Lifelong learning and team training in emergency medicine

Lifelong learning in emergency medicine is the process of continuous education and maintenance of practical skills and certification. Lifelong learning means accurate current knowledge, self-assessment of abilities to implement new facts and apply processes to daily practice, and periodic assessment of clinical performance. Learning is not confined to childhood or the classroom, but takes place throughout life and in a variety of situations. The scientific community has to accept that learning is a continuous process: it is no longer limited to knowledge gained at school and university.

Emergency medicine teachers provide lifelong learning (formal and practical teaching) to young students and doctors. These teachers must also practise lifelong learning themselves in order to continue to develop their own knowledge. In this sense, lifelong learning overrides conventional continuing medical education (CME) programmes, through which physicians are able to claim credit for educational activity. Lifelong learning encourages voluntary and self-motivated pursuit of knowledge in the field of medicine.

Motivation is key to lifelong learning, but it is also an essential part of team training. The importance of team training and assessment to patient safety and clinical practice has been reported throughout the simulation and healthcare quality literature. The dynamic and complex nature of the work environment, and the interdisciplinary nature of emergency medi-

cine, makes this type of training ideal for this specialty [1].

Several decades of psychological research have demonstrated that teams, collectively possessing high levels of expertise, resources and commitment to success, can still fail if they do not have strong teamwork skills [3]. A team's processes are critical to its effectiveness; this is especially true for 'action teams' such as aircrews, military command and control – and emergency medical teams, where specialized experts have to coordinate their knowledge, effort, and skills in uncertain, time-critical situations [1].

The success of medical teams is based on the knowledge, skills and attitudes (KSAs) that are critical to effective team performance. Such teams have to cope with various diagnostic and therapeutic manoeuvres, i.e. processes that subsequently follow each other leading to final diagnosis and definitive therapy. The characteristic features of emergency team management can be described as an 'in-

put – process – output' model (■ Fig. 1). The number of processes finalized by the emergency team in a defined time frame (e.g. the prehospital phase or in the emergency department) is a measure of team performance and therapeutic success. In terms of therapeutic strategy and quality management, there are clear parallels to the team training undertaken by air-line crews.

Further key elements of team training are team leadership and coordination. This constitutes an even higher level in the process of continuous learning and education: each team member's competence, ability for process management and optimization of workflow in emergency treatment has to be evaluated repeatedly. Through this process, the team leader gains insight into each team member's knowledge, abilities and performance. Thus, through the process of re-evaluation, the leader learns how to optimize overall team performance.

Fig. 1 ▶ Input – process – output model of team competence and team effectiveness. Modified from [1]

The forthcoming European Resuscitation Council (ERC) Guidelines for Resuscitation 2010 will, once again, represent a milestone in medicine. Soon after the 'new' guidelines are published in 2010, the next cycle of evidence evaluation will begin focussing the scientific knowledge gained during the intervening period [2], thus reflecting lifelong learning in emergency medicine!

Corresponding address

Prof. Dr. U. Kreimeier
Klinik für Anaesthesiologie,
Klinikum der Universität München
Nussbaumstr. 20, 80336 München
Uwe.Kreimeier@med.uni-muenchen.de

Conflict of interest. The corresponding author states that there are no conflicts of interest.

References

1. Fernandez R, Kozlowski SW, Shapiro MJ, Salas E (2008) Toward a definition of teamwork in emergency medicine. *Acad Emerg Med* 15:1104–1112
2. Gazmuri RJ, Nolan JP, Nadkarni VM et al (2007) Scientific knowledge gaps and clinical research priorities for cardiopulmonary resuscitation and emergency cardiovascular care identified during the 2005 International Consensus Conference on ECC and CPR Science with Treatment Recommendations. A consensus statement from the International Liaison Committee on Resuscitation; the American Heart Association Emergency Cardiovascular Care Committee; the Stroke Council; and the Cardiovascular Nursing Council. *Resuscitation* 75:400–411
3. Hackman JR (1998) Why teams don't work. In: Tindale RS, Heath L, Edwards J (eds) *Theory and research in small groups*. Plenum, New York, NY, pp 245–267

Termine

Oktober 2009

München 09.-10.10.2009
39. Bayerische Anästhesietage (BAT)
Themen: Der Traumpatient in der Anästhesie und Intensivmedizin, Patient mit alterierter Blutgerinnung, Infusion und Transfusion zwischen Eminenz & Evidenz
Auskunft: Frau Petra Dörflinger, MCN Medizinische Congressorganisation Nürnberg AG, Neuwieder Str. 9, 90411 Nürnberg, Fon: 0911/3931621, Fax: 0911/3931678, bat@mcnag.info, www.mcn-nuernberg.de

