Title: Peer-teaching of Evidence-Based Medicine

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Summary

Background

Many medical schools teach the principles of evidence based medicine (EBM) as part of their undergraduate curriculum. Medical students perceive EBM to be valuable to their undergraduate and postgraduate career. Students may experience barriers to applying EBM principles, especially when searching for evidence or identifying high quality resources.

Context

NICE Evidence Search is a service provided by the National Institute for Health and Care Excellence (NICE) that enables access to authoritative clinical and non-clinical evidence and best practice through a web-based portal.

Innovation

Evidence-based medicine workshops were organised and delivered by fourth year medical students, having first received training from NICE to become NICE 'student champions'. The workshops covered the basic principles of EBM and focused on retrieving EBM resources for study through the NICE Evidence Search portal. The scheme was evaluated using a pre-workshop survey and an 8-12 week post-workshop survey. Self-reported confidence in searching for evidence-based resources increased from 29% pre-workshop to 87% post-workshop. 1% of students rated evidence-based resources as their first preference pre-workshop, compared with 31% post-workshop.

Implications

The results show that whilst many students were aware of evidence-based resources, they tended not to use them as their preferred resource. Despite appreciating the value of evidence based resources, few students were confident in accessing and using such resources for pre-clinical study. A peer-taught workshop in EBM improved students' confidence with, and use of, evidence-based resources.

Abstract = 230 words (Max 250 words)

Background

Defined as "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients"[1] evidence-based medicine (EBM) is incorporated into the undergraduate curricula of many medical schools.

At Keele School of Medicine, formal EBM teaching is integrated into the curriculum from the first year of study. In their third year, students are taught to critically appraise journal articles and are assessed on this skill through a summative assignment. During the higher consultation skills block of year 4, students receive teaching on information management skills for use within the consultation. Del Mar et al have described the benefits of splitting teaching of EBM into its composite elements[2].

Much like in clinical encounters, where students need to be able to take a comprehensive history and examination before they can interpret their findings, we considered it to be important for students to be able to proficiently identify sources of information before critically appraising.

Medical students perceive EBM to be valuable to their undergraduate and postgraduate career[3,4]. There are, however, many barriers to students applying EBM principles to their studies. One such barrier is ineffective searching for evidence based guidelines and identifying high quality resources. [3]

At Keele School of Medicine, students are taught EBM progressively each year through repeated sessions in a spiral curriculum. Students generally had a good understanding of the methods for accessing high-quality evidence-based resources but had often reverted to the information that was most easily

accessed via general internet search engines such as 'Google'. We anticipate that an early intervention in year 1, followed by reinforcement in subsequent years, will promote sustained use of evidence-based resources.

NICE Evidence Search (formerly NHS Evidence) is a service provided by the National Institute for Health and Care Excellence (NICE) that enables access to authoritative clinical and non-clinical evidence and best practice through a web-based portal.[5]

With the assistance of NICE, we designed, implemented, and evaluated a peer-taught workshop on the principles of EBM and accessing resources. We aimed to promote the use of, and improve students' ability to find, evidence-based resources.

Methods

NICE Student Champion Scheme

The Workshops were organised and delivered by fourth year medical students, having first received training from NICE to become NICE 'student champions'. The student champions attended a one day course on how to use the NICE Evidence Search portal, and teaching skills for facilitation of workshops.

Workshops

The workshops covered the basic principles of EBM and concentrated on retrieving EBM resources for study through the NICE Evidence Search portal.

Workshops were held for each of years 1-3. Each workshop was led by 3 student champions, who created an interactive environment for the students to engage with the workshop material over the hour-long sessions.

The workshops were tailored for each year group, as participants would have varying levels of experience with EBM. The workshops explained the principles of evidence-based medicine, demonstrated effective searching and then used clinical scenarios relevant to the respective year groups' current study to apply the skills learnt. Attendees were presented with example problems that they were likely to encounter in their studies, for which they had to frame a question and search the literature in order to find an answer. Performance in the workshops was monitored using an audience response system. (Figure 1)

The workshops were advertised to students through a short introductory presentation during lectures and by reminder emails. Attendance at the workshops was not compulsory. Students who attended and responded to both surveys were issued with a certificate of attendance from NICE.

