Recommendations to Minimize the Risk of COVID-19 Transmission in the Latin America and the Caribbean Tourism Sector

General Recommendations to Minimize the Risk of COVID-19 Transmission in Tourist Establishments and Spaces

With the participation of OAS

With the support of UNWTO, IDB
General Recommendations to Minimize the Risk of COVID-19 Transmission in Tourist Establishments and Spaces

• The purpose of the recommendations included in this document is to provide guidance on how to reduce the risk of transmission of the SARS-CoV-2 virus in tourist establishments and spaces. Therefore, this information is solely for informational purposes and is not prescriptive.

• The recommendations arise from the fact that there are no zero-risk spaces and that, while it is not possible to completely eliminate the possibility of infection as long as there is a pandemic, we can reduce the risk.

• These recommendations are offered, without prejudice, to the current applicable legislation in force in each country. This document does not replace the guidelines and directives put in place by the various governments.

• The content of the recommendations is based on publicly known scientific information available on the date of publication (August, 2021). New future findings or studies may require this document to be revised.
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The risk of transmission and infection by SARS-CoV-2, more commonly known as Coronavirus, cannot be completely eliminated while community transmission exists (i.e., when infection spreads from person to person within a “community” and not via imported cases). However, it may be reduced to acceptable levels that are compatible with tourism activity.

To be able to define the necessary measures required, to reduce the risk of transmission, it is necessary to understand how Coronavirus is transmitted.

Scientific evidence currently exists on three different transmission pathways:

1. **Airborne transmission by aerosols:** This occurs through the inhalation of small droplets which are exhaled by infected people when they breathe, talk, cough, shout, sing or sneeze. These small droplets, which may be up to 100 μm in size, are commonly known as aerosols or droplet nuclei. They can remain suspended in the air in indoor spaces for a variable amount of time, which may be extended due to insufficient ventilation and, to a lesser extent, other environmental factors such as relative humidity, temperature, and natural light, among others. These aerosols may travel through the air for up to 6 to 8 meters.

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5. In this series of documents 100 μm is used as a reference to differentiate between droplets and aerosols, in accordance with https://www.journalofhospitalinfection.com/article/S0195-6701(21)00007-4/ fulltext, even though there is no consensus in the scientific community with regards to the limit for differentiating one type of particle from another. Regardless, it is worth noting that “aerosols” refer to smaller particles (droplet nuclei) and “droplets” to larger particles.
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Direct contact transmission by droplets:
Large droplets of up to 100μm are released when an infected person talks, coughs, shouts, sings or sneezes, which, following semi-ballistic trajectories, can spread up to 2 meters in distance, reaching other people's oral mucosa, nasal mucosa or conjunctiva and infecting them “directly”.

Transmission through contact with contaminated surfaces (fomites):
This occurs when a person's hands come into contact with a surface that is contaminated with secretion from an infected person, which they then pass to their mouth, nose or eyes, transporting the virus to their oral mucosa, nasal mucosa or conjunctiva. This is called “indirect” transmission.

Although it has been proven that the main COVID-19 transmission pathway is airborne transmission by aerosols, the prevention methods currently included in the majority of existing protocols are mainly based on transmission by contact with fomites, which is the least frequent transmission pathway, as demonstrated by recent studies. For this reason, tourism organizations should work on implementing measures in their establishments and spaces that help reduce the risk of transmission via these three modes, especially via airborne transmission by aerosols and direct contact transmission by droplets. In addition, they should also be cautious of the risk presented by transmission through contact with contaminated surfaces (fomites).

Figure 1. Transmission pathways of COVID-19

Within the context of the COVID-19 pandemic, as part of their everyday business, tourism organizations run the risk of transmitting the SARS-CoV-2 virus to their staff and customers if they fail to take suitable prevention measures to minimize the risk of infection. However, the risk of transmission is not always static; it is variable and may increase or decrease depending on the combination of a series of other factors.

Generally, there are two fundamental measures for reducing the risk of transmission of the virus among the general population: vaccination and preventive control through diagnostic tests.

Vaccination:
Vaccinating the population is the first measure to consider during a pandemic. COVID-19 vaccination campaigns have been up and running for several months now although they are progressing at an unequal rate in different countries and regions. As of the date of publication of this document, however, it is plain to see that the number of cases of serious infection and death as a result of COVID-19 is reducing in countries which have vaccinated a higher percentage of their population\textsuperscript{13,14}.

Preventive control through diagnostic tests:
The early detection and subsequent isolation of positive cases is the second key protection method in the fight against COVID-19. When the population has yet to be vaccinated, continued prevention and control (screening) through administering PCR or antigen tests allows those who are infected to be detected and isolated to prevent further infections.

