

WEBSITE

Geriatric medicine on the web

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Abstract

A major website has been developed containing almost all of the information doctors require to manage any older medical patient. It caters for geriatricians, for those with an uneven, basic knowledge of geriatric medicine, and for differing international requirements. The validity and reliability of the site were assured by a specialist review board recruited from the American and British Geriatrics Societies, World Health Organisation, and the Pan American Health Organisation. This paper describes the development of the site, and outlines the planning and development process for a further web site. This will allow a doctor's practical knowledge of geriatric medicine to be assessed on-line, in an interactive educational way as a means of continued professional development.

Keywords: *geriatric medicine, website, information, education, assessment*

Introduction

Ease of access is not the only motivation for a doctor to seek a source of information; its reliability, practicality, comprehensiveness, balance and ability to address recent advances and knowledge are of equal relevance. Although much of the information posted on the Internet may be medically suspect [1], many good sites exist and unprecedented access to information is possible [2, 3]. Also gathering momentum internationally is the question of revalidation and continuing professional development (CPD) [4]. CPD is a process of lifelong learning in practice. It is inconceivable that the vast internet resource of knowledge and information will not become a foundation for CPD assessment and evaluation of practising doctors.

This article describes the development of an extensive website containing most of the information that practising geriatricians and other physicians with a special interest in gerontology need and shows how this valuable resource can be linked effectively to CPD and on-line revalidation.

Why do doctors require additional information?

Although doctors already have a substantial background of knowledge, they need to be alerted to new developments, to refresh their knowledge, and to reassure

themselves about unfamiliar areas. Usually the information they need is patient-orientated or practice-connected, but there may also be an occasional need for lecture or tutorial material. Ten years ago the most common source of information used by physicians was the printed page, followed by discussion with colleagues and attendance at medical meetings [5]. These information sources all still play a useful role. However books are bulky, usually held in libraries, are expensive, time-consuming and the index system can never be as comprehensive as the best of the material published on the web. They are, furthermore, already out-of-date by the time they are published. Journals are useful, providing they contain appropriate information. However, they often fail to answer specific questions, there are too many of them, and the amount of time it can take to locate information is daunting. Some papers may contain methodological deficiencies and unsubstantiated statements or conclusions, which can mislead the unwary [5]. Books and journals are rarely available in all settings where and when they could best be used.

The web enhances these 'traditional' sources of information and can provide high quality and accessible healthcare information to both consumers and health providers, especially to those people in the developing world who are perhaps in most need of the information [2, 6] and where alternatives such as books and journals are even less accessible [2]. Links to reputable medical web sites may overcome some of the problems associated with conventional paper publishing and will also

allow doctors immediate access to material that is relevant to the subject they are seeking [7].

Syllabus web site

There was a clear need for a single web site with up-to-date and comprehensive learning material on geriatric subjects so that enquiring physicians would have a one-stop source for the information needed to manage almost every older patient they would see. This syllabus might be even more useful for those not professing a speciality in geriatric medicine, because undergraduate medical education reforms have forced specialist training in geriatric medicine out of the curriculum [8]. Later specialisation further produces doctors unable to deal with the complexities of multiple pathology found in most older people [8].

To combat the uneven knowledge of geriatric medicine especially internationally, the process commenced with the development of an on-line primer which was developed to provide basic information about gerontology for general and family physicians, and for medical educators. This can be visited at www.healthandage.com/html/res/primer/index.htm. The main syllabus site, which assumes a greater level of medical knowledge, can be visited at www.healthandage.com/html/res/syllabus/index.htm.

The syllabus has easy access and a fully transparent navigation system in order to make the information rapidly accessible [9], is comprehensive, relevant, engaging, ready to apply, updated regularly, international and free, with no advertising [10].

The validity and reliability [1] of the syllabus were assured by involving the American Geriatrics Society, British Geriatrics Society, World Health Organisation and Pan American Health Organisation in the planning and development of the site and approval of its content. All of the material was submitted to specialist peer by an expert review panel nominated by these organisations to represent their views.

