Peer assisted learning: a planning and implementation framework
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Context
Technical or clinical skills are essential components of a physicians’ clinical competence. The effectiveness of skills-lab training has been investigated and received a large amount of support from several studies employing a variety of methods (Lynagh et al. 2007). Although the effectiveness of peer assisted learning (PAL) has been demonstrated for practical courses in many other branches/subjects in undergraduate medical education we believe that no studies exist on the implementation and effectiveness of PAL for the training of technical skills in skills laboratory environments.

Activity
The “Clinical Skills Training - Basic Course” (CSTBC) at the University of Tübingen addresses skills which are necessary for the students’ first internship, defined by internal medicine consultants and year four medical students. The following learning objectives are included:

- blood pressure measurement
- skin cleaning and disinfection
- safe syringe disposal
- blood sampling
- intravenous cannulation
- blood pressure measurement
- intramuscular injection
- intradermal injection
- rectal examination
- Doppler ultrasound of peripheral arteries
- recording an electrocardiogram

Two skills-lab sessions (one week apart) - each lasting three hours – take place in the core curriculum in order to cover these learning objectives (Weyrich et al. 2008).

In summer 2005, a PAL programme was instituted to teach these skills. Recruitment of 4th-5th year student tutors occurred on a voluntary basis after a personal interview with the mentoring clinicians according to the selection criteria recommended by Sobral et al. (Sobral 2002). Consultants in internal medicine were responsible for peer tutor training. In addition, a detailed manual was compiled for the course by five experienced clinicians and supplied to the peer tutors as a reference guide, and the tutors received a specific training.

Participation is obligatory for all 3rd year medical students in the PAL-guided programme. The teaching/learning is carried out in groups of 6–8 tutees instructed by two peer tutors, resulting in a ratio of one tutor to a maximum of four tutees. Prior to the technical skill demonstrations, a contextual clinical background is provided by the tutors for each taught skill. The ratio of one tutor to a maximum of four tutees was selected in order to facilitate close supervision of tutees, as recommended by a meta-analysis on factors important for effective skills lab training (Issenberg et al. 2005).

Evaluation
In evaluating the PAL programme, the global quality of the student peer-guided activity was rated very highly among the learners (5.69 ± 0.07 on a 6-point Likert scale; 1 = very good up to 6 = unsatisfying; n = 127; response rate 67%). 85% of trainees considered the peer system to be sufficient for undergraduate skills-lab training, 14% expressed the wish for additional teaching by a qualified physician and 1% stated that the training should only be carried out by faculty staff in the future (Weyrich et al. 2008).

In a prospective, randomised trial, we furthermore evaluated the hypotheses that:
1. PAL is effective for training technical skills, and
2. PAL is equally effective as faculty-staff-led training.
Volunteer third year medical students were randomly assigned to one of two groups which received the regular CSTBC at our faculty from either cross-year peer tutors (intervention group I; n = 31) or experienced faculty staff (intervention group II; n = 28). A third student group was assessed prior to the CSTBC and served as a control group (control group; n = 30). Following training, both groups as well as the control group were assessed using an OSCE with three stations for various injection techniques. Two independent video-assessors scored the OSCEs using binary checklists (75 items each) and global ranking forms (six-point Likert scale, 8 items). In the OSCE, PAL (58.1±1 binary checklist points; 4.9±0.1 average global ranking points) and faculty staff-led groups (58.3±1; 4.7±0.1) scored significantly higher than the control group (33.3±1; 2.7±0.1, all p<0.0001). There was no significant difference between PAL and faculty-staff-led groups (p=0.92 for binary checklists, p=0.11 for global rankings).

Conclusion
In summary, the PAL model for technical skills training turned out to be feasible, highly accepted (from both tutees and tutors) and effective. A prospective randomised trial proved student tutors to be equally successful tutors as experienced faculty staff. We ascribe this success to the structured training of our student tutors, the close monitoring of the project by experienced faculty staff and the continuous availability of a mentoring doctor, as recommended by Ross and Cameron in their comprehensive guideline for implementation of PAL models (Ross and Cameron, 2007).

One may assume that our PAL model may be too costly in regard to the amount of time to be invested by faculty staff (recruitment, training and supervision of tutors, organisation, etc.). However, we point out the fact that this PAL model allows the training of more than 300 students a year at a small (1:4) tutor:tutee ratio and that definitely less faculty resources are consumed since the PAL model has been introduced into technical skills training at our faculty. Future research topics surrounding PAL in skills labs should address questions concerning the degree of clinical or technical skills difficulty which can be covered by PAL, and the technical and didactic training modules which are important in ensuring that student tutors are good and “fit for purpose”.

References

Notes on Contributors:
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This AMEE Guide Supplement was published in Medical Teacher 2008, 30, 4, p444-5