

BEME Guidance paper: summer school students in BEME review groups

This BEME guidance paper is for review groups wishing to include a summer school student as part of a BEME review group where this is not paid work.

BEME recommends that membership of review groups includes topic experts, review methodology experts, an information scientist, and if necessary, a statistician. We strongly support including a student in the review group. Students can either take the same share of the work as any other member of the group or be assigned specific tasks which may be considerably more work. There are different patterns of identifying student participants in BEME review groups and for providing reward for this work. They may undertake review work as a summer school student, as part of a special studies module or be employed as research assistants.

1. Choose your student carefully, they should be
 - a. be highly self-directed in their work and learning,
 - b. have strong interest in the project,
 - c. be committed to the project.
2. Look for prior writing and/or critical appraisal skills, e.g., a student who has
 - a. been chair of a student journal club,
 - b. previous formal experience in writing scientific or humanities related documents.

One review group leader writes

'I've had great students, one who did an honours English degree before med school, one who ran the a journal club for an undergraduate biochemistry student group, one who had a summer job writing grant applications for a not for profit spina bifida organization.'

3. Train your student and make good use of any local courses in critical appraisal and systematic review methods: this might include arranging and paying for them to attend
 - a. a health sciences workshop on introduction to systematic review methods,
 - b. a beginner systematic review course.

As one review group leader writes

'Our Centre for Health Evidence runs a 3 day course every year that I pay for the students to attend.'

4. Introduce them to colleagues who can help with any questions or troubles they have, for example, to staff working in health evidence research centres.
5. Give your student true ownership of the project and make expectations clear from the outset to ensure that they
 - a. and others know that the student is the project manager,
 - b. are in charge of organizing timelines and outstanding tasks and are not intimidated in doing this by faculty staff,
 - c. write an initial draft of the review report with guidance and help from the rest of the review group,
 - d. prepare an initial draft of a poster presentation for submission to the local student research days and to national Medical Education meetings,
 - e. know they will be recognized for these efforts, which means
 - i. they are given significant, if not first, authorship for the manuscript providing they contribute appropriately (this must be negotiated up front with other collaborators on the project),
 - ii. funding support to present at one national and an AMEE international conference if possible.
6. Support your student through the process
 - a. meet with them regularly (weekly is best) to review their work, offer guidance, clarify questions and plan next steps or goals to complete prior to the next meeting,
 - b. link them with team member with key expertise related to the stage they are at in the review,
 - c. use tools such as "insert comments" and "track changes" to guide and add to their writing without redoing their work,
 - d. recognize that doing and writing up a systematic review is hard work and offer encouragement and support.

Anna Oswald, University of Alberta & Marilyn Hammick, BEME Consultant

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And here's what students say about participating in a BEME systematic review ...

When I was looking for research opportunities for a summer project, I came across a BEME project that outlined a new learning strategy and an investigation into its effectiveness. This stood out to me among the other opportunities that took place in lab settings or clinics because it addressed a need that health professions students have before even stepping foot in a hospital--that is, in the classroom. I was intrigued by the project's aim to investigate how students in the medical field learn best; in this project I would be learning about learning. The project appealed to me because of its broad applicability in looking at how people understand and retain information: skills that I, as a student, naturally want to improve throughout my academic and postgraduate career.

Though the project sounded a bit overwhelming initially, I came to learn that a literature search of over 400 titles was more manageable than it sounded, especially with a team of experienced researchers at hand. My project was made easier by the schedule of systematic review procedures the team had prepared from a previous project together. In general, working with individuals with such diverse research backgrounds was a privilege to have as a young student, and one of the highlights of my experience; it was an opportunity I likely otherwise wouldn't have gotten for several years into my medical career.

Being my first experience with research, I was fortunate enough to partake in a publication, poster presentation, and the peer review process that went with these. I'm extremely glad to have gotten these insights into the research world and especially grateful to have contributed to an area of medical research with quite observable applications--namely, medical education. Knowing that my research may very well make it into medical curricula in the next couple years is incredibly rewarding.

