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The Effectiveness of Near Peer Mentorship in Improving Medical Student Engagement with Evidence Based Medicine

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Abstract
Mentorship programmes help cultivate a positive attitude towards a particular subject matter through personal and first-hand experience, which in turn allows course content to be taught in a more relatable manner. Near peer mentorship (NPM) is where a more experienced colleague (mentor) aims to offer guidance to a less experienced individual (mentee). The aim of this study was to evaluate the effect NPM's had on medical student perception of Evidence Based Medicine (EBM) in clinical practice using an EBM Conference as platform for mentorship.
An annual student-led EBM Conference held at The University of Buckingham Medical School (UBMS) provided the opportunity for current students to present their experience of EBM via posters and presentations.
In addition, in the year of 2020 the conference invited recent graduates to talk on how their experience in EBM has shaped and transformed their working clinical practice. Attendees were then asked to rate the impact of having a working foundation doctor present at the conference using a Likert Scale.
The results demonstrated that the students were motivated by the conference and NPM to implement EBM in their practice. Additionally, being a mentor at a conference enabled graduates as well as senior students to develop their teaching and presentation skills. The future scope of the NPM programme at the conference would be to provide small workshops led by NPMs prior to the conference. Incorporation of EBM into clinical practice is becoming an essential task for the modern clinician. The EBM conference organised by students provided a unique way to implement EBM in their clinical rotations and allowed early engagement and exposure to the importance of good evidence based medicine.

Key Words
Evidence Based Medicine (EBM); Near-Peer Mentors (NPM); Medical Education

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Introduction

Evidence based medicine (EBM) is an approach to clinical practice that integrates best available evidence from well-designed studies in conjunction with patient preference and clinical expertise[1]. Sacket et al were the first to formally describe EBM in the early 1990s[2]. Since then EBM has become increasingly incorporated into the core curriculum of medical undergraduate and post-graduate courses worldwide[3]. The General Medical Council (GMC) has recognised the importance of this practice and have made it part of its Outcomes for Graduates[4]. Despite the increasing emphasis in the medical school curriculum there is still a dearth of evidence on how best to teach this subject[5].

Globally many medical schools have adopted a mentoring system to facilitate engagement in a variety of different subjects[6]. Near peer mentorship (NPM) is where a more experienced colleague (mentor) aims to offer guidance to a less experienced individual (mentee) [7].

Recent evidence by Nimmons et al suggested that mentoring programmes have been beneficial in promoting research and academia among junior doctors and medical students[6]. Medical mentorship programmes have helped to cultivate a positive attitude around their subject and help express course content in a way that is relatable to students. Additionally, NPM is mutually beneficial because it develops the mentor as a teacher[8]. Medical Schools can use NPM programmes to compliment traditional teaching methods in the EBM course curriculum.

The University of Buckingham Medical School

(UBMS) is the first independent UK medical school. The UBMS MBChB programme is taught over four and a half years and is split into two phases. The first phase is taught over two years, it focuses on the core biomedical sciences required as the foundation for medical practice. The second phase is over two and half years, this is clinical based, where students have clinical placements in hospitals and primary care. The University has taught EBM via a longitudinal, competency based, clinically integrated curriculum with assessments[9]. The longitudinal structure at UMBS facilitated the integration of EBM with clinical practice. This approach has proven to be more effective than the traditional standalone EBM course[10].

The medical school has explored the role of NPMs in addition to traditional teaching methods by experts and clinical facilitators to improve student perceptions of EBM. Prunuske et al recognised the blend of teaching methods that medical students are exposed to, their paper demonstrated the benefit of NPMs versus other methods[8]. Uniquely mentors say, "in my experience, this has worked"[11], as a result NPM's use their similar encounters to guide students.

Traditional didactic teaching has failed to highlight the clinical relevance of EBM[12]. Although the longitudinal approach at UBMS has aimed to address this problem, evidence has demonstrated blended learning has improved student attitudes towards EBM[13]. The use of mentorship in conjunction with the longitudinal theme can help improve student attitudes towards EBM and develop a greater appreciation of its clinical relevance.