The aforementioned measures are in large part controlled by the authorities and/or they are not within the reach of the general population (or there are restrictions or limitations). Nevertheless, there is a series of risk-modulating factors that may be implemented and controlled by tourism organizations themselves and which should be observed until herd immunity\textsuperscript{15} is achieved through vaccination. These factors are as follows:

\begin{itemize}
\item \textbf{Vaccination:}\textbf{ Vaccinating the population is the first measure to consider during a pandemic.}\n\item \textbf{Preventive control through diagnostic tests:}\textbf{ The early detection and subsequent isolation of positive cases is the second key protection method in the fight against COVID-19.}\n\end{itemize}

\begin{flushleft}
\textsuperscript{13} CDC (2021). Key Things to Know about COVID-19 Vaccines. \url{https://www.cdc.gov/coronavirus/2019-ncov/vaccines/keythingstoknow.html}
\textsuperscript{14} Leshem, E. et al (2021). COVID-19 Vaccine Impact in Israel and a Way Out of the Pandemic. \url{https://doi.org/10.1016/S0140-6736(21)01018-7}
\end{flushleft}
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i. Ventilation: understood as the renovation or replacement of indoor air with air from outside, increases the amount of clean air and dilutes any possible infectious particles in a room\(^\text{16}\), and as such, is a determining factor in airborne transmission by aerosols. It is important to have sufficient ventilation in indoor spaces, as aerosols persist in poorly ventilated spaces in particular, and may be inhaled by those who are using the space. In well-ventilated indoor spaces, the probability of infection due to inhalation is less likely. In outdoor spaces, the risk of transmission is lower than indoors as a result of the air flow diluting and dispersing the virus.

ii. Safety distance: this entails keeping a minimum distance between people, both indoors and outdoors, to prevent the possibly infectious droplets released when we talk, cough, sneeze, shout and sing from reaching other people in our immediate surroundings. As larger droplets can travel up to 2 meters before landing on a surface\(^\text{17,18}\), maintaining a safety distance between people reduces the transmission of the virus by droplets\(^\text{19}\). Therefore, the greater the distance between people, the lower the risk of transmission. Although maintaining a safety distance of two meters has been used as a prevention measure to reduce transmission by droplets, it is important to remember that part of a droplet’s content can evaporate (due to low relative humidity, for example)\(^\text{20}\) and turn into aerosols. These can remain infectious and suspended in the air in indoor spaces for hours. In this case, ventilation is again a fundamental factor for minimizing Coronavirus transmission as it helps dilute particles that are suspended in the air.

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18. These droplets can travel even further when we shout, sing, sneeze or cough, between 6 and 8 meters: BMJ 2020;370:m3223 https://doi.org/10.1136/bmj.m3223
iii. **Use of face masks:** the use of respiratory protective equipment significantly reduces the risk of infection, acting as a physical barrier against droplets\(^{21}\) released by other people, and to a certain degree against suspended aerosols, provided that the face mask is correctly adjusted to your face. The use of a face mask also minimizes the amount of aerosols and droplets that an infected person releases and reduces the emission of infectious particles outside of the mask\(^{22}\). Notwithstanding, it is worth highlighting that not all face masks provide the same protection; therefore, it is important to understand the level of protection that each type of face mask offers. (Section 5.3 offers further information on this subject).

iv. **Exposure time:** the World Health Organization (WHO) has viewed the amount of time you are exposed to the virus as a determining factor in the increase of the probability of infection. Even when using personal protection equipment such as a face mask, the greater the exposure time in an environment containing infected particles, the greater the number of particles inhaled and, as a result, the greater the probability of infection.\(^{23}\) In most daily situations it is impossible to know whether or not the person with whom we share a space is currently infected. For this reason, it is recommended to minimize the amount of time spent in indoor spaces with other people. More specifically, WHO has established that being exposed to the virus for over 15 minutes greatly increases the risk of infection. Also, recent studies have also reported on the fast transmission of certain variants of COVID-19, such as the Delta variant\(^{24}\).

v. **Relative humidity (RH):** few studies have addressed the effect that climate factors such as relative humidity (RH) and temperature have on the transmission of SARS-CoV-2, although the seasonal nature of respiratory viruses is well-known, as proven by the higher number of cases of respiratory infections in winter\(^ {25}\). In this regard, it is thought that high temperatures, combined with a high RH, reduce the risk of SARS-CoV-2 transmission, while low temperatures with low RH increase the risk. This can be explained by the effect that the water in humid conditions has on the persistence of infectious particles, both aerosols and droplets, in indoor spaces. Aerosols and droplets contain water and there is a consensus in


the scientific community that a RH below 40% (as found in dry environments) reduces the size of the particles, which dry up as their water content is evaporated. As they become smaller and lighter, the possibility of them floating in the air for longer increases, therefore increasing the risk of airborne transmission. Given the particles’ small size, the effect of air resistance to gravity is greater, meaning that they can remain suspended in the air for hours. On the other hand, in spaces with a RH greater than 60%, particles capture water from the environment, thus increasing in size. As they weigh more, they are more easily deposited on surfaces as a result of gravity, increasing the possibility of transmission of the virus by contact with fomites. It has been traditionally accepted that a RH of between 40% and 60% reduces the persistence and appearance of pathogens in general, not just SARS-CoV-2. As such, given that the risk of airborne transmission through the inhalation of aerosols is greater than the risk posed by coming into contact with contaminated surfaces (fomites), as detailed in the previous paragraphs, there is a greater risk of transmission of the virus in indoor environments with a lower RH (<40%) than in those with a RH greater than 60%.

