

Meeting'd out:

Is internet CME the answer?

Felicity Goodyear-Smith MBChB MGP FRNZCGP, Senior Lecturer; Dennis Kerins MA DipPH, Development Manager IT, and Ross McCormick PhD FRNZCGP FACHAM, Director, Goodfellow Unit, Department of General Practice and Primary Health Care, Faculty of Medical and Health Sciences, University of Auckland

ABSTRACT

Aims

1. To describe and demonstrate the internet-based Goodfellow Unit continuing medical education (CME) Club.
2. To report on usage of the CME Club site.
3. To report results of an on-line evaluation of the service.
4. To report on results pertaining to the CME Club from a qualitative study of general practitioner (GP) CME.

Methods

Data pertaining to Club site usage was accessed from the platform database and analysed. A web-based survey was conducted of existing GP Club site members and responses collated and analysed. A qualitative study using semi-structured interviews was conducted of Auckland and rural North Island GPs regarding their experiences and preferences of CME including their use of internet-based resources and the CME Club site.

Results

In the qualitative study, lack of time emerged as a major barrier to obtaining optimal CME. Most GPs made little

use of the internet to meet their learning needs nor were they aware of the Club site but expressed interest in the concept and viewed increasing their utilisation of web-based resources as a goal. In the quantitative study the 30 GPs who completed the 2001 on-line evaluation were predominantly aged between 30 and 49, with nearly equal numbers of men and women and from both rural and urban locations. Interactive quizzes awarding Maintenance of Professional Standards credits were the most utilised resource, but all components of the site were used and valued by some members.

Conclusions

Flexibility of access is a key benefit of web-based learning. Web-based CME is still in its infancy but quality and quantity is developing exponentially. Being able to do CME whenever, wherever you choose gives time-strapped GPs an alternative to driving to a traditional CME meeting. Currently there is limited but growing utilisation of the CME Club site.

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Introduction

The Goodfellow Unit is committed to ongoing improvement in primary health care through professional development, education and active involvement in research and community support. The focus is on adult life-long learning with an emphasis on transfer of knowledge. The Unit has a long and distinguished record of providing quality face-to-face continuing medical education (CME) for general practitioners (GPs) in the Auckland region, and of providing specialised post-graduate diplomas nationwide. In 1998 the Goodfellow Unit also

established the web-based CME Club (www.cmeclub.auckland.ac.nz).

One of the advantages of web-based CME delivery is its flexibility. The aim of the Club site is 'when-ever, wherever you live', enabling GPs to engage in quality CME 24 hours a day 365 days a year from the office, at home, or indeed from any other location where there is computer access to the internet. It is particularly valued by geographically isolated GPs and those with young children who have difficulty attending evening meetings. Because of its web-based nature there is no

limit on numbers of GPs using the service. New resources are added throughout the year. Because previous quizzes and courses remain on the site and are updated when necessary, GPs can choose activities that address their individual learning needs at any particular time.

The CME Club offers a number of different services. The Club site is a Royal New Zealand College of General Practitioners (RNZCGP) endorsed CME provider, and provides interactive quizzes and virtual courses, completion of which earn CME points for pre-Fellowship Advanced Vocational

Education or post-Fellowship Maintenance of Professional Standards. GPs can print off their certificates; only one can be produced per quiz or virtual course per GP.

The quizzes test GPs on evidence-based best practice in a diverse range of GP topics. Most of these are based on established guidelines (such as those developed by the New Zealand Guideline Group) or other evidence-based resources such as PreMeC Bulletins, with direct links to these available from the quiz. While earlier quizzes focused more on testing factual knowledge, those developed over the past two years have been case-based, illustrating the best-practice management outlined in the guidelines. Virtual courses are interactive modules on specific topics with links to a variety of medical resources available on the web.

