Effectiveness of infection control measures



1.11 WHAT ARE THE TB RISK CLASSIFICATIONS?



Low Risk (Slide Layer)

WHAT ARE THE TB RISK CLASSIFICATIONS? Click on each lightbulb to review the risk classifications.



Low Risk

- Inpatient <200 beds risk classification:
 - <3 TB patients per year
- Inpatient ≥200 beds risk classification:
 - <6 TB patients per year

Close

Medium Risk (Slide Layer)

WHAT ARE THE TB RISK CLASSIFICATIONS?

Click on each lightbulb to review the risk classifications.



Medium Risk

Annual TB testing of caregivers from select departments

- Inpatient <200 beds risk classification:
 - ≥3 TB patients per year
- Inpatient ≥200 beds risk classification:
 - · ≥6 TB patients per year

Close

WHAT ARE THE TB RISK CLASSIFICATIONS?

Click on each lightbulb to review the risk classifications.



Potential Ongoing Transmission

- Inpatient <200 beds risk classification:
 - Evidence of ongoing transmission, regardless of setting
- Inpatient ≥200 beds risk classification:
 - Evidence of ongoing transmission, regardless of setting

None of our PHS-OR ministries are classified as having Potential Ongoing Transmission at this time.

Close

1.12 WHEN ARE CAREGIVERS TESTED FOR TB?

WHEN ARE CAREGIVERS TESTED FOR TB?

- All caregivers are required to complete a TB blood test and TB questionnaire at <u>time of hire</u>
- Caregivers working in a department that is considered Medium Risk are required to complete a TB blood test and TB questionnaire annually
- Caregivers are required to complete a TB blood test and TB questionnaire after an exposure to a patient when not wearing appropriate respiratory protection. Testing occurs post exposure and at 8-12 weeks.
- Caregivers with a history of a confirmed positive TB test are required to complete an annual TB questionnaire only during their birth month and any time they have symptoms of TB

1.13 Multiple Choice

(Multiple Choice, 10 points, 2 attempts permitted)

KNOWLEDGE CHECK





TB should be considered or suspected by a review of symptoms and identifying those in high risk groups.

Typical symptoms include: cough lasting > 3 weeks, weight loss, night sweats, and fever. A chest x-ray and other tests are needed to diagnose TB disease.

High risk groups include: Individuals who have visited or lived in areas where TB is prevalent, drug and alcohol usage, homelessness, incarceration.





Correct	Choice
Х	True
	False

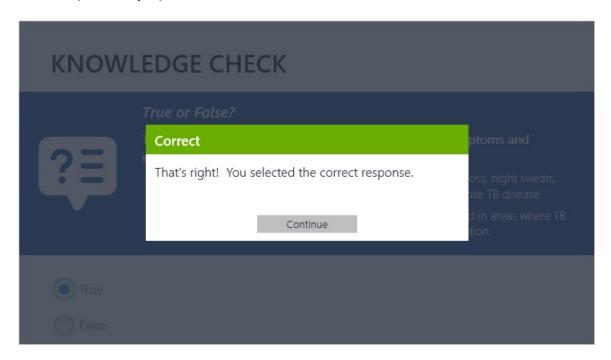
Feedback when correct:

That's right! You selected the correct response.

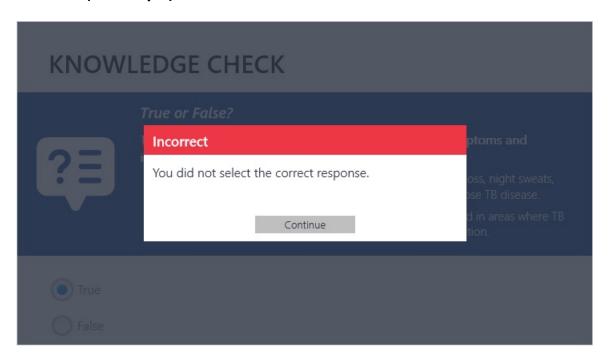
Feedback when incorrect:

You did not select the correct response.

