Essential Skills in Medical Education Portfolio

Section I

I am a junior surgical trainee, and education in medicine is a regular, vital and immensely enjoyable part of my working life. Since starting medical school I have tried to develop a sense of what constitutes effective teaching, learning and assessment, and more recently I have attempted to incorporate these principles into my own practice. The ESME course has equipped me with more advanced tools and knowledge to enhance my experiences of medical education, and through developing this portfolio I have consolidated this information and brought it into my teaching, learning and assessing practices.

Medicine is unlike many other subjects in that it incorporates such a wide variety of skills and cognitive processes, including pure recall of knowledge, application of knowledge to real situations, problem-solving, practical skills, interpersonal skills, management skills and professionalism. Due to the ever-growing breadth of knowledge and skills required to be a doctor, and the relatively short available time frame for training, it is essential that medicine is taught and learned in an effective and efficient manner. I believe that medical education rightfully has a place at the heart of everyday medical practice and is a founding principle of medicine, as stated in the Hippocratic Oath. If we place less emphasis on our rigorous pursuit of improving the effectiveness and efficiency of medical education, we do so at our peril and at the peril of our patients. Medicine exists for patients, and it is the patients, through the quality of care they receive from their healthcare team, who will gain the most overall benefit from effective medical education. Furthermore I believe that medical education extends far beyond the realms of medical school, and should be viewed as a continuous process throughout a clinician’s career, manifest by lifelong learning, teaching, assessing and reflection. Additionally, if the emphasis is placed on a student-centred learning experience, rather than a teacher-centred approach, I believe that the overall educational delivery and quality is improved.

The medical education responsibilities in my daily working life are primarily concerned with the education of medical students and junior doctors. Firstly I am involved with the education of third year medical students in the speciality in which I work (otolaryngology, head and neck surgery), which usually comprises of running small group tutorials on specialty-specific topics, which are normally very clinically orientated. I have also recently been involved with more senior medical students who are approaching their final exams by setting up mock long and short case examinations and giving formative assessment and feedback. Other junior doctors working in my specialty have different educational needs, and I have organised sessions to provide them with some of the specific skills needed to practice safely and successfully out of hours. The summative assessment of junior doctors is a further responsibility of mine and I have received training in using the assessment modalities currently used in UK postgraduate medical education, including mini-CEX, case-based discussion, multi-source feedback and DOPS (directly observed procedural skills). I am also a tutor for the University Surgical Society and regularly run basic surgical skills workshops for medical students. I regularly present research and audit projects which I have undertaken at departmental, regional and national level. Lastly, I am a trainee and have my own learning and assessment needs, which are administered through the Intercollegiate Surgical Curriculum Programme (ISCP) from the Royal College of Surgeons of England.
My overall aim in medical education is to provide students and fellow healthcare workers with a learning experience that is positive, meaningful, social and fun. Specifically, I need to develop a strategy for structuring and facilitating effective tutorial based learning sessions. I aim to develop my skills in utilising interactive learning techniques, and to use experiential learning effectively across different subject matter. Another specific goal is to improve my presentation technique and develop a strategy of delivering an engaging and effective presentation for a large-group audience with appropriate use of audio-visual aids. I also aim to improve my knowledge and understanding of assessment modalities and tools in order to undertake more meaningful assessment of students and doctors.

Generally, I would like to be able to combine my responsibilities as a clinician and surgeon with my skills as an educator. The facilitation of learning at the same time as maintaining the high standards of clinical practice to which I aspire is a goal that I aim to achieve throughout my working life, both in my current position as a trainee and later on in my career as an independent practitioner. By building upon the skills I have acquired from the ESME course and my wider reading on the subject and integrating these into my own teaching practices, whilst simultaneously developing my own skills as a trainee surgeon and attaining the competencies necessary for career progression I hope to achieve excellence in both my clinical practice and role as a clinical educator.

