Skills development at a paramedic accident simulation centre

Handling a virtual incident is no substitute for ‘real life’ training, complete with crashed vehicles and casualties, as John Donaghy explains

The accident simulation centre at the University of Hertfordshire is a practical, ‘real life’, safe working environment in which student paramedics, and other healthcare students, can experience some aspects of pre-hospital care and contextualise their theoretical studies. It is an outdoor facility and has two damaged motor vehicles, a motor cycle, a bicycle, an ambulance and associated clinical apparatus, and manikins.

Following its launch in June 2015, the centre has been used regularly by student paramedics who serve the London Ambulance Service NHS Trust and East of England Ambulance Service NHS Trust, and who are undertaking the undergraduate paramedic science foundation degree programme or the BSc honours paramedic science degree programme. The facility enables these students to apply their theoretical knowledge and understanding to the management of patients with minor conditions, and to those who have sustained multiple system failure as a result of the mechanism of injury and prolonged entrapment or being thrown from a vehicle following a road accident.

Student paramedics attend practical teaching sessions at the centre based on objective structured clinical examination scenarios that involve patient assessment, patient management and patient extrication. Experienced paramedic lecturers from the university’s school of health and social work use their wealth of operational knowledge to create multiple scenarios, ranging from single patient encounters to multiple patient encounters following complex accidents, and encourage exploration and learning from each scenario.

It is envisaged that the centre will further support student paramedics’ education through mutually beneficial collaboration with agencies such as the
fire and rescue service, the police and specialist hazardous area response teams.

Despite the 2% reduction in road traffic deaths and 6% reduction in serious injuries between 2012 and 2013, the 1,713 deaths and 21,657 serious injuries on UK roads in 2013 remain a cause for concern (Department of Transport 2014). Many of these deaths and injuries are the result of prolonged periods of entrapment or ejection from motor vehicles. These incidents are demanding for all emergency service and medical staff, whether they are involved at the scene, during the acute period, or in the long-term care of patients and their relatives.

The centre provides two levels of training. It supports undergraduate paramedic development and helps students meet the Health and Care Professions Council’s standards of proficiency (2014) to enable registration; and it supports students to complete the MSc paramedic science programme at the university and engage in continuing professional development activities. Post-graduate training is vital, particularly with the recent development and implementation of critical care paramedic, specialist paramedic and advanced paramedic roles (College of Paramedics 2015). The centre can expose both post-registered and post-graduate healthcare professionals to high acuity patient care in a range of extreme environments, including at night with little or no natural light, in wet, windy and wintery conditions, or in hot humid conditions.

Skills training and theoretical developments are redundant if they do not improve patients’ prognoses and outcomes. The centre has been functioning for less than a year, so evidence to support its use in terms of improved patient outcomes will be quantifiable at a later date. However, feedback from students suggests that the accident simulation centre enhances their learning experience and equips them with the knowledge, skills and understanding required to work in complex, sometimes hostile, and uncertain environments.

Comments from students include:

■ ‘A fantastic resource’.
■ ‘It’s really good to be able to get out of the classroom and get our hands dirty’.
■ ‘It doesn’t look much when you see it; that’s the centre, with just the two cars and an ambulance, but once you start getting all the kit out of the lock-up, and get the equipment out and manikins in position, you start to really think this looks good’.
■ ‘This will help us look after patients better, I think’.

Location and design

After successful application for funding from the university, we started to think about the location and design of the centre in more detail. For example, it had to enable student paramedics to work without distracting other students, the staff or the public, and it had to be a reasonable distance from the main campus, but still easily accessible to students.

Although this style of simulation is not new in emergency service training, having a facility like this at a university for the sole use of paramedic and other healthcare students is unique. Traditionally, paramedics would use local fire and rescue service training facilities, which meant they had to travel, which had financial implications for students and education providers.
The centre also had to be as safe as possible without losing its authenticity, so windows, fuel and batteries were removed from the vehicles, and air bags were turned off. A wide range of equipment was required to recreate a multitude of scenarios, so additional funding was secured for items such as scoop stretchers, rescue boards, extrication support splints, all-weather manikins, paediatric and child manikins, safety helmets, protective eye wear and footwear.

Conclusion
There is a sense in the paramedic profession that a training model that focuses on skills acquisition and surface learning does not necessarily equip students with sufficient knowledge and understanding to meet the evolving scope of paramedic practice.

In contrast, the shift to higher education builds a sound theoretical base that underpins and embeds the practical elements of the programme (Donaghy 2008). Drawing on this approach to paramedic education, the centre supports the concept of simulation and maintains a realistic approach to paramedic education and development. The ultimate aim of simulation, aside from offering students a diverse and realistic experience, is to improve patient safety and outcomes.

Evidence suggests that improved patient outcomes follow simulation, and the centre strives to achieve this by applying theoretical evidence-based knowledge to practical work-based simulated teaching sessions, and using a robust assessment strategy.

Overall, the centre supports and enhances students’ experiences to potentially improve patient outcomes.

References