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Command & Control Center



وزارة الصحة
Ministry of Health

Infection control during medical air-transport for patients with airborne infectious diseases

Policies and Procedures

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Air-transport provider, source and destination healthcare facilities

Introduction

There is a growing need for air transport of patients inside and outside the country. Airborne Infectious diseases pose a special risk to the transport and ground staff at the source and destination healthcare facilities. It is imperative that ait-transport staff protect themselves, their families and their patients whenever possible. This document describes infection control measures designed to reduce the risk of infectious disease transmission during medical air-transport. This document DOES NOT apply to commercial aircraft.

Definitions

Healthcare worker (HCW) is the one who delivers care and services to the sick either directly as doctors and nurses or indirectly as aides, helpers, laboratory technicians, or medical waste handlers.

Respirator fit test is the seal between the respirator's facepiece and your face. It takes about fifteen to twenty minutes to complete and is performed at least annually. After passing a fit test with a respirator, you must use the exact same mask, model, style, and size respirator on the job

High-efficiency particulate (HEPA) air filter is a type of mechanical air filter; it works by forcing air through a fine mesh that traps harmful particles such as pollen, pet dander, dust mites, and tobacco smoke.



Air Medical Transport (AMT) is a comprehensive term covering the use of air transportation, airplane or helicopter, to move patients to and from healthcare facilities and accident scenes.

Air Medical Transport (AMT) service providers are Personnel provide comprehensive prehospital, emergency, and critical care to all types of patients during aeromedical evacuation.

Airborne infections are a group of diseases that are caused by pathogens that can be transmitted through the air including: Anthrax (inhalational), Chickenpox, Influenza, Measles, Smallpox, Cryptococcosis, and Tuberculosis that particles the microorganisms are less than 5 microns in size float in the air

General Responsibilities

Air Medical Transport (AMT) Service Providers:

- Apply airborne transmission-based precautions while dealing with the transported patient with confirmed or suspected airborne transmitted disease.
- Terminal cleaning of environmental surfaces exposed to patient care procedures.

Infection Control Coordinator at Air Medical Transport (AMT) Service:

- Source control (i.e., confining the spread of respiratory secretions at the patient level).
- Application of engineering controls to limit airborne dissemination of the microorganism.
- Locate patient as near as practical to the aircraft exhaust
- Ensure availability and proper use of personal protective equipment (PPE).
- Ensure the use of safe work practices to prevent exposure.
- Train Air Medical Transport (AMT) service providers on basic infection control practices including standard and transmission-based precautions upon hiring and on a continuous basis with competency assessment.
- Supervise the process of Terminal cleaning of environmental surfaces exposed to patient care procedures.
- Coordinate with infection control personnel at destination to continue airborne precautions upon patient arrival.

Policy

- Patients with an airborne infectious disease requiring air transport should be managed by a dedicated transport team trained on proper Infection control during medical air-transport
- The source facility, receiving facility and the air transport team must adhere to specific infection control measures to reduce the risk of transmission and contamination during air-transport

Procedure:

1. At the source facility:



- 1.1. Patient must be instructed to wear a surgical mask and follow respiratory hygiene and cough etiquette.
- 1.2. Isolation transportation cards must be used that are consistent with the patient diagnosis, colour coded and are posted in Arabic and English, and indicating the type of precautions required for staff.
- 1.3. HCWs who are transferring the patient to the AMT facility do not need to wear respiratory protection during transport if the patient is masked.

2. During Air Medical Transport

- 2.1. The Patient:
 - 2.1.1. Designation of an “isolation area”
 - 2.1.1.1. Where space permits, a perimeter should be established for designating “clean” and “dirty” areas for the purpose of defining where gowns and gloves must be donned and removed.
 - 2.1.1.2. The distance will depend on the area required for patient care support; a minimum distance of 183 cm (6 feet) from the patient is recommended.
 - 2.1.1.3. If a bathroom is being used for the patient, it should be within the isolation area.
 - 2.1.1.4. Materials required for patient care, including PPE, should be organized outside the isolation area.
 - 2.1.1.5. Receptacles for soiled linen, medical waste, and reusable equipment should be placed inside the isolation area.
 - 2.1.1.6. Patient movement should be restricted to the designated isolation area.
 - 2.1.2. Source control:
 - 2.1.2.1. If the patient is able, he should always continue wearing a surgical mask during transport.
 - 2.1.2.2. The surgical mask should be changed as needed (e.g., upon saturation with respiratory secretions).
 - 2.1.3. Ambulatory Patient Placement
 - 2.1.3.1. Patient should be positioned as far downwind regarding cabin air flow as possible.
 - 2.1.3.2. Consider the use of patient urinal or bedpan instead of a bathroom.
 - 2.1.4. Patients Requiring Mechanical Ventilation:
 - 2.1.4.1. Mechanical ventilators should be provided with HEPA or equivalent filtration of airflow exhaust.
 - 2.1.4.2. AMT services should consult the ventilator manufacturer to confirm appropriate filtration capability and the effect of filtration on positive-pressure ventilation
- 2.2. AMT Service Providers:
 - 2.2.1. Personal protective equipment and procedures:



- 2.2.1.1. Personnel who are within the isolation area must wear full PPE (fit tested N95 respirator, isolation gown and goggles).
- 2.2.1.2. The following PPE should be available for use by direct-care providers:
 - 2.2.1.2.1. Non-sterile patient-care gloves
 - 2.2.1.2.2. Disposable isolation gowns
 - 2.2.1.2.3. Goggles or face shields (Corrective eyeglasses alone are not appropriate protection.)
 - 2.2.1.2.4. Fit-tested, disposable N95 respirators
- 2.2.1.3. Disposable non-sterile gloves, gown, and eye protection must be worn when entering the “isolation area”, patient care area and for all patient contacts.
- 2.2.1.4. Eye protection, gown, and gloves should be removed and discarded in designated receptacles after patient care is completed or prior to leaving the “isolation area” or when soiled or damaged.
- 2.2.1.5. All AMT service providers should be fit tested for the available types and sizes of N95 Respirator and the test should be repeated every two years or if there is a change in facial shape.
- 2.2.1.6. The respirator should be worn by all personnel in patient cabin and remain on until the wearer is in the area designated as safe for respirator removal (if that area is available, this is based on the type of the aircraft).
- 2.2.1.7. Hands must be washed with soap and water or a waterless, alcohol-based hand rub immediately after removal of PPE.
- 2.2.1.8. Oxygen delivery with simple and non-rebreather face masks may be used for patient oxygen support during flight.
- 2.2.1.9. Manually assisted ventilation should be performed using a resuscitation bag-valve mask. If available, units equipped for HEPA or equivalent filtration of expired air should be used.
- 2.2.1.10. Cough- or aerosol-generating procedures should be avoided during transport unless medically necessary (e.g., lifesaving).
- 2.2.2. AMT Service Providers Training and Education:
 - 2.2.2.1. All AMT service providers should receive education and training on the basic infection control practices including standard and transmission-based precautions upon hiring and on a continuous basis with competency assessment.
 - 2.2.2.2. All AMT service providers should be trained on respiratory protection program including proper donning and doffing of N95 Respirator.
 - 2.2.2.3. Pre- employment examination and vaccination of staff involved in transport of patient with air borne infectious diseases.
 - 2.2.2.4. There should be a term of reference in case of possible exposure of AMT service providers with follow up management.



2.3. Waste Disposal:

- 2.3.1. Solid waste (e.g., used gloves, dressings, healthcare waste that is saturated with blood or body fluids), should be collected in leak-proof yellow bags with biohazard symbol for disposal as infectious medical waste at the destination.
- 2.3.2. Sharp items such as used needles, lancets, syringes or scalpel blades should be collected in yellow puncture-resistant sharps containers with biohazard symbol for disposal as infectious medical waste at the destination.
- 2.3.3. Suctioned fluids and secretions should be stored in sealed containers for disposal as infectious medical waste at the destination medical. Handling that might create splashes or aerosols during flight should be avoided.
- 2.3.4. Suction device exhaust should not be vented into the cabin without HEPA or equivalent filtration. Portable suction devices should be fitted with in-line HEPA or equivalent filters.
- 2.3.5. Excretions (feces, urine) may be carefully poured down the aircraft toilet (if available). Toilet lid should be closed before flushing to avoid aerosol generation.

2.4. Cleaning and Disinfection:

- 2.4.1. After transporting a patient, exits and doors should be closed, and aircraft air conditioning turned on at maximum capacity for several minutes in accordance with the airing time specified by aircraft manufacturer to provide at least one complete air exchange.
- 2.4.2. Non-pressurized aircraft should be aired out, with exits and doors open long enough to ensure a complete air exchange. Blowers and high-powered fans that might aerosolize infectious material should not be used for airing out aircraft.
- 2.4.3. Cleaning should be postponed until airing out is complete.
- 2.4.4. Compressed air that might aerosolize infectious material should not be used for cleaning the aircraft.
- 2.4.5. Non-patient-care areas of the aircraft should be cleaned and maintained according to manufacturers' recommendations.
- 2.4.6. Patient-care areas (including stretchers, railings, medical equipment control panels, and adjacent flooring, walls and work surfaces likely to be directly contaminated during patient care) should be cleaned and disinfected using an approved ready to use intermediate level disinfectant approved by the aircraft manufacturer (e.g. fourth generation quaternary ammonium compounds).
- 2.4.7. Environmental surfaces schedule should be used to ensure cleaning and disinfection of all environmental surfaces of the aircraft.
- 2.4.8. Consider the use of H₂O₂ dry mist fog machine after consultation of the aircraft manufacturer.



- 2.4.9. Personal protective equipment (PPE) (isolation gown, non-sterile disposable gloves, surgical mask and goggles) should be worn to prevent contact with germicides during the procedures for environmental cleaning and disinfection of the patient-care areas. Spills of body fluids during transport should be cleaned by placing absorbent material over the spill and collecting the used cleaning materials in a biohazard bag. The area of the spill should be cleaned using sodium hypochlorite (household chlorine) solution 1:9 concentrations as. Ground service personnel should be notified of the spill location and initial clean-up performed.
 - 2.4.10. Contaminated reusable patient care equipment should be placed in biohazard bags and labelled for cleaning and disinfection at the AMT service medical equipment section or the assigned reprocessing department (CSSD).
 - 2.4.11. Reusable equipment should be cleaned and disinfected according to manufacturer's instructions.
 - 2.4.12. Following completion of cleaning tasks, including cleaning and disinfection of reusable equipment, cleaning personnel should carefully remove and dispose of personal protective equipment and wash hands thoroughly with soap and water or apply alcohol-based hand rub.
- 3. At Receiving Facility (destination):**
- 3.1. Receiving facility must be informed by the patient information in detailed sheet including patient diagnosis, time of arrival and the required airborne precautions.
 - 3.2. The facility must arrange a well-trained defined team wearing required PPE for receiving the patient and rapidly isolate the patient in a negative pressure isolation room with airborne precautions.

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