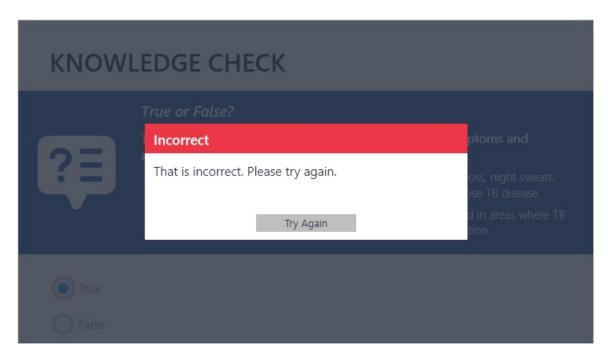
Correct (Slide Layer)



Incorrect (Slide Layer)



Try Again (Slide Layer)



1.14 HOW IS MY WORKSITE CLASSIFIED?



1.15 WHAT CAN BE DONE TO PREVENT UNPROTECTED EXPOSURE TO TB?

WHAT CAN BE DONE TO PREVENT UNPROTECTED EXPOSURE TO TB?

Often, TB diagnosis is missed when caregivers assume symptoms are related to other diagnoses. This greatly increases risk to caregivers.

- · Prevent exposure by:
 - o Checking for signs and symptoms
 - Masking symptomatic patients with a face mask*
 - o Promptly initiate infection isolation precautions when TB may be suspected
 - Clinicians should ask and evaluate for TB

*Any patient with any respiratory symptoms should be masked

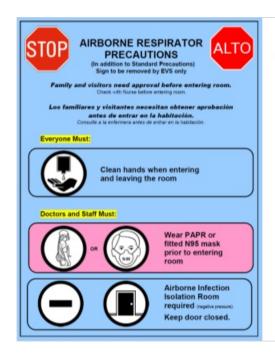
1.16 WHAT CAN BE DONE TO PREVENT UNPROTECTED EXPOSURE TO TB?



WHAT CAN BE DONE TO PREVENT UNPROTECTED EXPOSURE TO TB?

 If a patient is coughing and you are unsure of the diagnosis, mask the patient with a face mask until diagnosis is confirmed

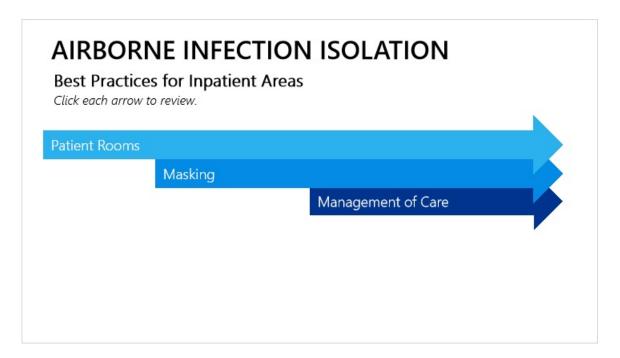
1.17 AIRBORNE ISOLATION PRECAUTIONS SHOULD BE INITIATED WHEN:



AIRBORNE ISOLATION PRECAUTIONS SHOULD BE INITIATED WHEN:

- Patient has signs or symptoms of TB disease
- Patient has documented infectious TB disease and has not completed anti-TB treatment
 - If you suspect an unprotected exposure notify your direct supervisor
 - In hospital, notify Infection Prevention and Caregiver Health

1.18 AIRBORNE INFECTION ISOLATION



Patient Rooms (Slide Layer)

AIRBORNE INFECTION ISOLATION

Best Practices for Inpatient Areas

Click each arrow to review.

Patient Rooms

- Airborne Infection Isolation rooms (negative pressure airflow) must be single-patient rooms with a private bathroom
- · Keep door to isolation room closed
- · Post airborne infection isolation sign

Close

Masking (Slide Layer)

AIRBORNE INFECTION ISOLATION

Best Practices for Inpatient Areas

Click each arrow to review.

