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A spiral curriculum for teaching resuscitation: the what, the why, the how

K Rhodes

University of Wollongong, krhodes@uow.edu.au

E M. Ashcroft

University of Wollongong, elfriede@uow.edu.au

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Abstract

Background: More than fifty years ago, Jerome Bruner introduced the spiral curriculum based on constructivist ideas. Most fields of education adopted this concept which promises to enable the learner to develop their ability to transfer thinking processes from one context to another - also an essential skill for a medical doctor. **Aim:** By implementing the spiral curriculum model throughout our course, we aim to not only accelerate our students' learning, we also seek to better prepare them to master situations that arise infrequently or urgently, such as the need for life support skills. **Method:** Based on the our MBBS entry requirement "Possession of a First Aid Certificate", our clinical skills teaching revisits "Basic Life Support (BLS)" on several occasions throughout the four year degree, building cumulatively on already learnt content. We guide the students to acquire new psychomotor skills at the same time as applying already learnt concepts and facilitating their ongoing learning through inquiry. Equipped with these skills students participate then in our graded submersive, high-fidelity manikin-based simulation program with a focus on BLS and Advanced Life Support (ALS) scenarios. **Results:** Evaluation comments such as; "CPR is vital for medical training", "Great revision of BLS, Automated External Defibrillation (AED) and bagging" or "An excellent activity, reinforced lots of physiology and pharmacology while also refreshing BLS/ALS" demonstrate the acceptance of the spiral teaching approach by the students and validates the effort and dedication of our staff.

Keywords

curriculum, spiral, teaching, why, resuscitation

Disciplines

Medicine and Health Sciences

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A SPIRAL CURRICULUM FOR TEACHING RESUSCITATION: THE WHAT - THE WHY THE HOW

K J Rhodes & E M Ashcroft

**Graduate School of Medicine,
University of Wollongong, Wollongong**

WHAT ?