Mim Fatmi, University of Alberta

I first became involved in a BEME systematic review the summer after my first year of medical school. I was drawn to the project, not out of an interest in the field of medical education or a desire for this type of research experience, but because it was advertised as being two months long (i.e. it wouldn't interfere with my vacation plans), and allowed for flexibility of work location (i.e. I wouldn't be tied to a lab doing bench work, or a hospital doing chart reviews). I certainly didn't go into my BEME project hoping to get anything out of it other than a great summer and the mandatory research experience needed for my CV, but my participation provided for so much more than that, and became one of the most important educational experiences of my medical training thus far.

Throughout the data collection and analysis phases of the project I had extensive exposure to a multitude of study designs and learned how to assess their quality. This is an essential skill for a medical practitioner because we are all expected to be lifelong learners capable of finding and evaluating the most recent evidence. While this competency is addressed in most medical curricula, I found my first-hand experience to be invaluable in providing a thorough understanding and practical application of these skills.

The project also exposed me to the process of qualitative data analysis, as my previous research experience had been statistically based. I learned about different approaches to qualitative analysis, and the creativity required for the organization and presentation of heterogeneous data. The experience provided me with an entirely new lens through which to consider research, and presented a previously unknown route to academia for those of us disinterested in traditional quantitative analysis.

My involvement in a BEME systematic review also offered the opportunity for publication, as well as presentation at a national conference. These were extremely constructive experiences for me as they offered an avenue for improving public speaking ability, as well as the process of writing and editing to create a polished product.

All of these skills contribute to the development of the scholarly role many physicians adopt at some point in their careers, and I feel that my early exposure to the systematic review process has increased my comfort and capacity for further academic advancement.

In addition to the many scholastic gains I've made through my experience with the project, I think that perhaps the most beneficial rewards have been in my personal growth. The project extended beyond the predicted two months, and became a priority I learned to manage between studying and clinical training. It was among my first attempt to balance several

ongoing projects, requiring significant time management, which is certainly a vital skill for all clinicians to develop. Moreover, as the project advanced I became increasingly invested in it and enthusiastic about the field of medical education. Despite my limited initial interest, I am now keen to continue research in this area as I progress through my residency. Finally, I was very lucky to discover that my BEME experience offered an amazing opportunity for mentorship. I worked with a supervisor who provided significant independence, but also supports as necessary, truly allowing me to thrive as I took on each challenge and phase of the project. We have cultivated a relationship over the course of the project, which has provided me with personal support, career guidance and friendship.

Overall, my experiences in writing a BEME systematic review have been invaluable, both personally as well as to my development as a physician, and I would absolutely recommend involvement to any student considering an application. In my case it resulted in not only the wonderful summer vacation I had planned, but also in unexpected skills, relationships and life lessons.

Alex Jackman, University of Alberta

Helping to create a BEME systematic review was an excellent, hands on way to learn more about the scientific method. The whole process of performing a systematic review lends itself to experiential learning. I read through literally thousands of abstracts, hundreds of articles, and methodically studied our included papers multiple times. At a distance this may seem daunting or chaotic but I found that, as the title suggests, there was a system to follow that helped each step flow into the next. It was a great opportunity for me to work with our librarian here at the University of Alberta in creating search strategies to ensure the process and content of our literature searches were correct. Doing this helped me gain experience and confidence in searching for answers to my own medical questions in the literature.

My main preceptor was a great mentor to help guide me when I had questions. Additionally, I enjoyed the independence that came with working on this project. The summer student is the workhorse of the BEME review, they don't know everything but they help to get a lot of the heavy pulling done. I spent many hours in the library reading papers, systematically working through our included studies, and writing our review. It was a lot of work, but I can honestly say I enjoyed it.

As a result of my work that summer I was able to present a poster on our findings at the Canadian Conference on Medical Education, which was a great experience. As I apply for a residency positions this year I can demonstrate my involvement in research and talk about it in an educated way. For me, this is more than a checkbox for residency, but something that will help me as a clinician. I would recommend it to anyone.

Cody Nelson – University of Alberta, Medical Student, Class of 2013

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