The site also contains a number of other educational resources which do not generate CME credits. The investigation updates section outlines procedure details of specific investigations, including images, and has patient handouts as pdf files that can be printed out by GPs. Examples include various endoscopic investigations and barium studies. The Journal Review Service which is published in the *New Zealand Family Physician* six times a year can be accessed on the site. This includes a searchable database of all reviews since 1995 and GPs can electronically request reprints of journal articles to be mailed to them. Other resources include hot tips (key points taken from Goodfellow Unit face-to-face CME courses); a 'toolbox' with links to useful medical sites such as the Merck Manual; a series of sports medicine case studies, and a links page giving URLs for peer-reviewed journals with full text availability, medical resources such as Medsafe datasheets, PreMeC Bulletins and online guidelines, plus relevant health-related organisations.

The aim of the CME Club is to provide GPs with accessible resources to enhance their knowledge,

skills, attitudes and judgement and, ultimately, to improve patient care. CME for GPs should follow the principles of andragogy – adult, self-directed learning.^{1,2} There has been a dramatic increase in the volume of new and changing medical knowledge and GPs are committed to a life-long process of learning.³ GPs need to identify their learning needs – the gaps in their knowledge – and to address these needs in the most time and cost-effective manner.⁴ Topics covered in the CME Club are

partly determined by areas where there are new developments and changes in patient management. Many add an interactive learning component to evidence-based best practice material already disseminated to GPs by other agencies in forms such as guidelines and bulletins. GP CME Club members are also invited to notify the Goodfellow Unit Club staff of their identified learning needs which may lead to courses and resources being made available to meet these needs.

The Club site is free and is open to all New Zealand GPs, as well as other doctors and allied professionals who wish to use the resource. Registration is required (because the issuing of College CME certificates must be recorded) and the site can only be accessed by members through entering their password.

To identify a learning need, GPs must self-assess their knowledge, skills and attitude in regard to a specific topic.⁵ There are many factors that can be considered in this assessment, including their past experience, their self-perceived strengths and weaknesses, reviews of critical incidents, opinions of others and current state of knowledge. Website learning can contribute to this process on a number of levels. For example, GPs can pre- and post-test. Self-marking

interactive quizzes can give direct feedback regarding current knowledge. If a learning need is identified, the appropriate resources can be accessed, and then the GP can retest to see if they can answer the quiz

correctly. Because quizzes, courses and resources on a growing number of topics are continuously available on the site, GPs can follow up their particular learning needs as they identify them, rather than having to wait for a course to be run in their location which addresses that

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There are three levels of possible achievement with respect to learning objectives – improvement in knowledge, in performance and in outcomes.⁶ By providing GPs with easily accessible guidelines and outlines of up-to-date best clinical practice, and augmenting their learning by the use of interactive quizzes and mixed media presentations, it is anticipated that their learning will translate into improvement in what they know, what they do, and in their better patient care in respect to that specific topic.

The aim of this paper is to report use of the CME Club and feedback from GPs about this resource.

Methods

Data on use of the CME Club has been compiled from three different sources.

Firstly, information has been collected from the platform database where Club site registrations, numbers of times various web-pages have been visited, and the numbers of RNZCGP certificates issued to GPs are recorded.

Secondly, a web-based survey was conducted of existing members at the end of 2001 and these responses have been collated and analysed. All registered members with current e-mail addresses, are sent e-mails whenever

the Club site is updated and the December 2001 notification included mention of the on-line evaluation with encouragement to all members to complete it.

Lastly, a qualitative study using semi-structured interviews was conducted in the Goodfellow Unit by visiting British GP, Dr Melanie Whitehorn, of twenty-four Auckland and rural North Island GPs regarding their experiences and preferences of CME, including their use of internet-based resources and the CME Club site.

Results

The membership of the Club is calculated on registration numbers. However, it is assumed from secondary evidence that many of these are not active members, or are very spasmodic users of the site. At the end of August 2002 there was a total of 641 registered members, of whom 441 are identified as New Zealand GPs (Fellows, Members or Associates of the RNZCGP). These GPs are able to gain CME credits from some of the activities on the site. The 200 non-New Zealand GP membership includes 103 overseas doctors from a wide range of countries (from Australia, UK and USA to Spain, the Netherlands, Argentina, Pakistan, the Philippines and Malawi), New Zealand doctors in other specialties, and key personnel from organisations such as the RNZCGP, the New Zealand Guideline Group and Pharmac. Other people are given access to the site on occasion through a guest password.