Section II – Plan for professional development in medical education

Over the next 6-8 months there are a number of specific aims and goals which I wish to attain in order to ensure adequate development of my skills as an effective teacher, skilled educational planner and informed assessor. These are as follows:

1. To achieve a successful strategy for organising and facilitating useful and effective small group tutorial-based learning sessions for medical students during their placement in the specialty in which I work (otolaryngology, head and neck surgery).
2. To achieve a successful strategy for organising and facilitating effective tutorial-based learning sessions for junior doctors new to the specialty in which I work. This will culminate in the creation and implementation of a mini-curriculum for a single ‘training day’ for new junior doctors working in otolaryngology with the objective of equipping them with the specialist skills necessary to perform specific procedures independently.
3. To create an effective programme of basic surgical skills teaching to be implemented as a 90 minute single session for a group of approximately 20 medical students.
4. To develop my personal skills in the preparation and delivery of oral presentation to a large-group audience.
5. To gain competence in the performance of specific assessment tools, namely 360° appraisal and mini-CEX.

These specific goals require methods of evaluation in order to assess adequate development, and the assessment needs to occur over a specific time period or at specific points in time in order for this development plan to be valid. These are detailed in table 1.
Table 1: Personal Development Plan

<table>
<thead>
<tr>
<th>Goals</th>
<th>Evaluation Method</th>
<th>Timescale</th>
<th>Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Organising and facilitating small group student tutorial</td>
<td>Tutorial sessions organised and facilitated Feedback from participants</td>
<td>Next 6 months</td>
<td>Effective teacher</td>
</tr>
<tr>
<td>2. Organising and facilitating junior doctor otolaryngology training day</td>
<td>Training day programme devised and carried out Feedback from trainees and other trainers involved</td>
<td>Next 4 months (session due to occur December 2008)</td>
<td>Skilled educational planner / effective teacher</td>
</tr>
<tr>
<td>3. Organising and facilitating surgical skills session</td>
<td>Surgical skills session carried out Feedback from participants and other trainers involved Re-run of surgical skills session with feedback</td>
<td>Next 4 months (sessions in October and December 2008)</td>
<td>Skilled educational planner / effective teacher</td>
</tr>
<tr>
<td>4. Developing presentation skills</td>
<td>Feedback from presentation audience</td>
<td>Next 5 months (arranged presentations occurring in October 2008, November 2008 and January 2009)</td>
<td>Effective teacher</td>
</tr>
<tr>
<td>5. Informed use of assessment tools</td>
<td>Feedback from trainees being assessed Reading of theory behind assessment</td>
<td>Next 6 months</td>
<td>Informed assessor / evaluator</td>
</tr>
</tbody>
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**Section III**

**Part I – Small group tutorial sessions for medical students**

From my own experiences as a medical student (not so long ago) I began to develop a sense of what constituted an effective tutorial session. I regularly experienced ineffective tutorial sessions and was surprised that despite negative feedback, changes to improve the learning processes and outcomes seemed to be rarely implemented. Many of the tutorials I had encountered as an undergraduate were in reality mini-lectures, with relatively minimal opportunity for interaction, which appeared to defeat the point of a small group session. After the ESME course, I was able to combine my previous experiences with the knowledge and tools I had gained from the course in an attempt to formulate and implement the principles of effective small-group teaching.

I had been asked by my department to take a tutorial session with the aim of teaching otolaryngological history-taking skills to third year medical students who had no previous experience
of the speciality. The groups were to be between 4 and 6 students and the session was to last approximately 1 hour.

