

CPR test on a manikin, measuring compression and ventilation skills. Data were collected and analysed with Skill reporting software (Laerdal), Anova, Kruskal–Wallis and Mann–Whitney *U*-tests.

Results: Mean percentage of correct compression depth (38–51 mm) was 28, 27, 26 and 27% for groups 1–4, respectively, without differences between groups ($P=0.25$). Mean compression rate was 95/min and 85/min for pupils who practiced on a manikin and a foam dice respectively ($P<0.001$). **Conclusions:** A foam dice may be an inexpensive alternative for a manikin to practice chest compressions. A plastic bag is less effective for ventilations. The overall poor skill acquisition may be explained by the combination of an inexperienced teacher and limited hands-on time.

References

1. Breckwoldt J, Beetz D, Schnitzer L, Waskow C, Arntz H, Weimann J. Medical students teaching basic life support to school children as a required element of medical education: a randomised controlled study comparing three different approaches to fifth year medical training in emergency medicine. *Resuscitation* 2007;74:158–65.
2. Iserbyt P, Behets D. Learning basic life support with task cards: comparison of four reciprocal learning settings. *Acta Anaesthesiol Belg* 2008;59:249–56.
3. Reder S, Cummings P, Quan L. Comparison of three instructional methods for teaching cardiopulmonary resuscitation and use of an automatic external defibrillator to high school students. *Resuscitation* 2006;69:443–53.

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AS113

Efficacy of a fully computerised self-learning station for initial acquisition of basic life support skills: A randomised non-inferiority trial

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Introduction: Current computerised self-learning (SL) stations for Basic Life Support (BLS) are an alternative to instructor-led (IL) refresher training but are not intended for initial skill acquisition. We developed a SL station for initial skill acquisition and evaluated its efficacy.

Methods: In a non-inferiority trial 120 pharmacy students were randomised into IL training (max six students) or training in a SL station. In the IL group, instructors demonstrated the skills and provided feedback. The SL group combined the use of an abbreviated Mini Anne™ video to acquire the skills and the Resusci Anne Skills Station™ software (both Laerdal, Norway) with voice feedback for further refinement. Differences in mean compression depth and rate, ventilation volume and proportion successful students (depth 40–50 mm, ventilation volume 400–1000 ml) were calculated and adjusted for gender, length, weight and previous BLS course using general linear and logistic regression models. Non-inferiority margins were five mm for depth, 200 ml for volume, 20/min for rate and a 10% difference for proportions.

Results: One hundred and seventeen participants were tested seven weeks after initial training (three drop-outs). Mean depth was 44 mm (IL) and 45 mm (SL) ($P=0.8$; mean diff. 90% CI –2.9 to 2.1), mean rate was 100/min (IL) and 98/min (SL) ($P=0.23$; mean diff. 90% CI –1 to 7), demonstrating non-inferiority. Mean ventilation volume was 486 ml (IL) and 729 ml (SL) ($P=0.001$). Proportion of successful students was 28/56 (IL) and 33/61 (SL) for depth, and 29/56 (IL) and 36/61 (SL) for ventilation, but non-inferiority tests for differences between these proportions were inconclusive.

Conclusions: Based on the differences between mean compression depth, rate and ventilation volume, skills acquired using a SL station with video-based BLS introduction were not inferior to IL training. Further studies powered for differences between proportions are needed.

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Training to deeper compression depth using a computerised self-learning station: First results of a prospective randomised study

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Introduction: Studies show that students trained to perform compressions according to guidelines often do not achieve sufficient depth at retention testing. We hypothesized that training to depths exceeding recommended upper limits would lead to better retention. This abstract describes baseline skill level and training to different compression depths using a self-learning station.

Methods: A BLS self-learning station was attended by 190 third year medicine students who were blinded for the study goals. They were first offered the possibility to refresh their skills following the instructions of a 15 min abbreviated Mini Anne™ video (Laerdal,

Norway) using a full size torso and a face shield. Refresher training was followed by further training using the Resusci Anne Skills Station™ software (Laerdal, Norway). Voice feedback was provided according to randomisation into a standard group (SG) 40–50 mm and a deeper group (DG) >50 mm. Compression depth was registered during the whole training session. Results are expressed as means (SD).

Results: The SG and DG groups had 90 (66% female) and 100 (56% female) participants, respectively. Thirteen students (5 in SG and 8 in DG) skipped the initial Mini Anne™ video. Mean compression depth during the video was 37 mm in both groups (SD SG 7, SD DG 9), with compression depth 40–50 mm achieved in 27/84 (32%) for the SG and 29/93 (31%) for the DG. Immediately after training with voice feedback all students reached the target depth without any overlap between groups, resulting in significantly different compression depths: 44 mm (SD 1.6; range 41–48) and 55 mm (SD 2.5; range 51–60) in the SG and DG, respectively ($P<0.001$).

Conclusions: Compression depth was insufficient during video assisted refreshment. The self-learning station proved highly effective to achieve different depths in both groups. Follow-up will determine if compression depth remains deeper in the deeper group.

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Unannounced in situ simulation represents a realistic method for teaching the technical and non-technical skills required for resuscitation

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Objectives: High quality performance in emergency situations is dependent upon technical and non-technical skills. Many national bodies recommend team training to promote good teamwork and improve the quality and safety of healthcare.¹ Simulation training offers an authentic, low-risk environment for teaching technical and teamwork skills.² Simulations can be delivered in many different ways from low fidelity simulators, to integrated fully immersive simulation environments. Immersive simulators are, however, extremely expensive, relatively inaccessible, and struggle to achieve realism. A new phenomenon of “in situ” simulation has been described, in which simulation activity takes place in a clinical setting.³ This has great potential as the environment, equipment and team are all genuine, at a fraction of the cost.

We aim to assess attitudes towards unannounced in-situ simulation for resuscitation training.

Methods: An appropriate clinical location is selected in which simulation can be delivered. Equipment is set-up, using the “SimMan 3G” Mannequin, and a portable audiovisual recording system to facilitate debrief. A pertinent scenario is chosen and one member of staff from the area is brought to the simulation location and asked to respond to the situation as they would to real events. The on-call cardiac arrest team for the day attend, without prior warning, when a “crash” call is made by the local staff. The progress of the simulation then continues without further interaction by the faculty. The simulations run for 30 min, divided equally between simulation and debrief related to technical and non-technical performance. Finally, we ask participants to complete a questionnaire.

Results: Of those attending simulations, 47 completed questionnaires. Results demonstrated that participants strongly agreed that the simulation was realistic, the clinical environment improves realism, and that unannounced in situ simulation is useful for resuscitation training.

Conclusions: Unannounced in situ simulation should be considered as a routine part of multidisciplinary resuscitation team training.

References

1. Joint Commission on Accreditation of Healthcare Organizations. Sentinel event statistics, June 29, 2004.
2. Beaubien J, Baker D. The use of simulation for training teamwork skills in healthcare: how low can you go? *Qual Saf Health Care* 2004;12:51–6.
3. Hammam W. In-situ simulation: using aviation principles to identify relevant teamwork and systems issues to promote patient safety. CRICO/RMF Forum 2008.

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