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Healthcare organization management — Pandemic response — Guidelines for respiratory infection prevention and control in hospitals

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Foreword

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This document was prepared by ISO/TC 304, *Healthcare organization management*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

In the wake of the COVID-19 pandemic, guidelines have become necessary to prevent cross-contamination of the respiratory tract that can occur in hospitals in a disaster situation where a respiratory infectious disease has occurred. Therefore, this document was written to prevent cross-contamination in hospitals due to the outbreak of common respiratory infectious diseases.

This document is intended to standardize the guidelines for the separate operation of wards dedicated to respiratory infectious diseases; transportation of confirmed cases; and cleaning, disinfection and waste management, etc. in order to prevent respiratory cross-infections under emergency situations caused by respiratory infectious diseases such as COVID-19.

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Healthcare organization management — Pandemic response —Guidelines for respiratory infection prevention and control in hospitals

1 Scope

This document provides guidelines to prevent cross-infections within a hospital, with a specific focus on the separate operation of wards dedicated to highly contagious respiratory infectious diseases, transportation of confirmed cases of highly contagious respiratory infectious diseases, disinfection, waste management, etc.

This document applies to the following:

a) separate operation of wards dedicated to highly contagious respiratory infectious diseases;

b) transportation of confirmed cases of highly contagious respiratory infectious diseases and roles of the dedicated healthcare team in a ward dedicated to highly contagious respiratory infectious diseases;

c) cleaning, disinfection, and waste management.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
coronavirus
virus that is part of a large family of viruses that can cause illness in animals or humans

Note 1 to entry: In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The coronavirus discovered in 2019 causes the coronavirus disease COVID-19.

[SOURCE: ISO 5472:2022, 3.3]

3.2
infectious disease patient
person who has tested positive in a diagnostic test for an infectious disease

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3.3
negative pressure room
room in which the air pressure differential between the room and the adjacent indoor airspace directs the air flowing into the room (i.e. room air is prevented from leaking out of the room and into adjacent areas such as the corridor)

[SOURCE: ISO 5472:2022, 3.8]

3.4
internal corridor
corridor inside the negative pressure isolation area, which connects a patient room anteroom, corridor anteroom, personal protective equipment (PPE) *doffing room* (3.5), *waste disposal room* (3.6), *equipment storage room* (3.7), etc.

3.5
doffing room
space connected to the *internal corridor* (3.4), where healthcare workers who completed medical treatment take off their PPE before entering the general area

3.6
waste disposal room
space connected to the *internal corridor* (3.4), where medical waste generated from treatment of inpatients is sterilized or stored before discharge

Note 1 to entry: The waste disposal room is set to maintain a negative pressure lower than the internal corridor and a high temperature autoclave can be installed, if necessary.

3.7
equipment storage room
space connected to the *internal corridor* (3.4), where mobile equipment used for the treatment of *infectious disease patients* (3.2), etc. is stored or disinfected after use

3.8
HEPA filter
high efficiency particulate air filter
retentive matrix having a minimum particle-collection efficiency of 99,97 % (that is, a maximum particle penetration of 0,03 % for 0,3 µm particles)

Note 1 to entry: See Reference [4].

[SOURCE: ISO 5472:2022, 3.6, "high efficiency particulate air filter" has been changed from a preferred term to an admitted term; note 1 to entry has been added.]

4 Separate operation of a ward dedicated to respiratory infectious diseases

4.1 General

A ward dedicated to respiratory infectious diseases refers to a unit that is established in order to prevent the infection of other patients and healthcare workers in the process of treating respiratory infectious disease patients, etc. and to suppress the transmission of causative pathogens in the local community. In principle, a negative pressure room should be operated as a single-occupancy room to curb the spread of infectious agents within a hospital through droplets or the air. See Annex A.