I believe that an interactive, social, student-centred approach is the key to an effective small group tutorial session. All students must participate actively in order to promote deep learning with opportunities for feedback and reflection. It is essential to have clear learning issues and objectives and to guide independent self-directed study following the session. Having set these principles as the foundation of my tutorial session, I thought about the ways in which I could format the session practically. Having no previous direct experience of problem-based learning I decided to experiment with this format to see if it would be an effective method of teaching, or rather learning the subject matter. Initially it was necessary to produce a list of learning issues or objectives. These were:

- To be able to take a basic history for nasal problems
- To be able to take a basic history for ear problems
- To be able to take a basic history for throat problems

In order to meet these objectives, and to maintain the principles of problem-based learning, I needed to start with a case, i.e. the problem. In fact I needed three cases, one for each history category. My first case was “Mr D is a 67 year old retired businessman who complains of nasal obstruction and discharge.” Starting with this very brief case, I immediately launched into a discussion of identifying the patients’ problems and key facts from the known history. I then asked for a list of possible hypotheses and explanations for Mr D’s problem. This consequently led on to asking the students what additional information would help to test and rank the initial hypotheses, The students’ reasoning was questioned and justification sought with feedback in order to promote learning with understanding, which is a key property of problem-based learning.

After this discussion, we moved on to the next case, “Miss S, a 45 year old housewife with hearing loss,” and the third case “Mr M, a 21 year old student with a neck lump.” The process was similar for all three cases, and culminated in the production of a list of symptom-specific questions to ask when taking an ear, nose or throat history. A frontier was reached in the sessions where the participants met the limits of their existing knowledge and deductive reasoning, and at this point I encouraged them to formulate questions about what they needed to know in order to guide their consequent self-directed learning. I suggested resources to use for independent study which took the form of a selection of book and web-based references. Feedback from the participants was invited, using an informal technique of ‘post-it notes’ asking for one positive comment and one thing that could be improved.

Table 2: Feedback comments from the small group tutorial session

<table>
<thead>
<tr>
<th>Positive comment</th>
<th>Suggestions for development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear purpose of session</td>
<td>Too long (went 15 mins overtime)</td>
</tr>
<tr>
<td>Feel confident to now take ENT history</td>
<td>Too many questions</td>
</tr>
<tr>
<td>Made me think about why some questions are asked</td>
<td>Asked about some subjects that we hadn’t covered yet</td>
</tr>
<tr>
<td>Good length of session</td>
<td>Should have happened at start of placement</td>
</tr>
<tr>
<td>Good Interaction, but hard work</td>
<td>Room too hot</td>
</tr>
</tbody>
</table>
The problem-based learning approach seemed to work effectively in this learning environment and for this particular subject matter. Importantly, the information was learnt in a maximally interactive fashion. From my own experiences I know that a didactic teacher-centred approach is simply not effective for learning this kind of material, which can really only be properly learnt in an experiential manner. This is reflected in the feedback comments from the session, where the interaction was seen as a positive factor. However, the degree of interaction and active learning required in a PBL session was viewed as a negative factor by one participant, who felt they were asked too many questions.

Another key property of PBL is that for the session to work, a degree of pre-existing knowledge is necessary. Without this, the limits of knowledge are met very quickly and the questions formulated become very general. There is also little that can be discussed and explored. In my session, the level of existing knowledge was generally very good, except for one student who had significantly less than the others. This student unfortunately remained reluctant to contribute throughout the session. In order to prevent this occurring in future sessions the students will be told beforehand of the need to do some background reading prior to the session, with suitable resources suggested. They will also be informed of the likely format of the session and to be prepared to interact.

Interestingly, one student felt that they would have preferred to have the session at an early stage whereas another student felt that they were being asked about material that they had not covered yet, and that the session was probably occurring at too early a stage. This shows that it is a fine balance between assuming too much pre-existing knowledge or too little, and demonstrates the problems of variations in pre-existing knowledge between different students in the PBL group.

Time keeping was an issue, and whilst one student considered the session to be of an appropriate length, another student pointed out that the session had run over-time by 15 minutes, which should have been avoided. It is essential for clear temporal goals to be set and maintained in order to preserve the willingness and enthusiasm of participants to learn. It is also necessary for the learning environment to be comfortable, and as one student brought up, the room was too hot.

