

Disaster evacuation shelters in the context of COVID-19

Considerations for the Western Pacific Region

19 October 2020



1. Introduction

1.1 Background

The Western Pacific is the world's most disaster-prone region, with bushfires, floods, cyclones, typhoons, earthquakes, tsunamis, landslides and volcanic eruptions occurring frequently.

When a disaster occurs, people may need to seek temporary accommodation in evacuation shelters (also called evacuation centres). Such accommodation requirements may be short term (hours or days) or longer term (weeks or months).¹ The large movement of people into evacuation shelters can occur in the lead-up to, during or following a disaster.

In the context of coronavirus disease 2019 (COVID-19), it may be difficult for people using disaster evacuation shelters to avoid: **Confined and enclosed spaces with poor ventilation;** **Crowded places with many people nearby;** and **Close-contact settings, such as close-range conversations (also known as the three Cs).**² These situations are known to increase the risk of the virus spreading. Facilities for handwashing and availability of personal protective equipment (PPE), waste disposal bins and cleaning equipment may be limited, which can make the practice of preventive behaviours more challenging.

The purpose of this document is to outline key considerations for the planning, response and recovery phases for disaster evacuation shelters in the context of COVID-19 in the Western Pacific Region.

This guidance should be read in conjunction with WHO's interim guidance entitled *Preparedness for Cyclones, Tropical Storms, Tornadoes, Floods and Earthquakes during the COVID-19 Pandemic*,³ which provides general advice on the public health aspects of disasters in the context of COVID-19.

1.2 Target audience

Shelter managers, local health services, ministries and departments of health, national military organizations, nongovernmental organizations, and others responsible for disaster evacuation shelters during COVID-19 who determine appropriate preparedness, response and recovery plans.

1.3 Key public health principles

Throughout the preparedness, response and recovery phases of establishing a disaster evacuation shelter, the following key public health principles should be considered.

1.3.1 Facilitate physical distancing

Disaster evacuation shelters should be set up to support physical distancing. Strategies should be implemented to ensure household groups can maintain at least 1 metre of physical distance from others and prevent commingling.

Strategies to promote physical distancing may include putting up physical barriers (such as plastic partitions) to separate household groups, placing markings on the ground to demarcate areas and encouraging the one-way movement of persons within the evacuation shelter.

1.3.2 Identify and isolate individuals with suspected, probable or confirmed COVID-19

The latest WHO case definitions of suspected, probable or confirmed COVID-19 should be used.⁴

Disaster evacuation shelters should have processes in place at the point of registration for the earliest separation of those with suspected, probable or confirmed COVID-19.

Information on symptoms of COVID-19 and what to do within the evacuation shelter if an evacuee or staff member becomes unwell at any time should be widely shared with all evacuees and staff in all relevant languages. In the first instance, individuals who become unwell should be immediately isolated and make their symptoms known to a staff member of the disaster evacuation shelter.

Individuals who are suspected, probable or confirmed to have COVID-19 should remain separated until:

- they depart the evacuation shelter (e.g. return home or are moved to a health-care facility); or
- they are deemed to be no longer infectious as per national or local guidance.

1.3.3 Facilitate contact tracing

Strategies to facilitate contact tracing should be implemented.

Contract tracing includes keeping a record of the evacuees' names, contact details, arrival times, departure times and location within the evacuation shelter where they were accommodated. The confidentiality of personal details should adhere to local privacy legislation and data protection best practices.

Contract tracing should be integrated within established integrated nationwide contact tracing systems.⁵

If electronic means are used for registering evacuees, the principles outlined in WHO's *Selecting Digital Contact Tracing and Quarantine Tools for COVID-19: Guiding Principles and Considerations for a Stepwise Approach* should be followed.⁶

1.3.4 Practise proper hand hygiene and handwashing

Accessible and functioning hand hygiene stations should be available throughout the disaster evacuation shelter, focusing on areas of high traffic.⁷ This is particularly important within operational areas, such as entry and exit points, catering and food service areas, toilets, showers, and waste management areas. Posters promoting correct methods of hand hygiene should be displayed at each hand hygiene station. Care should be taken to ensure information is provided in the languages used by evacuees at the centre and for those with hearing or sight impairment and to make the context easy for young children to understand and follow. During and following a disaster, access to adequate supplies of soap and clean water may be challenging. If this is the case, WHO guidance for countries and areas of the Western Pacific Region on *Considerations for Community Hand Hygiene Practices in Low-Resource Situations* should be implemented.⁸

1.3.5 Use personal protective equipment

Adequate PPE should be available and accessible for evacuees with suspected or confirmed COVID-19, and disaster evacuation shelter staff providing assistance or services to these individuals in accordance with WHO guidelines.