The starting point for the syllabus was the Geriatric Review Syllabus IV, published by the American Geriatrics Society (www.americangeriatrics.org). This was adapted into an appropriate form for learning on the web, modified to suit the needs of an international audience, and with additional material added to address the specific educational requirements of the British Geriatrics Society, which were covered by their CME/CPD curriculum. This very extensive project demanded a rolling programme in order that material could be added as the work progressed:

1. Material from GRS IV and other agreed sources was edited and processed into an appropriate didactic form.
2. Draft text and graphics were reviewed by the director of CME/CPD for the British Geriatrics Society.

3. Corrected text was programmed and posted on a bulletin board, and members of the international review panel were requested to post their comments.
4. Final material was added to www.healthandage.com/html/res/syllabus/index.htm when completed (Figures 1 and 2).

This logistics system enabled a very large amount of material to be processed in a continual flow, involving as much as 1,800 pages of initial text. This final size was dictated by the editing of the extensive AGS material into a manageable on-line form. Although the internet lends itself to animations and complex graphics, these were not included because they have copyright and cost implications, and need adequate hardware to display, which might not be available to the whole international audience.

The effective ownership by the British and the American Geriatrics Societies and the involvement of the expert review board are useful indicators of the quality of this web site [11]. The system outlined above is readily updated, and important new published work can be incorporated as required, as well as additions made in the light of comments from users of the site. At present such comments are made direct to the director of CPD for the BGS.

Next steps—assessment and revalidation on-line?

Although traditionally viewed by the medical profession as a means of updating their knowledge, continual professional development needs to extend beyond this in order to enable doctors to practice more effectively in the system in which they work [12]. Doctors need to be able to see the relevance of professional development schemes to their professional practice. McKinley and co-workers [13] suggested that the consultation is the single most important event in clinical practice and should form the central focus of revalidation. They recommend that the content of the assessment should reflect normal medical practice as closely as possible, and, because the reliability and validity of the assessment process are paramount, they focus on clinical observation of the doctor in practice. Although this process is not necessarily expensive there are still cost implications and, more importantly, logistic organizational problems to overcome. These problems become even more relevant when considered in the context of international assessment.

Although these authors give valid reasons for dismissing conventional paper-based examinations, there seems to be no reason why core clinical knowledge and practice could not be evaluated using the Internet [14]. The British Geriatrics Society, together with the Novartis Foundation for Gerontology, is now developing

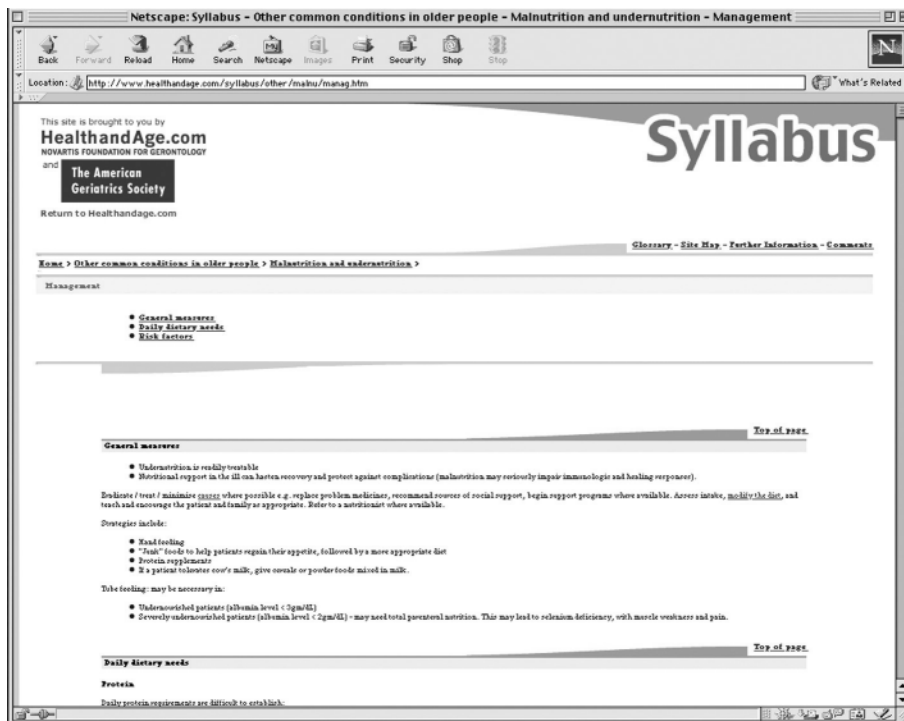


Figure 1.