Overall the problem-based learning tutorial session was a format that I enjoyed experimenting with and found to be a successful way of facilitating learning. I understand that true problem-based learning is a continuum and needs to occur over several sessions in order to build upon the self-directed learning that has occurred in between sessions, but I feel that there are important lessons to be learnt from this technique and the principles of PBL are applicable to facilitating a one-off session. I will use this format for future small group tutorial sessions as it is an effective way of structuring small group tutorials across a diverse range of subject matter.

**Part II – The Otolaryngology Training Day for Junior Doctors**

The department of otolaryngology in which I work is staffed by seven senior house officer (SHO) grade doctors. Every four months, these doctors rotate to a different specialty, bringing in a new cohort of SHO doctors. Since otolaryngology is a specialty which requires specialist examination techniques and therapeutic skills not taught at undergraduate level or covered by training in other specialties, it is necessary to give specific training to juniors when they join the specialty so they can practice safely and effectively both during the daytime and out-of-hours.
A single day had been set aside in which to provide this training to 16 junior doctors from 2 ENT departments in different hospitals. I approached this session in an outcome-based fashion, setting clear competencies to be reached by the participants by the end of the session. The competencies I set for this session were to equip the junior doctors with the skills of independently performing:

- Flexible nasendoscopy and anterior rhinoscopy
- Treatment of epistaxis
- Use of microscopes and aural microsuction
- Drainage of peritonsilar abscess

These outcomes are practical skills, and so need to be taught in an interactive, experiential manner to ensure that all participants properly familiarise themselves with the equipment and techniques and achieve the desired outcomes, most of which will be new and unfamiliar. In order to effectively create an interactive learning environment, I needed to construct activities to promote accessible understanding. These activities required extensive planning, which initially involved allocating the resources necessary to facilitate the session, incorporating all the equipment required to perform the particular examinations and procedures, including the venue where the equipment was located and the session would take place (the ENT treatment room). Specific attention was necessary with the provision of equipment which could only be used once or required cleaning or sterilisation between uses (e.g. flexible nasendoscopes, nasal speculae, aural speculae and suction and cautery devices). After the equipment was obtained, a plan of the session structure was devised. Four skill stations were set up with sufficient equipment to enable four rotations around the stations, so that all participants could individually gain experience of the procedures and examinations. The skills stations were structured with a brief presentation and demonstration of the examination techniques and procedures, followed by active experimentation by each of the participants under supervision by the skill station leader. The students were formatively assessed during the session and given feedback on how their technique could be improved.

Problems encountered:

- Equipment failure: Light sources which were required for anterior rhinoscopy and nasendoscopy did not all function. Equipment failure is something that needs to be taken into account when organising any type of educational encounter, and invariably causes disruption if not anticipated. In future I will ensure all equipment is in working order in advance so that problems can be sorted out at an early stage to avoid disruption.
- Skill station length: The length of the four different skill stations was variable, which meant that some groups were ready to rotate on to the next skill station before it had finished. This is difficult to avoid but further material could be added to significantly shorter skill stations to account for the variability in length.
- Inability to directly experience all procedures: Some of the procedures such as treatment of epistaxis and drainage of peritonsillar abscess were unable to be directly experienced by the participants for obvious reasons. The skill stations related to these procedures were based on an explanation of the procedure, advice for success and second-line procedures, and handling and familiarisation with the equipment involved. In this way the outcomes were not met per se, but the participants gained enough background experience and familiarity
with the principle of the procedures and equipment involved in order to carry out these skills independently at a later stage.

- Unwillingness of participants to have examination techniques practiced on themselves: It is essential to gain the full consent of the participants to have the examination techniques carried out on themselves by their peers, and it is understandable that not all will be willing to give this consent due to the fairly invasive nature of flexible nasendoscopy and aural microscopy. This was not found to be a problem during this session but I can foresee potential problems in future sessions. As long as the participants feel no pressure to consent to the examinations then there should not be a problem, but this is difficult to avoid. In future sessions I may organise a willing volunteer or group of volunteers to have all participants practice the examinations on.

