Resuscitation (2007) **72**, 252—256

RESUSCITATION

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TRAINING AND EDUCATIONAL PAPER

Emergency medicine training for Croatia: A Croatia-Australia partnership☆

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Received 6 December 2006; accepted 6 December 2006

KEYWORDS
Emergency medicine;
Education

Summary As part of a health system improvement project, the Republic of Croatia has been conducting a pilot project aimed at rationalizing care delivery across the primary care, hospital and secondary care systems. One component was the development of an emergency department at Dr T Bardek Hospital in Koprivnica and training of its staff. This paper describes how a training programme was conducted, using an established emergency department in Australia as the training host, and the outcome of the project. This type of training programme could form a model for specialist Emergency Medicine training in the future.

Introduction

The Republic of Croatia received a loan from the International Bank for Reconstruction and Development for a health system project comprising five elements: health service delivery, public health, pharmaceutical waste management, system wide initiatives including protocols and policies, and project information and management. The service delivery component include a pilot project involving primary care, hospital and secondary services that was primarily directed towards rationalisation of the delivery system and use of health care. One aspect of this was the establishment of an emergency department and specialised training in emergency medicine (EM) for selected health professionals in the pilot region in Koprivnica-Križevci County.

Presently, emergency medicine is not organised as a specialised service in Croatia and there is no established vocational training programme for either doctors or nurses. Therefore, the main goal at the national level is to develop an efficient and effective EM system in accordance with international standards. Being aware that education

☆ A Spanish translated version of the summary of this article appears as Appendix in the final online version at 10.1016/j.resuscitation.2006.12.001.

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doi:10.1016/j.resuscitation.2006.12.001

in emergency medicine is a lengthy process for individuals as well as for the health system, a stepwise approach has been proposed with the long term aim of emergency medicine specialty training programmes developed according to the already established International EM curriculum. Interim measures include the provision of advanced life support courses [cardiac, trauma and paediatric] for all healthcare professionals involved with emergencies and the provision of a competencies-based, experiential learning programme based on the European curriculum in Emergency Medicine[1] in an established emergency medicine training centre for staff involved in the pilot project. A core group of 5 doctors and five nurses from the pilot region in Koprivnica-Križevci County were assigned for this type of training. Since Croatia is not a member of the European Union, it was not possible to obtain a short-term licence for them to receive education in emergency medicine within Europe that would include practice of essential skills on patients.

Therefore, Australia was chosen because it offered Croatian medical professionals the opportunity to get 'hands-on-patient' training in an accredited tertiary emergency department, provided with conditional registration by the medical board in the relevant region of Australia.

This paper outlines how the programme was structured and the outcome.

The training programme

The training programme had three components: (1) a theoretical component taught by problem-

Table 1 Specific learning objectives of course

Objective	
Knowledge	Clinical skills
Pain management	Management of cardiac arrest (adult)
Acute dyspnoea	Management of cardiac arrest (child)
Chest pain	Basic airway management
Collapse	Advanced airway management
Arrhythmias	Conscious sedation (adult and child)
Abdominal pain	IV access
Bleeding in early pregnancy	Defibrillation
Complications of late pregnancy	ECG interpretation: advanced
Perinatal problems, including PPH and delivery	X-ray skills
Fever	Wound management
Confusion	Spinal immobilisation
Neurology: Headache, seizure, CVA	Reduction of dislocations
Diabetic problems, including DKA, hypoglycaemia, hyperosmolar state	Monitoring equipment
Trauma: principles	Local and regional anaesthesia
Paediatrics: Dyspnoea	Advanced IV access
Paediatrics: Fever	Triage: Theory
Paediatrics: vomiting and diarrhoea	Triage: Practical
Toxicology	
Non-invasive ventilation: theory	
Miscellaneous: anaphylaxis, hyperkalaemia	
Dealing with aggressive/violent patients	
Other skills	
Team work	
Teaching skills	
Quality measurement/KPI	
Medicolegal	
Major incident management/multi-casualty situations	
Communication/Interface with primary care	
Research interpretation	
Evidence-based practice	
Principles of EMS	
ED design and equipment	
Charting and documentation	

Table 2 Clinical competencies objectives

Triage orientation
Intravenous cannulation
Basic life support
Advanced cardiac life support
Paediatric life support
Trauma life support
Basic ECG analysis
Advanced ECG analysis
Pain management
Advanced airway management
Rapid sequence induction
Mechanical ventilation
Arterial blood gases
Advanced patient assessment [paediatric and adult]
Arterial line insertion [physicians only]
Central venous access [physicians only]

based learning techniques and skills workshops in a one week intensive course in Croatia and then as twice-weekly sessions on site in Melbourne; (2) a 14-week clinical experience component in the emergency departments of Western Hospital and Sunshine Hospital in Melbourne, Australia and the Intensive Care Unit at Western Hospital and (3) a service improvement project of the candidate's choice completed on return to Croatia under the mentorship of the Australian teaching staff. The specific learning objectives and competencies are included in Tables 1 and 2. Although the specific learning objectives formed the core of the programme, it should be noted that these were expanded or modified according to the identified group and individual learning needs.

Assessments were by competencies tests, critical case reviews, short answer question written examinations and clinical scenario-based testing [Objective Structured Clinical Examination style].

