



UT Southwestern
Medical Center

UTSW/BioTel EMS System

July 7, 2015

EMS Alert 15-003

Middle East Respiratory Syndrome (MERS)

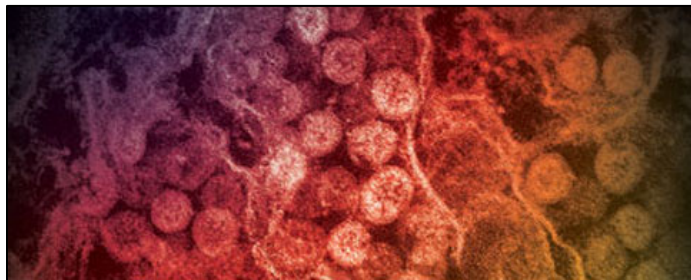
Health Alert

Purpose

- To set forth current information about the ongoing international outbreak of Middle East Respiratory Syndrome (MERS)
 - *The CDC and other health experts are monitoring this dynamic situation to better understand this illness*
 - *Information presented here may change, as the situation evolves*

Background – What is MERS?

- MERS is an acute respiratory illness
- It is caused by a Coronavirus, called “MERS-CoV”
- MERS-CoV spreads from ill persons through **close contact with respiratory secretions**, such as:
 - Caring for or living with an infected person
- The virus does **NOT** spread through casual contact
- ~35% of patients reported with MERS have died



Background – Where is MERS?

- Since first reported in 2012, all known MERS cases worldwide have been directly or indirectly linked to TRAVEL TO or RESIDENCE IN countries in or near the Arabian Peninsula, especially Saudi Arabia:
 - It has since spread to at least 20 countries
 - There were 2 cases of MERS in the US in 2014



Background – Korean Outbreak

- As of June 30, 2015, the Republic of Korea (“South Korea”) had confirmed:
 - 181 MERS cases
 - 33 deaths
 - Over 13,000 persons who completed quarantine
 - ***Roughly 8% of cases involved healthcare providers!***



Background – DFW Situation

- As of July 6, 2015, there have been **NO** known or suspected cases of MERS in the DFW area
- The ongoing outbreak and global travel, however, emphasize the continued risk of MERS-CoV spread to the United States
- ***EMS Providers must be aware of how to identify the disease and how to prepare for its potential arrival***

CRITICAL POINTS (1)

- All UTSW/BioTel EMS Providers shall adhere to all system-wide and agency guidelines for Respiratory and Hand Hygiene, Cough Etiquette, and the prevention of disease transmission
- EMS Providers shall continue to routinely ask **ALL** patients about **travel history** and **healthcare facility exposure**:
 - Consider MERS-CoV in any patient who meets screening criteria described later in this presentation

CRITICAL POINTS (2)

- For any patient meeting criteria as a possible MERS “Patient Under Investigation” (PUI), EMS Providers shall:
 - Utilize stringent Standard, Contact and Airborne isolation precautions; **AND**
 - Transport the patient to a hospital E.D.; **AND**
 - Notify **BOTH** BioTel **AND** the E.D. staff of the possibility of MERS, prior to arrival if at all possible.

MERS Patient History

- ALL known cases have been related – directly or indirectly – to:
 - Travel to or residence in or near the Arabian Peninsula; OR
 - Exposure via close contact with an infected person; OR
 - Exposure in a healthcare facility.



MERS Clinical Presentation

- Incubation period: 5 days, range 2 – 14 days
- **Most common signs and symptoms:**
 - Fever
 - Cough
 - Shortness of breath
 - Headache
- Other symptoms:
 - Sore throat, diarrhea, nausea and vomiting

MERS Clinical Course

- Most patients eventually recover
- Rapid progression to pneumonia and severe, acute respiratory illness within a week of onset can occur
 - Highest risk: patients with underlying medical conditions
- Approximately 35% of reported MERS patients have died

MERS Diagnosis and Treatment

- Diagnostic confirmation requires patient respiratory and blood samples collected in the hospital:
 - Testing is performed at the DCHHS Laboratory
- There is no specific treatment or vaccine:
 - Treatment is supportive and symptomatic

CRITICAL EMS INFORMATION:

PUI Screening Criteria (1)

Report immediately as a possible MERS Person Under Investigation (PUI) any patient with:

EITHER

- a. Fever **AND** acute respiratory symptoms **AND** ANY of the following:
 - i. History of travel from countries in or near the Arabian Peninsula within 14 days of symptom onset; **OR**
 - ii. Close contact with a traveler who developed fever and acute respiratory symptoms within 14 days of travel from countries in or near the Arabian Peninsula; **OR**
 - iii. History of being in a healthcare facility (as a patient, worker or visitor) in the Republic of Korea (“South Korea”) within 14 days of symptom onset.