Described in this paper is a student led EBM conference that has also provided mentorship from the previous winners. Briefly, the EBM conference invited students in their first year of clinical practice to submit educational prescriptions. The University of Wisconsin first used the educational prescription (EP) in the form of a web-based tool to guide individuals through the four A's of EBM - Ask, Acquire, Appraise and Apply[14]. Research has demonstrated that the use of EPs is perceived as beneficial when used by medical students during clinical rotations. The EBM conference has used a similar prescription (Appendix 1, 2) wherein the students described a scenario from their clinical placements and demonstrated how they applied EBM in clinical decisions. Three shortlisted semi-finalists are subsequently invited to present their scenario at the conference. The semi-finalists are encouraged to be creative with their presentations by recreating the clinical uncertainty and role modelling the patient doctor consultation. Previous semi-finalists have used creative outlets such as short two-minute videos (Appendix 3). The best of the presentations is awarded the EBM champion trophy.

Following the inaugural conference held in 2018, the EBM conference has been organised by the previous year's EBM champions. In doing so, the previous EBM champions offer guidance to those new to the conference. Data collected from the 2019 conference demonstrated increased engagement following the implementation of the student led format, which showed a 59% increase in student submissions[15].

The aim of this study was to evaluate the effect NPM's had on medical student perception of EBM in clinical practice using an EBM Conference as platform for mentorship.

Methods

Feedback was sought from the students attending the EBM conference 2019 and 2020. The 2019 conference was conducted in-person and feedback was collected with paper forms. The 2020 conference was held via an online platform, in keeping with UK government restrictions in response to the SARS-CoV- 2 (Covid-19) pandemic.

The focus of the presentations for both conferences were: their experiences of evidence-based medicine in their clinical practice, informing delegates of EBM tools applicable to practicing clinicians and concluded with encouraging the students to start incorporating EBM in their clinical placements as medical students. Additionally, for the 2020 conference, graduates from the University of Buckingham Medical School were invited back to present at the conference on their experience of EBM in clinical practice in foundation placements.

The feedback questionnaire included a likert scale feedback on the practice of EBM, targeted feedback on each of the speakers and feedback on using the educational template prescriptions. Additionally for the 2020 conference, there were questions pertaining to whether Buckingham graduates presenting on evidence-based practice as foundation doctors had encouraged them to practice evidence-based medicine. Ethical approval was received from the University of Buckingham School of Science and Medicine Ethics Committee.

Results

For the 2019 conference, a total of 107 students attended out of which 27 students completed the paper feedback form. Using the likert scale, the findings for the 2019 conference were as per Figure 1.