Data Collection

The scheme was evaluated using a pre-workshop survey and an 8-12 week post-workshop survey. (Figure 2) This was in order to evaluate the confidence in searching before and after the session and also to allow attendees to reflect on their individual use of EBM in day-to-day studies and clinical placements.

Results

A total of 191 medical students attended the workshops (Year 1, n=44, 38% of cohort. Year 2, n=82, 55% of cohort. Year 3, n=64, 49% of cohort). 90% and 59% of attendees completed the pre- and post-workshop surveys respectively.

Pre-workshop: over 75% of respondents searched for information online (as part of their studies) at least once a day (figure 3), 52% of respondents searched for evidence-based recommendations and guidelines.

Post-workshop: 84% of respondents found NHS Evidence useful or very useful, 92% of respondents had used NHS Evidence since the workshops.

Pre-workshop, 29% of respondents felt 'confident' or 'very confident' searching for health and social care information online, compared to 87% post-workshop (figure 4).

Figure 5 demonstrates students' preferred resources for studying, pre- and post-workshop.

Informal feedback raised the following perceived benefits to students that attended the workshops:

- Improved evidence searching skills,
- Competency in navigating the NHS evidence portal,
- An awareness of how to incorporate current, best evidence into their clinical assignments
- A basis for incorporating the use of EBM in their future career.

Discussion

Considering how frequently students are searching for information as part of their studies, it is crucial that students are able to search effectively and for high quality resources.

A recent review of evidence-based medicine training for undergraduates by Maggio and colleagues identified a variety of methods for teaching EBM. Interestingly, there does not appear to be any literature regarding the use of peer teaching to facilitate evidence-based medicine education for undergraduate medical students.[6]

Over recent years peer teaching has been widely adopted within undergraduate medical education.[7] There are many advantages of using peer-teaching to support faculty teaching within undergraduate curricula. Students perceive peers who have more recently studied at their level to have more insight in to the challenges that students face, and how these may be overcome.[8] Furthermore, students feel more comfortable in peer-taught sessions and tend to be more willing to interact and ask questions.[9]

Our findings in this evaluation support the use of peer-teaching as an adjunct to faculty teaching for the delivery of evidence-based medicine to undergraduates.

Attendees responded positively to the sessions. Students stated that it was helpful to have this session delivered by other students, who were able to supplement the sessions with anecdotes of how they have found EBM useful in clinical placements.

Through the workshops, students had a better understanding of how to access and search the NICE Evidence Search portal. This could explain the reduction in the use of search engines and the increase in the use of evidence-based guidelines as students' preferred resource for information.

An increase from 29% to 87% in the percentage of respondents feeling 'confident' or 'very confident' at searching for health and social care information,

showed the vast improvement even an hour-long focused session on EBM can have. The medium-term post-workshop survey, at 8-12 weeks, indicated that this effect was sustained.

Whilst this paper demonstrates an innovative peer-led approach to evidence-based medicine teaching, there are a number of limitations to the evaluation. As NICE Evidence Search is a resource provided for clinicians in the United Kingdom, its applicability internationally is limited. However, the workshops described could be reproduced using alternate evidence-based medicine portals, such as 'UpToDate'. Furthermore, many of the resources NICE Evidence Search draws upon are relevant internationally e.g. Cochrane systematic reviews.

During the implementation year, we chose to target years one to three in order that students felt competent in searching for evidence before they later received training in how to use evidence to inform clinical decision making.

There was a notable drop in response rate between pre-workshop and post-workshop surveys. It is possible that those who found the workshops of least benefit chose not to respond to the post-workshop survey; therefore the data may overestimate the value of the workshops.

In order to balance the priorities of determining the sustained use of EBM resources and optimising response rate, we compromised with a follow up of 8-12 weeks.

As the evaluation was conducted by NICE, the survey related mainly to the value of NICE Evidence Search, and the questions could be extended in the future to include satisfaction with the workshops.