Travel/Residence History

- Bahrain; Iraq; Iran; Israel, West Bank and Gaza; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen



- South Korea (healthcare facility as a patient, worker, or visitor)

CRITICAL EMS INFORMATION: PUI Screening Criteria (2)

Report immediately as a possible MERS Person Under Investigation (PUI) any patient with:

OR

- b. Fever **OR** acute respiratory symptoms, **AND** close contact with a *confirmed* MERS patient when the patient was ill

CRITICAL EMS INFORMATION:

Transport and Notification

- ALL patients meeting PUI screening criteria should be:
 - Evaluated and Treated; **AND**
 - Transported to a hospital E.D. ; **AND**
 - Reported both to BioTel and to the hospital E.D., preferably before hospital arrival:
 - BioTel will notify DCHHS (214-677-7899) for follow-up

General Infection Control/Prevention

1. Rigorous hand hygiene before and after EVERY patient contact (at least 20 seconds, soap/water or alcohol-based hand gel)
2. Avoid touching eyes, nose or mouth with unwashed hands
3. Avoid close contact with persons with fever or respiratory symptoms, such as:
 - a. Kissing, hugging, sharing cups/eating utensils

General Infection Control/Prevention

4. Cover coughs and sneezes with a tissue or shirt sleeve, not your hands:
 - a. Immediately discard used tissue in trash
5. Clean and disinfect frequently-touched surfaces, especially where ill persons have come into contact, such as:
 - a. Ambulance surfaces, stretcher, medical devices
6. When ill, try to avoid public places/travel, and stay home, if possible

EMS PPE & Infection Control

➤ Same procedures for other **respiratory** pathogens, such as measles and TB

1. Standard, Contact and Airborne Precautions, including at least these items, in donning order:
 - Disposable gown (fluid resistant/impermeable)
 - Respiratory protection (N95 respirator)
 - Eye protection (disposable face shield or clean goggles)
 - Clean, non-sterile gloves
 - Double-gloving is not required

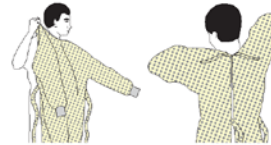
PPE Donning

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



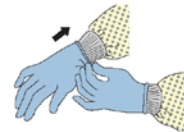
3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene



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EMS PPE & Infection Control

2. “Source Control”:

- Standard surgical mask for the patient, if tolerated
- Mildly ill patient requiring supplemental oxygen: nasal cannula oxygen, plus a standard surgical mask
- Severely ill patient: NRBM with 100% oxygen or advanced airway, as needed:
 - Use extreme caution during aerosol-generating procedures, such as airway suctioning and advanced airway placement

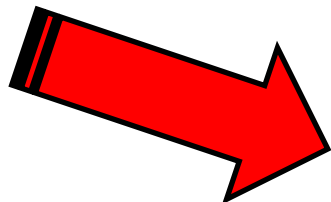
EMS PPE & Infection Control

3. PPE Removal (Doffing) – ***Highest risk for healthcare provider disease transmission!***
 - Do ***NOT*** contaminate clothing, skin, or mucous membranes (especially eyes, nose or mouth)!
 - If hands become contaminated at any point, STOP and immediately wash with soap/water or alcohol-based gel
 - Follow CDC PPE doffing sequence guidelines

PPE Doffing (Method 1)

“Alphabetical Order”

Gloves
Goggles
Gown
Mask
Wash Hands

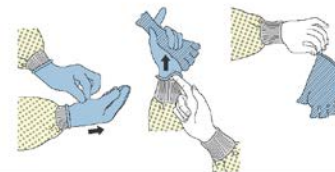


HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container



2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container



3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

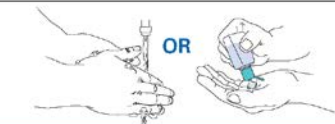


4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS
BECOME CONTAMINATED AND IMMEDIATELY AFTER
REMOVING ALL PPE



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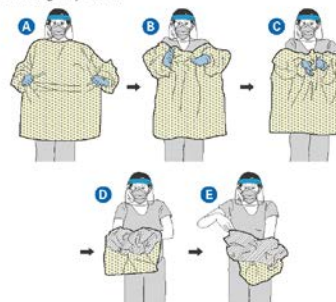
PPE Doffing (Method 2)

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container



2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container



3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — **DO NOT TOUCH!**
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



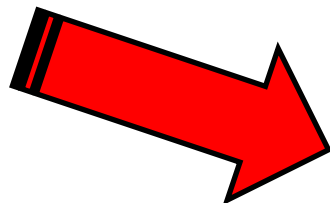
4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE



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EMS PPE & Infection Control

4. Rigorous hand hygiene immediately after removing PPE
5. Standard cleaning and disinfection procedures:
 - Ambulance surfaces
 - Equipment
 - Laundry
 - Medical waste disposal



Summary

- As of July 6: NO known or suspected MERS cases in DFW area
- Global travel increases likelihood of MERS-CoV spread to this region
- EMS Providers must remain vigilant, obtain an accurate travel history, and know how to recognize MERS-CoV, an acute respiratory illness
- Infection control/prevention hinges on PPE for respiratory pathogens, source control and **timely reporting to BioTel and to hospital E.D. personnel**

Local Resources*

- UTSW/BioTel EMS Alert 15-003 MERS Health Alert:
 - [HTML](#)
 - [PDF](#)
- [UTSW/BioTel EMS Training Bulletin 14-008 Decon](#)
- [UTSW/BioTel EMS 2014-2016 Guidelines for Therapy](#)
- [CDC Respiratory Pathogens PPE Poster at BioTel.ws](#)

*Accessed July 7, 2015

CDC Resources*

- [CDC PPE Sequence Poster – 10/2014](#)
- [CDC MERS Index Page](#)
 - [CDC MERS Healthcare Professionals Information](#)
 - [CDC Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus \(MERS-CoV\)](#)
 - [CDC MERS Case Definitions](#)

*Accessed July 5, 2015

Questions or Concerns?

At any time, please feel free to:

- Contact BioTel directly
- Access the [BioTel Web Site](#)
- [Email the Medical Direction Team](#)

**THANK YOU FOR
EVERYTHING YOU DO!**