

Key planning recommendations for mass gatherings in the context of COVID-19

Interim guidance

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Key messages

1. The decision-making process for holding mass gatherings during the COVID-19 pandemic should always rely on a risk-based approach focused on the evaluation, mitigation and communication of risk.
2. Risk evaluation aims to identify and quantify the baseline risk inherent in the event and its context, before applying precautionary measures, in terms of both transmission of SARS-CoV-2 and strain on health service capacity.
3. Risk mitigation involves applying precautionary measures to reduce the risk of SARS-CoV-2 transmission and the likelihood that health services may be strained by the event. Precautionary measures are applied before, during and after the event; they modify the characteristics of the event or focus on strengthening preparedness and response to risk.
4. Risk communication entails dissemination of information on the precautionary measures applied, their rationale and purpose, and how they were adopted, with the aim of ensuring high compliance with rules and regulations among attendees.
5. The high density and mobility of attendees associated with mass gatherings represents a conducive environment for close, prolonged and frequent interactions between people; these factors can entail a higher risk of transmission of SARS-CoV-2 and a potential disruption of the health system's response capacities if large numbers of people are affected.
6. Mass gatherings should never be left unmanaged or poorly managed, regardless of their size, type and level of associated risk. Zero risk does not exist.
7. Attendees of mass gatherings should always be reminded to apply individual-level responsibility and a strong sense of civism.
8. WHO is not mandated to take, enforce or sanction decisions related to holding, modifying, postponing or cancelling mass gatherings.

1. Purpose and rationale of this guidance

The purpose of this document is to provide guidance to host governments, health authorities and national or international event organizers on taking decisions related to holding mass gatherings in the context of the COVID-19 pandemic, and on

decreasing the risks of SARS-CoV-2 transmission and strain on health systems associated with such events, through dedicated precautionary measures.

The information contained in this document includes considerations for the practical planning and management of mass gatherings, as well as technical recommendations derived from WHO guidance on specific aspects; these have been consolidated and tailored to facilitate their application to the context of mass gatherings.

The guidance included in this document should be considered from a public health perspective. Recommended measures will not guarantee 100% protection from SARS-CoV-2 infection or COVID-19-associated morbidity at individual level; rather, they will reduce the need at population level for medical care and minimize the overall impact on the health system through the application of a number of public health principles.

Wider considerations comprehensively addressing additional risks of any nature and origin should also be taken into account when planning an event, as highlighted in WHO's publication *Public health for mass gatherings: key considerations* (1).

2. Changes from the previous version

This document is the fourth version (third update) of the interim guidance document entitled *Key planning recommendations for mass gatherings in the context of COVID-19*, originally published by WHO on 14 February 2020 (2), and subsequently updated and released on 19 March 2020 (3) and again on 29 May 2020 (4). The present version reflects the evolution of knowledge about the pandemic, the experience gained and the lessons learnt from holding gatherings over the past year, the emergence of SARS-CoV-2 variants of interest and variants of concern, the wider availability of diagnostic tests and COVID-19 vaccines, and, in general, to ensure alignment with the most recent guidance on COVID-19 issued by WHO.

Two boxes on "Screening for SARS-CoV-2 and attendance at mass gatherings" and "COVID-19 vaccination and attendance at mass gatherings" have been added to clarify these specific aspects.

3. Mass gatherings and associated risks in the context of the COVID-19 pandemic

3.1. Mass gatherings and their characteristics

Mass gatherings are events characterized by the concentration of people at a specific location for a specific purpose over a

set period of time that have the potential to strain the planning and response resources of the host country or community (1).

Mass gatherings can take place as single events or as a combination of several events at different venues. They may be public or private, planned or spontaneous, recurrent or one-off, and of varying size and duration. The range of types of mass gatherings is wide, from sports, music, entertainment, business or religious events, to large conferences and meetings. Some health interventions such as immunization campaigns or mass drug administrations can also be considered mass gatherings (1).

Mass gatherings also include high-visibility events, often associated with large participation, multiple venues (in some cases multiple host countries), international travel, prolonged duration and extended media coverage. High-visibility events are also frequently associated with increased frequency of smaller private gatherings (in streets, at home, in bars or restaurants, etc.), which can represent an additional challenge as they are usually much less regulated (1).

