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ORIGINAL ARTICLE

Competence in performing emergency skills: How good do doctors really think they are?

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ABSTRACT

Introduction: Despite the differences in exposure and experience in dealing with medical emergencies, all doctors should nevertheless be competent to assist a patient in need of resuscitation. The objective of this study was to describe the level of self-assessed emergency skill competence that specialist trainees in various disciplines possessed as well as to identify factors that may have contributed to their level of self-perceived competence.

Methods: A prospective, cross-sectional, questionnaire study of various specialist trainees' self-perceived levels of competence in emergency skills was conducted across three academic hospitals in Johannesburg, South Africa. Trainees from General Surgery and Internal Medicine (Clinical) and Psychiatry and Radiology (Non-Clinical) rated their self-perceived level of competence in a list of basic, intermediate and advanced emergency skills according to a five-point Likert ranking scale.

Results: Ninety-four specialist trainees participated in the study – a response rate of 36%. The overall median competence rating for cardiac arrest resuscitation was 3.0 [IQR 3.0, 4.0] (i.e. intermediate). The median competence rating for cardiac arrest resuscitation in the clinical group (4.0) [IQR 3.0, 4.0] was higher than in the non-clinical group (3.0) [IQR 2.0, 3.0] ($p < 0.001$). Current or expired certification in Paediatric Advanced Life Support (PALS) or Advanced Paediatric Life Support (APLS) courses increased perceived competence and delays in starting specialisation resulted in a decrease in overall competence composite scores for each year of delay after internship.

Discussion: General Surgery and Internal Medicine trainees had a higher level of self-perceived competence in various emergency skills than their non- clinical counterparts. Current certification in advanced life support courses had a positive impact on trainees' self- perceived levels of competence in emergency skills. Specialist trainees who had less delay before starting their specialist training also demonstrated higher levels of perceived competence.

African relevances

- All doctors should be competent to assist a patient in need of resuscitation.
- Non-clinical specialities may limit specialist trainees' exposure to emergency skills.
- Advanced life support short courses and simulation training is crucial for all disciplines.

Introduction

Doctors are at times called upon to resuscitate patients, but in order for them to be able to function effectively in these resuscitations, they should possess the competence and skills to do so [1]. Life-saving emergency skills range from basic Cardiopulmonary Resuscitation (CPR) with the use of an Automated External Defibrillator (AED) to more advanced skills such as the performance of a cricothyroidotomy or the insertion of a central venous catheter. There are many short courses available that may provide doctors with the requisite knowledge and skills to resuscitate patients in an emergency but this may not necessarily lead to competence or confidence [2–6].

Due to the nature of medical specialisation, doctors in certain non-clinical specialities, such as radiology and psychiatry, will

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Table 1
Scores used by specialist trainees to rate their level of competence in each emergency skill.

Level	Competency	Explanation
1	Poor	No knowledge or ability in the skill and would not be able to perform the skill
2	Basic	Some knowledge and ability in the skill and would be able to perform the skill only if supervised
3	Intermediate	Adequate knowledge and ability in the skill and would be able to perform the skill unsupervised
4	Advanced	Advanced knowledge and ability in the skill and would be able to perform as well as teach the skill
5	Expert	Expert knowledge and ability in the skill and would be able to perform the skill even in difficult and complicated patients

Table 2
Division of Emergency Skills.

Basic skills	Intermediate skills	Advanced skills
Adult CPR	Defibrillation	CV catheter insertion
Child CPR	Synchronised cardioversion	Arterial line insertion
Infant CPR	Endotracheal intubation	Venous cutdown
Use of an AED	Insertion of Laryngeal Mask Airway	Escharotomy
Relief of choking in adults	Transcutaneous pacing	Cricothyroidotomy
Relief of choking in infants	Needle thoracocentesis	Pericardiocentesis
Bag-mask ventilation	Intercostal drain insertion	Thoracotomy Fasciotomy

CPR, cardiopulmonary resuscitation; CV, central venous; AED, automated external defibrillator.