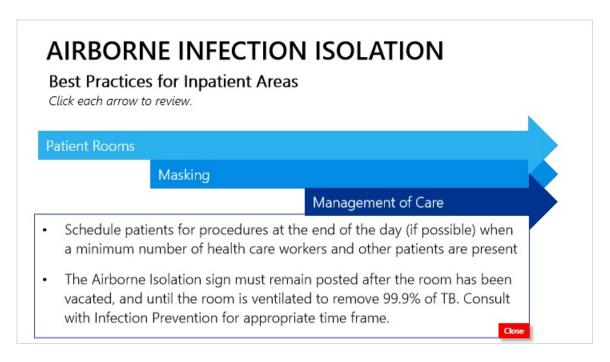
Patient Rooms

Masking

- Caregivers who enter the room must wear a respirator
- Visitors wear a face mask
- Routine care is provided in airborne isolation room
- If a patient must be moved, the patient must wear a face mask at all times

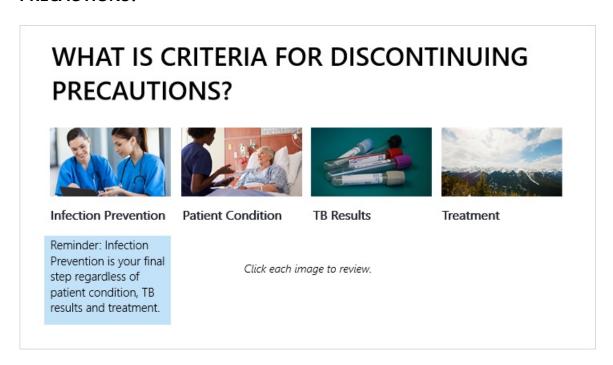
lose

Management of Pt Care (Slide Layer)



1.19 WHAT IS CRITERIA FOR DISCONTINUING

PRECAUTIONS?



WHAT IS CRITERIA FOR DISCONTINUING PRECAUTIONS?



Infection Prevention
Precautions must be
cleared through
Infection Prevention or
Infectious Disease in
advance of
discontinuing airborne
isolation

Patient Condition (Slide Layer)

WHAT IS CRITERIA FOR DISCONTINUING PRECAUTIONS?



Patient Condition
If another diagnosis is confirmed, explaining the patient's dinical condition.

WHAT IS CRITERIA FOR DISCONTINUING PRECAUTIONS?



TB Results
TB testing results
do not indicate TB
disease.

Close

Treatment (Slide Layer)

WHAT IS CRITERIA FOR DISCONTINUING PRECAUTIONS?



Treatment

Patient has received standard antituberculosis treatment (minimum of 2 weeks).



1.20 HOW DOES THE HOSPITAL MINIMIZE THE SPREAD OF TB?

HOW DOES THE HOSPITAL MINIMIZE THE SPREAD OF TB?

All 3 types of controls are necessary to protect caregivers from exposure. Click each to review.

Administrative Engineering Respiratory
Controls Protection

Administrative Controls (Slide Layer)

HOW DOES THE HOSPITAL MINIMIZE THE SPREAD OF TB?

All 3 types of controls are necessary to protect caregivers from exposure. Click each to review.

Administrative Controls

- Written TB control plan
- · Training
- Early identification of cases
- · Early isolation
- Annual TB risk assessment

Engineering Controls

Respiratory Protection

Engineering Controls (Slide Layer)

HOW DOES THE HOSPITAL MINIMIZE THE SPREAD OF TB?

All 3 types of controls are necessary to protect caregivers from exposure. Click each to review.

Administrative Controls

Engineering Controls

 Properly functioning negative pressure isolation room Respiratory Protection

×

Respiratory Protection (Slide Layer)

HOW DOES THE HOSPITAL MINIMIZE THE SPREAD OF TB?

All 3 types of controls are necessary to protect caregivers from exposure. Click each to review.