Whenever there is publicity regarding the existence of the CME Club (for example, mention in the RNZCGP's *GP Pulse* or the New Zealand Guideline Group Evidence-based Healthcare Bulletin electronic newsletters, or in the *New Zealand Family Physician*), the Club site experiences an increase in registrations.

Usage is dependent on what material is posted to the CME Club in any particular month. Members are emailed whenever new material is posted on the site. It should also be noted that, primarily for financial reasons, the CME

Table 1. Certificates issued for quizzes

Quiz	Evidence-based resource	Number of certificates
Chlamydia treatment	PreMeC Bulletin	53
Type 2 diabetes	NZGG Guideline	51
Mild hypertension	NZGG Guideline	49
Skin infections	PreMeC Bulletin	48
Treatment of chronic obstructive pulmonary disease	PreMeC Bulletin	47
Hormone replacement therapy	NZGG Guideline	42
Depression	NZGG Guideline	39
Statins and fibrates	PreMeC Bulletin	38
Heavy menstrual bleeding	NZGG Guideline	38
Screening and management of prostate disorders	Guidelines published in <i>British Journal of Urology</i>	37
Asthma	Guidelines for Primary Care Management of Asthma in Adults published in <i>BMJ</i>	37
Basic life support	European Resuscitation Council guidelines	36
Palliative care	NZ recommendations published in <i>New Zealand Family Physician</i>	33
Type 1 diabetes	NZGG Guideline	30
Care of people with chronic leg ulcers	NZGG Guideline	29
Breast cancer	NZGG Guideline	25
Antibiotic and other drug use in pregnancy and breast-feeding	PreMeC Bulletin	25
Advanced cardiac life support	European Resuscitation Council guidelines	25
Youth suicide	RNZCGP guideline	23
Total number of certificates issued		705

Club has not been actively marketed to New Zealand GPs apart from a brief period at its inception in 1998.

There have been 847 CME RNZCGP certificates issued since the Club began. The number of certificates issued varies considerably between CME quizzes and virtual courses (see Tables 1 and 2). In general, the quizzes attract considerably more participants than the virtual courses.

Usage figures indicate that quizzes are visited far more often than CME certificates are generated. This

indicates that the site is being actively used by many people who are not just using the quizzes to obtain CME points, and some people may visit these multiple times. Over the past 10 months (November 2001 to August 2002) the three most popular quizzes were those on hormone replacement therapy, use of drugs in pregnancy and management of leg ulcers, even though these were not top of the list of issued certificates.

The on-line survey of members yielded a response from 30 GP mem-

Table 2. Certificates issued for virtual courses

Virtual course	Number of certificates
Melanoma Course	23
ECG Part One Course	22
Skin Cancer Course	16
Breast Cancer Virtual Course	14
Ectopic Pregnancy Course	13
ECG Part Two Course	8
Hantavirus Internet Search Course	8
Radiology Part One	8
Travel Medicine Part 1	8
Travel Medicine Part 2	8
Diving Medicine Course	7
Radiology Part Two	7
Total number of certificates issued	142

bers. This low response rate does mean that caution is needed in generalising from these results. Of those who did reply to the evaluation, there were nine (30%) rural and 21 (70%) urban GPs, of whom 14 (47%) were female and 16 (53%) were male. The age range of GPs using the service was diverse, but the majority are aged between 30 and 49 years (see Table 3).

Of the 30 GPs who responded to the survey, the majority (87%) had completed at least one interactive quiz, and a third had completed more than three. In contrast, the least used resource was the virtual courses, with only 10 GPs having completed one, in line with the data of numbers of certificates issued. The popularity of the various resources is presented in Table 4.

Feedback was largely positive. One member commented "This is a fantastic facility - allows me to do CME in my own time at my own pace". Others responded "Quick way to keep yourself up to date"; "Time saving for further education. Interesting subjects and they are practical", and "It is a useful site, great for CME when it's difficult to get to meetings".

Some members had experienced some technical difficulties, especially following links in the virtual courses. Requests for specific CME topics to be covered was widespread, with no consensus as to a desired subject to be covered. One member commented that having a 'one-stop shop' would be valuable: "A reciprocal arrangement between learning institutions would be useful and save duplication by sharing time, resources and learning material."