Given that it is difficult to maintain the three Cs in an evacuation shelter, the use of masks by staff and evacuees may be appropriate. The wearing of masks should be considered in the context of local public health advice and level of transmission.

1.3.6 Perform environmental cleaning

Environmental cleaning within the disaster evacuation shelter should be followed consistently and correctly.⁹ Alongside regular environmental cleaning, frequently touched surfaces (such as buttons, handrails, doorknobs and handles, tables, and chairs) should be identified, then regularly cleaned and disinfected to reduce the risk of transmission. Special care should be taken regarding frequently touched surfaces in operational areas used for food preparation, sleeping, toilets and showers. Additional areas may include administrative or registration areas, as well as entry and exit areas.

1.3.7 Control temperature and ventilation

Temperature control at a disaster evacuation shelter, where possible, is important for sanitation and the health of the evacuees.

Fans and air conditioning units should be used to promote ventilation, where practical. Alternatively, opening doors and windows will promote the natural flow of air throughout the evacuation shelter.

2. Preparedness phase

Where possible, disaster evacuation shelters should be identified and prepared in advance of a disaster occurring, to ensure strategies, adequate equipment and supplies, and trained staff can be mobilized rapidly in the event of a disaster.

When there is a large-scale disaster, government and local health officials can also become evacuees. It may be difficult to prepare evacuation shelters, especially when there are large numbers of evacuees. Practicality and flexibility are important.

2.1 Community involvement

The engagement of government and nongovernmental organizations is important for the successful planning of evacuation shelters before a disaster occurs.

2.1.1 Liaison with local and national public health authorities

Local public health authorities should be involved in planning the setting up, operating and dismantling of evacuation shelters. Consultation should occur at the local and national levels, ensuring that the key public health principles (see section 1.3) are adapted to the COVID-19 context.

2.1.2 Community engagement

The engagement of affected communities through community leaders and government and nongovernmental organizations is fundamental to ensure all members of the community understand what should be done in case of an evacuation, as well as any changes to usual evacuation processes in the COVID-19 context.

Community leaders may be responsible for organizations that provide disaster evacuation shelters. Therefore, community leaders should be engaged in all aspects of evacuation shelter planning, response and recovery.

Community leaders can assist in identifying and/or securing local facilities as evacuation shelters. Further, community leaders can help in both determining what resources may be available locally and what the remaining needs are.

Further, community leaders are influential and effective in disseminating messages.

2.2 Identification of appropriate disaster evacuation shelters

Disaster evacuation shelters may include temporary structures (e.g. tents) or repurposed permanent structures (e.g. churches, schools, sport stadiums, community halls).

Evacuation shelters that have been used in previous disasters may not be appropriate for use in the context of COVID-19 and should be reviewed. The key public health principles need to be considered to mitigate the risk of COVID-19 transmission.

2.2.1 Capacity assessment

The capacity of a disaster evacuation shelter must be considered in the context of COVID-19. The number of people that would normally fit into an evacuation shelter will likely be significantly reduced to minimize the three Cs and to maintain physical distancing of at least 1 metre between household groups.

Instead of having one large evacuation shelter, having multiple smaller shelters may be more appropriate.

2.2.2 Resource assessment

Human resources at disaster evacuation shelters are important to coordinate activities, such as directing crowds and registering evacuees on arrival. Additional human resources may be required for monitoring crowd movement, increased cleaning, catering and potentially managing COVID-19 cases.

2.3 Disaster evacuation shelter plans

Ministries of health and nongovernmental organizations often have disaster evacuation shelter plans.

Organizations responsible for the development and revision of plans for evacuation shelters should make appropriate changes in the context of COVID-19, in collaboration with all relevant stakeholders – and share those with other organizations.

Organizations responsible for processes within evacuation shelters, such as registration of evacuees, catering, bedding, clothing, and infection prevention and control, should integrate updates to these processes in disaster evacuation shelter plans. Specific COVID-19 considerations that differ from usual processes should be highlighted.