Further work needs to be done to investigate whether this training results in increased use of EBM in the long term. In the next academic year the scheme is to be extended to include half-day workshops for students in clinical years of the course. These extended workshops will include revision of question formation and evidence searching. The workshops will then focus on applying evidence retrieved to extended clinical scenarios in order to inform clinical decision making.

Conclusions

Whilst many students were aware of evidence-based resources, they tended not to use them as their preferred source. The workshops were effective in promoting the use of evidence-based resources. The workshops were received well by students with one student commenting, "due to the vast array of material available online, it is good to have a resource which you know can be trusted and provides concise, relevant information".

Article = 1,472 words (Max 1500 words)

Ethical approval: Not required, the evaluation data was collected by NICE as part of their national evaluation of the NICE student champion scheme, response values quoted are those that consented to share their responses for presentation/publication (8 students did not want their responses shared, and have been excluded from the quoted values).

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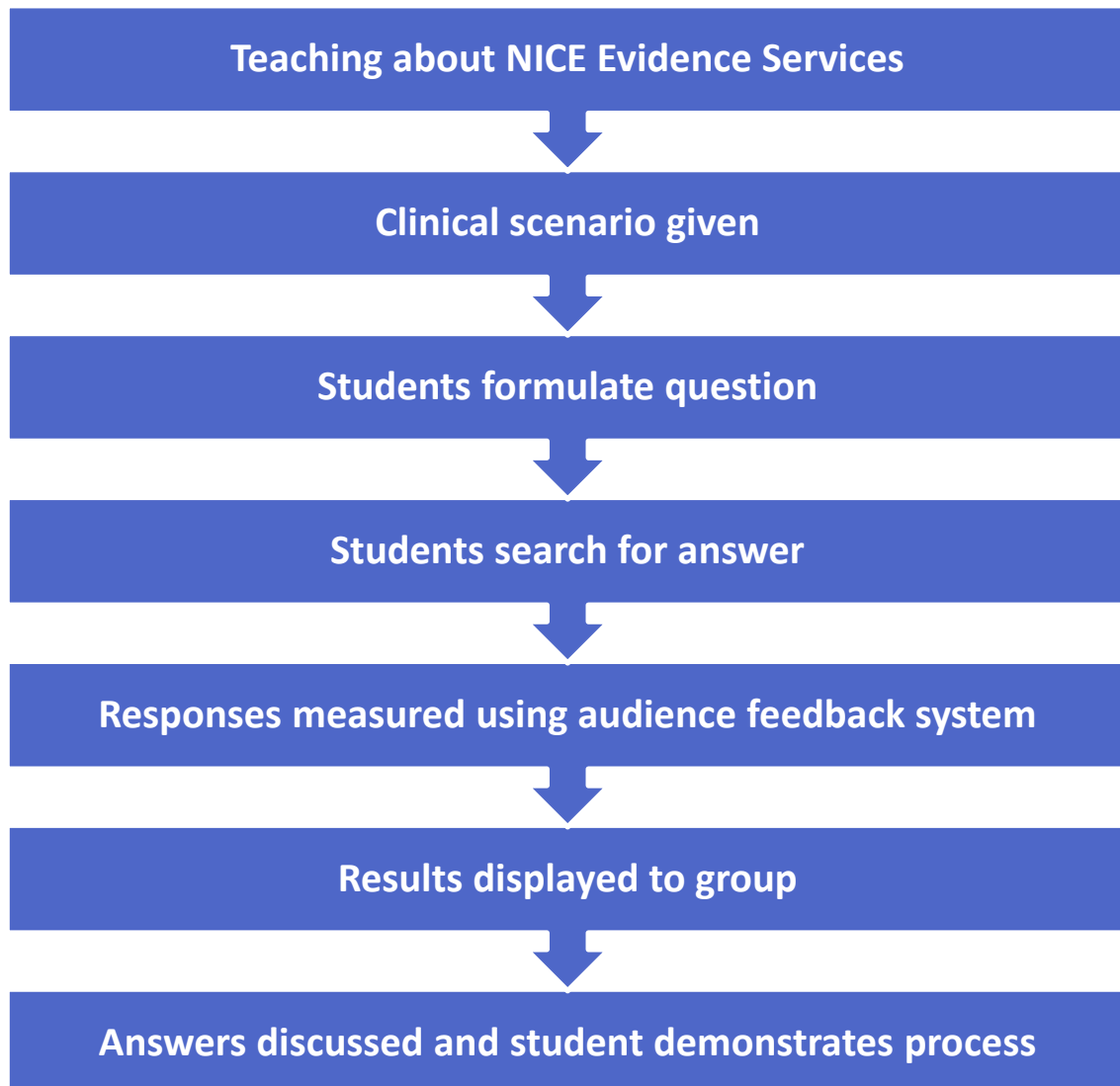
Figure 1 – Process of the workshops