An analysis of GPs' responses in the qualitative study revealed that only a minority surveyed used the CME Club site. Those who did use it found it valuable. Most had not heard of it but expressed interest when told about it. A minority said that they were not interested in learning via the internet. "Sitting in front of a computer is something I do all day anyway and I don't want to do it all night as well."

A number of GPs valued the interaction with their colleagues from attending face-to-face meetings, but also acknowledged the time commitment required to go to presentations and viewed internet CME as potentially

Table 3. Age of GPs responding to on-line evaluation

Age in years	Number	%
20-29	1	3
30-39	8	27
40-49	12	40
50-59	5	17
60 up	4	13
TOTAL	30	100

time-saving: "I am a working mother, time is the essence." One rural GP said: "Time is the biggest barrier, and part of being in a rural area is the distance, and the time it takes to access it. It takes me four to five hours time commitment to access one to two hrs of CME. That's a big constraint."

Discussion

While over 500 GPs have registered with the CME Club since its inception, the vast majority are not using the resource. A number of these have not updated their email addresses and hence do not receive the regular reminders when new material is posted on the site.

From the small sample in the qualitative study, it appears that many GPs are not aware that the CME Club site is available. A study surveying twenty-nine courses involving over 700 learners concluded that successful e-learning courses are those that are well advertised and promoted.⁷ To date, the CME Club has had little active promotion. Possible future developments in association or closely linked with the CME Club include mini-courses based on Goodfellow Unit certificate and diploma courses, immunisation CME, rural GP CME and collaborative CME with Independent Practitioner Associations.

Current evidence indicates that distance learning formats have similar learning outcomes to traditional face-to-face settings,^{8,9} although there is little research in health education, and much of the research is from other disciplines, such as business studies. A study of 85 business class students

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found that those taking courses through distance learning attained slightly better grades than those receiving traditional classroom teaching.¹⁰ It is of course important that learning also translates into changes in practice.

There is some indication that distance learning may result in relevant changes in behaviour.¹¹ In a study comparing 23 students undertaking a traditional face-to-face class in business communications with 24 students in a distance learning class, no significant differences were found in either post-test learning outcomes or in later competency assessments. The quality of the studies is however generally poor, without randomised assignment to the traditional or distance learning options. At best, these results can be generalised to indicate that those who self-select distance learning options do as well as those who opt for traditional face-to-face teaching.

Medical education literature indicates that a single learning opportunity may not be very effective in changing behaviour, but a number of interventions in combination may prove very successful.^{12,13} The CME Club quizzes are based on the premise that interactive use of evidence-based guidelines and other resources reinforces their message and assists with their implementation.

Table 4. Use of CME Club resources by GPs responding to on-line evaluation

Resource	Number	%
Completed at least one interactive quiz	26	87
Completed more than three interactive quizzes	10	33
Used the links section	22	73
Used the case studies	21	70
Used the hot tips section	21	70
Used the investigation update section	17	56
Used the toolbox	14	47
Used the journal review service	11	37
Completed a virtual course	10	33

Frustration with e-learning technology was identified in this study as a barrier to learning.⁷ Many GPs may require improvements in their hardware, their software and /or their technical skills before web-based learning becomes an attractive proposition.

Lack of time is well documented as a significant barrier to obtaining optimal CME.¹⁴⁻¹⁶ However GPs do also value the social interaction obtained through face-to-face meetings with their colleagues. Furthermore, once a meeting is scheduled in the diary, a GP is likely to attend. Spending 30 to 60 minutes at a computer for CME at a time and place of one's choice requires a different degree of motivation and discipline.

Distance learning, and in particular web-based CME, may currently be a desirable and effective option for only a minority of GPs. However, as GPs become more computer-literate, have faster internet connections and more user-friendly, easily accessible internet resources, the web will become the primary source of new knowledge for a growing number. This will include instantly accessible information to answer a clinical question within a consultation, through to meeting their CME requirements, both opportunistically and on a needs assessment basis. The CME Club is one resource to assist time-strapped GPs in their life-long process of medical education.

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