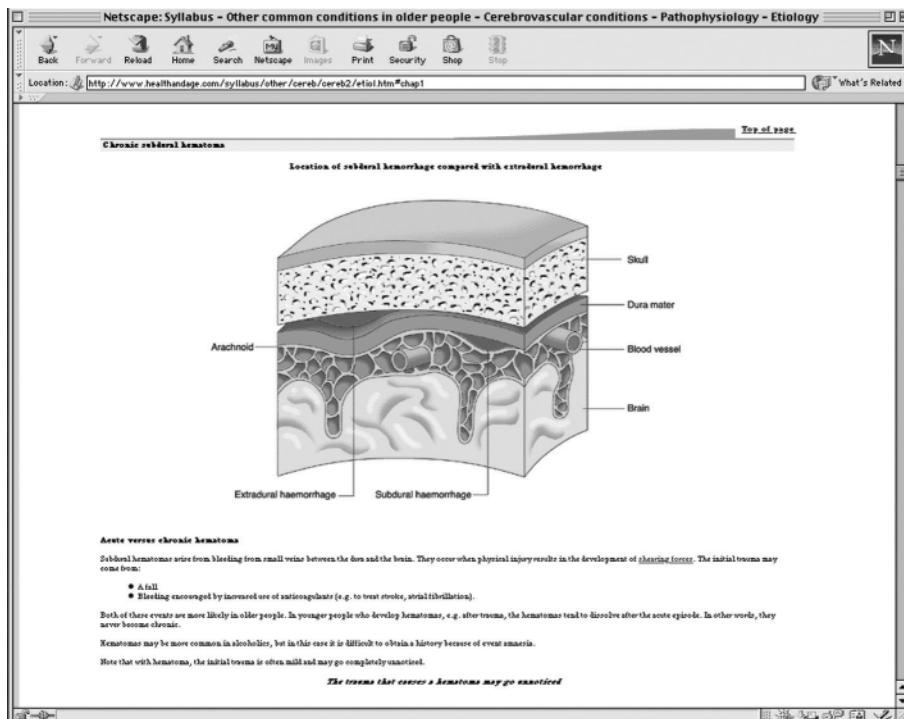


Figure 2.

such a system, which will be integrated with the Syllabus described above.

Currently in its initial stages, this system is not based on the conventional multiple-choice questionnaire, but

is planned to be instructive, probing and educational. The pilot system provides feedback, and could be universally developed so as to provide a basis for evaluation in all countries (or indeed, for other medical disciplines).

Part of the reason for placing it on the Internet is to make it globally available with, perhaps ideally, agreed international standards of revalidation. Eventually it would draw upon international expertise to devise a system that could be accepted throughout most of the world.

The system presents the user with a series of complex case histories involving multiple pathology that is typical of older patients (Figure 3). A series of questions are asked which, in order to maintain the level of realism, must be answered under time pressure. Answers are automatically graded according to their impact on the clinical assessment or management of the patient (Figure 4). Points are deducted from the total score for incorrect answers, particularly dangerous decisions or management failures that would impair patient health. At the conclusion of the test, the doctor is advised if sufficient points have been achieved, and the results are submitted on-line to the British Geriatrics Society from whom a certificate of satisfactory completion could be obtained.

Links from the assessment programme to www.healthandage.com/html/res/syllabus/index.htm allow doctors to visit the appropriate section of the syllabus in order to refresh their knowledge, after which they can return to the assessment process. Only if the information is understood and the questions answered appropriately will positive scores be accumulated.

Allowing doctors a free choice of what they learn does not necessarily identify their deficiencies. However,

offering a series of complex cases and asking detailed clinical questions about them will highlight to the doctor and to the assessors if there are deficiencies and what these might be. Inability to score reasonably on core patient problems and management would raise real doubts about competence to practice in those professing to have a generalist role. In the future, compulsory compliance for all doctors would ensure postgraduate education in the identified areas of deficiency [5].