Topics chosen for the service improvement projects were asthma management, triage, staff education and competency, ECG interpretation skills, resuscitation teams, reducing distress for children undergoing procedures, pain assessment and management, nursing documentation, nursing assessment and initial procedures and providing patient education/information.

Outcomes

All candidates completed all of the assessments successfully and were awarded certificates of completion at a ceremony in Koprivnica in June, 2004. All candidates in post course evaluations also reported increased levels of knowledge and skills regarding care of emergency patients and skills in process improvement, education and evidence-based review of treatment.

The most tangible demonstrations of the programme are the translation of knowledge and skills

Table 3 Table of project and major outcomes for Koprivnica-based projects

Project topic	Outcomes
Asthma management	New asthma management protocols in liaison with Respiratory Medicine. Introduction of nebulised salbutamol. Improved documentation re asthma care
Education	Programme of ED education instituted. Competencies in ACLS taught and assessed for all nurses and doctors in ED
ECG interpretation	Improved ECG interpretation skills in ED nurses especially myocardial infarction. Extension of programme into rest of the hospital
Resuscitation teams	Basic and advanced life support has been trained in teams using European Resuscitation Council guidelines. Team-based management of the critically ill is being developed
Triage	Triage process and station established. Data linkage between reception/triage and ED work area. Collection of data re waiting times commenced
Paediatric sedation	Processes for reducing distress have been reviewed and improved. Additional resources for distraction therapy purchased. Staff education regarding sedation and monitoring completed. Sedation protocols being developed
Patient information	The most common types of patients treated and discharged from ED have been identified and evidence-based information sheets developed
Pain management	Pain scoring has been implemented and a trial of opiate analgesia for abdominal pain is underway
Documentation	A nursing observation chart has been developed and staff educated about the value of documentation
Assessment procedures	A framework and guidelines for initial nursing assessment and intervention in specified patient types has been developed and implemented

into practice. One example is the projects that have been completed as part of this programme. Varied in focus, all have been successfully implemented and have made changes to the quality of care delivery at the emergency department of Dr T Bardek Hospital in Koprivnica [the study site]. The projects and their outcomes are summarised in Table 3.

Discussion

Overall the programme has been highly successful. Participants have increased their skills and knowledge in emergency medicine and implemented changes that have significantly improved care at the study site.

Although not formally a part of the curriculum, participants identified a need to develop leadership, administrative and change management skills, seeing these as pivotal if they were to be able to translate what they had learned into their workplace in Croatia. The programme was adapted to address these issues.

We made a conscious decision to teach doctors and nurses together for the majority of sessions. Only sessions focussed entirely on discipline-specific competencies were conducted separately. The rationale was that as they would work as a team in patient care, there was a fundamental need to develop the same core knowledge and approach. Understanding the competencies and roles of all members of the team was also essential to smooth running of an ED. Most of the participants adapted well to this and reported additional benefit from this approach with respect to future working roles. In many ways this team approach ran counter to the hierarchical hospital structures that the participants were familiar with and became one of the important ways of encouraging new ways of thinking about established structures and managing change.

The variable level of training and experience of the participants proved challenging for the education team. A considerable amount of extra time and effort was spent addressing knowledge gaps, especially for the nursing participants. In hindsight, this variation could have been predicted from the different approaches to nursing and medical education in Australia and Croatia. Future programmes will need to take this into account when developing programme structure and content.

Additional challenges of language and culture were generally met by the participants, although this was mitigated to an extent by support from the expatriate Croatian community in Melbourne. In addition, the principles of emergency medicine in Australia are grounded in the Anglo-American model of emergency care in contrast to the current system in Croatia. Thus adaptation was required in order to maximise learning opportunities.

This programme appears to have resulted in meaningful change and service improvement in the Emergency Department of Dr T Bardek Hospital in Koprivnica.[2,3] This is evidenced by the project outcome and by the broader roles that the participants are now playing within the hospital. While in part due to the skills and confidence gained in this programme, this has also been facilitated by a range of managers at Dr T Bardek Hospital who have recognised the potential. They are to be commended for their support and encouragement of the participants.

While this project has been a success, the future holds a number of challenges. The magnitude of impact and continued success will rely on support and leadership within the emergency department, the hospital and the health system. This programme has proven a catalyst for change but its sustainability and transfer to other health professionals remains to be established. What can be achieved will be limited to an extent by resource availability. That said, very few processes improvements are technology dependent. Most involve challenging old ways of working and communicating. It also remains to be seen if the learnings of this group can be generalising to other hospitals in Croatia, either by sharing this programme or developing other methods of knowledge transfer.

This project has also had positive impacts on the Australian ED. The staff there have had opportunities to develop teaching and project management skills. We were also enriched by working with highly motivated and committed participants. Enduring friendships have been the result.

Conclusion

This project has demonstrated that a multi-component, structured education programme in Emergency Medicine can achieve greater knowledge and skill in emergency care and translate into change in an emergency department. It could form a model for future specialist training programmes.

Conflict of interest statement

None.

Acknowledgements

This project would not have been possible without the support and assistance of several groups: The Ministry of Health Project Team led by Drs Benic and Hunyadi-Anticevic; leaders at Dr T Bardek Hospital including Drs Bardek, Slavetic and Madjaric and the educational team at Western Health co-ordinated by Jillian Fleming. We would also like to congratulate the participants for their trust, commitment and achievements.

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