

Drowning Resuscitation



Drowning

“Drowning is the **PROCESS** of experiencing respiratory impairment from submersion/immersion in liquid”



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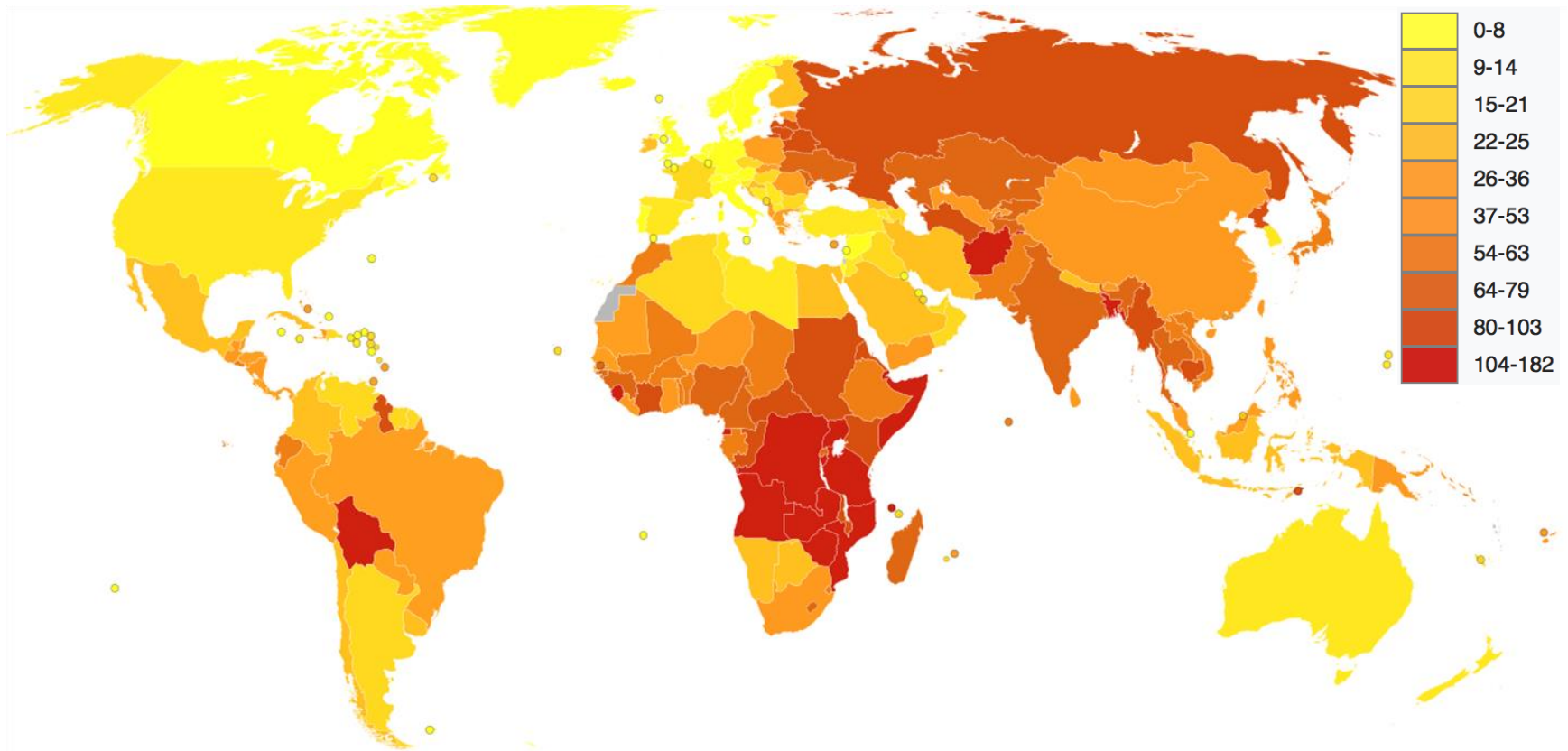
Drowning

- Leading cause of preventable death in the world!
- Estimated 1.2 million annual drowning deaths worldwide
- 90% occur in low and middle income countries