4.2 Principles of isolation room assignment and operation

4.2.1

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In principle, isolation rooms in a ward dedicated to respiratory infectious diseases should be operated as a single-occupancy negative pressure room, with the aim to prevent the circulation of air from isolation rooms occupied by confirmed cases to other areas within a hospital.

a) When no negative pressure room is available, it is necessary to prevent the circulation of air from isolation rooms occupied by confirmed cases to other areas within the hospital as best as possible.

   The criteria for air handing units (AHU) and heating, ventilation and air-conditioning (HVAC) system are as follows (see Annex B): because the default is to circulate a mix of outside air (30 %) and inside air (70 %), the opening rate of AHU is adjusted to prevent air mixing and to switch to a system with 100 % outside air supply and 100 % exhaust. In case of resource-limiting settings, staff open the windows at least three times a day for more than 30 min.

b) When no single-occupancy room is available, multi-patient rooms can be used for confirmed cases in a ward that is completely separated from the routes of general patients.

4.2.2

Suspected cases are assigned single-occupancy negative pressure rooms in principle until testing results are released. However, when no single-occupancy negative pressure room is available, patients with confirmed cases can be admitted to separate single-occupancy rooms that meet the AHU criteria.

4.2.3

The priority for the assignment of negative pressure rooms is to firstly assign them to high-risk patients in need of medical treatment, etc. The high-risk groups in terms of the priority for room assignment are as follows:

a) patients with oxygen saturation below 90 % who require initial oxygen therapy;

b) patients with underlying diseases (chronic obstructive pulmonary disease, cardiovascular diseases, etc.).

   EXAMPLE Room assignment for confirmed cases in healthcare facilities[5].

   1) Priority is given to positive patients that are persons under investigation (PUI) or undergoing aerosol generating procedures (AGP).

   2) Each confirmed case should be assigned to a single-occupancy negative pressure room in principle.

   3) When no single-occupancy negative pressure room is available, a confirmed case should be assigned to a multi-patient negative pressure room.

   4) When no multi-patient negative pressure room is available, a confirmed case should be assigned to a regular single-occupancy room.

   5) When no regular single-occupancy room is available, a confirmed case should be assigned to a regular multi-patient room (a minimum distance of 1 m is recommended between beds).

   6) When no regular multi-patient room is available, confirmed cases should be assigned to all rooms on a single floor in the facility.

   The conditions for 3), 4), and 5) are as follows:

   route: in order to ensure completely separate routes between confirmed cases and general patients, a ward (or single floor) is operated independently when confirmed cases are admitted to regular rooms.

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5 Transportation of confirmed cases and roles of the dedicated healthcare team in a ward dedicated to respiratory infectious diseases

5.1 Patient transportation

5.1.1 Safe patient transportation

To ensure safe patient transportation, the following should be considered.

a) A patient transportation team should be organized with a minimum number of personnel when transporting a confirmed case of a respiratory infectious disease.

b) An advance notice should be provided to the receiving healthcare facility before the arrival of a confirmed case of a respiratory infectious disease so that proper preparations are taken prior to patient arrival.

c) During the transportation of a confirmed case, any contact personnel should wear PPE.

d) An ambulance should be used that is prepared at the transportation location as a vehicle for transportation.

e) A patient should be transported on a predetermined route of the shortest travel distance and time (using designated elevators and pathways reserved exclusively for infectious disease patients).

f) When transporting a patient to a ward dedicated to respiratory infectious diseases, the route should be blocked to prevent contact with other patients or visitors.

g) The wheelchair or transportation cart used for patient transportation should be left in the ward dedicated to respiratory infectious diseases.

   Patient transportation equipment, etc. that are left in the ward dedicated to respiratory infectious diseases can be reused after being disinfected according to the infection control guidelines.

h) After transportation, PPE should be removed and disposed of according to 6.1.3; hand hygiene should be performed thoroughly[6].

5.1.2 Roles and composition of dedicated patient transportation team

The dedicated patient transportation team for confirmed cases of respiratory infectious diseases performs the roles outlined in Table 1.

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