Disaster evacuation shelter plans should be tested in advance, if possible. This can be done through a simulation exercise, tabletop or fully operational exercise depending on the time, budget and human resources available. Plans should be revised according to findings and issues identified to provide the most appropriate disaster evacuation shelter solutions in the context of COVID-19.

2.4 Disaster preparedness risk communication

Effective communication can result in safer sheltering of affected populations during a disaster.¹⁰ Building trust between disaster response focal points and the community can pave the way for effective communication in the event of an emergency.

Risk communication plans for disasters should be developed in advance, media and other community focal points trained to be responsive in the early moments of a disaster, and a clear coordination mechanism between partners established. In places where evacuation due to a disaster is anticipated, arrangements should be made for communication with potential evacuees regarding disaster evacuation shelters and how plans may be different in the context of COVID-19.

2.4.1 Media

The media are important partners in disaster preparedness, as they can enable information to spread rapidly and widely to at-risk populations.

Establishing good relationships with local media ahead of a disaster is critical to ensuring the right information will reach affected populations in a timely manner when a disaster occurs.

Information about how to prevent the spread of COVID-19 should be regularly communicated through the media to ensure that populations likely to be affected by a disaster are already familiar with the preventive behaviours.

Media monitoring should be conducted to gather information about affected populations' perceptions and concerns, as well as any rumours or misinformation spreading about COVID-19 and possible disasters.

2.4.2 Social media

Social listening – that is, monitoring what is being said by affected communities on social media and identifying concerns and gaps in understanding – should be conducted. In advance of a disaster, social listening can provide valuable information on perceptions, as well as help identify trusted information sources and existing knowledge levels.

Depending on the local context, social media can also be a very important platform for sharing information and responding to questions from at-risk populations about possible disasters, evacuation plans and COVID-19. As with traditional media, it is useful to map which sites and platforms are used and trusted by different at-risk groups, as well as which groups do not access social media. For these groups, other strategies, such as displaying posters and using radio and television announcements, will be required.

3. Response phase

Actions should be taken to establish a disaster evacuation shelter as soon as a disaster is anticipated. On most occasions, the impacts of disasters such as typhoons, cyclones and bushfires are known hours or days in advance.

3.1 Infrastructure

Consideration should be given to the infrastructure and physical layout of a disaster evacuation shelter to ensure that key public health principles relating to COVID-19 can be maintained as best as possible.

Separate areas within an evacuation shelter should be allocated and clearly marked to ensure that people from the same household are physically separated from other households. This will help to prevent commingling and assist in contact tracing, if required. Consideration should be given to making a separate space available to vulnerable and high-risk groups, including persons over 60 years old, pregnant women and those with comorbidities that put them at higher risk of severe COVID-19.¹¹

Where possible, physical barriers should be established between evacuees and staff, such as those responsible for administrative activities and catering.

3.2 Designated evacuee shelter areas

Disaster evacuation shelters should have distinct and separate areas for evacuees who are not suspected to have COVID-19, those with suspected COVID-19, those with probable COVID-19 and those with confirmed COVID-19.

Each group should have dedicated areas for food, sleeping, toilets, showers, laundry and waste management which do not allow for interaction between groups. Strategies should be established to facilitate safe communication between members of the same household that are split across groups.

3.2.1 Evacuees not suspected to have COVID-19

Evacuees who do not display any signs or symptoms of COVID-19 should adhere to the key public health principles (see section 1.3).

3.2.2 Evacuees with suspected or probable COVID-19

If someone in the disaster evacuation shelter displays signs or symptoms of COVID-19, he or she should immediately be moved to an isolation area within the evacuation shelter and, if possible, undergo testing for SARS-CoV-2.

This evacuee should remain isolated until the result of the test is known, at which time he or she should return to either the non-suspected COVID-19 evacuees area (if negative) or the confirmed COVID-19 evacuees area (if positive).

3.2.3 Evacuees with confirmed COVID-19

It is important to have processes and the necessary infrastructure established for the isolation of evacuees who are confirmed to have COVID-19. Ideally, they should be isolated individually in separate rooms or areas; in some cases, it may be necessary to cohort evacuees with confirmed COVID-19.

