

Disease Transmission and Resuscitation Toolkit

(Title page in progress)

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Introduction

This toolkit has been developed to assist practitioners in low-resource settings to address the risk of disease transmission when training community members in water-based rescue and resuscitation.

The provision of cardiopulmonary resuscitation (CPR) including mouth-to-mouth ventilation has been shown to be important in determining the outcome of a drowning incident. Training community members how to perform CPR, including ventilation, ensures timely and effective response.

There are, however, concerns that the fear of disease transmission during mouth-to-mouth ventilation may prevent community members from learning this key part of resuscitation or reduces their likelihood of providing it when required. Fear of disease transmission has always been a concern, notably in settings with a higher burden of communicable disease. In the wake of the Covid-19 pandemic, the concerns about communicable disease have risen across the world.

The World Health Organization's publication *Preventing Drowning: Practical guidance for the provision of day-care, basic swimming and water safety skills, and safe rescue and resuscitation training (2022)* recommends that training programmes address any barriers that may prevent community members from engaging in training or in providing CPR if necessary.

This toolkit provides guidance for trainers on how to reduce the risk and fear of disease transmission during training, in order to increase trainees' confidence in providing resuscitation and their likelihood to perform mouth-to-mouth ventilation. This toolkit is intended to be used for the provision of community-based training in low resource settings, not the training of anyone with a duty of care that includes first aid (for example, lifeguards).

NOTE: Compression-only CPR is likely to be ineffective for drowning incidents as drowning is the inability of oxygen to get to the cells in the body. In a drowning incident, as the breathing has stopped prior to the heart, the drowning person will have little to no oxygen remaining in the bloodstream to be circulated by compressions. Therefore, the need for ventilation/mouth-to-mouth in conjunction with high-quality chest compressions will increase the chance of survival of the victim. Some studies show a 90% success rate with bystanders performing mouth-to-mouth.

How to use this toolkit

This toolkit has two key tools that can be used to address the fear and risk of disease transmission in low-resource settings.

Tool	Use	Page
Guidance for reducing risk of disease transmission during training	This guide is designed for resuscitation trainers to reduce the risk of disease transmission for participants through the use of appropriate hygiene practices before, during, and after training	5
Guidance for reducing fear of disease transmission	This guide is designed for resuscitation trainers to help them address potential fear of disease transmission from trainees. It contains suggested ways to discuss this fear with trainees and encourage them to learn resuscitation skills	6
Local infectious disease risk factsheet	This template factsheet can be filled out with facts about the local risk of communicable diseases. It is intended to guide discussion with a medical professional to understand the risk of communicable disease in the local context	9
Informed decision guide	This guide is designed to provide factors to consider in a real resuscitation setting when making an informed decision on whether or not to provide ventilation	10

Training hygiene guide

The safety of trainees is of paramount importance when training in rescue and resuscitation and appropriate hygiene practices are a critical part of every training session. Adequate hygiene practices are not optional, but an integral part of the training process. Appropriate hygiene practices during resuscitation training can significantly reduce the risk of disease transmission. Most CPR manikins will come with hygiene recommendations from the manufacturer, but this guidance may not be possible to follow depending on available resources. It is important to read the manufacturer's guidance and follow it as closely as possible. The below guide should be considered as the minimum hygiene requirements for training.

Before training commences, consider asking participants if they have or think they may have any infectious diseases or skin conditions that may be passed to another participant. This includes both trainees and trainers. This may be asked via a questionnaire immediately before training, such as during pre-training data collection, and there should be an opportunity for trainees to observe this part of the training rather than taking part, if they think they may be at risk.

Before and after training, manikins must be thoroughly disinfected using chlorine bleach or an alternative. Manikins should be scrubbed thoroughly using the cleaning liquid and allowed to air dry. It is important that manikins are cleaned both before and after training, even if they have not been used in between. The cleaning of manikins after and before training should be more thorough and use a stronger disinfectant than when cleaning manikins between participants. Chlorine bleach should not be used in between participants.