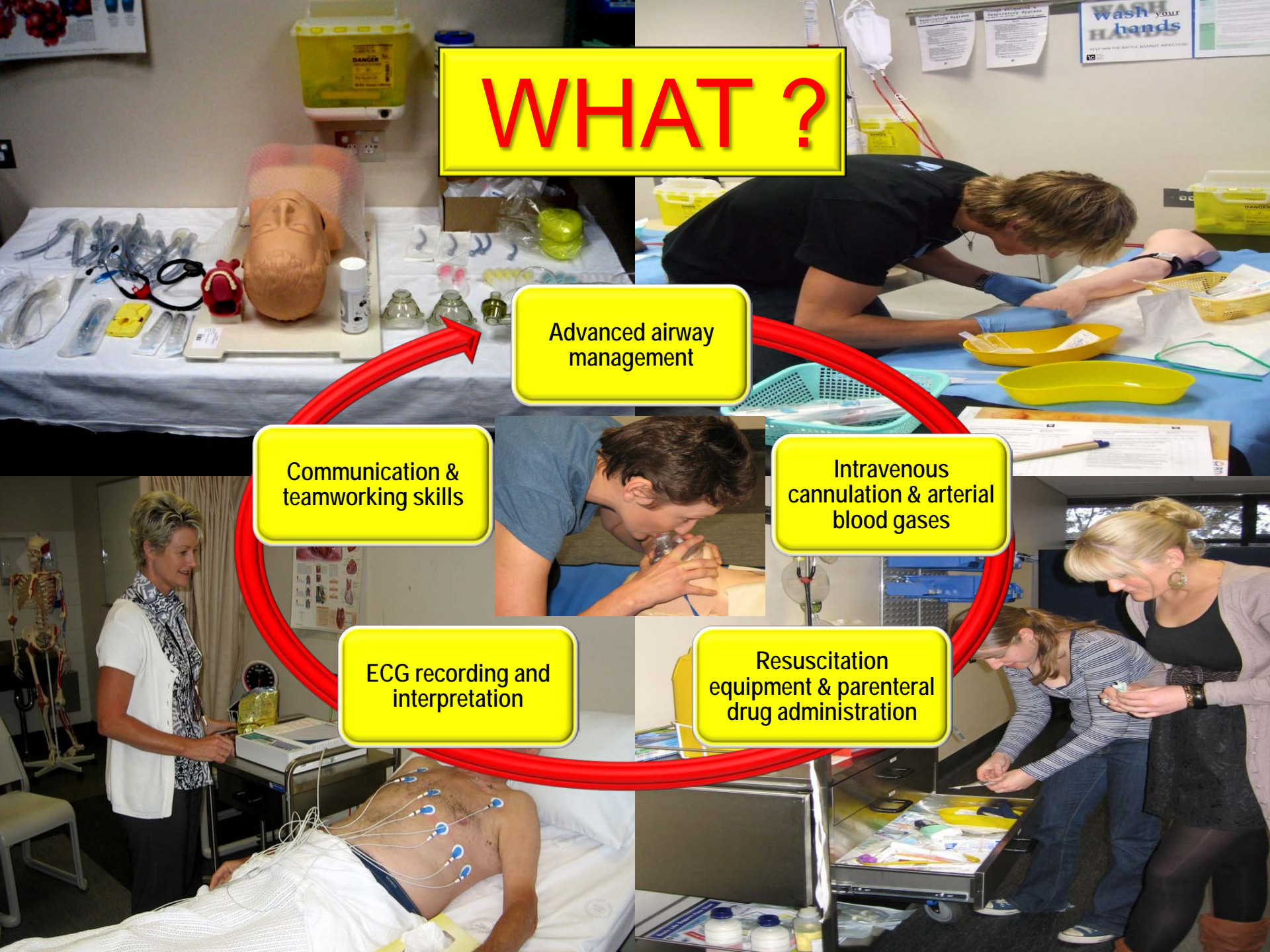
Advanced airway management

Communication & teamworking skills

Intravenous cannulation & arterial blood gases

ECG recording and interpretation

Resuscitation equipment & parenteral drug administration



WHY?

Because the ability to transfer thinking processes from one context to another is cultivated in education that follows Spiral Curriculum concepts based on constructivist learning ideas.

WHY Resuscitation Skills?

Research has shown that emergency and basic life support skills of junior doctors are low, lack confidence and do not meet practice guidelines (Premadasa et al. 2008, Remes et al. 2003, Tan et al. 2006)

WHY Spiral Learning?

-has sound theoretical underpinnings
-is a robust curriculum framework

Key features :

- topics are revisited
- levels of difficulty increase
- new learning is related to previous learning (Davis et al, 2003, Dowding, 1993, Harden, 1999)

WHY the need for Competence?

Royal Australian College of Surgeons key performance indicators for clinical decision making call for doctors to "manage complexity, uncertainty [and to] effectively manage complications" (RACS, 2010).

WHY the need for Competence?

Australian Medical Association requires doctors "to prioritise and synthesise information, integrate knowledge and skills and apply these appropriately in the treatment and care of the patients" (AMA, 2010).

HOW?

Y1-Out-of-Hospital arrest with BLS

Pocket mask / O2 / AED

Scenarios: At the beach / At the airport / Shopping in Canberra / Babysitting / At the bowling club / Some DIY / At the neighbours

Y3-Acute presentations with ALS

Immersive simulation scenarios: Acute head injury & seizure / AMI with pulmonary oedema / Ruptured ectopic pregnancy in hypovolaemic shock

Y2-Arrest in acute setting with BLS

Guedel's airway / naso-pharyngeal airway / Laryngeal mask / manual resuscitator bag / O2 / AED

Scenario: Mr Smith found unresponsive in hospital room

Y2-BLS & ALS as primary task

Immersive simulation scenarios: Collapsed person found in foyer / Asystole 2 days post MI / AF caused by hypoxia in acute pneumonia

Y2-Skill acquisition for ALS

Resuscitation trolley / Mini-jets / manual defibrillator / Intubation equipment preparation / airway adjuncts / suction / O2

Results

Chance to revise and re-familiarise self with responding to a BLS scenario, [and learning about] airway equipment (Y2 student: BLS & airway)

Both IV cannulation and ALS were very good, very important to practice these skills before doing the real thing (Y2 student: cannulation & IV).

I [...] enjoy / benefit from doing this activity in isolation [...] then incorporating into scenario based learning (Y2 student: cannulation & IV).

It was useful to prepare for this clinical skills session and I think it will be useful to refer back to [it] during our studies (Y2 student: ECG)

This session was extremely useful and educational, more simulated situations to practice my emergency management would be highly beneficial (Y2 student: simulation).

I think this would be beneficial to do more often. I am sure I would become more confident in ALS (Y2 student: simulation)

An excellent activity, reinforced lots of physiology and pharmacology whilst also refreshing BLS / ALS (Y3 student: simulation)

Fantastic learning experience, a great opportunity to put some of our theoretical knowledge into practice (Y3 student: simulation).

Awesome, this is a great activity and I feel this practice is essential (Y3 student: simulation)