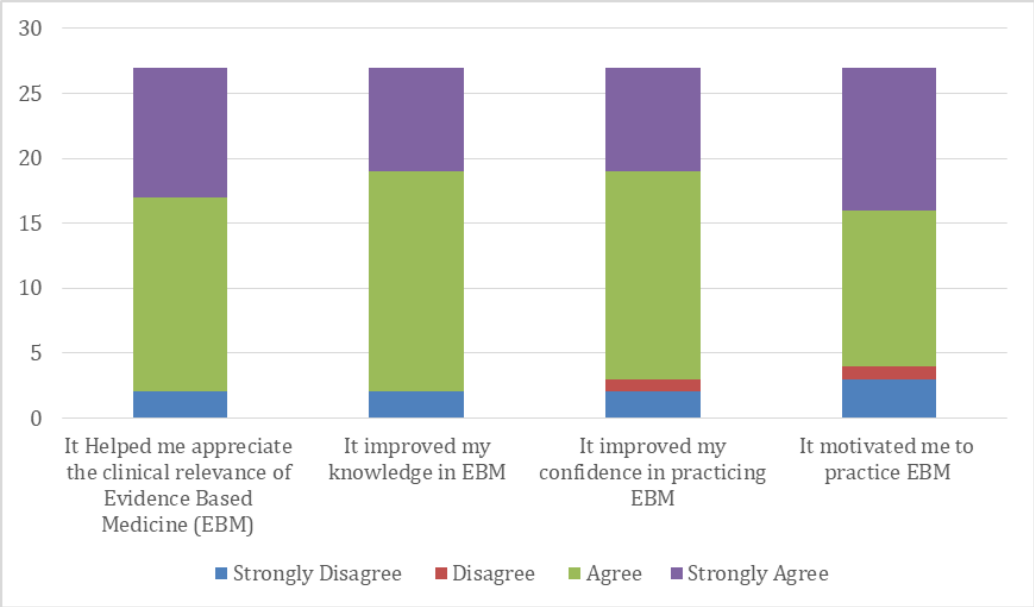

Figure 1: *Likert scale feedback results for the 2019 conference on practice of EBM*

Additionally, 21 students found the use of the educational prescription template to be a useful tool for practicing EBM.

Thematic analysis was conducted on the qualitative feedback. The major themes arising from these were that the students found the event very informative, organised and helpful. With regards to peer mentorship, they found that the elective experiences of their seniors were quite useful as they were planning their electives at the time. They found that the student presentations from their peers was also a highlight of the conference. One student also expressed 'Great to hear first hand from the year above'

In terms of further improvement, the students reported that the conference was long and compressing it to a half-day even would be desirable. They also noted that, in regards to the student presentation competition, they would like to be informed earlier and to have clearer guidance on the mark scheme.

For the 2020 conference, a total of 110 people attended the conference (96 delegates and 14 presenters). The 2020 conference also included talks by previous two graduates, both currently employed as foundation doctors. The questionnaire was posted to all attending students, of which 37 completed the survey. Using the Likert scale the findings for the 2020 conference were as per Figure 2.

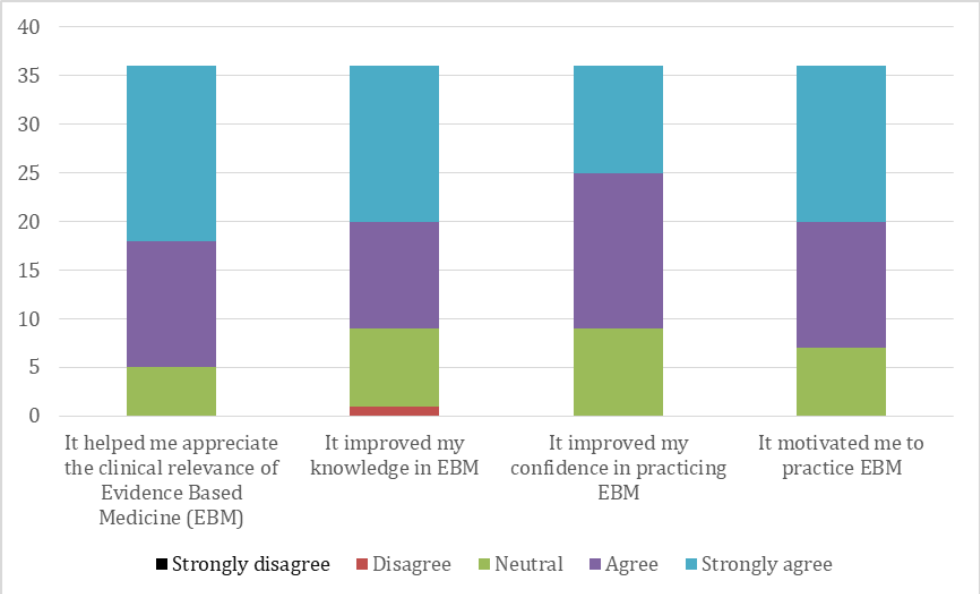

Figure 2: *Likert scale feedback results for the 2020 conference on practice of EBM*

A large majority of delegates found the additional presentation by Buckingham graduates helpful with 76 percent (Figure 3) of the attendees either in agreement or strongly agreement that the talk encouraged them to practice EBM. Supportively, there were no attendees that found the talk unhelpful.