Administrative Controls

Engineering Controls

Respiratory Protection

- For caregivers in close contact with potentially infectious patient:
 - PAPR (respirator of choice)
 - o N-95

х

1.21 Multiple Choice

(Multiple Choice, 10 points, unlimited attempts permitted)

**Exch ministry adheres to a TB disease prevention program to protect staff from exposure. The 3 controls necessary are: • Administrative (training, early identification and isolation, Annual risk assessment) • Engineering (negative pressure room) • Respiratory Protection (Respirator use PAPR-preferred choice in hospital unless sterile environment or areas such as MRI) True False

Correct	Choice
Х	True
	False

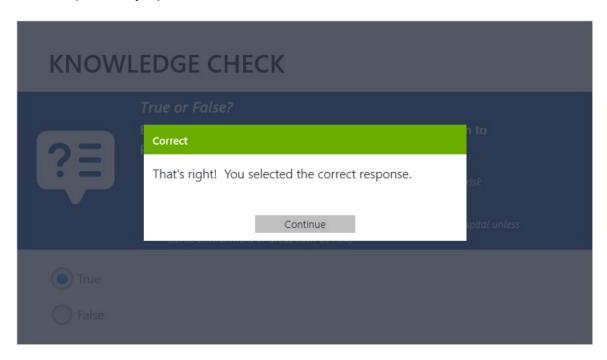
Feedback when correct:

That's right! You selected the correct response.

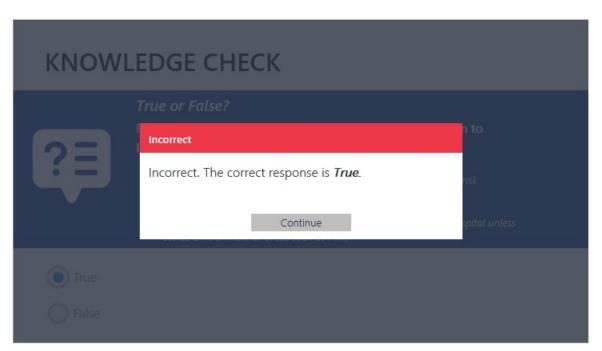
Feedback when incorrect:

Incorrect. The correct response is True.

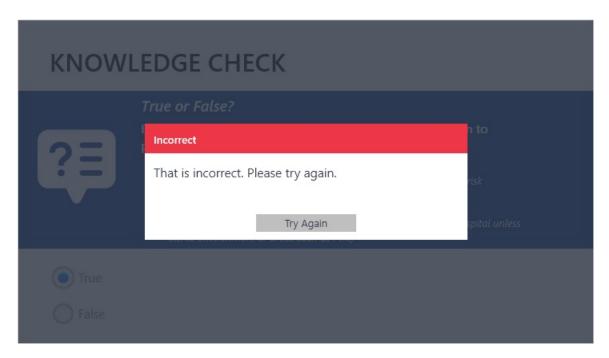
Correct (Slide Layer)



Incorrect (Slide Layer)

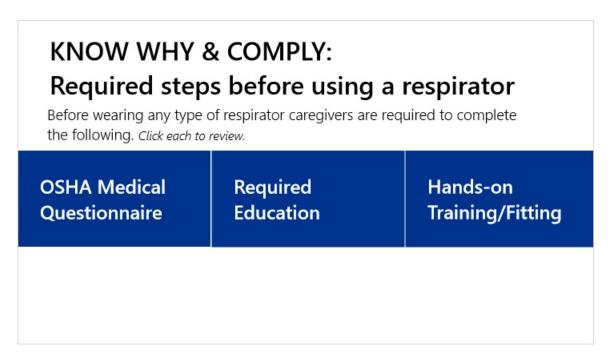


Try Again (Slide Layer)



1.22 KNOW WHY & COMPLY:

Required steps before using a respirator



OSHA Medical Questionnaire (Slide Layer)

KNOW WHY & COMPLY: Required steps before using a respirator

Before wearing any type of respirator caregivers are required to complete the following. Click each to review.

OSHA Medical Questionnaire

- Complete the OSHA Medical Questionnaire prior to training
 - Notify Caregiver
 Health Services if you have changes to your health status or facial shape

Required Education

Hands-on Training/Fitting

Required Education (Slide Layer)

KNOW WHY & COMPLY: Required steps before using a respirator

Before wearing any type of respirator caregivers are required to complete the following. Click each to review.

