Training Course Review

Paediatric Life Support by Advanced Paediatric Life Support, Australia: course review

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Abstract

The Advanced Paediatric Life Support, Australia Paediatric Life Support course is designed to improve outcomes for critically ill and injured paediatrics treated by healthcare professionals. It is comprised of pre-reading, online learning and a one-day face-to-face session that covers basic life support, airway management, cardiac rhythm recognition and defibrillation, intraosseous access and recognition of the seriously injured and ill child. This paper reviews the course and concludes that it should be considered as part of the continuing professional development requirements for paramedics.

Keywords:

course review; paediatric life support; paramedicine professional development; paramedicine

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Background

Advanced Paediatric Life Support, Australia (APLS) is a not-for-profit organisation founded in 1997. They run over 130 courses for more than 2500 health professionals in over 30 locations across Australia each year. APLS states that it has become the internationally recognised gold standard in paediatric emergency training with the aim “to improve the early management of acutely sick and injured children through training, education and resources for healthcare professionals” (1).

In late 2020, four paramedicine academics from the College of Medicine and Public Health at Flinders University in South Australia attended the APLS 1-day Paediatric Life Support (PLS) course. This course is focussed on the first 10 minutes of emergency paediatric care by healthcare professionals, and has three components: the full colour manual, online learning and the face-to-face program.

APLS manual

The Advanced Paediatric Life Support: The Practical Approach (6th edition) (2) is a significant reference for participants utilising the structured approach covering the treatment of paediatrics during the first few crucial hours of a life-threatening illness or injury. It is however, designed for the full 3-day APLS course and therefore much of its content is not covered in the 1-day PLS course. Each participant receives a copy of the manual after registration for their PLS or APLS course; a code to access the digital version via Wiley E-Text is also provided.

APLS online learning

This virtual learning environment (VLE) component takes approximately 4 hours to complete and is compulsory before attendance at the face-to-face program. It is focussed on key knowledge and clinical priorities and is set out with an introduction and background information about various topics, such as cardiac arrest management of shockable and non-shockable rhythms. Narrated by clinicians, a practical scenario is also demonstrated. A range of questions are asked of the participant in varying formats, such as drag and drop, short answer and multiple-choice. The VLE allows participants to reflect on the scenario, consolidate and test this knowledge in a formative way.

Face-to-face program

This 1-day program allows for the application of knowledge gained from the course manual and VLE. The day consists of registration and a welcome session then launches straight into a discussion about basic life support. Breakout sessions of smaller groups rotate around skills stations and demonstrate basic life support reinforcing the structured airway and breathing, circulation, disability, exposure (ABCDE) approach, airway management, manual defibrillation processes, airway patency using triple airway manoeuvre, ventilation using a bag-valve-mask and intraosseous access.

Structured scenario demonstrations allow participants to talk through a time critical paediatric scenario (eg. respiratory distress, septic shock, burns) and visualise clinical skills and treatment options in real time. Participants are given the opportunity to work within small groups to focus on the management and treatment of these time critical presentations in greater depth with scenarios quickly escalating to cardiac arrest.

Discussion

The faculty running the face-to-face day included senior and more junior medical practitioners and registered nurses experienced in paediatric life support. They were extremely knowledgeable and receptive to any questions asked by participants.

Unlike some short courses, the PLS 1-day course has no written or multiple-choice exam. Participants' practical skills are assessed in objective simulated clinical examinations and scenarios. The faculty are very clear with their expectations of these assessments. Before undertaking the final assessment scenario, the faculty ran examples from scratch including a debrief with the group, which was an excellent way to demonstrate requirements. This created a low stress environment conducive to learning and allowed participants to feel confident in their approach to the practical assessment.

Paramedics undertaking this course may find that some components, especially the scenarios, are too hospital-based. The VLE also had an exclusive focus on the hospital setting. For example, during one of the VLE paediatric resuscitation example videos, paramedics silently wheel in a patient on the stretcher, the paediatric ‘patient’ is quickly transferred across, and the paramedics depart without making a sound. A few minutes later a poor-quality, error-laden handover is given by the paramedic. This does not paint paramedics in a good light and does not highlight the professionalism that paramedics show when attending these situations in real life. The course could benefit from some paramedic input for context and professional representation.

There is also some concern about the demonstration of some aspects of care in the VLE, for example, ventilation. The scenario shows a clinician demonstrating mouth-to-mouth expired air resuscitation by exhaling forcefully into the mouth of the child. Forceful exhalation like this will likely lead to gastric distention and potential impact on venous return, negatively impacting the clinical outcome of the paediatric patient. The aim is more accurately to achieve gentle ventilation to achieve rise and fall, which is a fundamental concept of ventilation during resuscitation.

It should also be noted that there was some ambiguity in the information presented on VLE. For example, advice is given that if there are signs a patient regains a pulse during a cardiac arrest, clinicians should “continue CPR for about another 2 more

minutes". Additionally, rather than following a well-established defibrillation script such as C.O.A.C.H.E.D. (3), at times there was a suboptimal defibrillation procedure in the VLE recordings. Ideally, the defibrillation script should be consistent across all disciplines to limit errors and allow all clinicians to react to the clinical situation quickly.

It was also noted that the APLS algorithm (Figure 1) appears to be similar to the Australian and New Zealand Committee on Resuscitation flowcharts, and a clear citation to their origin could not be found. It is important for participants to be able to locate this material, should they need clarification and want to explore concepts further.

Recommendations

What paramedics would learn from this course would be dependent on their background and experience in dealing with

time critical paediatric patients. Early career paramedics would benefit most as it would allow them to become more familiar with the structured approach to paediatric life support. The course would also benefit any clinician who does not frequently see critically unwell paediatrics, those interested in acute care or those who are wanting to review the basics of paediatric advanced life support (ward nurses, general practitioners, junior doctors, paramedics). Structured short courses like this have shown to improve paediatric advanced life support knowledge retention (4).

Overall, the course is of high quality and should be considered as part of a paramedic's continuing professional development requirements to maintain registration with the Paramedicine Board of Australia.

More information about this course, and the APLS 3-day Advanced Paediatric Life Support course which has a focus on more advanced care, can be found at <https://www.apls.org.au>

Figure 1. APLS paediatric life support algorithm

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Competing interests

The authors declare no competing interests. The authors of this paper have completed the ICMJE conflict of interest statement.

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