Feedback from the foundation doctors on their role as near peer mentors showed that this experience has helped them reflect on their own clinical practice and how it has allowed them to develop and be able to impart that knowledge to the medical students. It also allowed them to develop their leadership skills, communication skills, to collaborate with the organisers and to be able to conduct research on the role of mentors.

own peers. A particular student commented *''Towards the latter part of the term, group work sessions were overseen by two Phase 2 students who would check our work and be available to answer any questions. I found this helpful, as it was easier to ask questions as they arose instead of directing them to Dr. K well after the lecture or session. In the future, having someone to monitor or check the group sessions for questions throughout the term instead of just during these last sessions would be useful.'*

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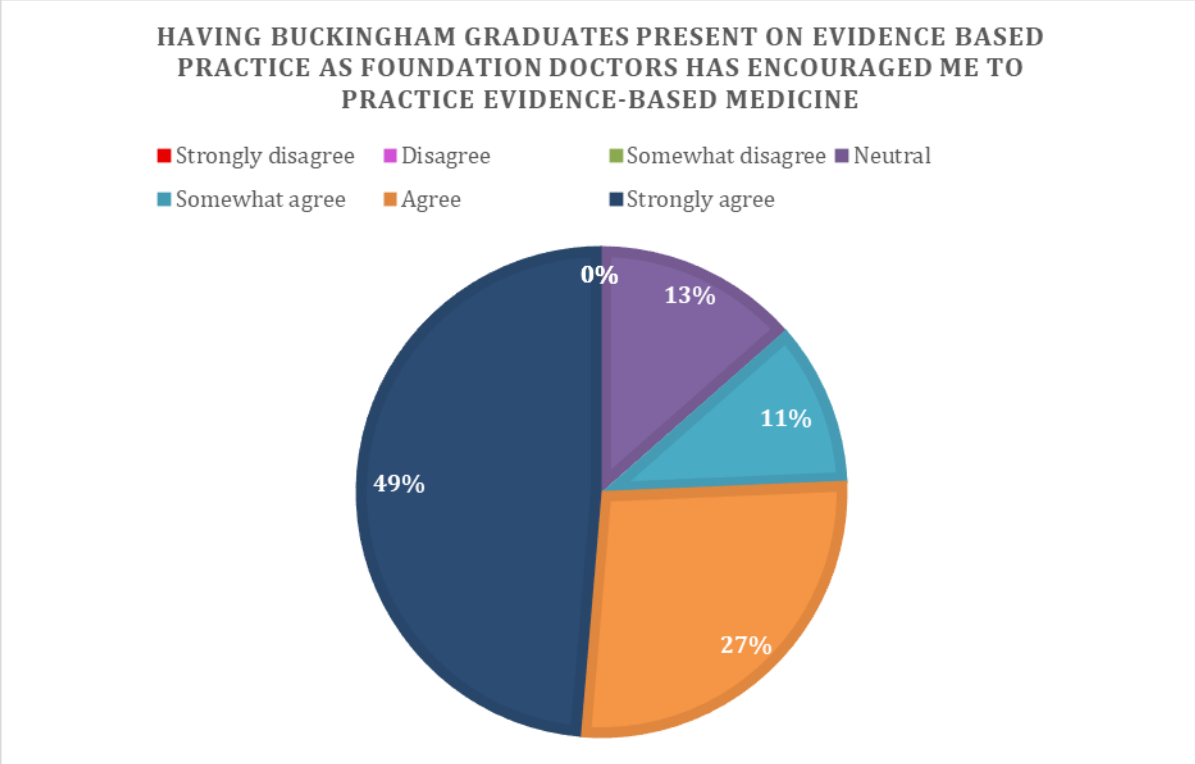

Figure 3: *Pie chart showing 7 point Likert scale feedback on whether having Buckingham graduates present on evidence based practice as foundation doctor has encouraged them to practice EBM.*

Figure 3 shows how 76 percent of the attendees strongly agree/agree that having Buckingham graduates present on EBP as foundation doctors has encouraged them to practice EBM and no participant felt that it was not useful. Hence it shows the impact of having near peer mentors to inspire and motivate mentees.

Additionally, students in year 1 also communicated that having senior year students to help with group work in their health and disease population module made them felt at ease and more open to clarifying their questions and understanding it through their leadership skills, communication skills, collaborate with the organisers and to be able to conduct research on the role of mentors.