OSHA Medical Questionnaire

Required Education

 Complete the OSHA required education about TB and other airborne diseases via HealthStream Hands-on Training/Fitting

Х

KNOW WHY & COMPLY: Required steps before using a respirator

Before wearing any type of respirator caregivers are required to complete the following. Click each to review.

OSHA Medical Questionnaire Required Education

Hands-on Training/Fitting

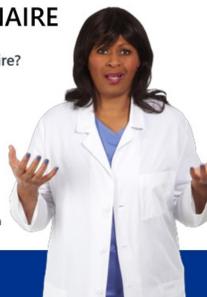
 Hands-on PAPR training once and/or N95 fit testing annually

Х

1.23 OSHA MEDICAL QUESTIONNAIRE

OSHA MEDICAL QUESTIONNAIRE Why do I have to complete a medical questionnaire?

- OHSA requires employers to ensure that any employee who will wear a respirator as a function of their job, must be medically safe to do so
- Respirators place a physiological load on the body and caregiver health and safety is a top priority
- Some caregivers may need a medical clearance for certain health conditions. Caregiver Health Services refers caregivers to an Occupational Medicine physician who is an expert in this area.



1.24 REQUIRED EDUCATION

REQUIRED EDUCATION

What HealthStream education do I have to complete?

- This HealthStream Module contains education about Tuberculosis, identifying suspected cases, masking the suspected patient, and placing the patient in airborne isolation
- Additionally, this module provides an overview of the two types of respirators, how and when to use them, and the requirements of participating in the respiratory protection program

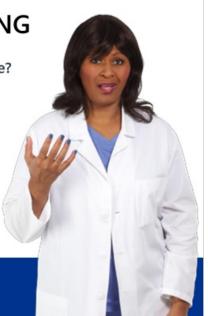


1.25 HANDS-ON TRAINING/FITTING

HANDS-ON TRAINING/FITTING

What type of training/fitting do I have to complete?

- Caregivers working in identified departments will complete the PAPR and/or N95 fit testing upon hire
- PAPR training is a one time training—Caregiver Health (CHS) is available during office hours for questions
- N95 fit testing is required <u>annually</u> and CHS will work with department leadership to complete this requirement



1.26 Multiple Choice

(Multiple Choice, 10 points, unlimited attempts permitted)

**Review a Health Stream education module annually and pass the test Receive hands on PAPR training once or if applicable to your setting annual N-95 fit testing annually Respirator use for Airborne Isolation is managed through Caregiver Health Services All are correct

Correct	Choice
	Complete a Respiratory Medical Questionnaire. Your questionnaire should be updated with changes to health
	Review a Health Stream education module annually and pass the test
	Receive hands on PAPR training once or if applicable to your setting annual N-95 fit testing annually
	Respirator use for Airborne Isolation is managed through Caregiver Health Services
Х	All are correct

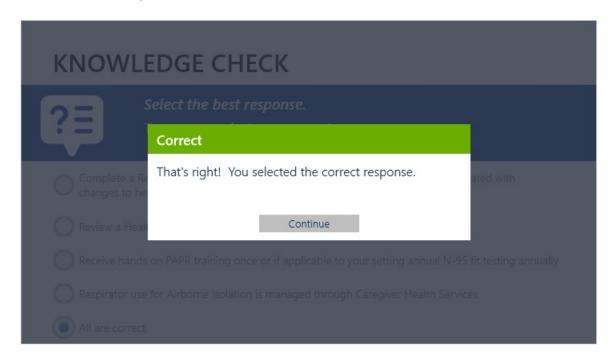
Feedback when correct:

That's right! You selected the correct response.

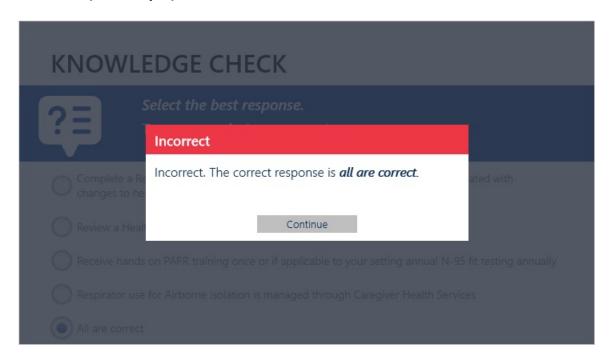
Feedback when incorrect:

Incorrect. The correct response is all are correct.