Teaching about NICE Evidence Services

Clinical scenario given

Students formulate question

Students search for answer

Responses measured using audience feedback system

Results displayed to group

Answers discussed and student demonstrates process

Figure 2 – Pre- and post-workshop surveys

Pre-workshop survey						
Q. How often do you search for information as part of your studies?						
Daily – multiple times	Daily – once	Weekly – multiple times	Weekly – once	Monthly – multiple times	Monthly – once	Less often
Q. How confident are you about searching for health and social care information?						
Very unconfident		Unconfident	Neither confident nor unconfident		Confident	Very confident
Q. Which resources do you commonly use to access health and social care information?						
(list up to 3 in order of preference)						
Free text responses for 1ˢᵗ preference were categorised and quantified						
Q. How confident are you in searching for health and social care information using NHS Evidence?						
Very unconfident		Unconfident	Neither confident nor unconfident		Confident	Very confident
Q. How useful do you think NHS Evidence will be to you in the future?						
Not at all useful		Not very useful	Don't know		Useful	Very useful

Post-workshop survey					
Q. Which resources do you use to access health and social care information?					
(list up to 3 in order of preference)					
Free text responses for 1ˢᵗ preference were categorised and quantified					
Q. Have you used NHS Evidence since attending the student champion learning session?					
Yes to help with my studies	Yes for general searching	Yes to familiarise myself with the site	No but I plan to	No
Q. How confident are you now in searching for health and social care information?					
Very unconfident	Unconfident	Neither confident nor unconfident	Confident	Very confident
Q. How useful are you finding NHS Evidence?					
Not at all useful	Not very useful	Not sure, but I want to test it further	Useful	Very useful
*Since the evaluation NHS Evidence has changed name to NICE Evidence Search					

Figure 3 – frequency of searches
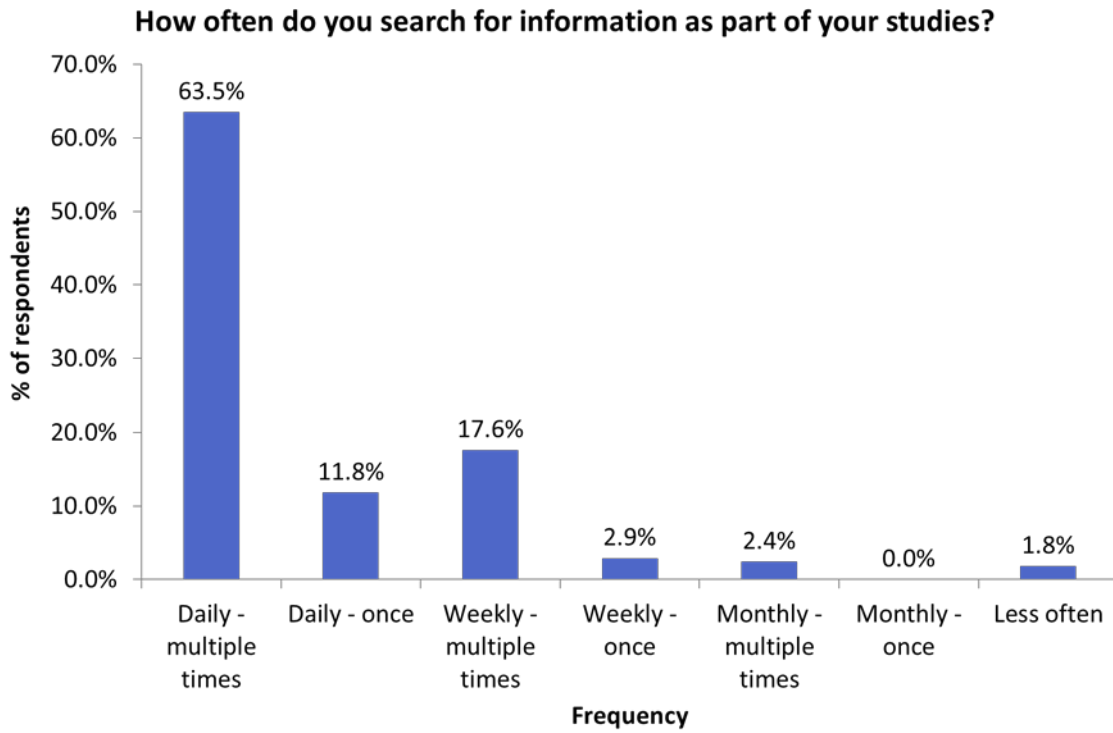
How often do you search for information as part of your studies?