28. According to CDC (2021), the impact of RH on reducing the survival of coronavirus is limited and less meaningful than the impact of other risk-modulating factors: https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html
As stated previously, within the context of a pandemic and considering that herd immunity has not yet been reached:

- **The situation which presents a lower risk of infection** is one that takes place outdoors, with a safety distance maintained between people, all wearing face masks, and limiting their exposure time to the virus (less than 15 minutes). In this case, relative humidity, cannot be controlled as it is an outdoor space.

- **The situation which presents a greater risk of infection** is one in which many people without face masks meet in a closed, unventilated space while not maintaining a safety distance and remaining there for a prolonged period of time (over 15 minutes). If the space has central heating (dry environment), this will result in an even greater risk of transmission.

Table 1, which is an extract of the matrix by Jones et al. (2020), and is shown in section 4 of this document, illustrates the possible combinations for evaluating the risk of transmission, considering, the controllable factors in both indoor and outdoor spaces. These include all the factors listed above, with the exception of RH.
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Having identified the different SARS-CoV-2 transmission pathways and the risk-modulating factors, the general prevention measures that should be adopted to combat each transmission pathway in tourist establishments and spaces are detailed below. These general prevention measures are the result of the consideration of the way in which the risk-modulating factors reduce the possibility of contracting the disease.\(^{29}\)

**Airborne transmission by aerosols: how can it be prevented?**

With ventilation, preferably with natural cross ventilation (open doors or windows to create a current) or, if this is not possible, with mechanical ventilation (heating, ventilation and air conditioning systems) which enable the interior air to be completely replaced with air from outdoors, thus renewing all of the air in the space.

When these conditions cannot be met, people should reduce to a minimum the amount of time they spend in public indoor spaces (in other words, **exposure time**), while also wearing a **face mask** as an additional protection measure.

Maintaining **low occupancy** in closed spaces also helps generate less potentially infectious aerosols, which are able to remain suspended in the air for several hours and infect the people in that space. Therefore, **reducing capacity is a fundamental measure for countering airborne transmission by aerosols.**

Lastly, airborne transmission by aerosols can also be prevented by ensuring that the **relative humidity** of an indoor spaces is kept between 40% and 60%, although it does not have as important an impact as the other measures, as detailed in previous sections.

Due to continuous air flow and the diluting and drag effect it has on aerosols,\(^{10}\) airborne transmission by aerosols in outdoor settings is very unlikely if a safety distance is kept.

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Direct contact transmission by droplets: how can it be prevented?
Using a face mask and maintaining a safety distance between people is an excellent way to prevent it as it stops droplets from reaching the oral mucosa, nasal mucosa and conjunctiva of healthy people. Safety distance is also facilitated by reducing the capacity of spaces and ensuring their low occupancy.

In addition, reducing possible exposure time to the virus also contributes to minimizing the risk of transmission, such as, in indoor spaces shared with other people, or outdoors when a safety distance is not being kept.

Transmission through contact with contaminated surfaces (fomites)31: how can it be prevented?
Wearing a face mask reduces the amount of infectious droplets and aerosols released from our mouths which end up being deposited on surfaces, which may later be touched by other people and transported to their mucosae via their hands. Additionally, ensuring good levels of hand hygiene by washing them with soap and water or sanitizing them with a hydroalcoholic solution also helps to reduce this risk. These measures are simple to adopt, and break the chain of transmission of the virus in shared spaces.

Furthermore, it is necessary to revise and adapt the cleaning and disinfection protocols of the tourism organization’s spaces and equipment, paying special attention to high-contact surfaces, to eliminate the possibility of infection.

Methods such as using ultraviolet radiation and ultrasound waves, and fumigating outdoor spaces, among others, have not been proven to be necessary or effective32 in controlling the virus.

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**Figure 3.** The relationship between risk-modulating factors and the transmission pathways

<table>
<thead>
<tr>
<th>Risk-modulating factors</th>
<th>Transmission routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilation</td>
<td>Aerosols</td>
</tr>
<tr>
<td>Safety distance</td>
<td>Droplets</td>
</tr>
<tr>
<td>Face mask</td>
<td>Contact</td>
</tr>
<tr>
<td>Exposure time</td>
<td></td>
</tr>
<tr>
<td>Relative humidity (RH)</td>
<td></td>
</tr>
</tbody>
</table>

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If risk is not static and varies according to the previously mentioned factors, a tool is needed to assess it, to define and implement the necessary prevention measures for each risk. **This is of special importance for the risks of airborne transmission by aerosols and direct contact transmission by droplets as these are the most common transmission pathways, as previously indicated.**

M. Jones et al. (2020)\(^{33}\) presents a matrix for assessing the infection risk of both of these modes, as shown in Table 1. This table combines the main risk-modulating factors that affect these two transmission pathways in accordance with the previous section\(^{34}\) and determines the risk of infection in each specific situation depending on the combination.