Jena/Weimar 14.-17.10.2009
4. Jahrestagung der DGina e.V.
Deutsche Gesellschaft Interdisziplinäre Notfallaufnahme e.V.
Auskunft: Deutsche Gesellschaft Interdisziplinäre Notfallaufnahme (DGina) e.V., Paul-Ehrlich-Str.1, 22763 Hamburg, Fon: 040 / 1818 811518, kontakt@dgina.de, www.dgina.de

München 16.-17.10.2009
Interdisziplinäres Symposium zur Simulation in der Medizin (InSIM)
Interaktives und praxisnahes Forum für Simulationsanwender und Verantwortliche aus Anästhesie, Chirurgie, Geburtshilfe, Kardiologie, Notfallmedizin, Pädiatrie, Rettungsdienst u.a.
Auskunft: Institut für Notfallmedizin und Medizinmanagement, Klinikum der Universität München, Schillerstr. 53, 80336 München, Fon: 089/51607101, Fax: 089/51607102, insim.2009@med.uni-muenchen.de, www.insim.info

Heidelberg 17.10.2009
9. Heidelberger Seminar Invasive Notfalltechniken
Themen: Thoraxdrainage, Intraossäre Punktion, Notfallkoniotomie
Auskunft: Frau Ute Hofmann, Klinik für Anaesthesiologie, Im Neuenheimer Feld 110, 69120 Heidelberg, Fon: 06221/566351, Fax: 06221/565345, AKNotfallmedizin@med.uni-heidelberg.de

Berlin 21.-24.10.2009
Deutscher Kongress für Orthopädie und Unfallchirurgie
Mit Herausforderungen leben
Themen: Schwerverletzung und Schwerbehinderung/Schnittstellenmanagement/Risikomanagement/Ökonomie und Ethik/Experimentelles Forum/EBM/OP-Pflege/Physiotherapie, Ergotherapie, Logopädie
Auskunft: Intercongress GmbH, Wilhelmstr. 7, 65185 Wiesbaden, Fon: 0611 97716-0, Fax: 0611 97716-16, orthopaedie-unfallchirurgie@intercongress.de, www.orthopaedie-unfallchirurgie.de

November 2009

Berlin 06.-07.11.2009
6. Fortbildungskongress Neugeborenen Notfälle 2009
Themen: Neonatologie, Pädiatrie, Gynäkologie, Geburtshilfe, Notfallmedizin
Auskunft: Frau Katrin Taepke, MCI Deutschland GmbH, Markgrafenstr. 56, 10117 Berlin, Fon: 030-20 45 924, Fax: 030-20 45 950, katrin.taepke@mci-group.com, www.mci-berlin.de/neo2009

München 13.-14.11.2009
2. Münchner Workshop „Kindernotfälle“
Curriculum Kinderheilkunde gemäß DIVI für Notärzte
Auskunft: Deutsche Akademie für Entwicklungsförderung und Gesundheit des Kindes und Jugendlichen e.V., Heiglhofstraße 63, 81377 München, Fon: 089 / 724968 11/12, info@akademie-muenchen.de, www.akademie-muenchen.de

Köln 14.11.2009
Medizin International
Weltweite Chancen für Ärzte
Themen: Informations- und Beratungsveranstaltung für Ärzte die im Ausland arbeiten wollen
Auskunft: Frau Christine Kaffke, CKW – Büro für Seminarorganisation, Kölner Str. 30, 51429 Bergisch Gladbach, Fon: 02204/427382, seminare@ckw-info.de, www.marburger-bund.de

Erlangen 27.-28.11.2009
14. Erlanger Notfallmedizinische Tage „Präklinische Notfallversorgung – Entwicklung und Trends“
Themen: CME-zertifizierte Fortbildungsveranstaltung
Auskunft: Anästhesiologische Klinik, Universitätsklinikum Erlangen, Krankenhausstr. 12, 91054 Erlangen, Fon: 09131 / 85-39180 (Mo-Do 15-16 h), Fax: 09131 / 85-39161, kongress@kfa.imed.uni-erlangen.de, http://www.anaesthesie.uk-erlangen.de

Mannheim 27.-28.11.2009
26. Südwestdeutsche Anästhesietage (SAT)
Wissen – Können – Handeln
Themen: Der Patient mit Herzinsuffizienz/COPD/Leberinsuffizienz, Zielgerichtete Volumentherapie, Thrombozyten – Freund oder Feind
Auskunft: Frau Melanie Gruber, MCN Medizinische Congressorganisation Nürnberg AG, Neuwieder Straße 9, 90411 Nürnberg, Fon: 0911 / 39316-16, Fax: 0911 / 39316-56, sat@mcnag.info, www.regionaltagungen.de

ERC-Kurskalender

- Termine
- Informationen und
- Anmeldung

für alle Kurse in Deutschland
und Österreich **www.erc.edu**