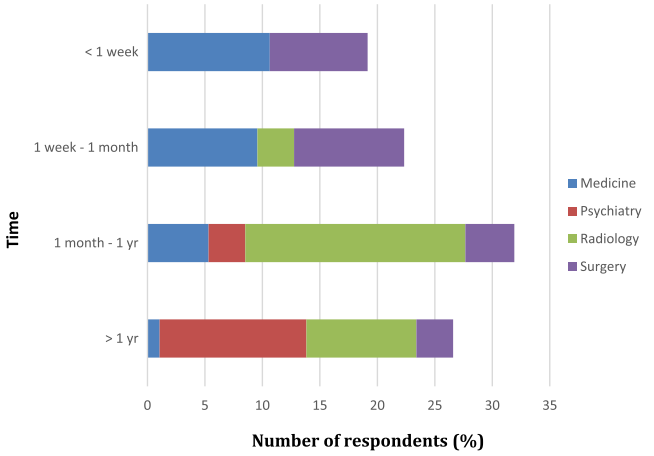

Fig. 1. Time since last resuscitation attempt.

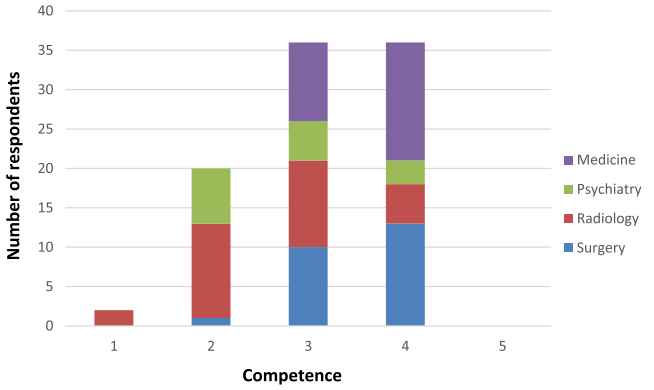

Fig. 2. Frequency distribution of competence in most recent resuscitation of a patient in cardiac arrest.

have limited exposure to managing patient emergencies. Despite the differences in exposure and experience in dealing with medical emergencies, all doctors should nevertheless be competent to assist a patient in need of emergency treatment or resuscitation. The objective of this study was to describe the level of self-assessed emergency skill competence that specialist trainees in various disciplines possessed as well as to identify factors that may have contributed to their level of self-perceived competence.

Methods

This was a prospective, cross-sectional, questionnaire study of various specialist trainees' self-perceived levels of competence in emergency skills. It was conducted across three academic hospitals, in Johannesburg, South Africa. The study sample was comprised of specialist trainees working in four specialities: internal medicine, general surgery, radiology and psychiatry. The internal medicine and general surgery groups were combined to form the clinical group while psychiatry and radiology were combined to form the non-clinical group. In order to detect a 20% difference between the clinical and non-clinical groups, a minimum of 40 specialist trainees was required in each group. This sample size was calculated for a power of 80% at a significance level of 0.05. All specialist trainees, in each of the disciplines, attending their respective weekly academic meetings, were invited to participate. Data was collected in the form of anonymous questionnaires. Specialist trainees were asked to rate their own level of competence in a list of emergency skills by using a five-point Likert scale as shown in Table 1. The emergency skills were divided into basic, intermediate and advanced as shown in Table 2.

The basic skills chosen were those included in the Basic Life Support (BLS) course – i.e. skills that any doctor might be expected to possess. The intermediate skills were chosen based on skills that would be learnt in an advanced life support course, such as the Advanced Cardiovascular Life Support (ACLS) course, as well as being similar to procedures that doctors are expected to perform during internship in South Africa [7,8]. The advanced skills included those skills taught on the Advanced Trauma Life Support (ATLS) course and are considered to be technical skills more specific to the experienced practitioner.

Data analysis was carried out using SAS version 9.3 (copyright, SAS Institute Inc., Cary, North Carolina, USA). Composite scores for the self-assessed competency in basic, intermediate and advanced emergency skills were calculated from the median scores of the

Table 3
Division of specialist trainees between disciplines.

Discipline	Number of eligible specialist trainees	Questionnaires returned	Response rate
Clinical group			
Internal Medicine	90	25	28%
General Surgery	80	24	30%
Non-clinical group			
Radiology	50	30	60%
Psychiatry	45	15	33%

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