In the context of the COVID-19 pandemic, mass gatherings can be associated with increased risk of transmission of SARS-CoV-2; in addition, they have the potential to strain the planning and response resources of the host country or community, and be associated with disruptive impacts on health services (1).

3.2. SARS-CoV-2 transmission

COVID-19 is caused by the SARS-CoV-2 virus, which spreads between people in several different ways. The virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols (5–9).

Current evidence suggests that the virus spreads mainly between people who are in close contact with each other, typically within 1 metre (short-range). A person can be infected when aerosols or droplets containing the virus are inhaled or come directly into contact with the eyes, nose, or mouth. The virus can also spread in poorly ventilated and/or crowded indoor settings, where people tend to spend longer periods of time. This is because aerosols remain suspended in the air or travel farther than 1 metre (long-range). People may also become infected by touching surfaces that have been contaminated by the virus when touching their eyes, nose or mouth without cleaning their hands (5–9).

Further research is ongoing to better understand the spread of the virus and which settings are most risky and why. Research is also under way to study virus variants that are emerging and why some are more transmissible. For updated information on SARS-CoV-2 variants, please read the weekly epidemiological updates published on WHO's website (10).

Data from viral shedding studies suggest that infected individuals have the highest viral loads (and therefore the highest likelihood of transmitting the infection) just before or around the time they develop symptoms and during the first days of illness (5,6). Nevertheless, infected people who never develop symptoms may still pass the virus to others, and people with severe disease can be infectious for longer periods of time (5,9).

3.3. Risks associated with mass gatherings

During mass gatherings, the likely high density and mobility of attendees (crowding) represents a conducive environment for close, prolonged and frequent interactions between people, which can entail increased risk of transmission of SARS-CoV-2 (11).

An analysis of mass gatherings held globally in 2020 and 2021 has indicated that the most important factors associated with increased risk of SARS-CoV-2 transmission in conjunction with such events (11) are:

- duration: risk grows with the duration of the event, or with the duration of stay of attendees at the event, especially in the case of multiple days;
- location: risk is higher in indoor venues than in outdoor venues; and
- compliance with precautionary measures: risk is higher when measures are not applied, weakly implemented or not followed by attendees.

The risk of person-to-person transmission of SARS-CoV-2 was not found to directly correlate with the size of the gathering. Available evidence therefore highlights the importance for organizers and attendees to apply precautionary measures and exert caution at any gatherings, regardless of their size (11).

In addition to the risk of transmitting SARS-CoV-2, mass gatherings can also strain the planning and response resources of the host country or community, and be associated with disruptive impacts on health services. This is because when transmission amplifies among large numbers of individuals, it can generate a significant number of COVID-19 cases whose management may overwhelm the response capacity of the host country's health system (11).

Although there is no defined threshold in terms of number of attendees to qualify as a mass gathering, the risk of potential disruption grows with that number (11).

3.4. The importance of managing mass gatherings

Mass gatherings may be planned or spontaneous. In the context of the COVID-19 pandemic, relevant authorities should ensure that spontaneous events are kept to a minimum since these events likely did not undergo a proper risk assessment exercise, or adequate planning, to implement precautionary measures (1,11).

Mass gatherings are not merely recreational events; they have important implications on the spiritual well-being of large numbers of individuals (e.g. religious events), can play an important role in promoting healthy behaviours (e.g. sports events), can provide employment for a great number of people (e.g. business events), and could leave a legacy of improved assets or capacities developed as a result of hosting a mass gathering event (1).

Given their substantial social, cultural, political and economic implications, authorities should assess the importance and necessity of a mass gathering event and consider whether it should take place, provided all associated public health risks are adequately assessed, addressed and mitigated through a proper management approach (11).

4. Holding mass gatherings during the COVID-19 pandemic: the risk-based approach,

The decision to restrict, modify, postpone, cancel or proceed with holding a mass gathering should always be based on a rigorous assessment of the risks associated with the event (11).

WHO has developed risk-assessment tools to facilitate and guide the decision-making process related to holding generic mass gathering events in the context of COVID-19, as well as specific tools for religious and sporting events. Such tools assign a numerical score to each risk factor and precautionary measure, thus enabling calculation of a resulting overall risk score that corresponds to a defined risk category (12–14).