<table>
<thead>
<tr>
<th>Risk-modulating factors</th>
<th>Low occupancy</th>
<th>High occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outdoor space</td>
<td>Well-ventilated indoors</td>
</tr>
<tr>
<td><strong>With face mask</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time &lt;15 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time &gt;15 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No face mask</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time &lt;15 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time &gt;15 min</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 1 – Matrix for the COVID-19 transmission risk assessment*

Table 1 uses situations in which individuals are talking, for example. The original matrix created by M. Jones also considers the increasing risk if the individuals are shouting, singing, or participating in a high-intensity physical activity. Likewise, other factors, such as the viral load of the infected people or their susceptibility to infection, also have an influence on the virus risk of transmission. Finally, some authors indicate that elderly and overweight people exhale a greater amount of particles than other groups\(^{35}\).

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\(^{33}\) M Jones et al (2020). Two Metres or One: what is the Evidence for Physical Distancing in COVID-19? [https://www.bmj.com/content/370/bmj.m3223](https://www.bmj.com/content/370/bmj.m3223).

\(^{34}\) Low occupancy, which can be controlled by establishing capacity limits, is linked to both physical distancing and ventilation. Jones does not consider RH to be a modulating factor but instead a limiting factor, as it is not always controllable, as is the case in outdoor settings, for example, as detailed in previous sections.

On this basis it can be deduced that, among other things, **both the conditions of the space and the type of activity being carried out in it determine whether there is a greater or lesser risk of transmission** and, as a consequence, the necessary measures that tourism organizations should implement to reduce this risk. Therefore, **each tourism organization should analyze the characteristics of their facilities and the activities carried out in them, in order to evaluate the level of risk in each case, enabling them to establish and implement the most effective prevention measures**. This evaluation should be performed the first time the tourism organization defines its Prevention Plan and Contingency Plan, in accordance with document R03. It should be reviewed any time a breach is detected during checks of the prevention measures, and/or whenever any changes occur (to the spaces or activities, for example) that may significantly reduce or increase the risk of transmission.
Below, the general recommendations for the risk-modulating factors are detailed, forming the foundation on which the prevention measures for the RN of each sub-sector or tourist space are based (documents R02.1 and R02.5).

It is important to remember that risk management should not be based on the implementation of one measure or another in isolation; risk management should have a holistic and comprehensive focus, that is always based on the combination and complementary nature of the most suitable preventive measures, which should be modified if they are deemed to be insufficient for the risk level in question.

### 5.1 Ventilation

**Breathing clean air** that is free from infectious particles is the principal measure for reducing the risk of transmission by aerosols.

In order to achieve clean air in an indoor space, it is necessary to completely renew it by replacing it with outdoor air in as short a time as possible. In addition, to obtain the “cleanest air” possible in an indoor space, a combination of mechanical measures, such as the installation or reconfiguration of ventilation systems, and organizational measures, including limiting capacity or carrying out activities outdoors, thus avoiding the use of indoor spaces, is required.

**Recommendations**

**Natural ventilation:**

When carrying out activities, outdoor spaces should take priority. When this is not possible, the indoor space used have good, natural ventilation, creating air currents if possible by opening doors and/or windows on both sides of the space, ensuring that no part is left unventilated.

It is worth highlighting that the temporary natural ventilation of indoor spaces (i.e., opening doors and/or windows for short periods of time) is not considered sufficient to maintain optimal air cleanliness levels as when the space is closed again, potentially infectious particles again become concentrated and are susceptible to being inhaled.
Placing a fan in a suitable location, such as next to an open window through which clean air enters the room, may increase the effectiveness of natural ventilation.

**Mechanical ventilation:**

> In indoor spaces where natural ventilation is not possible, centralized or stand-alone mechanical ventilation systems should be used to replace as much of the indoor air as possible with outdoor air, ensuring the renewal of all of the air in the space within a set period of time.

The number of times that the air is totally renewed should be as high as possible, in accordance with CDC recommendations. During a pandemic, and taking into consideration the different transmission pathways of the virus, a rate of 5-6 ACH (air changes per hour) should be maintained.

The recirculation of indoor air should be avoided as it increases the risk of infection because the air is not renewed, instead it is simply extracted from a space by the mechanical ventilation equipment and then re-introduced to the same space. A recommended measure is to change the configuration of the ventilation system to “full extraction mode”, if the system is equipped with such a feature, to reduce air recirculation to a minimum and replace, to as great a degree as possible, the “dirty” air with “clean” air.

Likewise, make sure that nobody is situated directly downstream from another person to prevent aerosols with a potential viral load from reaching those who are not infected.

A ventilation system that generates less noise (<60 dB) is recommended as systems that produce lots of noise force people to raise their voices which, in turn, increases the amount of aerosols and droplets released and the distance that they travel when exhaled. It is also worth mentioning that the doors and windows should be kept open whenever possible when using a mechanical ventilation system.
**Air filtration systems:**

If a space’s indoor air is re-introduced into the space via mechanical ventilation, the most efficient air filters possible should be used, such as HEPA or MERV, to minimize the accumulation of possibly infectious particles in the air through their entry and re-entry into the space. A HEPA filter provides at least 99.97% efficiency when capturing 0.3μm particles, which are the most difficult to filter, and it is even more efficient at capturing both smaller and larger particles. A MERV 13 filter, on the other hand, captures 50% of particles between 0.3μm and 1μm, and 85% of those between 0.1 and 0.3μm.

