

Information Technology

Uses of information management and technology

in postgraduate education for general practice

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Introduction

Over the last five to ten years information management and technology (IM&T) has seen many advances and it is not used widely in health care. Computers have established a role in primary and secondary care and increasingly are being used to bridge the two, for example the transfer of laboratory results, booking of hospital appointments and the development of the electronic patient medical record. It is therefore not surprising that IM&T is finding its way into postgraduate medical education.

Two main issues that have been raised by the increasing use of IT are access to appropriate hardware and software, and the skills of the individual user to make effective and efficient use of the equipment.

Surveys have revealed that most doctors have access to a computer, although the specification is not always sufficient to run educational programmes, and interest has been expressed in using computer-assisted self-directed learning.

Postgraduate medical education has also gone through a transformation over a similar period. There has been recognition that traditional continuing medical education (CME) has not been a success in that it has not led to changes in doctor behaviour and practice. CME largely involved 'keeping up to date' and was mostly concerned with clinical issues, whereas the focus now is on a more self-directed approach that is based on educational needs in relation to the knowledge, skills and attitudes required for the individual's job.

What can IT be used for in CPD?

There four main areas where IT can be useful:

1. As a source of information for health professionals

Individuals can search the internet world wide web for information on medical issues, and can use CD-ROMs, as some text-based material is now in this format (eg, Oxford Textbook of Medicine). Information overload is a major issue and managing information will become a skill that all doctors will increasingly require. However, rather than critically appraise such information

themselves, many doctors would prefer this to be carried out for them with access to summarised data.

2. As a means of storing information and reflecting on personal experiences

Individuals can keep a record of their learning in the form of a learning diary/portfolio, which is becoming more important with appraisal and revalidation/re-certification.

3. As a means of interactive feedback on performance

An individual could complete a task online or via a CD-ROM, perhaps answering some questions or describing how they would manage a given clinical situation. They could either receive immediate feedback or be emailed feedback at a later date from an online tutor.

4. As a means of communication between health professionals

An individual, through an online discussion forum, can email colleagues to ask for advice perhaps on how to manage a particular patient.

Formats of delivery

At present there are four main methods of delivery:

1. The internet

The methods include the use of email, discussion groups, searching for health information, accessing online journals or medical textbooks, and undertaking study modules or courses in a virtual classroom environment.

2. CD-ROM-s

These tend to be produced by universities, colleges or by commercial companies on a variety of clinical topics, eg, ophthalmology, child health, communication skills. Some also consist of multiple choice and extended matching questions that can be used as a method of learning or to identify areas of need.

Self-directed learning portfolios

These can be used to record day to day learning and allow the individual to reflect on what has happened, what they have learned and how it might affect their practise. Examples include Desktop portfolio, MOCOMP, CELT.

4. Telemedicine

Telemedicine is the provision of health care and education using telecommunication networks. Teaching can therefore take place between doctors and telemedicine consultations. This is particularly useful in dermatology and radiology where the diagnosis is usually visual and relies less on the clinical skill of the individual with the patient. Video conferencing can also be used where individuals at different locations can take place in an educational conference or postgraduate educational meeting through a video link.

Both the individual learner and groups of learners can use the above methods for educational purposes. CD-ROMs and the internet tend to focus on knowledge as opposed to skills and attitudes whereas the portfolio can allow reflection, which may then influence behaviour. With groups, the internet can be used to set up an email discussion group, and CD-ROMs can also be used in a group setting, for example if there are ethical or moral issues to discuss.

How to use

With anything new, there is always a temptation to be overly positive in terms of what it might be able to achieve and there have been calls for caution and certainly for evaluation. The capability of IT has the potential to be used imaginatively as a learning method with the aim being to increase deep learning and promote change in the learner. For example if it is used to allow interactivity and feedback, if it allows the learner to navigate at his/her own pace and in the order most relevant to them and not in a linear way. Developers of educational software should design material that is based on accepted educational principles, as it does not make sense to simply take a lecture or a piece of text and put it on a CD or on the internet.

With any new method there is a danger that it will be perceived as a replacement for existing methods and that it should be advocated for all. However, evidence from the CPD literature suggests that a varied approach to learning and development, using a range of learning methods, is more likely to be effective.

Benefits

It clearly offers individual benefits. It can be used at a time and place convenient to the user who can choose the length of time required and can go over an issue more than once. The costs to the individual are not high although the costs to the developers are quite considerable. It allows the individual learner to take control, to interact with the programme or an online tutor, and for their knowledge or beliefs to be challenged, for example in relation to case studies. This is more likely to lead to deep learning. The interactivity also can allow quizzes, which can be taken more than once and often results can be compared with a peer group. There is an opportunity to mix learning methods, eg, text, graphics, audio and video, which again can enhance learning.

For those who are dissatisfied with traditional methods of postgraduate education, IT offers a different method of learning which many will find enjoyable, thus aiding the learning process.

Limitations

Time is also often cited as a barrier. In the case of IT, time could either relate to developing computing skills or to completing an educational package. Protected time for individual and team development can be seen as a luxury in the drive for service delivery, but will be essential if meaningful CPD is to take place, and systems should be considered whereby it can take place. Learning to use IT, especially portfolios, will be a new concept for many who may be more used to a didactic form of learning.

Not only will they require a certain level of IT skills, for example to search and navigate the internet, to load and use CDs, but they will have to understand the concept and terms associated with self-directed learning.

Another limitation relates to computer hardware, which is very quickly out of date. The speed of IT is promoted as an advantage and anything which limits this can be a barrier to its use.

Some individuals might dislike the isolation of learning on their own, as opposed to in a group setting or one to one with a colleague. It has been shown that the two most commonly used methods of learning are asking a colleague and reading a book.

It is also recognised that when new information is received in order for it to be committed to memory, an individual has to re-align the new facts with their previous thinking on that topic. This is usually more easily undertaken in a group discussion, where views can be challenged and reformed, than by the individual alone.

If the internet and CD-ROMs are used educationally, it is important that the information they contain is as accurate and current as possible. It is difficult to assure the quality of information available on the web as anyone can set up and develop a website. This can be minimised by using academic or professional websites. In recognition of this problem there are guidelines for the user on what criteria they should look for in a website.

Conclusion

Information technology is advancing at a pace beyond the way in which it is currently being used. It is finding an increasing role in the delivery of health care and is likely to do the same in health care staff education and development. It is important to use IT in postgraduate medical education in an imaginative way to maximise educational effectiveness.

Information is available at our fingertips and there is a real danger of overload. Attention must be paid to how this information is delivered to doctors and health professionals and how they then access and manage it. In order to be most useful, information should be available at the point of care and should be based on best evidence and be readily accessible.

IT has a lot to offer those involved in setting a CPD strategy. For example Primary Care Trusts or Health Authorities should consider a variety of educational methods and plan how they might be accessed and supported. It is likely that Departments of Postgraduate Medical Education will be increasingly involved in advising on educational governance and supporting such Health Authorities deliver their CPD strategy.