

# PebbleBash 2010

not just an ePortfolio conference

# Life Support Provider' accreditation by eportfolio

# Harry Owen, Cyle Sprick and Lynne Sanderson

Clinical Skills and Simulation Unit, Flinders University School of Medicine, Australia

### The background context

There are many reports from Australia, the US and Europe of many new medical graduates not having the competence or confidence to manage clinical emergencies. Also, we had anecdotal feedback from local hospitals that some of our students were not work ready.

Clearly we needed to ensure that all our students were appropriately prepared for the workplace and able to care for patients who are seriously ill. The process for this needed to be comprehensive yet efficient. It needed to include attainment of competencies to the required standard and also show that graduating students could identify knowledge and skills deficiencies and respond appropriately.

The Flinders Graduate-entry Medical Program (GEMP) students are taught at several locations throughout South Australia and Northern Territory. Some may not physically attend the main campus for a whole year. In the final year of the GEMP (Year 4), students can be studying anywhere in the world.

### The current practice

Traditionally, medical education has focused on the fundamentals of medical knowledge to individuals with most clinical training taking place after graduation. Medical assessment has until quite recently relied mostly on knowledge displayed through written examinations and a small number of highly structured and brief clinical skills examinations. An aggregate pass mark set by university policy meant that we could not be sure that any particular student actually had all the essential clinical skills and knowledge. For example, Basic Life Support (BLS) and Advanced Life Support (ALS) are essential clinical skills. They are included in the curriculum but teaching was fragmented and assessment was inconsistent. Content of BLS and ALS courses



is recommended by peak resuscitation organisations but it is generic with teaching recommended as a single block. Learning from such courses has been shown to be poorly retained.

### The challenge

We needed a way for students to be able to demonstrate they had the knowledge, skills and attitudes in emergency care to be recognised as a Life Support Provider. This included showing they could identify their own learning needs and actively seek out opportunities to improve knowledge and skills as well as demonstrate they could provide emergency care safely and effectively when required.

Reform of medical education is driving change in teaching and assessment methods. Until recently, the taught curriculum was used to assess medical courses. In new medical education, students are expected to take ownership of learning, and outcomes are more important. This includes patient safety and quality of care. In the past, it was expected that patients receiving 'free' medical care in public hospitals would have students and trainees learn on them. However, community expectations of medical care have changed and patients are now much less tolerant of medical error. We needed a vehicle to demonstrate that students were competent not just knowledgeable.

### The approach

The usual approach to managing a perceived knowledge gap is to introduce more teaching or a new course. We could see that most of the required elements were already in the curriculum and that we needed to help students learn this material.

We investigated if educational technologies existed that could usefully contribute to both documenting student achievement and becoming a competent and reflective practitioner. It quickly became clear that an eportfolio would be ideal but we could not find an existing model of this for acute clinical care. Stakeholders in the 'Life Support Provider' initiative

The University provided seed funding for a pilot study through a Teaching and Learning Innovation Grant in 2007.

The GEMP Course Committee and Execu-

tive needed to approve the proposed change in assessment. Some of their members were aware of eportfolio use in UK medical schools and were very supportive. Using an eportfolio for logging activities and evidencing achievement over time and planning further study for performance improvement is very sound educationally.

Student engagement for the pilot was initially obtained through an information session and word of mouth. The Life Support eportfolio is now a part of the 'Doctor and Patient Theme' of the GEMP.

National and international peak resuscitation organisations have not been engaged yet. These bodies can approve specific BLS and ALS courses but this eportfolio-based accreditation of Life Support Providers is a significant departure from what they currently recommend.

VANCEDI	LIFE SUPPORT PROVIDER 20	010   Profile   Flinders University - Microsoft Internet Explorer provi	ded by	Flinder	's Medic	al	
1 BLS descrit AHA/E	proficiency as bed in the current RC guidelines						
2 Exte	nded BLS skills	4 Adult Advanced Life Support					
3 Emer adults	rgency oxygen use in	This is your competence and confidence in all sections of Adu described in the current guidelines:	ilt Adv	anced	Life Su	pport as	
4 Adult Advanced Life Support		2 - 1 know a lot about this 3 - 1 have done this with supervision 4 - 1 an competent in this					
5 Initia acute	al management of coronary syndromes	5 - I am an expert in this					
6 Card circum	liac arrest in special Istances	This is my proficiency in ALS					
7 Ethio associ resusc	cs and decision-making ated with itation						
8 Patie of care	ent Safety and quality						
4.1	Prevention of in-he This includes recogn triggers for interven	spital cardiac arrest ising sick patients, deficiencies in care and cardiac arrest, tion, rapid response teams, etc.	0	Å	C.	0	8
4.2	In-hospital resusci This includes staffing management of car	<b>tation</b> g and training of arrest teams, team roles and initial diac arrest	0	Å		0	8
4.3	ALS treatment algo This covers all parts ventilation, shockab reversible causes of	orithm of the AHA/ERC ALS treatment algorithm including airway and le and non-shockable rhythms, IV access, drugs and potentially cardiac arrest	0	A	Q.	0	8
4.4	Airway manageme Basic airway manag endotracheal intuba	nt and ventilation ement and LMA are covered elsewhere. This section includes cion, failed intubation and artificial ventilation.	0	Å	Q.	0	8
		nagement	0	æ	Q	0	8
4.5	Difficult airway ma This covers difficult	airway management algorithms and cricothyrotomy	0			19-	