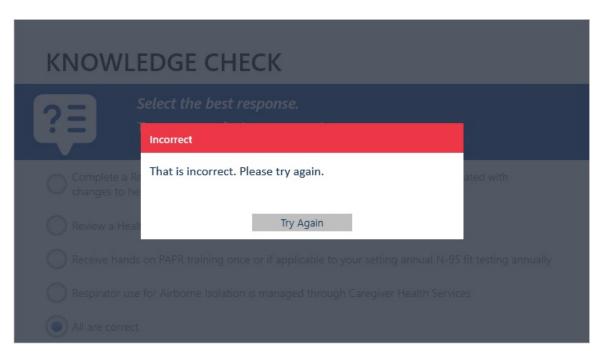
Correct (Slide Layer)



Incorrect (Slide Layer)



Try Again (Slide Layer)



1.27 RESPIRATORY PROTECTION - PAPR

RESPIRATORY PROTECTION - PAPR

- Powered Air Purifying Respirators (PAPRs)
 provide caregivers with the highest level of
 protection (99%) against airborne (aerosol and
 droplet) diseases
 - Common airborne diseases are: Tuberculosis, Chicken Pox, Measles, Disseminated Herpes Zoster or localized zoster
- Caregivers working in departments with negative pressure rooms are trained to wear a PAPR upon hire. Refresher training is provided by Caregiver Health Services



1.28 RESPIRATORY PROTECTION - N95

RESPIRATORY PROTECTION - N95

- N95 respirators provide 95% protection against airborne diseases
- N95s are fitted specifically to the individual
- N95s are NOT a one-size fits all mask







1.29 RESPIRATORY PROTECTION - N95

RESPIRATORY PROTECTION - N95

- Caregivers working in specific departments with negative pressure rooms will be fit tested annually with N95 respirators
- Caregivers will use N95s for the following:
 - Performing sterile procedures in an airborne isolation room
 - Rapid response (code situation) in an airborne isolation room



1.30 DIFFERENCES BETWEEN PAPR AND N95

DIFFERENCES BETWEEN PAPR AND N95

PAPR

Loose-fitting respirator

- · PAPR's don't filter exhaled air
- The PAPR is an appropriate option for those caregivers who cannot achieve an appropriate fit using an N95
- PAPRs do not depend on a tight seal; therefore, annual testing is not required

N95

Tight fitting respirator

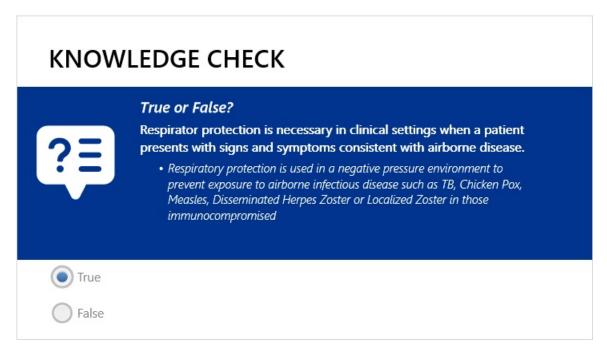
- Caregivers with facial hair should use a PAPR as the hair interferes with the N95 mask sealing to the face
- Fit testing and education is required for caregivers to wear an N95 respirator
- Fit testing must occur annually to ensure the respirator continues to fit the user's face (OSHA)



Note: Neither type of respirator can be used in a low or high oxygen environment or for protection against hazardous chemicals!