In order to select the correct air filtration unit, it is important to keep in mind its filtration capacity and the volume of the space (in m³) where the system will be placed compared to the system’s flow rate (in m³/hour), as not all units on the market meet the required filtration capacity. It is not advisable to use the surface area of the room as a reference as the height of the space has a significant impact on the requirements.

Whenever possible, mobile filtration devices should be placed near points that emit potentially infectious particles (in other word, near the people in a space), so that the aerosols are trapped as close to their source as possible.

Units with ozone or UV light systems are not advised for cleaning air as their efficacy has yet to be proven and, additionally, they may have a harmful effect on our health.

**CO₂ meters:**

An increasingly popular method for measuring “air cleanliness” is by using a CO₂ (carbon dioxide) meter, a portable device which detects the level of the gas in the air. CO₂ meters cannot detect the presence of the virus in the air or the air’s level of cleanliness - when the meter detects a lower concentration of CO₂, it simply claims that the air is “freer of particles” and, as such, there is a lower chance of there being infected aerosols in the environment. In order to measure CO₂ levels, it is vital to correctly choose the point of measurement, making sure it is far from ventilation points and people (who emit the gas). Given the current pandemic, CO₂ levels need to be below 800 ppm (parts per million). If the space’s available ventilation makes it impossible to keep CO₂ levels below this value, it is considered insufficiently

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ventilated for its occupancy level. In this case, and if ventilation cannot be improved, the capacity of the room should be reduced.

It should be noted that CO₂ measurements are not a determining and direct indicator of the risk of transmission and, as such, they should only be used as an auxiliary criterion, instead following the remainder of the air renewal recommendations.

Maintenance, cleaning and disinfection of mechanical ventilation units and air filtration systems:

In order to ensure the correct functioning of heating, ventilation and air conditioning (HVAC) units and filtration systems, it is recommended to, at least:

• Perform **maintenance** before starting up the unit (for example, prior to the reopening of the tourist establishment or space), including:
  ◦ Checking the system’s air renewal and flow rates
  ◦ Replacing air recirculation with **“full extraction mode”** whenever possible.

• In addition, before starting up the system and while it is in use:
  ◦ **Check the main filters** at least once a month and in the event of any anomaly, replacing them if necessary (many units feature an alert mechanism). It is generally recommended to change the filters after 6 months of use.
  ◦ **Clean the grill and pre-filter weekly.** This can be done manually with soap and water (for the grill and for the filter if it is washable) or by using a vacuum cleaner if the gaps in the grills are large enough to remove larger items (such as pollen and fungi).

Performing maintenance on a centralized air conditioning (HVAC) system poses a higher risk of infection by aerosols and fomites. For this reason:

  ◦ Ensure that the system is in **“shutdown”** before performing any maintenance operation.

  ◦ Make sure that the **member of staff** who performs these tasks uses adequate personal protective equipment (PPE) such as gloves; a FFP2, KN95 or N95 face mask; and safety glasses. In addition, they should wear clothes exclusively for this task, as well as overalls that cover all of their work clothes.

  ◦ Discard the PPE and the changed filters in a sealable bag, following the information given in document **R03** on waste management.

  ◦ Once finished, they should wash their hands correctly.

Whenever there is a confirmed positive COVID-19 case in the establishment, all mechanical ventilation units should be cleaned. As a precaution, and before performing work on any unit, it is advised

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40. “Shutdown” prevents the unit from being turned on while you are working on it.
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Capacity control:

Capacity or occupancy control is a control measure related to ventilation and safety distance. Correctly controlling a space ensures that “indoor air quality” is kept at a high level and that the safety distance is maintained in indoor spaces and delimited outdoor spaces.

Although there is no consensus regarding the definition of capacity and its relationship with the incidence rate of the disease in the venue, in addition to the rest of the preventive measures applied and based on the definition of safety distance used in previous scientific studies, a space of at least 4 m²/person is required (the safety distance squared, i.e., 2 x 2 meters), so the capacity of an outdoor space can be calculated by dividing the total passable surface space by 4. For example, in an outdoor space of 100 square meters, the capacity should not exceed 25 people (Figure 5).

In closed spaces, the capacity should be established by the space’s air renewal capacity. A capacity is considered suitable when the CO₂ level is kept below 800 ppm. If the level rises above this figure, the tourism organization should increase the space’s air renovation capacity and reduce the number of people in the space until the required CO₂ level is reached. When calculating and defining the “safe capacity” of a space, it is important to remember that activities that involve singing, shouting or high-intensity physical exercise contribute to the air becoming “dirty” easier, given that a greater number of droplets and aerosols are exhaled. This is why the capacity of a space should vary depending on the type of activity being carried out at each moment. This should be taken into consideration by the tourism organization when deciding on a space’s capacity.