Generally, events associated with a low or very low risk of SARS-CoV-2 transmission and strain on the health system may be considered sufficiently safe to proceed. Events with a moderate, high or very high level of risk might not be sufficiently safe to proceed and would require a more thorough application of precautionary measures (12–14). If the risk of transmitting SARS-CoV-2 remains significant after application of all relevant precautionary measures, postponing, cancelling or holding the planned event online should be considered (11).

Nevertheless, irrespective of whether such tools are used or not, the principles of a risk-based approach should be universally employed to guide any decision related to mass gatherings (11).

The risk-based approach should be tailored to the characteristics of the event under consideration, and be repeated at regular intervals, thus enabling a factual and dynamic identification and evaluation of the overall risk associated with the event (11).

The relevance of the risks, and consequently that of the precautionary measures applied, are dynamic and likely to evolve over time. Assessing and mitigating risk should therefore be regarded as a sustained exercise occurring throughout the planning period leading up to the event, continuing during it, and stopping only after it has ended and once local systems have returned to normal (1,11).

The risk-based approach is flexible and adaptable to gatherings of different type and size, occurring in the context of any SARS-CoV-2 transmission scenarios (15,16). Notwithstanding how low the associated risk is, the recommendation is always to consider implementation of precautionary measures, to further decrease residual risk. Zero risk does not exist, and therefore mass gatherings should never be left unmanaged or poorly managed, regardless of their size, type and level of baseline risk (11).

The risk-based approach entails three steps:

1. **Risk evaluation:** to identify and quantify the baseline risks associated with the gathering before applying precautionary measures;
2. **Risk mitigation:** to apply a series of precautionary measures aimed at decreasing the baseline risk; and
3. **Risk communication:** to disseminate information proactively on the precautionary measures adopted, their rationale and purpose, and on how the relevant decisions were taken.

WHO recommends that the decision-making process leading to restricting, modifying, postponing, cancelling or

proceeding with holding a mass gathering should be taken by the relevant authorities in consultation with the event organizers (11). The process should be inclusive, transparent and open to all relevant stakeholders (11).

While the risk-based approach offers a useful framework for relevant decision-makers to identify, address and communicate risk, attendees should always be reminded to apply individual-level responsibility and a strong sense of civism to their decisions and actions, with the aim of preserving their health and that of the people they interact with (11).

5. Risk evaluation

The first step of the risk assessment exercise examines the key characteristics of the mass gathering event, as well as the context in which the event takes place, with the aim of carrying out a baseline profiling and quantification of associated baseline risks before applying precautionary measures, in terms of both transmission of SARS-CoV-2 and strain on health service capacity (11–14). This step should start as soon as the planning for the event begins; in some cases, it could be months or even years before its occurrence.

Areas to consider in the evaluation include, but are not limited to:

- the characteristics of the event, in terms of venue(s) (number, location, size/type, indoor/outdoor, crowd density and mobility, transportation to/from venue, access to infrastructures etc.) and duration;
- the number and key demographic characteristics of the expected participants (age, sex, health status, provenance, international/local travel to/from event, COVID-19 vaccination status, etc.);
- the expected interactions among participants during the event (closeness of contact, social “identities” of attending groups and their consequent behaviour (17), etc.).

The context in which the planned event takes place should also be considered in the risk assessment, including:

- the prevalent SARS-CoV-2 transmission scenario at global, regional and local levels;
- the volume of international travel involved, and the provenance of attendees from countries experiencing community transmission of SARS-CoV-2 and/or circulation of variants of interest or variants of concern;
- the existing public health and social measures (PHSMs) and travel regulations applied nationally and internationally to control spread of SARS-CoV-2, as well as their level of implementation and compliance in the host country or area (including testing capacity, genome sequencing capacity to identify new/emerging variants of interest/variants of concern, and vaccination coverage among attendees and in the host country); and
- the capacity of health authorities and organizers to implement, enforce, monitor and communicate precautionary measures that can reduce the risk associated with the event, and strengthen event-based surveillance, detection and response to COVID-19 outbreaks or clusters and management of cases (in terms of policies, standard operating procedures, resources and funding).