Global Drowning

Drowning Deaths per One Million Persons in 2012



Risks

- Age - 1/2 of deaths under 25 years
- Sex - Males twice as likely as females
- Ability to swim
- Alcohol or drug use
- Season & weather
- Holidays & events
- Water hazards



Types of Drowning

- 3 Types of Drowning:

- **Fatal** drowning

- Ex) DEATH



- **Non-fatal** drowning with injury

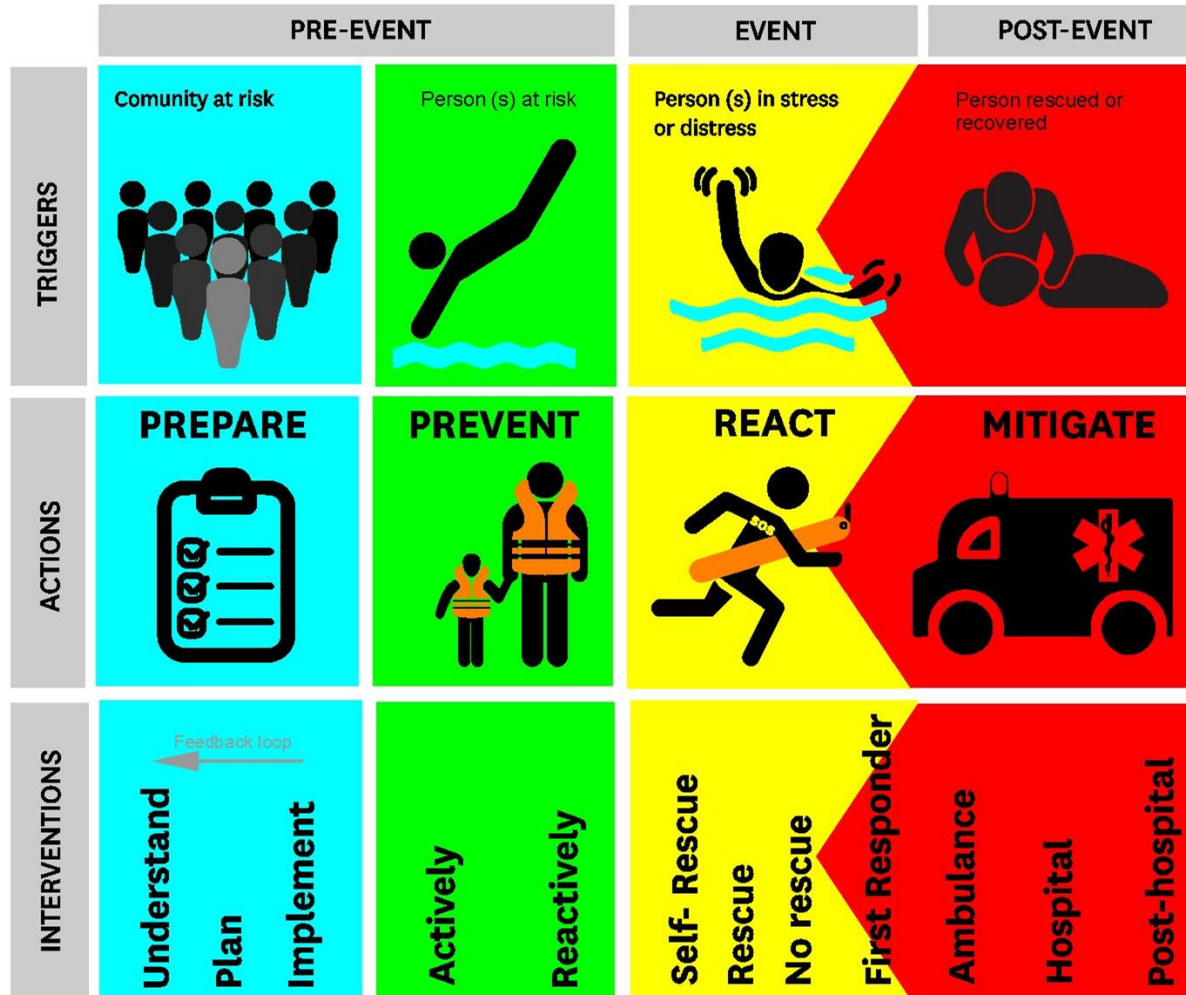
- Ex) Alive with brain damage

- **Non-fatal** drowning without injury

- Ex) Alive with no changes in health

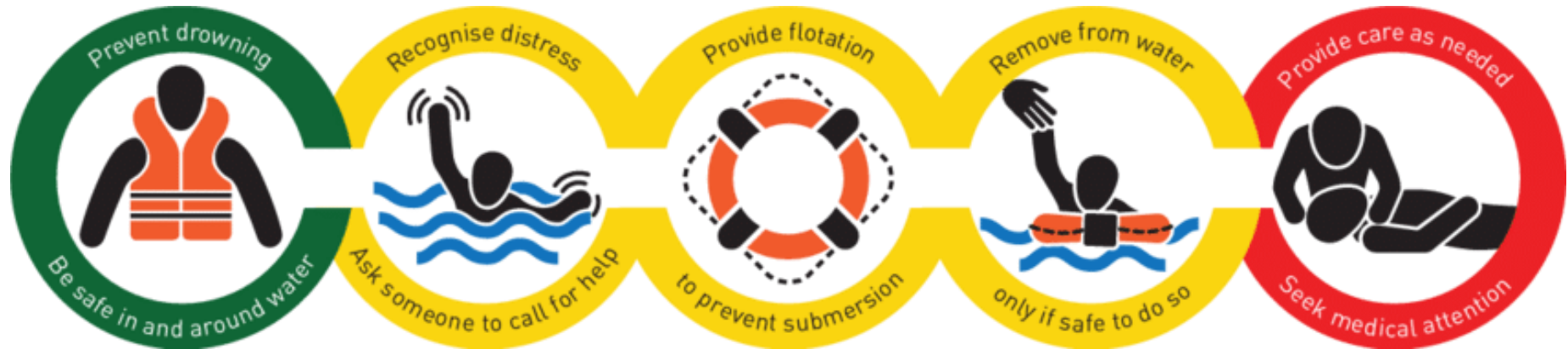
Drowning Timeline

SYSTEMATIC MODEL OF THE DROWNING PROCESS



Szpilman D, Tipton M, Sempsrott J, Webber J, Bierens J, Dawes P, Seabra R, Barcala-Furelos R, Queiroga AC. Drowning timeline: a new systematic model of the drowning process, Am J Emerg Med. 2016 Nov;34(11):2224-2226. Authors acknowledge SEMES (Sociedad Espanola de Medicina de Urgencias e Emergencias) for the design.

Chain of Survival



1. Prevent
 2. Recognize
 3. Provide
 4. Remove
 5. Care
- } Rescue



Physiology – What Happens?

THE SIGNS OF DROWNING

- 1 FACING SHORE
- 2 MOUTH AT WATER LEVEL
- 3 HEAD TILTED BACK
- 4 BODY VERTICAL
- 5 CLIMBING LADDER MOTION



Physiology – What Happens?

- Submersion Event – Under water

- Fear and panic
- Fatigue / tired
- Loss of swimming
- Sinking
- Inhale water



***Rarely yelling and splashing**

Physiology – What Happens?

- Physiology of Drowning
 - Breath holding during struggle
 - Attempt to inhale water results in laryngospasm
 - Usually little (<30mL) or NO fluid in lungs
 - Reflex Swallowing