41. The total passable space is the total area of the space minus the area that is occupied and cannot be used or transited by people (the area taken up by shelves, checkouts, cabinets and furniture in general, for example), including staff and customers.
Finally, the capacity resulting from the previous calculations should be used cautiously and moderated in order to allow the mobility of the people in the space and ensure that a safety distance is able to be maintained. In this regard, certain studies go even further, proposing a space of between 10 and 11 m²/person to allow people in interior spaces to move more freely.\textsuperscript{42}

Control Mechanisms (CMs):

- Check that all doors and windows that can be opened are open.
- Capacity control.
- CO₂ level control, with the value being maintained below 800 ppm.
- Internal logs of cleaning and maintenance activities on mechanical ventilation units and filtration systems, if applicable, including filter changes when necessary.

5.2 Safety distance

Keeping a safety distance from others is one of the most widely implemented prevention measures in biosafety protocols. It is a basic measure for reducing the risk of transmission of SARS-CoV-2 by droplets and aerosols, though just as in other cases, it should be combined with other prevention methods to reduce the risk of transmission of Coronavirus as much as possible.

Recommendations

Minimum distance:

Larger droplets (over 100μm) can reach distances of up to 2 meters. Therefore, in line with scientific criteria, this distance is considered to be the minimum distance that should be kept. To guarantee that this safety distance is maintained, it may be necessary to organize or reorganize activities and processes in which people interact or are close together, both in closed spaces and open spaces, and reduce the capacity of the spaces used.

When it is not possible to keep a safety distance as a result of the characteristics of the space or facilities or because of the nature of the activity, the use of personal protective equipment, such as a face mask, takes on a more important role.

\textsuperscript{42} Ntoulis et al. (2020). How Safe is to Shop? Estimating the Amount of Space Needed to Safely Social Distance in Various Retail Environment. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7491418/
**Control Mechanisms (CMs):**

- Capacity control.
- Direct observation to ensure safety distance is maintained.

### 5.3 Use of face mask

Face masks act as a protective barrier against infection. However, there are different types of face masks and not all of them provide the same level of protection. Therefore, it is important to be familiar with the general recommendations for the effective use of each type of mask.

#### Filtering face masks

Face masks are a type of personal protective equipment (PPE), and these ones offer the greatest protection. They protect those who wear them against droplets exhaled by infected people and against aerosols. They also protect people while around others who are also wearing face masks as they limit the spread of potentially infectious droplets and aerosols in the surrounding environment.

Filtering face masks are classified according to their bacterial filtration efficiency (BFE), among other parameters, and are divided into three types:

- **FFP1 face masks**, which offer a BFE of around 80%, are not recommended for use to protect against the virus.

- **FFP2 face masks** (European standard EN149:2001), and their equivalents N95 (U.S. standard NIOSH 42 CFR part 84) and KN95 (Chinese standard GB2626:2006), provide a filtration efficiency of >94% for particles equivalent to 0.3 μm in size. These are the most widely accepted type for reducing the risk of infection not just by droplets, but also by aerosols, and as such they are particularly suitable for vulnerable people and for use in spaces that are closed or that have insufficient ventilation.

- **FFP3 face masks**, and their equivalents N99 and KN100, filter >99% of particles over 0.3 μm in size, and valve-less models are recommended for use by healthcare workers (the valve allows exhaled air to be released unfiltered so, if the person using one is infected, they can still infect others).

Regardless, in order to ensure suitable protection against droplets and aerosols, the whole mask should be properly adjusted to the face, leaving no gaps through which aerosols can pass, taking particular care to seal the

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43. Brooks et al. (2021). Effectiveness of Mask Wearing to Control Community Spread of SARS-CoV-2. JAMA; 325(10)998-999. [https://jamanetwork.com/journals/jama/fullarticle/2776536](https://jamanetwork.com/journals/jama/fullarticle/2776536)

44. According to WHO, vulnerable people are considered to be those over 60 years of age and those who suffer underlying medical conditions such as high blood pressure, heart or lung problems, diabetes, obesity and cancer, as they are at a greater risk of suffering from more serious symptoms. Likewise, other bodies, such as the CDC in Unites States, also include pregnant women, people with Down syndrome and those in an immunocompromised state in this group.
area from the bridge of the nose to the chin, while also adjusting the sides (this may not be possible for people with a beard). It is worth noting that **standardized fit testing is only available for FFP2 and FFP3 face masks.**

Manufacturers determine how long face masks can be used for, though generally speaking, they should be replaced after 8 hours of continuous or discontinuous use.

This type of face mask should be standardized in the country of use

**Surgical face masks**

These face masks are considered as a type of medical equipment (classed as healthcare products) and are governed by different regulations in each country.

Their BFE varies between 95% (type I) and 98% (type II and IIR, which are specifically resistant to splashes). **They protect the user against direct infection by droplets** as they prevent the virus from coming into contact with the oral and nasal mucosae. Likewise, they act as a barrier, stopping the person wearing them from infecting others in their vicinity. However, these face masks **do not provide the same level of protection** against airborne transmission by aerosols and, as a result, they do not prevent the user from being exposed to a possible infection with the same efficacy as a FFP2 face mask.