1.31 Multiple Choice

(Multiple Choice, 10 points, unlimited attempts permitted)



Correct	Choice
Х	True
	False

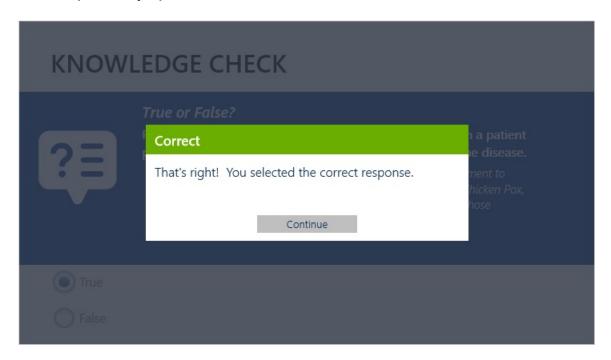
Feedback when correct:

That's right! You selected the correct response.

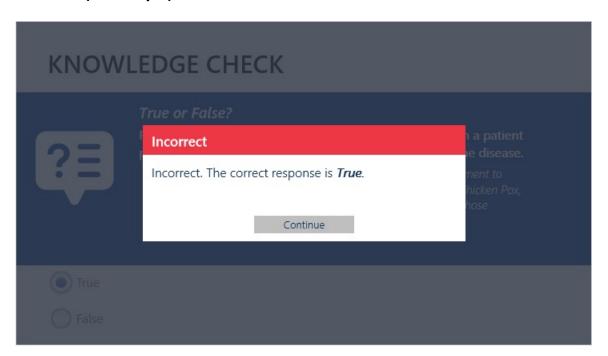
Feedback when incorrect:

Incorrect. The correct response is True.

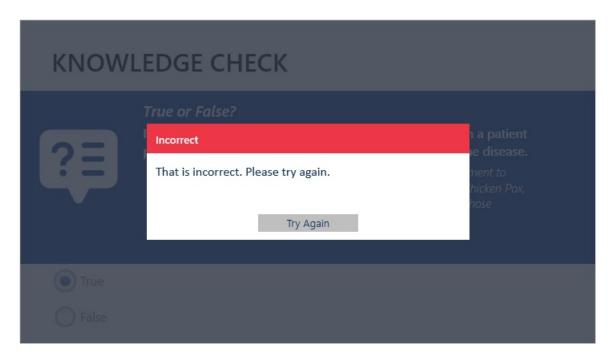
Correct (Slide Layer)



Incorrect (Slide Layer)



Try Again (Slide Layer)



2. PAPR / N95

2.1 Powered Air Purifying Respirator (PAPR) and N95 Respirators

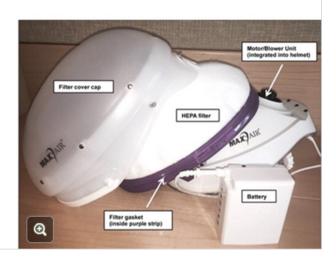


2.2 HOW THE PAPR WORKS

HOW THE PAPR WORKS

- Filtered air is blown into the helmet via a mechanical blower
- The face piece does not have to fit tightly because air flow & pressure keeps contaminants from leaking in

Click the image to review the PAPR functionality.



PAPR functionality (Slide Layer)

HOW THE PAPR WORKS

- Power cord attaches to battery worn on belt
- Outside air is pulled through the filter by a built-in fan and blown into hood
- Validate and verify that the internal filter is in place (inside the top of the headpiece) AND that the external filter is in place (external plastic cover)

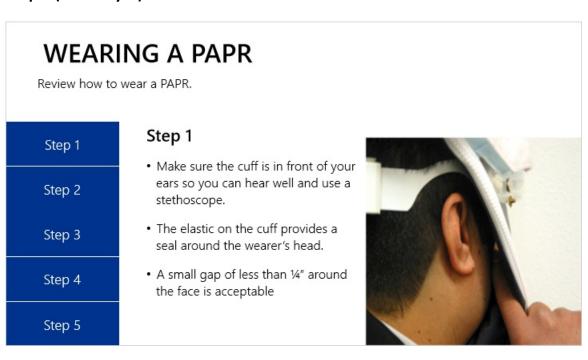


Close

2.3 WEARING A PAPR

WEARING A PAPR Review how to wear a PAPR. Step 1 Step 2 Click each step to review. Step 3 Step 4 Step 5

Step 1 (Slide Layer)



Step 2 (Slide Layer)

WEARING A PAPR

Review how to wear a PAPR.