Lessons learnt

- In common with most other medical disciplines, a vast body of information could be included in any on-line educational material, and in any associated CPD programme. The development of www.healthandage.com/html/res/syllabus/index.htm demonstrated that handling this amount of data and processing it through the development and approval process demands a rigorous and critical system which needs to integrate diverging views in order to reach a single workable conclusion.
- Co-operation with an international team of reviewers introduced some communication problems but provided valuable balance and a broad perspective on key international aspects of medical education in gerontology. This helped us to develop a system for

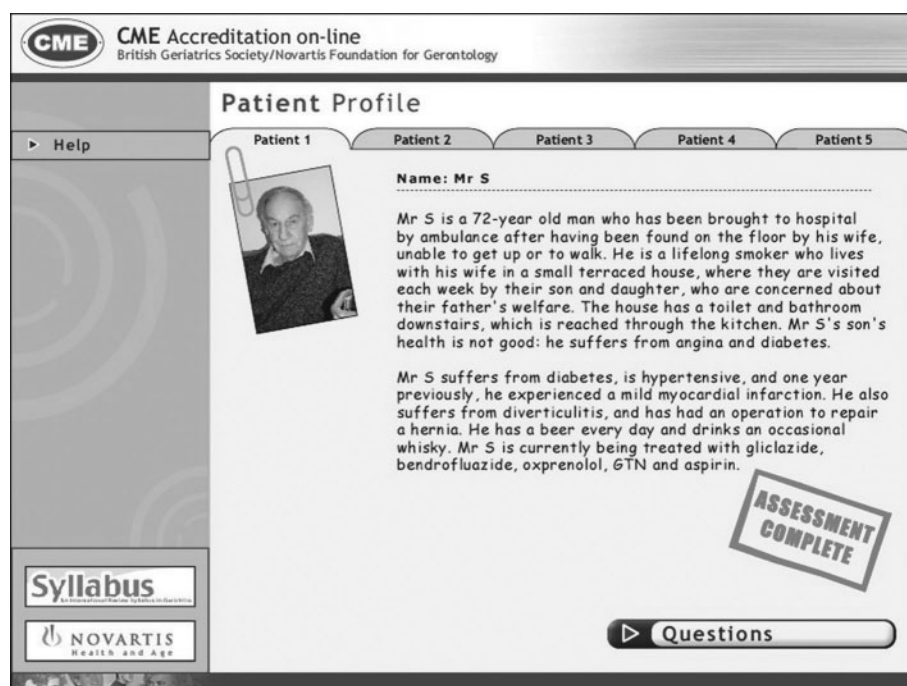


Figure 3.

	Strongly agree	Agree	Disagree	Strongly disagree	
Hyperglycaemia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hyperglycaemia may be precipitated by an acute event. It may have been present previously due to poor control. Blood glucose should be controlled within normal limits.
Bladder function	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The presence of incontinence is related to outcome and stroke severity. Urinary retention is common in older people and often precipitated by an acute event
Blood Pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Both hyper- and hypotension are important. Previous hypertension may have been poorly controlled. Hypertension is associated with stroke. Hypotension may have caused falls. There may be a need to document the possibility of postural hypotension
Obesity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bruising	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Onychogryphosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Figure 4.

generating extensive on-line learning programmes that are suitable for international use. We believe that a similar system would be equally appropriate for on-line education in other medical disciplines.

- No such project can ever be regarded as 'complete' due to the constantly changing body of information on which it is based, and a comprehensive medical educational system needs to accommodate the complex logistics and expense of continual monitoring and updating. The syllabus is just such a dynamic site, and changes, additions and updates are already in hand.
- Integration of a new CPD/CME site with the syllabus is an interesting innovation, which should ensure consistency among those choosing this option for assessment of educational needs of doctors. Careful planning is required in order to overcome some of the objections that have been raised regarding paper-based assessments, and to exploit the full potential of the internet. As with the syllabus, expert advisory groups are necessary to review and approve the material as it is generated.

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included on the www.healthandage.com/html/res/syllabus/index.htm site.

Declaration of Interests

Professor C. M. Castleden held a consultancy from the Novartis Foundation of Gerontology until January 2002 to advise on geriatric medical subjects. Brian Ward is a director of PreScript Medical Communications, the company collaborating with Professor Castleden in devising and developing the syllabus and the CME/CPD project.

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