Figure 4 – Confidence with searching

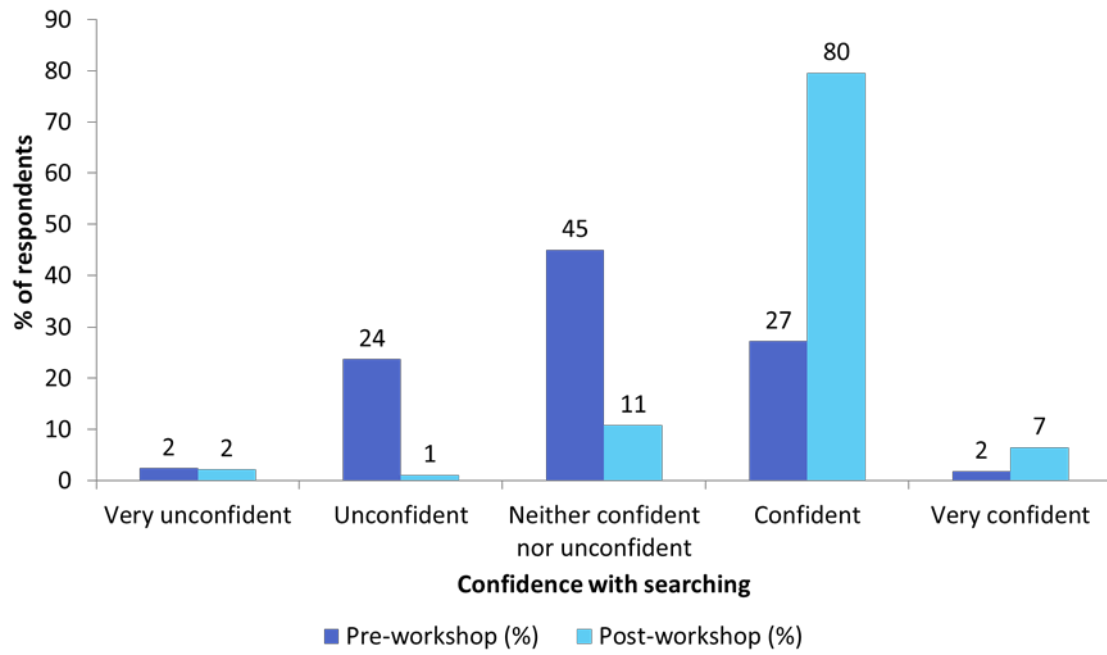## How confident are you searching for health and social care information online?

Pre-workshop (%)   Post-workshop (%)

Figure 5 – first preference resources

Which resources do you use for accessing health & social care information? (1st preference)