

Section: UTMB On-line Documentation	01.41 - Policy
Subject: Infection Control & Healthcare Epidemiology Policies and Procedures	02.1.20 - Reviewed
Topic: 01.41 - Prevention and Control of Carbapenem-Resistant Enterobacteriaceae Infections	2013 - Author

01.41 - Prevention and Control of Carbapenem Resistant Enterobacteriaceae Infections

Purpose To prevent healthcare-associated infections in patients caused by carbapenem-resistant Enterobacteriaceae (CRE).


Audience All healthcare workers of the UTMB Health System and contract workers, volunteers and students.

- Policy**
- I. CRE are resistant to most, if not all antibiotics. For many years carbapenem antibiotics were used effectively for treatment of many microorganisms resistant to all of the other antibiotics available.
 - A. For many infections with CRE, there are no other antibiotics that can be used for treatment
 - B. The most frequently encountered CRE are carbapenemase producing *Klebsiella pneumoniae*, *Escherichia coli* and *Enterobacter* species.
 - C. Some strains of CRE do not produce carbapenemases but are resistant due to changes in porins and the presence of efflux pumps.
 - II. Detection of infected and colonized patients
 - A. The Clinical Microbiology Laboratory will notify the Department of Infection Control & Healthcare Epidemiology immediately upon identification of a CRE isolate.
 1. During working hours, the Department of Infection Control & Healthcare Epidemiology can be notified at ext. 23192 and after hours, weekends and holidays at 409-643-3133.
 2. When notified about a CRE isolate, the Department of Infection Control & Healthcare Epidemiology will immediately place the patient on Contact Precautions if the patient has not already been isolated.
 - B. Patients' name(s) and UH numbers will be entered into EPIC so that the patient will automatically be placed on Contact Precautions if readmitted. There are currently no recommendations for discontinuation of Contact Precautions.
 - C. When patients with CRE infection/colonization are to be discharged to another healthcare facility, the Department of Infection Control & Healthcare Epidemiology will notify the receiving healthcare facility of the patient's CRE infection/colonization.
 - D. Readmission of patients
 1. The Department of Infection Control & Healthcare Epidemiology will confirm that the patient is on Contact Precautions and, if not, will place the patient on Contact Precautions.


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III. Control and Prevention of Infections with CRE

- A. Patients will be placed on Contact Precautions on admission if known to be infected/colonized with CRE or as soon as infection or colonization is identified. They will remain on Contact Precautions until discharge.
 - 1. As soon as possible after admission, the IP assigned to the unit where a patient with CRE has been isolated will meet with the unit manager and review the following steps on isolation of the patient.
 - a. Colonized or infected patients with CRE should be housed in single patient rooms.
 - b. Breaks in isolation technique by healthcare workers should be reported immediately to the Department of Infection Control & Healthcare Epidemiology ext. 23192 or 409-643-3133
 - c. Any equipment taken into the room by the nurse, e.g., blood pressure machine, must be decontaminated by wiping it down with hospital approved disinfectant after it is removed from the room.
 - d. The nurse manager must assure that there is continuously an adequate supply of isolation gowns and gloves and that a disposable stethoscope is placed in the patient's room.
 - e. Physicians and other healthcare workers may not take a stethoscope, cell phone or Ipad into the room unless they are covered by the gown and are not removed from under the gown while in the room.
 - 2. Prior to entering a CRE patient's room, gowns and gloves must be donned.
 - a. Prior to donning gloves, hands should be decontaminated with alcohol foam.
 - b. If hands are visibly soiled prior to gloving, hands must be washed with antiseptic soap and water.
 - c. When leaving the room, gloves should be removed first using the technique illustrated in the pictures on the next page.