Figure 1:

Screen grab from the Flinders Life Support eportfolio showing part of the skill set of section 4 Advanced Life Support. Users can move through the profile using the navigation buttons. The self-rating scale is shown on every page. A wide range of evidence of knowledge and skills can be added, from personal reflection on a clinical case to video of a simulated emergency.

### The issues

We came across several barriers:

- The geographical dispersion of our students in clinical placements meant we needed a web-hosted solution that was reliable and secure.
- Knowledge of eportfolios was generally poor among staff and students and this required an education process.
- Many students wanted to be told what to study and when. This underscored the need to have an eportfolio to assist transition to independent learner but it meant we had to educate students on personal learning planning.
- Video files are a very useful component of an eportfolio but file size is constrained by available bandwidth and storage limits. We needed to provide the hardware, software and support to help students capture key

moments from their simulation video.

 Resuscitation councils in each country accredit BLS and ALS courses. The ARC only accredits courses that follow its approved outline.



### The result

We have developed an explicit curriculum in managing medical emergencies that progressively builds on prior learning, is mapped to the students' stage of development, integrates clinical experiences and can be adapted or extended by students.

Year 1: Basic Life Support (BLS) - care of an unconscious person and cardiac arrest
Year 2: Extended BLS – managing the most common life-threatening emergencies in the community and in-hospital
Year 3: Advanced Life Support (ALS) – management of chest pain and in-hospital cardiac arrest
Year 4: ALS in special circumstances, preventing cardiac arrest and ethical issues – definitive medical care in emergencies and leading Medical Emergency Teams (METs)

Students now have a single 'Life Support Provider' profile that travels with them throughout the course and can be extended into postgraduate foundation training and beyond. The students can use a wide variety of sources to evidence their achievements. One directly observed clinical performance report or video of managing a simulated emergency can evidence several items in the profile.

Video of participation in simulations of medical emergencies can be obtained and up-loaded to the eportfolio. An uncompressed video of beginning BLS (approx 3 mins.) was 30MB but the default file size limit of PebblePad was 10MB so some compression was required. The ability to assess performance in the scenario from video was compared for four compressed video



file sizes. Only compression to 2MB was significantly different to the uncompressed video (p<0.001) in terms of 'assessability'.



We did not want students to have to learn video-editing so have an ICT specialist to help students capture key clips and compress them. We found it was not hard to compress 3 minutes of video into a 10MB file. Having a limit prompts students to be discerning of performance issues when extracting a short sequence rather than just submitting a video file of a whole scenario.

We are currently investigating outcomes of our BLS and ALS teaching methods. Early feedback from students has suggested that we are achieving our aims. Many students from all years of the course and new graduates have reported being able to begin treatment of medical emergencies occurring both in the community and in healthcare settings.

## The major regional healthcare professional employer is now trialling the eportfolio for trainee medical officers.

The initial focus was on adult life support but it is now being extended to include paediatric BLS and ALS.

'Assessability' of a 3min 15sec video of Basic Life Support Hayres K, et al. (2009)

### The learning

An eportfolio profile can be a 2-way tool. It reveals the curriculum and informs students of professional expectations. It gives students the opportunity to individualise learning and identify the most appropriate learning opportunities for them.

A video file size limit is good because it helps students focus on the important issues they want to portray in a short clip extracted from a longer video. However, we had to find a way to help students manage their video.

Video files may include other students, staff and standardised patients so a clear policy on confidentiality is essential and an appropriate consent form is needed. Reflection is core to the learning process but medical students do not get good teaching on becoming reflective practitioners.

It can take years for new ideas to be accepted and adopted. Whilst medicine is moving towards 'evidence-based' patient care, 'evidence-based education' is still to be adopted.

### In brief

- An eportfolio is a good way for students to track progress throughout the medical course and can assist learning and demonstrate improvement over time.
- The structure of teaching is as important for leaning as the content.
- There is widespread confusion between learning management systems and eportfolios.
- File size limits for video-evidence in an eportfolio has a good side it makes users identify what is important.
- Adding assets to an eportfolio over time can evidence important outcomes of medical education such as becoming an independent learner, and professional and ethical behaviour.

### References

Hayres K, Owen H, Plummer J, Sprick C., 2009 Video compression and assessment of basic life support skills, *International Journal of Clinical Skills*. 2009; 3, pp159-163.

### **Acknowledgements**

Case study by Harry Owen, Cyle Sprick and Lynne Sanderson All images courtesy of Flinders University and Harry Owen