Manikins should be cleaned thoroughly between each participant using an appropriate disinfectant. All areas of the manikin's face should be scrubbed vigorously, with particular attention paid to the nose and mouth area. The disinfectant wipe or soaked gauze should be placed on the nose and mouth for 30 seconds before removing. After cleaning with the disinfectant, manikins should be allowed to air dry before next use.

Manikins with damage to the mouth, nose, or lungs should not be used as they may be more difficult to disinfect. If using manikins with detachable face pieces or lungs, one should be provided for each participant, these should be disposed of after each training session. Manikins should still be disinfected between participants.

Note: Safe controls of cleaning liquids must be adhered to, including safe storage out of the reach of children.

Guidance for reducing the fear of disease transmission

Fear should not discourage trainees from learning lifesaving mouth-to-mouth ventilation.

While the risk of disease transmission during provision of mouth-to-mouth ventilation is considered low, research on this is limited and the risk may vary in different locations. Every effort should be made to reduce the risk of disease transmission and respond appropriately to any concerns from trainees. **All trainees should be encouraged to learn how to perform mouth-to-mouth ventilation and understand its importance during the resuscitation of a drowned person.** Trainees should make their own informed decision on whether to perform mouth-to-mouth ventilation, based on evidence of risk in the local context.

NOTE: The focus on disease transmission during training should be appropriate based on the risk of disease in the local context. A disproportionate focus on risk of disease transmission may create unnecessary fear, and lead to trainees not providing mouth-to-mouth ventilation.

Recommendations for trainers to understand and reduce the risk of disease transmission:

- **Use appropriate hygiene practices before, during, and after training.**

Please refer to the above guide on recommended hygiene practices when teaching resuscitation.

- **Understand local risks of communicable diseases.**

Consider seeking advice from local medical authorities on the risk of communicable diseases in the area to be able to inform trainees. It may be necessary to suggest that trainees are vaccinated against common communicable diseases, if such vaccines are available.

Please see the template 'disease risk factsheet' on page 8 for further guidance on this.

Recommended messaging for all trainees:

- **Provision of ventilation is vital to resuscitation following a drowning incident**

Successful resuscitation of a drowned person requires timely ventilation to replenish oxygen to vital organs within the body and avoid a cardiac arrest. Compression-only CPR is likely to be ineffective for drowning incidents as drowning is the inability of oxygen to get to the cells in the body.

- **Providing ventilation may save a life**

The skills taught in training may enable trainees to save the life of a friend or family member.

- **Barrier devices can be used to reduce risk**

If barrier devices are easily available and can be distributed during training, these can be recommended for use by trainees. Trainers should discuss with local medical experts the options to create locally relevant improvised barriers to reduce the risk of disease transmission.

It is ultimately up to the trainee to make an informed decision about whether to provide ventilation

If trainees come across a drowning incident, they should use their own judgement to decide whether or not to provide ventilation. The risk of disease transmission from the resuscitation of a drowned person can vary considerably depending on several factors. If the trainee comes across a drowning incident, they can assess the risk of disease transmission against the chance of successfully resuscitating the drowned person and any other factors (such as familial relationships) to make an informed decision. It may be appropriate to share information about the risk of different communicable diseases with trainees to allow them to make an informed decision. All trainees should be encouraged to learn how to provide ventilation - a trainee cannot make an informed decision about whether or not to provide ventilation if they do not know how to provide ventilation. Please see the Informed Decision Guide at the end of this document for further guidance on this.

Recommended messaging for trainees who express a fear of disease transmission:

- **You are most likely to provide CPR on a close family member**

In areas where risk of disease transmission is high and barriers to reduce transmission are unavailable, trainees may choose not to perform ventilation on strangers, but may choose to perform ventilation on a family member where they may be more aware of the individual's status.