Just as with filtering face masks, it is important to wear them properly, with the entire mask being fitted as snugly as possible to the face and covering the area from the bridge of the nose to the chin.

How long they can be used for is determined by the manufacturer. In general, it is advisable to replace the mask after 4 hours of continuous or discontinuous use.

**Cloth face masks**

These are usually comprised of one or several layers of fabric and can either be single-use or reusable up to a certain number of washes. In order to be effective, their BFE should be above 90% for reusable ones and 95% for non-reusable ones.

Their purpose is to protect the person wearing them against other people in their surrounding area, **minimizing the spread of aerosols and droplets** when the user sneezes, shouts, sings, coughs or talks. They mainly **protect the user against droplets** exhaled by infected people as they stop the droplets from coming into contact with the oral and nasal mucosae.

As with other types of masks, they should be correctly adjusted to cover the area from the bridge of the nose to the chin.

The manufacturer decides how long they should be worn for, depending on whether they are single-use or reusable. Reusable masks can be washed up to a certain number of times and, once this number is reached, they stop...
providing protection and they should be discarded. Document R03 provides additional information on waste management.

As cloth face masks cannot be considered as personal protective equipment (PPE) or as a healthcare product (HP), they are not subject to standardization or specific regulations, which means that sometimes they are sold without meeting the necessary minimum BFE levels to provide protection.

**Face shields**

People sometimes wear face shields instead of face masks.

Face shields prevent droplets exhaled by other people from reaching their user’s oral mucosa, nasal mucosa or conjunctiva (unlike face masks, which only cover the nose and mouth). However, face shields do not protect against aerosols as they are not adjusted to the contour of the face, meaning that they should not be used instead of face masks, but in addition to them.

**Recommendations**

**Selection and use of face masks:**

For the purpose of this document, and respecting each country’s control measures regarding the use of respiratory protection both indoors and outdoors, it is recommended that customers and staff wear a face mask both indoors and outdoors in tourist establishments45.

With regard to the type of face mask that should be used, FFP2, KN95 and N95-type filtering face masks are recommended indoors, while surgical or fabric face masks are suggested for outdoor use, although FFP2, KN95 and N95 face masks may also be used for this purpose.

It is advisable to pay special attention to the fit of the face mask, as the whole of the mask should be snug against your face in order to protect you against aerosols (this may not be possible for people with a beard), remembering that different types provide different levels of protection. So, it is important to select a suitable model or size (for children, for example46). To ensure a perfect fit, mask fitters that go around the neck can be useful.

The nose is our body's most likely entry point for Coronavirus, so it is important to always cover the nose and mouth, making sure that the face mask is suitably adjusted around the bridge of the nose.

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45. Some countries with a high percentage of the population already vaccinated no longer require the use of face masks outdoors. Preliminary studies indicate that SARS-CoV-2 transmission in the population considerably reduces after vaccination: https://www.nature.com/articles/d41586-020-00502-w.

46. Many countries require children over the age of 6 to wear a face mask outdoors and/or indoors. WHO and UNICEF recommend that children over the age of 6 use face masks for as long as there is community transmission, in addition to other factors: https://www.who.int/news-room/q-a-detail/q-a-children-and-masks-related-to-covid-19. CDC, on the other, recommends the use of face masks for children over the age of 2: https://cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover-guidance.html.
CDC recommends using two face masks at the same time to provide improved protection by wearing a fabric face mask on top of a disposable face mask.

Removing and disposing of face masks:
A face mask should be discarded once the maximum usage time indicated by its manufacturer has been reached (for example, after 4 hours of continuous use or after 4 hours of accumulated use in the case of disposable and surgical face masks), and also when it becomes wet, damaged or it no longer correctly adjusts to the face. To remove a face mask, follow these steps:

- Remove the mask, making sure to only touch the cords or elastic that wrap around the ears or neck while trying not to touch the front of the mask (the most contaminated part), including during use.
- Discard it immediately in a trash can or a trash container with a bag and a lid. Never throw it down the toilet. If the person is infected, they should discard their mask alongside any other waste in a sealable bag which they should deposit in a trash container. Waste should be collected in accordance with the specifications of document R03.
- When finished, wash your hands with soap and water or, if not readily available, sanitize them with a hydroalcoholic solution.

Face shields:
Face shields are an excellent complement to face masks when it is impossible to keep a safety distance with others, and especially for those who work in public-facing jobs. If using a face shield, remember that they should:

- Be closed at the top to prevent splashes from entering.
- Be cleaned after use or whenever dirty. For this, soap and water will suffice.

Provision of face masks by the tourism organization:
Tourism organizations should provide suitable face masks to their members of staff, in accordance with the risk level associated with the tasks they are carrying out. Likewise, they should have an inventory of face masks for use by customers upon request in the event of the loss, breakage or similar of their own.