WHO currently describes seven scenarios of increasing intensity of transmission of SARS-CoV-2 (15,16):

(I) no (active) cases = no new COVID-19 cases detected for at least 28 days (twice the maximum incubation period), in the presence of a robust surveillance system; near-zero risk of infection for the general population;

(II) imported/sporadic cases = one or more COVID-19 cases, imported or locally detected in the past 14 days, without evidence of local transmission; minimal risk of infection for the general population;

(III) clusters of cases = COVID-19 cases detected in the past 14 days limited to well-defined clusters, linked by time, geographical location and common exposures; low risk of infection to others in the wider community if exposure to clusters is avoided; and

(IV–VII) community transmission (CT) = outbreaks with the inability to relate confirmed COVID-19 cases through chains of transmission for large numbers of cases, or by increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories). CT includes four scenarios/levels characterized by increasing incidence of locally acquired, widely dispersed cases detected in the past 14 days:

- CT1 – low incidence; many of the cases not linked to specific clusters; transmission may be focused in certain population subgroups; low risk of infection for the general population;
- CT2 – moderate incidence; transmission less focused in certain population subgroups; moderate risk of infection for the general population;
- CT3 – high incidence; transmission widespread and not focused in population subgroups; high risk of infection for the general population; and
- CT4 – very high incidence; very high risk of infection for the general population.

A country or area can move from one transmission scenario to another, in either direction. In response to each transmission scenario, countries have adopted PHSMs, applicable at the individual level (e.g. physical distancing of at least one metre (3.3 feet), washing hands frequently, observing respiratory etiquette, wearing masks and ensuring adequate ventilation of indoor locations) and, potentially, at the community level (e.g. movement restrictions, and limitation to social, economic and professional activities such as school and business closures) (16).

Some countries have also started implementing “individualized public health measures” based on a person’s SARS-CoV-2 immunity status following COVID-19 vaccination or past infection, notably in the context of contact tracing, international travel and private social gatherings (events with family and friends, usually at someone’s residence, such as parties, dinners and celebrations); such relaxation of measures may contribute to containing their inherent economic and social burden, but their application should be limited to settings where robust PHSMs are otherwise in place to control the spread of SARS-CoV-2 (16).

WHO has issued guidance on the progressive adjustment of PHSMs in response to the epidemiological evolution of the COVID-19 pandemic, to reflect the changing transmission scenarios (16). In countries that are implementing strict movement and physical distancing measures aimed at decreasing interactions among people and therefore

transmission of SARS-CoV-2, it is unlikely that authorities will allow mass gatherings to take place. However, in countries where restrictive measures are being progressively eased in response to an evolving epidemiology, the decision to proceed with an event and how to proceed becomes highly relevant.

The host country’s adjustments to their PHSMs should be reflected in the risk evaluation for a mass gathering. As countries loosen their PHSMs based on local epidemiology, the “safety nets” provided by such measures to reduce transmission of SARS-CoV-2 will also cease. This makes conducting thorough risk assessments for planned mass gathering events even more important.

6. Risk mitigation

Precautionary measures are public health actions that are applied to the mass gathering event under consideration with the aim of reducing its inherent risk of SARS-CoV-2 transmission, as well as the likelihood that health services may be strained by the event. Precautionary measures may:

- modify the characteristics of the event (e.g. venue, duration, facilities, equipment, modalities of interaction among attendees and their requirements for participation); or
- focus on the capacity of health systems and event organizers to strengthen preparedness and response to any public health issue related to the event and that may occur before, during or after it.

Precautionary measures should be applied throughout the event’s timeline – during the planning phase, the operational phase and the post-event phase, as relevant.

Importantly, none of the precautionary measures, when implemented on their own, can guarantee protection from COVID-19. Rather, precautionary measures act in concert and should be applied simultaneously as a package of interventions. Their implementation in coordination with broader PHSMs such as strategic testing, isolation of cases, tracing and quarantine of contacts, and vaccination is essential to reduce transmission of SARS-CoV-2 (11).

6.1. Planning phase

The planning phase is the period preceding the event, when plans are developed, field-tested and revised. Precautionary measures applicable during this phase include the following.

6.1.1. Information-sharing

- Ensuring that all stakeholders involved in the organization of the event are aware of regulations applied in the hosting area or country, are familiar with the latest guidance on COVID-19 and are acquainted with global and local daily epidemiological situation reports (1);
- Ensuring that all relevant expertise is adequately represented in the decision-making process; e.g., all health professional communities should be involved in the planning phase, including public health, health system, emergency care, etc. (1).