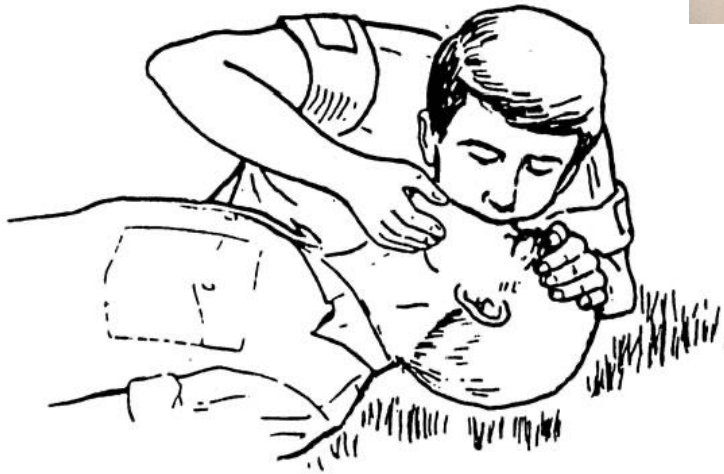


Treatment

- Oxygen, Oxygen, **Oxygen!!**
- Start with **5** Rescue Breaths
- Initiate CPR compressions
- Then move the oxygen around the body
 - Airway
 - Breathing
 - Circulation

