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Healthcare organization management — Pandemic response (respiratory) — Functions and quality evaluation of specimen collection booth

Management des organisations de soins de santé — Réponse en cas de pandémie (respiratoire) — Fonctions et évaluation de la qualité des cabines de prélèvement d'échantillons

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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This document was prepared by Technical Committee 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

With the active global movement of people, infectious diseases that occur locally can spread worldwide and become pandemics.

Over the past 20 years, infectious diseases such as Severe Acute Respiratory Syndrome (SARS, in 2002), H1N1 Influenza (H1N1, in 2009), and Middle East Respiratory Syndrome (MERS, in 2012) appeared with increased intensity and shorter cycle. Experts are concerned that occurrence of such disease would increase and the cycle will become shorter.

When an infectious disease spreads on a large scale and becomes a pandemic, conducting screening and treatment inside a hospital exposes hospital workers, patients, and caregivers to the risk of infection. To reduce the risk of such cross-infection, sample collection methods such as drive-through screening station (DTSS) and walk-through screening station (WTSS) are developed.

The specimen collection booth is a facility that physically separates medical staff from walking visitors in WTSS to reduce the risk of cross-infection and enable rapid testing.

This document considers structural elements, functions and evaluation methods of a specimen collection booth for its safe use to quickly collect samples from individuals with suspected respiratory diseases.

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Healthcare organization management — Pandemic response (respiratory) — Functions and quality evaluation of specimen collection booth

1 Scope

This document specifies the functions and quality evaluation of the specimen collection booth as part of pandemic response management for respiratory diseases.

NOTE COVID-19 is an example of a disease for which such a specimen-collection booth is developed.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5472, *Healthcare organization management — Pandemic response (respiratory) — Walk-through screening station*

ISO 29463-1, *High efficiency filters and filter media for removing particles in air — Part 1: Classification, performance, testing and marking*

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
air change rate
air flow rate to a space, expressed as volume per unit time, divided by the volume of the space in consistent units

Note 1 to entry: Air change rate is often expressed as air changes per hour.

[SOURCE: ISO 16814:2008, 3.5]

3.2
differential pressure
difference in absolute (static) pressure between two points in an air flow system

Note 1 to entry: Resistance to air flow is expressed in Pa (inches of water).

[SOURCE: ISO 29464:2024, 3.1.43, modified — The preferred terms "resistance to air flow", "pressure differential" and "pressure drop" have been removed.]

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3.3
downstream
direction to where the air flow discharges

[SOURCE: ISO 5801:2017, 3.4]

3.4
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)

[SOURCE: ISO/PAS 18999:2024, 3.8, modified — note 1 to entry has been removed]

3.5
negative pressure booth
specimen collection booth (3.10) with internal pressure less than that of the ambient atmosphere to allow the outside air into the booth

3.6
pandemic
worldwide spread of a disease

[SOURCE: ISO/PAS 45005:2020, 3.5]

3.7
personal protective equipment
PPE
device or appliance designed to be worn or held by an individual for protection against one or more health and safety hazards

[SOURCE: ISO 15384:2018, 3.12]

3.8
positive pressure booth
specimen collection booth (3.10) with internal pressure greater than that of the ambient atmosphere

3.9
pre-filter
air filter fitted *upstream* (3.11) of another filter to reduce the challenge on that filter

[SOURCE: ISO 14644-16:2019, 3.1.6]

3.10
specimen collection booth
facility for specimen collection which protects healthcare workers and test subject

3.11
upstream
direction from where the air flow comes

[SOURCE: ISO 5801:2017, 3.3]

3.12
walk-through screening station
WTSS
screening station with disinfected, single or multiple, mobile or fixed booths with negative, positive or an adaptable pressure which enables minimized consumption of *personal protective equipment* (3.7)

[SOURCE: ISO 5472:2022, 3.14]

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