The use of an asynchronous learning network for senior house officers in emergency medicine

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Full-shift working by senior house officers (SHOs) is well recognised as a definite constraint to effective group learning, as it is practically impossible to gather all team members together for teaching sessions at any given time. Provision of a robust weekly teaching programme is further compromised in units where relatively few doctors participate in the rota in any case. Although practical skills tuition will always demand an intensive, hands-on learning environment, teaching in relation to case-based discussion, clinical problem solving and other group activities may well be suited to more innovative methods.

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We describe the implementation of an asynchronous learning network (ALN),[1][2] within which adult learners work through a series of online tasks and post their responses in a discussion group. They can review the contributions of their peers and respond to them. Interactions are monitored by the local network supervisor, who views all the responses and ensures that tasks are fairly and broadly met. Asynchronous learning networks foster collaborative working and reflection on activity, thus addressing an anecdotally inherent weakness of the emergency room as a learning environment. The network is termed "asynchronous" because the students remote access to the discussion group is possible at any time: the online equivalent of students writing their response on a piece of paper and putting in on a central notice board.

Today's medical graduates possess good basic information technology skills. Many of them have also experienced case-based learning, resource-based learning and computer-based learning, and are very comfortable with the notion of technology as a key component of their professional development.

Examples of asynchronous learning networks in clinical medicine

The British Journal of Obstetrics and Gynaecology reports the development of a course (StratOG)[3] after a problem-based approach using an education website and email for communication between trainees and trainers. In Australia, where distance learning offers major advantages, a pilot study was carried out in 1998 where students in a sixth year general practice term were given laptop computers during their 4-week attachment.[4] A mailing list was set up for the participants to share experiences, and they also had to complete a series of learning activities.

Greenhalgh[5] reviewed "stand-alone" interactive multimedia programmes associated with specific skills, such as management of epistaxis, anatomy and the management of a radial fracture in the *BMJ* in 2001. There have been 12 prospective randomised trials of these systems, comparing them with traditional teaching methods. The results are generally comparable except for practical skills, where Computer Aided Learning outcomes are poorer. However, these packages are very specific, very labour intensive to set up, and may, in exceptional circumstances, require specialist-programming knowledge to create.

The asynchronous learning network in the setting up of an accident and emergency department

Although the ideal was to use a discussion board, this was not initially technically possible to establish, so we opted to send tasks to the SHOs by email. They then emailed their responses to us and these were collated onto the local intranet, where all the responses could be read. For anyone starting out this is an easy first option. An external website with discussion board has subsequently been established so the participants can read each other's responses from home or at work. Most of our SHOs have personal email addresses, which they are happy for us to use. When this is not the case, we arrange an email address at the hospital.

We used existing websites for our tasks, selecting sites we thought were relevant, valid and interesting. We also included a task called "Interesting patient" in which the SHOs described a patient they had seen, and 2 weeks later followed up and reported back again to the group. Other tasks did not involve the internet; reading the Major Incident Plan, for example. A full list of the tasks is at Appendix 1.

The ALN was piloted with seven SHOs and five medical students in January 2004, and the feedback was positive. It was begun in February 2004 with our cohort of eight SHOs. Over 6 months they completed three blocks of six tasks. In the light of the experience of the first cohort it was modified again and is now in its third 6-month group of SHOs and F2s.

This system, because it uses established websites, is extremely simple to set up and to modify, and requires little programming skill. We estimate that we spent 4–6 hours setting up the tasks, and 3–4 hours organising for the tasks to be emailed automatically to the SHOs through the 6 months.

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We programmed our work email programme (Microsoft Outlook) to send out the tasks weekly and the email responses were collated onto the intranet using Microsoft FrontPage, and a tally was kept of who had completed each task. The tasks were collated for each SHO and referred to at the record of in-service training. At 5 months, a feedback form was circulated to the SHOs, which they returned.

In practice

The SHOs enjoy this form of learning and appreciate being able to work at home and when they choose. A minority complete some tasks at work at quiet times. Most keep up well with tasks. Some, for instance those with exams, fall behind and then catch up. A minority need oral reminders to catch up. Being unable to get to enough teaching has, in the past, been a frequent complaint at record of in-service training, and since the introduction of this system none have made this complaint. The SHOs have read each other's responses and several say they have returned to some of the websites in the tasks.

The ALN was reviewed after the first 6 months. The interesting patient task was modified to a single task, including follow-up, because it was difficult to link together the two responses on each patient. We amended and shortened instructions, particularly for the guideline tasks. They are now directed to summaries. It has been emphasised that each task should take 30–40 minutes and that each response should be about 100 words. We have discouraged ''cut and paste'' and encouraged summarising. More time has been allocated for moderating the group. Where feedback is given to the SHOs, we have noticed that they nearly always comment positively when next meeting face to face. We aim, therefore, to increase our rate of direct feedback to responses. Moderating time will probably still not exceed 30 min/week.

The effect of the ALN on the learning of SHOs is yet to be quantified beyond qualitative feedback.

Future possibilities

With the advent of Modernising Medical Careers and the F2 year, there will be increasing pressure on teaching resources in emergency medicine. We are considering adapting the ALN to suit doctors working for 4 months and for 6 months in the department. The doctors who are there for 4 months would complete 2 blocks, and those there for 6 months, 3 blocks. Currently, participants receive teaching on the topics that are sent out when they are working in the department, so not all doctors receive the same teaching. This mirrors what happens in traditional teaching. Another possibility would be to extend the programme to cover core topics throughout the F2 year.

We hope the use of a discussion board on an external, password-protected site will enable more collaborative working and facilitate reading of other responses. The lack of true collaborative working is a weakness of the model we are using, and we are currently trying to think of ways of adapting the tasks to encourage more collaboration. With larger numbers in the programme it would be possible to move to using a commercial ALN programme such as used by universities delivering online teaching.

If this package were adopted by a critical mass of accident and emergency departments, it could be possible for each of the Royal Colleges to develop accident and emergency modules that would be ''owned'' by a college and might be recognised as relevant by several colleges, for example Critical Care (Royal College of Anaesthetists, Royal College of Surgeons, Royal College of Physicians) or Child Protection (Royal College of Paediatrics and Child Health, Royal College of General Practitioners). This would enable SHOs to adapt their accident and emergency learning to the areas they wished to develop for their future careers. With senior doctors more likely to be working late shifts in the future, moderation of the ALN shows a teaching function that could be carried out at unsocial hours.

It should be remembered that although the ALN may provide a learning forum for knowledge and perhaps also for attitudes, skills will still have to be acquired by small group and one-to-one teaching. The socialisation involved in SHOs gathering for teaching should not be ignored. The ALN should complement but not replace face-to-face teaching.

SUMMARY

An ALN is a way of delivering teaching to doctors when rota requirements make it impossible for all to gather at one time. It is simple to set up and manage, and seems to be acceptable and effective for our SHOs.

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