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
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

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
SLSA resuscitation training BVMV

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

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

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
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

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)
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)

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

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

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