- **It may be possible to advise a family member of the drowned person on how to provide ventilation**

If a member of the community requires resuscitation after a drowning incident, it may be possible for a trainee to use the knowledge learnt in training to guide another person (relative or friend) on how to perform mouth-to-mouth ventilation.

- **Seek medical attention if concerned about infection after providing ventilation**

If there is a concern about disease transmission after performing a ventilation, it is advisable to seek medical attention. Relatives or friends of the drowned person may be able to provide insight into their health status.

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Local infectious disease risk factsheet

It is recommended to seek advice from a medical professional about the local risk of communicable disease. The data in the below table can be used to guide this discussion. Please fill in the table with the information provided by the medical professional to record the risk of disease transmission in your local setting.

What are the most common communicable diseases in your setting?	Disease 1: _____ _____	Disease 2: _____ _____	Disease 3: _____ _____	Disease 4: _____ _____	Disease 5: _____ _____
How prevalent is the disease?					
How transmittable is the disease?					
Could the disease be transmitted through the provision of CPR?					
Is there an effective vaccination available for this disease?					
Is there an effective treatment available for this disease available?					
What is the typical outcome once this disease has occurred and been treated (if possible)?					

Informed Decision Guide

Trainees should be encouraged to make informed decisions about whether or not to provide ventilation if they encounter a drowning incident. This risk assessment should balance the risk of disease transmission against the likelihood of successfully resuscitating the drowned person. The below guide suggests factors to consider to inform this decision. **It is critical that trainees are trained in how to provide ventilation to enable them to make an informed decision about whether or not to provide ventilation if they encounter a drowning incident.**

FACTORS TO CONSIDER	What is the risk of disease transmission?	What is the likelihood of successfully resuscitating the drowned person?
	<ul style="list-style-type: none">– What are the local risks of communicable diseases?<ul style="list-style-type: none">○ What are the most common diseases?○ Can they be transmitted through ventilation?○ What are the typical outcomes?– Are there any factors that reduce or increase the risk of disease transmission?<ul style="list-style-type: none">○ Is the drowned person a family member or close contact?○ Do you know the health status of the drowned person?○ Are you vaccinated against common communicable diseases?○ Are you vulnerable to serious illness (considering age and any pre-existing medical conditions)?○ Do you have a barrier device?	<ul style="list-style-type: none">– How long has the person been under the water?– Is your CPR training up to date?– Are there any other significant injuries likely to result in death? <p>Reminder: Compression-only CPR is likely to be ineffective for drowning incidents. Ventilation in conjunction with high-quality chest compressions will increase the chance of survival of the victim. Some studies show a 90% success rate with bystanders performing mouth-to-mouth.</p>

Glossary

Barrier Devices	Protective devices put over a person's mouth when providing mouth-to-mouth ventilation to prevent the spread of bodily fluids and reduce the risk of disease transmission.
Communicable Diseases	A disease that can be spread from one person to another, often through bodily fluids.
Community-Based Training	Training targeting members of the community to provide bystanders with the skills to conduct a rescue/resuscitation if necessary. This does not include the training of lifeguards or other professional rescue personnel.
CPR	Cardiopulmonary Resuscitation: a series of chest compressions and mouth-to-mouth ventilation intended to resuscitate a drowning victim
Disease Transmission	The spread of a disease from one person to another.
Disinfectant	A cleaning solution that destroys bacteria, such as a chemical with over 70% alcohol or bleach.
Lifeguard	A person qualified with a recognised water rescue qualification.
Participants	All of those present and participating in the delivery of rescue and resuscitation training, including trainers, trainees, any additional support staff, assistants or managers.
Pollutant	A pollutant or novel entity is a substance or energy introduced into the environment that has undesired effects, or adversely affects the usefulness of a resource. For example – sewerage.
Rescuer	A person performing a rescue and/or resuscitation.
Resuscitation	The action of attempting to revive a person from unconsciousness following a drowning incident.
Risk	The likelihood and severity of something causing harm.
Trainee	A person receiving training.
Trainer	A person providing training.