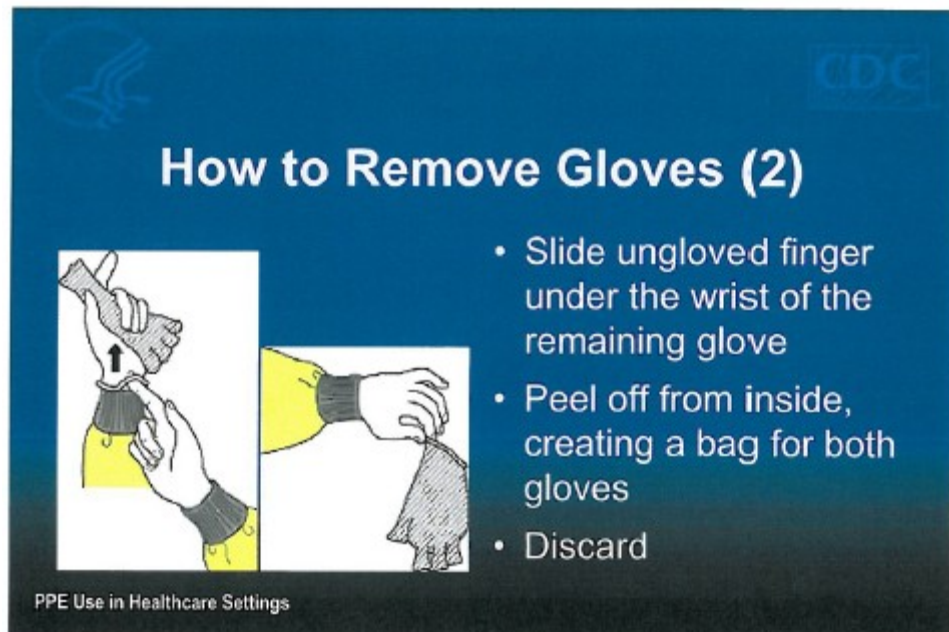
How to Remove Gloves (1)



- Grasp outside edge near wrist
- Peel away from hand, turning glove inside-out
- Hold in opposite gloved hand

PPE Use in Healthcare Settings

Using one gloved hand, grasp the outside of the opposite glove near the wrist. Pull and peel the glove away from the hand. The glove should now be turned inside-out, with the contaminated side now on the inside. Hold the removed glove in the opposite gloved hand.



Slide one or two fingers of the ungloved hand under the wrist of the remaining glove. Peel glove off from the inside, creating a bag for both gloves. Discard in waste container.

- d. The technique illustrated will make it possible to take off your gloves without contaminating your hands.
 - e. After discarding the gloves, remove gown by untying string at the back and releasing the Velcro at the neck. Do not touch the front of the gown. Pull gown off by grasping upper back of gown and pulling it forward turning the gown inside out.
 - f. The gown can then be rolled up touching only the inside of the gown, and then be discarded in the receptacle in the room.
 - g. Exit the room and perform hand hygiene preferably with alcohol hand rub. Use soap and water if alcohol hand rub is not tolerated.
- B. If a new case of CRE colonization/infection occurs, all patients the RN provided care for 3 days prior to new case and culture patient's roommates who have shared the room within the prior 3 days.
1. If a new case of CRE colonization/infection occurs in another patient on the unit, **all** patients on that unit will be cultured on the next workday.
 2. New cases of CRE will be placed on Contact Precautions immediately
- C. Daily cleaning and decontamination of the isolation room and nursing unit.
1. The surfaces in the room will first be cleaned using a detergent.

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- All surfaces will then be disinfected with a hospital grade disinfectant.
2. All computer keyboards inside and outside of isolation rooms will be cleaned and disinfected with hospital grade disinfectant.
 3. Surfaces in the nursing station and Doctors' work room will be cleaned and disinfected with hospital grade disinfectant.
 4. Any equipment taken into the room e.g. EKG machines, x-ray machines, ultrasound machines, PT/OT equipment, hemodialysis machines, etc. will be cleaned and disinfected with hospital grade disinfectant as soon as they are removed from the room.
 5. Surfaces in Radiology must be cleaned and disinfected with a hospital grade disinfectant after contact with patients on Contact Precautions for CRE.
 6. In ICUs Environmental Services will clean and disinfect surfaces and fixtures, and CES will clean and disinfect all devices and equipment attached to patients.

References:

1. Cidoctaro P, Flaks-Manov, Oved M, Schattner A, et al, Predictors of persistent carbapenem-resistant Enterobacteriaceae carriage upon readmission and score development. *Infect Control Hosp Epidemiol* 2016;37:188-196.
2. Goodman KE, Simner PJ, Tamma PD, Milstone AM. Infection control implications of heterogeneous resistance mechanisms in carbapenem-resistant Enterobacteriaceae (CRE). *Expert Rev Antil Infect Ther*;2016:95-108.