Oxygen Delivery Methods

15%



Bag Valve Mask without Supplemental Oxygen

21%



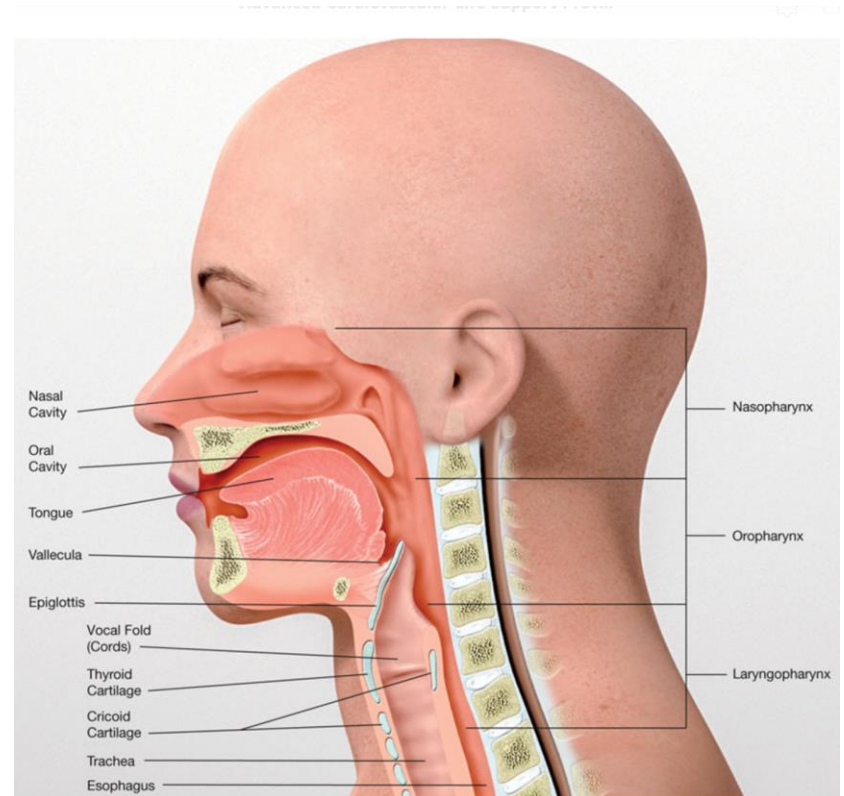
Bag Valve Mask with oxygen

> 95%



Airway

- Ensure airway is open
- Head tilt/chin lift
- Jaw thrust

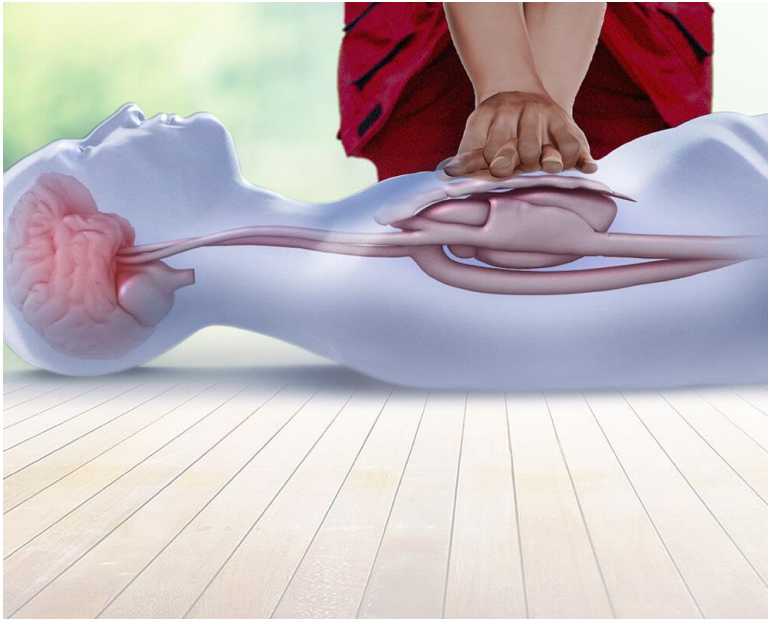


Breathing

- See rise and fall of chest
- Avoid over-ventilation



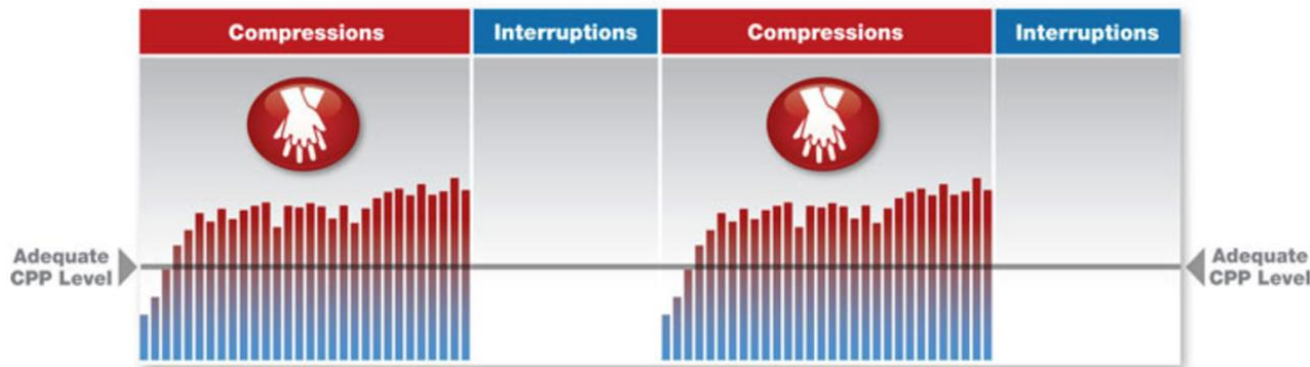
Circulation



- Push Hard
- Push Fast
- Minimize stops

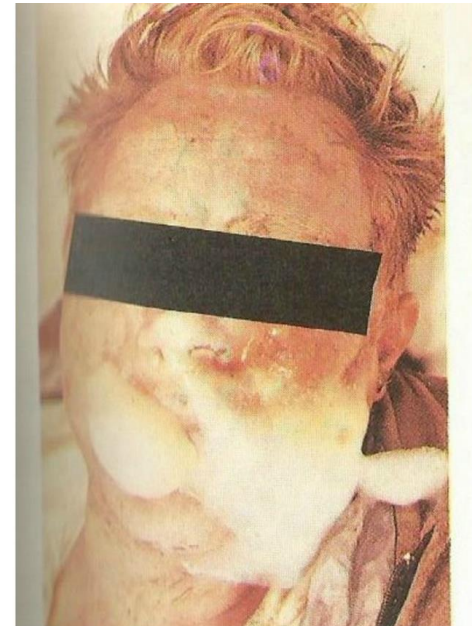
Why CPR Works

- Perfusing Organs
- Chest compressions with full rise of chest
- Press hard, press fast
- Minimize interruptions in compressions



Post-Treatment

- Oxygen, Oxygen, **Oxygen!!**
- Recovery position
- Suction large vomit
- Ventilate through the foam
- Emergency Treatment



ISLA to the Rescue!



Drowning Resuscitation