6.1.2. Coordination among all relevant stakeholders and partners

- Establishing and testing collaboration and communication mechanisms among event organizers, health authorities, security and other relevant sectors; as

well as among all stakeholders, partners, resource persons (e.g. experts) and other constituencies involved in the event (1).

6.1.3. Development of a contingency preparedness and response plan for the event

- Ensuring alignment of the event plan and standard operating procedures with wider national emergency preparedness and response plans, notably those dedicated to COVID-19 (1);
- Making provisions for establishing event-based surveillance, detecting incident cases of COVID-19, reducing the spread of the SARS-CoV-2 virus, managing and treating ill persons, tracing contacts, and disseminating public health messages specific to COVID-19 in culturally appropriate ways and in languages used by event participants (1);
- Establishing and testing a clear line of command and control, and enabling efficient situation analysis and flexible decision-making, e.g. through the adoption of agreed procedures (including triggers or thresholds) to modify, restrict, postpone or cancel the mass gathering event (1);
- Developing a risk communication strategy and a community engagement plan for the event (see 7. Risk communication).

6.1.4. Strengthening capacities and resources

- In close coordination among event organizers and national and local health authorities and other relevant institutions (1), making provisions for:
 - Financial resources, including surge arrangements for extra funding in case of urgent need (e.g. worsening of the epidemiological situation and necessity to implement additional precautionary measures);
 - Human resources (e.g. education, training and exercising), including surge arrangements for extra staff and volunteers in case of urgent need;
 - Procurement of personal protective equipment and other medical consumables, including surge arrangements for stockpiles in case of urgent need;
 - Other arrangements including availability of isolation facilities, checking the specificities of equipment supplying outdoor air to and removing indoor air from a space (ventilation), cleaning schedules, etc.

6.1.5. Arrangements made for events held during the COVID-19 pandemic

The following approaches have emerged as common practices implemented by organizers of mass gatherings in 2020 and 2021, especially with regard to large-scale, high-visibility events:

- Setting up organizational arrangements that allow for all stakeholders involved in the organization of a mass gathering event to share information, review actions taken, and take decisions on health-related issues through a concerted and consultative process (e.g. all-partners taskforces, or COVID-19 roundtables);
- Establishing an event-specific COVID-19 operations centre to coordinate and monitor the implementation of precautionary measures, manage all COVID-19-related activities (e.g. surveillance and management of

suspected cases), and supervise COVID-19 dedicated staff;

- Designating COVID-19 compliance or liaison officers as professionals assigned to a group of people attending the event, with the responsibility of sharing information on precautionary measures applied, ensuring that they are correctly followed, and facilitating detection and management of COVID-19 cases. This approach has notably been applied to mass gatherings with large numbers of participants;
- Establishing “bubbles”, an approach that allows close, in-person interactions only among a defined group of people, thus limiting the risk of transmission from and to people external to the bubble. Bubbles have been applied to high-profile sports events, so as to allow “teams” to safely perform their activities together;
- Using mobile software applications for self-check, contact tracing and contact monitoring purposes; these tools allow rapid identification of people experiencing symptoms suggestive of COVID-19 and contacts of confirmed or probable COVID-19 cases, and provide guidance on any follow-up action required. Apps can be adapted and used in the context of specific events; alternatively, pre-identified lists of contacts have been used;
- Providing attendees with COVID-19 kits including, e.g., masks (to promote their use and ensure compliance with recommended technical specifications), individual hand sanitizers, information on other precautionary measures, and instructions on download and use of mobile software applications.

