PILOT PROGRAM FOR THE USE OF SUPRAGLOTTIC AIRWAY DEVICES BY FIRST RESPONDER LIFEGUARDS

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Challenges in pre-hospital airway management

- Airway positioning
- Reluctance of rescuer to have direct contact with patient
- Stiff lungs
- Splinted diaphragm
- Regurgitation
- Co-ordination with chest compressions
- Ventilation during transport

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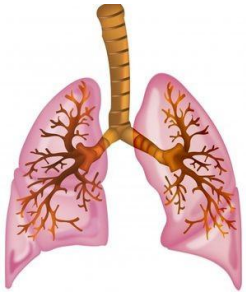
Challenges in drowned patient



- Stiff lungs
  - laryngospasm
  - pulmonary oedema
  - due to inhaled water and loss of surfactant
  - high lung resistant
  - preferential movement of air into stomach
  - different ventilation requirements to optimize airway recruitment

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Challenges in drowned patient

- OOHCA
  - 1/3 of patients regurgitate, 2/3 before EMS arrival
  - Regurgitation/aspiration halves your chance of survival

- Regurgitation
  - swallowed water in stomach
  - iatrogenic air in the stomach
  - risk of aspiration

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Options for airway management

- Mouth to mouth/nose
- Mouth to mask
- Oro-pharyngeal (Guedel) airways
- Bag valve mask ventilation
- Supraglottic airway devices
- Intubation
- Suction devices

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SLSA resuscitation training

- Mouth to mouth/nose
  - First response option
  - In water rescue
- Mouth to mask
  - Can be used with oxygen therapy
- Oro-pharyngeal (Guedel) airways
  - Feedback tells us these are not used

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SLSA resuscitation training BVMV

- Bag valve mask ventilation
  - Two man technique to operate the unit
  - Third person to do the chest compressions

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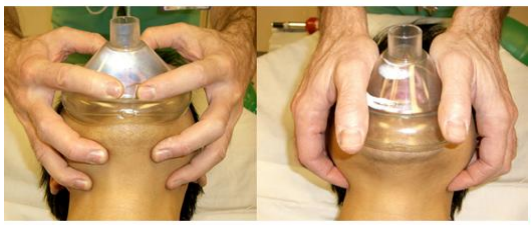
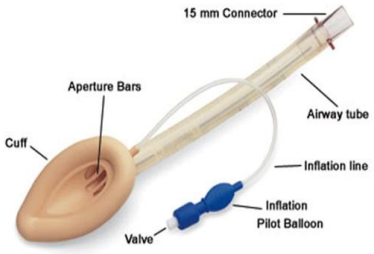
SLSA resuscitation training BVMV

- Difficulties arise in scenarios with one or two rescuers.
  - One handed technique not an option
  - Increased “time off chest”
  - Failure to ventilate – adequate only ~50% time
  - Regurgitation



Supraglottic airway devices

- Definition
  - Tube with a cuff, inserted blindly into the pharynx
  - Allows ventilation to be directed over the glottis
- Role in airway management
  - anaesthesia
  - wards, MET calls,
  - ambulance services
  - field medicine



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SGA use by first responders

- Possible advantages
  - Suitable for teams of two
  - Decreased hands off chest
  - Decreased risk of regurgitation
  - Stays in place
  - In patient transport

- Possible disadvantages
  - Training and skill retention
  - Distraction from basic resuscitation
  - Air leak

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What the C2010 evidence says

- In adult cardiac arrest does the use of supra glottic devices compared with bag-valve-mask alone improve any outcomes?
- Outcomes varied
  - Ventilation
  - Oxygenation
  - Reduced hands-off time/continuous chest compressions
  - Improved survival

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What the C2010 evidence says

- 10 studies (LOE 4 and 5) supporting (improved ventilation, larger tidal volume, decreased regurgitation, less hands off time, better adherence to CPR protocols)
- 2 studies (LOE 2) neutral (no improvement in short term survival)
- 3 studies (LOE 5) opposing (longer time to ventilation)

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C2010 consensus on science

- Majority of studies, although in mannequin models, support improved ventilation and a decrease in gastric insufflation with SGA compared to BVM.
- Single study showed lower regurgitation rate
  - 4 times less likely to aspirate with SGA vs BVM
- No flow times decreased with SGA vs BVM (mannequin cardiac arrest models)

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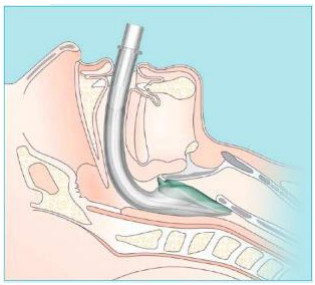
SLSA supraglottic airway trial



SLSA supraglottic airway trial

- Aim: to determine if the use of a supraglottic airway device improves the effectiveness and success of a drowning resuscitation.

- Trial to comprise of three main stages
  - Training on airway manikins
  - Resuscitation scenarios using current and newly acquired skills and equipment
  - Use and review on the beach

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SLSA supraglottic airway trial

- **1. RESEARCH**
- Identify research into trials of the SGA in the case of a drowned patient.

- **2. PARTICIPANT SELECTION**
- The SLS State/Territory centre selects facilitators and candidates to be part of the trial.

3. TRAINING

- Formal training from the company LMA PacMed on how to use an LMA. State Project facilitator to organise.

- **4. CONTROLLED TRIAL on airway management manikins**
- 1. Standard mouth/mask only; with and without simulated stomach inflation and vomiting.
- 2. Standard mouth/mask only; with and without simulated stomach inflation and vomiting.
- 3. Standard BVM on airway management manikins; with and without simulated stomach inflation and vomiting.
- 4. Standard BVM and OP airway; with and without simulated stomach inflation and vomiting.
- 5. Standard airway management using SGA, with and without simulated stomach inflation and vomiting.
- Repeat scenarios with 1,2 and 3 rescuers

- **5. OPEN TRIAL**
- Candidates complete an open trial whilst on patrol. Candidates will make an assessment at the time of incident on which is the most suitable resuscitation method to employ.

6. FEEDBACK

- - State Project Facilitator to ensure feedback is received on all points. State Project Facilitator is encouraged to take photos and video of the controlled trial processes.
- - Online survey feedback is assessed.

SLSA supraglottic airway trial

- Evaluation of clinical suitability
  - Feedback following training and manikin scenarios
  - Within SLSA operations, can first responders be effectively taught, and use, supraglottic airways in drowning resuscitations.
- Field use and review
  - If initial training and manikin scenarios deemed successful, SGA devices to be considered as a resuscitation option on the beach.
  - Feedback and review following resuscitation incidents

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Summary

- Lifeguards can be appropriately trained
- SGA offer a potentially superior option for ventilation
- During any resuscitation, the best airway management technique is dependent on the precise circumstances and the competence of the rescuer

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