Control Mechanisms (CMs):

- Availability and periodic review of the tourism organization’s face mask inventory.
- Monitoring of staff to ensure that they use their face masks correctly, change and remove them adequately and discard of them following the recommendations.
General Recommendations to Minimize the Risk of COVID-19 Transmission in Tourist Establishments and Spaces

5.4 Exposure time
As previously mentioned, the greater the risk of exposure, the greater the risk of infection, and vice versa.

Recommendations

It is recommended that tourist establishments establish organizational measures that reduce the exposure time of both staff and customers, particularly in closed spaces, when it is not possible to maintain a safety distance and/or when people remove their face masks (for example, when eating or drinking). Such organizational measures may include digitizing processes (online booking), holding activities outdoors, setting up employee “bubble groups”, hosting meetings and training sessions online and reorganizing workers’ spaces, among others.

Control Mechanisms (CMs):

• Periodic review (through the use of checklists, for example) to ensure that the organizational measures implemented to reduce exposure time to the virus are respected (reorganization of spaces, process, etc.).

5.5 Relative humidity
By controlling the humidity of an indoor space, the survival time of pathogens (i.e., all kinds of infectious agents, not just Coronavirus) is reduced.

Recommendations

A relative humidity of between 40% and 60% is recommended for indoor spaces, provided that external environmental conditions allow it. Low-RH conditions (<40%), which is when our mucosae are more susceptible to infection due to the dryness of the environment47, foster the growth and persistence of aerosols in the environment. In high-RH conditions (>60%), on the other hand, the speed at which aerosols are deposited on surfaces increases, reducing the risk of airborne infection but increasing the persistence of pathogens on surfaces (although the infection risk level is lower in this case).

In order to find out the relative humidity of a room, a common humidity meter or hygrometer is sufficient48. Depending on the result, consider installing:

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48. An instrument that measures the level of humidity in the air or the level of other gases.
General Recommendations to Minimize the Risk of COVID-19 Transmission in Tourist Establishments and Spaces

- A humidifier if the relative humidity is below 40%.
- A dehumidifier if the relative humidity is above 60%.

However, whenever making an investment on behalf of a tourism organization, it is recommended to prioritize ventilation systems (which dilute aerosols) or a filter system (which “cleans” the air of infectious particles) as opposed to dehumidifiers, given that airborne transmission by aerosols is more likely than by contact with contaminated surfaces (fomites).

**Control Mechanisms (CMs):**

- Use of a RH-measuring device to check the RH level, which should be between 40% and 60%, especially when an indoor space is visibly dry, in order to subsequently take appropriate action.

### 5.6 Basic hygiene rules

Ensuring good personal hygiene is an effective measure to reduce the impact of the virus.

**Recommendations**

Follow these basic hygiene steps to reduce airborne transmission by aerosols and direct transmission by droplets and by contact with contaminated surfaces:

**Respiratory etiquette:**
Aerosols and droplets are released when we cough or sneeze. To prevent them from spreading, cover your mouth and nose with the inside of your elbow or a tissue when coughing or sneezing. Try to look towards the ground and keep your distance from other nearby people. Then, immediately throw the tissue in a trash can with a lid and wash your hands.

Respiratory etiquette helps us protect those around us against the droplets and aerosols that we emit, in addition to stopping us from covering our mouth with our hand, which leads to us spreading the virus to the surfaces we touch, which may then be touched by other people and passed to their mouth, nose or eyes via their now “dirty” hand.

**Avoid touching your eyes, nose and mouth:**
Our hands touch lots of surfaces that may be covered in infectious particles. If our hands become contaminated and we then touch our mouth, nose or eyes, we help transport the virus and allow it to enter our body, resulting in it becoming infected. This is why it is vital to internalize regular hand washing and refrain from touching your eyes, nose and mouth.
Hand hygiene:\footnote{49}
Washing your hands eliminates any germs and viruses that may have been on them\footnote{50}.

As a rule of thumb, and in order to keep your hands clean, \textbf{frequently washing your hands with soap and water is always preferable to the use of gloves or hydroalcoholic solutions}. The latter may be used when soap and water are not readily available, however. The use of gloves is not advised except for performing certain activities (cleaning and disinfection work, maintenance, etc.) as, in addition to not ensuring protection against the disease, they may increase the likelihood of cross contamination if they are not cleaned or disposed of properly.

Follow these steps to wash your hands correctly:

- \textbf{Wet} your hands with clean, running water (warm or cold).
- \textbf{Scrub} your hands with soap and lather the backs of your hands, between your fingers and under your nails for at least 20 seconds.
- \textbf{Rinse} your hands well under clean, running water.
- \textbf{Dry} your hands using a clean towel (disposable or single-use) or air dry them.

\textbf{Control Mechanisms (CMs)}:

- Checking that the staff knows and applies the correct steps when washing their hands.
- Continuously checking that essential handwashing materials are readily available, both at the point of use and in the facility’s storeroom.

\footnote{49} CDC (2021). When and How to Wash your Hands. \url{https://www.cdc.gov/handwashing/when-how-handwashing.html}

\footnote{50} There is no need to use any special chemical agents as simply scrubbing and rinsing with water, instead of physically or chemically cleaning them, is enough to remove any possible pathogens.