For evacuees who become unwell, procedures should be in place to have the evacuee transported to an appropriate health-care facility. This transport should occur when safe to do so, both from the perspective of the patient's condition and of the disaster severity.

3.3 Operational considerations

The set-up and operationalization of disaster evacuation shelters need a considered approach and innovation to ensure the three Cs are mitigated and key public health principles can be implemented.

3.3.1 Food areas

It is highly unlikely that COVID-19 is transmitted from food or food packaging.¹² However, food preparation and service areas involve people working in proximity. As such, strategies should be implemented in food service areas to reduce the risk of transmission.

Strategies may include raising awareness of COVID-19 symptoms, frequent handwashing, using disposable gloves, physical distancing and using PPE when physical distancing is not possible in food preparation areas.

Additional strategies may include organizing food handling staff into working groups or teams to reduce interaction between evacuee groups, maintaining physical distancing and using contactless strategies when serving food to evacuees.

Further details are available in the interim guidance on *COVID-19 and Food Safety: Guidance for Food Businesses*.¹²

Strategies should be in place to minimize the number of evacuees in food service areas. Considerations may include staggering serving times for different households and designating one household member to collect food for all members of his or her household. Floor markers should be used to maintain physical distancing between evacuees lining up to be served.

For evacuees with suspected, probable or confirmed COVID-19, special attention should be given when serving food to avoid contact with other groups.

In addition to all measures to avoid COVID-19 transmission, the following five keys to safer food must be in place to avoid foodborne issues among evacuees:

1. *Keep clean*: Practise hand hygiene; wash and sanitize all surfaces and equipment used for food preparation.
2. *Separate foods*: Separate raw and cooked food products, food contact surfaces and utensils.
3. *Cook thoroughly*: Thoroughly cook all kind of meats. Bring soups, stews and similar dishes to boiling prior to serving.
4. *Keep food at safe temperatures*: Do not leave cooked food at room temperature for more than two hours. Refrigerate promptly all cooked and perishable food (preferably below 5 °C). Keep cooked food piping hot (more than 60 °C) prior to serving. Do not store food too long even in the refrigerator. This key is of special importance when food is not prepared in the same place or if it is prepared much time in advance.
5. *Use safe water and raw materials*: Use safe water or treat it to make it safe. Wash fruits and vegetables. Do not use food beyond its expiry date.

3.3.2 Sleeping areas

Household groups should be allocated discrete areas in a disaster evacuation shelter, and physical distancing of at least 1 metre should be maintained from other household groups. Strategies to facilitate a reduction in commingling in sleeping areas include appropriate positioning of bedding. Markings on the ground or physical barriers can assist in demarcating areas by household.

3.3.3 Toilet areas

Disaster evacuation shelters should have adequate toilets. A queuing system should be in place to ensure that physical distancing is adhered to; this can be achieved with distance markers on the floor. Additionally, toilet areas should be sanitized more frequently.

Dedicated toilets should be allocated for persons with suspected, probable or confirmed COVID-19. When this is not possible, toilets should be cleaned and disinfected after persons with suspected, probable or confirmed COVID-19.

If shower facilities are available, the key public health principles of physical distancing and increased cleaning of the facilities should apply. Additional strategies could be employed to reduce queuing and crowding in shower areas. Such strategies may include scheduling shower times of household members.

3.3.5 Waste management

The provision of safe waste management in disaster evacuation shelters is essential in reducing transmission of COVID-19.

Waste produced by persons with COVID-19 is considered infectious. Such waste should be managed separately from the general waste, by placing it in strong bags and closing them completely before disposal.

People handling waste should wear appropriate PPE and perform hand hygiene frequently.⁷

For more information, refer to the interim guidance on *Water, Sanitation, Hygiene and Waste Management for SARS-CoV-2, the Virus That Causes COVID-19*.⁷

3.4 Disaster response risk communication

During the disaster response, there must be clear, timely communication with those in disaster evacuation shelters and those within the broader community. Strategies for the broader community can be like those used in the disaster preparedness phase. National or local guidelines should be followed for information around the length of time for which evacuees with suspected and confirmed COVID-19 should be isolated.

Communication channels should be determined to update evacuees on a regular basis regarding the evolving situation and any information relating to COVID-19.