6.2. Operational phase

The operational phase is the period during which the event takes place. Precautionary measures applicable during this phase include:

6.2.1. Modifications to the event (related to the venue)

- Hosting the event, at least partially, online/remotely/virtually (12–14);
- Hosting the event primarily outdoors rather than indoors; if indoors, adequate ventilation of spaces should be ensured, either by natural means (e.g. by enabling wind-driven cross ventilation rather than single-sided ventilation) or mechanical means (i.e. by supplying air to or removing air from an indoor space by powered air movement components); event organizers and building managers should be encouraged to verify that key considerations on ventilation recommended by WHO are adequately addressed (7,12–14);
- Adjusting the official capacity of the venue to facilitate enforcement of physical distancing (12–14);
- Ensuring availability of handwashing facilities with water and soap and/or hand sanitizer dispensers (12–14);
- Ensuring regular and thorough cleaning and disinfection of the venue by designated staff (12–14);
- Regulating the flow and density of people entering, attending, and departing the event and ensuring that physical distance is maintained, by:
 - Increasing the frequency of public transport, staggering arrivals, registering attendees, numbering entries, designating seating or standing places, adequately spacing seats, tables and booths, using separating screens, shields and transparent

barriers where close contact is expected (e.g. at registration), marking the floor or employing physical barriers (cones, ropes, poles, etc.) to maintain distance between people, separating accesses and way outs, adopting one-way pathways and corridors to enforce unidirectional flow, establishing spacious waiting areas to complement crowd control measures, etc. (12–14);

- Extending precautionary measures to side events associated with the main one, and limiting occasions for spontaneous gathering in proximity of the designated venue, before, during and after the event; in the case of sports events, this may include supporters using public spaces or bars, pubs and restaurants to watch games, or holding celebratory or protest gatherings due to defeats or winnings. A lesson learnt from mass gatherings implemented during the COVID-19 pandemic is that such informal get-togethers may easily be left without adequate planning and implementation of precautionary measures, thus representing a conducive environment for amplification of SARS-CoV-2 transmission.

6.2.2. Modifications of the event (related to the participants)

- Advising people to follow the five basic infection prevention and control measures at all time, inside and outside venues (11):
 - Practising physical distancing by strictly maintaining a distance of at least 1 metre (3.3 feet) between people at all times;
 - Covering mouth and nose with the bent elbow or a tissue when coughing or sneezing; and avoid touching eyes, nose and mouth;
 - Regularly and thoroughly washing hands with soap and water, or cleaning them with an alcohol-based hand sanitizer. An effective alcohol-based hand rub product should contain between 60% and 80% of alcohol and its efficacy should be proven according to the European Norm 1500 or the standards of the ASTM International (formerly, the American Society for Testing and Materials) (18);
 - Maximizing time spent outdoors rather than indoors, and ventilating indoor spaces; and
 - Following advice on use of masks issued by relevant health authorities (see below).
- Modifying the modalities of interaction among attendees (e.g. by avoiding hugs, kisses and handshakes as greetings signs and replacing them with a bow,

be in isolation); and contacts of confirmed or probable COVID-19 cases (who should be in quarantine) (20);

- Considering risk-based application of travel restrictions to attendees coming from countries/areas with community transmission of SARS-CoV-2 and/or circulation of variants of interest or variants of concern (20,21);
- Advising people with higher risk of developing severe illness from SARS-CoV-2, i.e. those aged ≥ 60 years or with underlying medical conditions (diabetes, hypertension, cardiac disease, chronic lung disease, cerebrovascular disease, dementia, mental disorders, chronic kidney disease, immunosuppression, obesity and cancer) (22), not to attend the event. If their attendance is allowed on a personal risk-based decision, they should be advised to avoid non-essential travel (20,21) and strictly follow precautionary measures in place. Special arrangements can be considered for these vulnerable groups, e.g. dedicated areas in venues and preferential treatment in queues, or virtual alternative means (digital/streaming) to view or participate in the live event;
- Advising attendees that guidance on mask use issued by relevant national/local authorities should be followed. In its absence, WHO recommendations should be used as a reference (6), as follows:

What masks should be worn:

- Individuals at higher risk of developing severe illness from COVID-19 (those aged ≥ 60 years or with underlying medical conditions) should wear a medical mask;
- Other individuals can wear non-medical/fabric masks, which should be manufactured according to the recommended essential parameters (three-layer structure for homemade masks; compliance with filtration efficacy, breathability and snug fit thresholds for factory-made masks) (6).

In areas with known or suspected community or cluster transmission of SARS-CoV-2:

- In outdoor settings, masks should be worn where physical distancing cannot be maintained;
- In indoor settings where ventilation has been assessed to be adequate (7), masks should be worn if physical distancing cannot be maintained;
- In indoor settings where ventilation cannot be assessed, is known to be poor or if the ventilation

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