Discussion

This qualitative assessment of student attitudes towards near peer mentorship at a conference based on EBM in clinical practice has demonstrated a beneficial result. Nearly half of the attendees at the conference 'strongly agree' that having graduates return to present about EBM in their clinical practice encouraged them to practice EBM. There is a growing emphasis on EBM being

incorporated into clinical practice[16], Glasziou et al have stated "the search engine is now as valuable as the stethoscope"[17]. Practice can become quickly out -dated if the clinician is unable to stay current with recent evidence based medicine[18]. In 2015 there were over one million publications published to PubMed[19]. Clinicians need the skills to find the most relevant and robust data, which the modern medical curriculum should consider. The results of this paper have shown that the use of NPMs at a student run conference improves student knowledge of EBM, with 72% of responders 'agreeing' or 'strongly agreeing' with this statement.

A qualitative study on 'undergraduate medical student perception and use of Evidence Based Medicine'[12] identified barriers and enablers for medical students integrating EBM. The paper found that students recognised the importance of EBM for their clinical training and future clinical practice[12]. Furthermore, evidence has shown that student attitudes towards EBM can be positively modified if one is able to demonstrate a connection between competency in EBM and facilitating medical decisions in practice[20]. Our study has demonstrated that the student EBM conference reinforced the importance of EBM in clinical practice. Of the thirty -seven responders to the questionnaire, eighteen 'strongly agree' the conference has helped delegates appreciate the importance of EBM in clinical practice. Furthermore the results demonstrated that NPM has a positive impact on the attitudes of medical students towards EBM as 78% 'agreed' or 'strongly agreed' that it motivated them to practice EBM.

Barriers towards the implementation of EBM in clinical practice that have been identified are changing the behaviour and practice of more senior clinicians[12]. A suggested method to overcome these barriers is to integrate EBM in clinical practice into the medical school curriculum. This conference has demonstrated a method in achieving this by engaging students early on in their clinical rotations to demonstrate how they have used EBM to answer a clinical problem. Additionally, it has reflected the change in attitude towards EBM as it invites junior doctors to act as near peer mentors and explain how they have used EBM in their qualified clinical roles. Having more experienced seniors demonstrate their use of EBM is an important enabler and the findings from this study reinforces this principle.

Limitations of this study are completion rate of delegate feedback forms. Furthermore there is scope to seek more mentor feedback in the future in order encapsulate an understanding of mentor perspective.

Not only has NPM demonstrated a benefit for mentees but also a valuable experience for the mentors**.** Students at the University have had the opportunity to run a conference and provide guidance to their less experienced junior colleagues through these means. In doing so, mentors have been able to achieve a core recommendation outlined by the GMC for graduates; to 'work effectively and appropriately as a mentor and teacher for other learners in multi-professional teams'[21]. Furthermore, having the opportunity to act as an NPM at the conference has allowed practicing junior doctors to develop key skills required for completion of foundation training. Graduates have been invited back to speak at the conference and answer questions about how they have used EBM in their clinical practice. In particular it supports the opportunity to achieve the competency 'developing the clinical teacher' (DCT), a mandatory requirement for all foundation trainees. The conference will continue to be held annually and organised by students. An improvement of the conference is that students will be made aware of the conference from the beginning of the academic year to afford them the opportunity to implement EBM throughout their placements.

Conclusion

Increasingly incorporating EBM into clinical practice is becoming an essential task for the modern clinician. Traditional didactic methods of teaching EBM fail to integrate the subject into clinical practice. The EBM conference organised by students provides a unique way to implement EBM in their clinical rotations. Having the conference as a platform for students to demonstrate how they have used EBM in their clinical practice motivates attendees to practice EBM. Furthermore, this paper has shown that the use of NPM motivated students use EBM in their clinical practice. Additionally, being a mentor at a conference enabled graduates as well as senior students to develop their teaching and presentation skills. A future potential of the NPM programme at the conference would be to provide small workshops led by NPMs prior to the conference. Ultimately, medical schools should consider providing near peer mentoring for highlighting the significance of EBM in clinical practice.

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