3.4.1 In-person communication with evacuees

Efforts should be made to communicate directly with evacuees about the potential risk of COVID-19 while staying at the disaster evacuation shelter. For example, COVID-19 protection measures could be mentioned to newly arrived evacuees as part of an initial briefing or announced periodically via loudspeaker, radio, broadcasts or posters.

3.4.2 Posters and notices

Posters and notices in appropriate formats and languages should be prominently displayed throughout disaster evacuation shelters (especially in handwashing facilities, entrance or exit points and common areas) to increase awareness of COVID-19 and the protective measures individuals should take. Examples of posters can be found on the following WHO webpage:¹³

<https://www.who.int/westernpacific/emergencies/covid-19/information/transmission-protective-measures>.

3.4.3 Traditional and social media

Media, including traditional forms and social media, can be used to widely distribute messaging to affected populations on who is at risk of COVID-19 (if applicable), where to seek

emergency accommodation in case of an evacuation and what behaviours individuals should adopt to prevent the spread of COVID-19. Media monitoring and social listening should be conducted throughout the response to gather data on population impact and movement, public perceptions, rumours and misinformation.

4. Recovery phase

Persons responsible for disaster evacuation shelters should document lessons from their experience with evacuation shelters and with COVID-19. These lessons should be shared with other organizations, locally and nationally, to enhance future preparedness.

5. Guidance development

5.1 Guidance development methods

This guidance was developed based on:

- existing WHO guidance regarding COVID-19, contextualized for disaster evacuation shelters;
- existing WHO guidance regarding disaster evacuation shelters, contextualized for COVID-19;
- review of relevant peer-reviewed literature; and
- consultation with the Science and Research and the Communications pillars of the COVID-19 Incident Management Support Team in the WHO Regional Office for the Western Pacific.

5.2 Declaration of interests

All guideline development group members completed a standard WHO declaration of interests form before participating in any activities related to the development of this guidance. All findings from the received declarations of interests were managed in accordance with WHO guidelines on a case-by-case basis.

References

1. Kako M, Steenkamp M, Ryan B, Arbon P, Takada Y. Best practice for evacuation centres accommodating vulnerable populations: a literature review. *Int. J. Disaster Risk Reduct.* 2020;46:101497. doi:10.1016/j.ijdrr.2020.101497.
2. Avoid the three Cs [image]. Manila: WHO Regional Office for the Western Pacific; 2020 (<https://www.who.int/images/default-source/wpro/health-topic/covid-19/slide16b7e185fa68643949edb6b68fed65ae3.jpg>).
3. Preparedness for cyclones, tropical storms, tornadoes, floods and earthquakes during the COVID-19 pandemic [health advisory]. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/332408>).
4. WHO COVID-19 case definition. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/333912>, accessed 7 August 2020).
5. Establishing integrated nationwide contact tracing systems [interim guidance]. Manila: WHO Regional Office for the Western Pacific; 2020 (<https://apps.who.int/iris/handle/10665/333630>).
6. Selecting digital contact tracing and quarantine tools for COVID-19: Guiding principles and considerations for a stepwise approach. Manila: WHO Regional Office for the Western Pacific; 2020 (<https://apps.who.int/iris/handle/10665/333045>).
7. Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19 [interim guidance]. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/333560>).
8. Considerations for community hand hygiene practices in low-resource situations. Manila: WHO Regional Office for the Western Pacific; 2020 (<https://apps.who.int/iris/handle/10665/332382>).
9. Environmental cleaning and disinfection in non-health-care settings in the context of COVID-19 [interim guidance]. Manila: WHO Regional Office for the Western Pacific; 2020 (<https://apps.who.int/iris/handle/10665/332097>).
10. Shultz JM, Fugate C, Galea S. Cascading risks of COVID-19 resurgence during an active 2020 Atlantic hurricane season. *JAMA.* 2020 Aug 12. <https://doi.org/10.1001/jama.2020.15398>
11. COVID-19: vulnerable and high risk groups [webpage]. Manila: WHO Regional Office for the Western Pacific; 2020 (<https://www.who.int/westernpacific/emergencies/covid-19/information/high-risk-groups>).
12. COVID-19 and food safety: guidance for food businesses [interim guidance]. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/331705>).
13. COVID-19 transmission and protective measures [webpage]. Manila: WHO Regional Office for the Western Pacific; 2020 (<https://www.who.int/westernpacific/emergencies/covid-19/information/transmission-protective-measures>).