Step 1

Step 2

Step 3

Step 4

Step 5

Step 2

- Position front headband so it fits ½" above eyebrows.
 - This ensures a full field of vision and allows peripheral vision to pick up the LED indicator lights should it illuminate.



Step 3 (Slide Layer)

WEARING A PAPR

Review how to wear a PAPR.

Step 1

Step 2

Step 3

Step 4

Step 5



 Adjust ratchet suspension knob on the back of the helmet for headband tightness, comfort and secure positioning



Step 4 (Slide Layer)

WEARING A PAPR

Review how to wear a PAPR.

Step 1

Step 2

Step 3

Step 4

Step 5

Step 4

 Check that battery pack is fully charged by plugging into PAPR and steady flow of air recognized.

 Assure there are no cracks on the battery case or face shield. DONNING CUFF-SYSTEM - CHECKING INDICATOR LIGHTS

Indicator Light Meanings

Value resid convention at 3 indicator Light Meanings

Value at refuncy second case

is a laided filter Diff

system in a source on a suband rights filter of incessor

3 Green Burry-Charge - 928-507.

1 Green Burry-Charge - 928-507.

After 5-15 seconds the 3 green lights

After 5-15 seconds t

Step 5 (Slide Layer)

WEARING A PAPR

Review how to wear a PAPR.

Step 1

Step 2

Step 3

Step 4

Step 5

Step 5

- Indicator lights show the amount of battery charge remaining. Be mindful before entering a patient room that you have a fully charged battery (see image in Step 4 for details)
 - Sensor lights warns if only
 15 minutes of use is available



2.4 CLEANING AND MAINTENANCE

CLEANING AND MAINTENANCE

- The PAPR must be cleaned after each use with an approved cleaning wipe. (Don gloves)
- Clean all plastic pieces of the PAPR inside and out including the face shield.
 - Note: Approved cleaning wipes may leave a film on the face shield and it is recommended to wipe down with a paper towel to remove the film once allowed to air dry for 5 minutes
- Replacement and disposal of any soiled parts is required and maintained through Supply Chain.
 - Note: Remove from service if cuff is soiled with blood and/or body fluids and you are not able to replace cuff. If face shield is cracked or damaged, replace face shield.

2.5 N-95 RESPIRATORS

N-95 RESPIRATORS

"N-95" stands for "not oil resistant - 95% efficient"

- It captures tiny (0.1-10 micron) particles.
- N-95 respirators filter particulate contaminants through a face piece and are used for infection control when PAPR use is not feasible.



2.6 FIT TESTING

FIT TESTING

Fit Testing Required for all Tight-Fitting Respirators

- Anyone wearing a respirator requiring a tight seal against the face, including N-95s, must be fittested to select the correct fitting respirator.
- A fit test allows you to select a brand and size of respirator that fits securely and does not leak.



2.7 ANNUAL FIT TESTING REQUIRED

ANNUAL FIT TESTING REQUIRED

- Fit testing must be repeated annually or anytime you suspect your respirator may not fit well.
- Coordinate your initial and annual fit testing with your manager & Caregiver Health (CHS).
 - Contact CHS if your facial shape has changed due to weight loss, dentures, etc.



2.8 WEARING AN N-95 RESPIRATOR

WEARING AN N-95 RESPIRATOR

- N-95 respirators are worn for infection control only when PAPR use is not feasible (ex. sterile procedures, MRI areas).
- N-95s are for single use only.
- Dispose of used respirators in the regular trash after each new patient encounter.



2.9 ANNUAL FIT-TESTING FOR N-95

ANNUAL FIT-TESTING FOR N-95

Annual certification includes:

- 1. Review HealthStream module
- 2. Demonstrate competency through annual N-95 fit-testing
- 3. Update card listing your N-95 respirator certification. Wear this card behind your Providence ID badge



Note: Caregiver Health maintains respirator database, including test completion information. You may also view in PureSafety.

2.10 *Summary*



2.11 Exit Module

