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The Lifeguarding Experts

DROWNING COMPLICATIONS
INFORMATION BULLETIN

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Rescuers need to be trained to recognize and respond to complications associated with drowning in unresponsive and non-breathing victims. Understanding and responding to these complications promptly can make a significant difference in the rescue outcome.

Background

Drowning victims typically inhale small amounts of water and swallow large amounts of water. These fluids accumulate in the lungs, stomach and airway and present as different complications for rescuers to manage. Additional resuscitation complications, unrelated to drowning, may also be present. These potential complications may include:

- Vomiting
- Fluids and/or foam observed in the airway
- Gastric distension
- Agonal breathing

Vomit, Fluids & Foam

Effectively Breathing Victims

For unresponsive breathing victims, quickly roll the victim and clear the airway when vomit, fluids or foam overflow the mouth. Re-assess ABCs to confirm the victim is still breathing. Use suction where needed. For breathing victims with suspected spinal injuries, quickly roll the victim while trying to keep the head, neck and spine in the position you found it.

Ineffectively Breathing Victims

For ineffectively breathing victims, clear the airway only when the victim vomits. Attempting to drain fluids or foam during resuscitation causes unnecessary delays. Frothy fluid or foam (white or pink) is common in drowning victims and is likely to accumulate in the airway during resuscitation. Rescuers should focus on oxygenating and ventilating the victim, not on managing fluids or foam.

For vomit, respond appropriately to prevent obstruction or aspiration:

Number of Rescuers	Procedure
1 rescuer	Stop compressions immediately. Roll victim and clear airway. Restart compressions, beginning back at number 1.
2 rescuers	One rescuer will continue compressions during vomiting to minimize interruptions. While the other will turn victim's head and clear airway, using suction where needed.

BC & Yukon Branch
112-3989 Henning Drive
Burnaby, BC V5C 6N5
info@lifesaving.bc.ca
lifesaving.bc.ca
604.299.5450

Do not re-assess ABCs after a victim vomits during resuscitation; vomit is not a sign of life.

Gastric Distention
Water swallowed during the drowning process can cause gastric (stomach) distention, which may lead to vomiting. This is unavoidable, however, gastric distension can also be caused by rescuers over-inflating the lungs or inadequate opening the airway. Gastric distension can be resolved by ensuring the airway is fully open (tilting the head back further), ventilations are delivered over 1 second, and with only enough volume to make the chest rise.

Agonal Breathing
Sporadic gasping for air is referred to as agonal breathing and is present in up to 40% of pre-hospital cardiac arrests. Agonal breathing, a late sign of severe hypoxia, is a survival reflex of the body as it attempts to increase the oxygen level in the blood. Physiologically, the diaphragm is still receiving intermittent residual impulses from the brain resulting in sporadic, gasping breaths. However, agonal breathing is not effective and should not be confused with normal respirations. Breaths usually occur more than 10 seconds apart and can last up to 2-3 minutes. Begin CPR immediately for unresponsive victims who are not breathing effectively.

Rationale
Gastric distention, vomiting, and fluids or foam in the airway will be encountered for majority of drowning victims requiring resuscitation. It is important to note that all victims will aspirate, the question is just how much and what they are aspirating. Our goal is not to stop all aspiration, but instead to minimize any significant aspiration while providing oxygenation and restoration of circulation in as effective a manner as possible.

Procedures that treat fluid or foam (previously distinguished as regurgitation) the same as vomit should be retired. In drowning victims, rescuers should expect fluid or foam to be constantly forced up during each cycle of compressions. Clearing the airway of this fluid or foam causes an unnecessary delay in CPR that may jeopardize the rescue outcome. Instead, rescuers should “blow through the foam” and focus on minimizing interruptions to CPR. Suction devices may still be used to clear the airway of fluid or foam during two-rescuer CPR if compressions are continued, and CPR is not interrupted.

References

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This bulletin replaces the 2013 Vomit vs. Regurgitation Information Bulletin.

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