Part III – The Surgical Skills Session

I organise suturing workshops for around 20 students, lasting 60-90 minutes. The objective of the sessions is to equip the participants with the skills to independently perform basic suturing techniques, and is therefore competency-based. Previously the sessions were not well structured and took the form of a brief introduction followed by largely self-directed practice of the skills with intermittent supervision and guidance. This approach led to the less able students not having enough supervision and not achieving the desired standard. Also important background theory was missing and there was no set end point to the session.

I changed the format of the sessions to include an opening lecture setting clear objectives followed by division into groups with a demonstration of the suturing skills by each group tutor before individual active experimentation with the skills under supervision. Each new suturing skill was introduced with a demonstration followed by a set period of time for practice under supervision. The session was then rounded up with a summary of the skills learnt and background theory.

Learning with understanding is promoted with the combination of active participation and lecture based learning. In-depth exploration is stimulated by active participation under supervision with frequent formative assessments. I tried to combine these principles in order to create an effective interactive learning environment for the participants. Feedback consisting of ‘post-it note’ comments was invited at the end of the session and is summarised as follows:

Table 3: Feedback comments from the surgical skills session

<table>
<thead>
<tr>
<th>Positive comments</th>
<th>Suggestions for development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great demonstration of suturing skills</td>
<td>More suture material available</td>
</tr>
<tr>
<td>Structured</td>
<td>More individual teaching</td>
</tr>
<tr>
<td>Good level of supervision</td>
<td>Too long</td>
</tr>
<tr>
<td>Right length</td>
<td>More demonstrators</td>
</tr>
<tr>
<td>Good coverage of several techniques</td>
<td>Not enough instruments</td>
</tr>
<tr>
<td>Really good teaching</td>
<td>Less talking, more doing!</td>
</tr>
<tr>
<td>Good experience</td>
<td>No need for lecture – we know the basics</td>
</tr>
<tr>
<td>Nice teacher!</td>
<td>More realistic mannekins - ? more pigs trotters to practice on</td>
</tr>
<tr>
<td>Nice informal session</td>
<td>More vegetarian pizza in the break!</td>
</tr>
<tr>
<td>Well taught</td>
<td>Long, but really good</td>
</tr>
</tbody>
</table>
The session was generally met positively by the participants. In the future I will shorten the introductory lecture and recruit more demonstrators to increase the level of supervision. I will also ensure more adequate provision of equipment and materials, and of course provide more vegetarian pizza.

**Part IV – Presentation Skills**

One of the most valuable tools I took from the ESME course was the “set, body, closure” structure for large group presentations. By utilising this structure for all large group presentation delivery I feel I am developing a more effective and engaging presentation style. Previously my presentations lacked clear objectives and tried to convey too many points in the allocated time, which are key features of a bad presentation. Keeping to a clear structure and limiting the amount of content are now at the forefront of my presentation design, and attention to body language, facial expression and eye contact is a high priority in my presentation delivery. I first put this structure into use in a 2 minute oral presentation of a research poster at the AMEE 2008 conference. The set was created by outlining the context of the project with a short anecdote, which served to build rapport with the audience and demonstrated the relevance of the talk. Using an anecdote in this way is a powerful tool which immediately captured the attention of the audience, evident by their eye content. In a long afternoon of fifteen consecutive talks, a tool like this is essential to grab attention and enthuse the audience.

The body of the talk was conveyed with emphasis on the major points illustrated with specific examples from the presented data, which were linked and generalised to the main overall message of the talk. Closure was made with a summary of the main points without introducing new material, which was related back to the context of the bigger picture. Time was then allocated to invite questions from the audience by asking “what questions do you have for me,” rather than “are there any questions,” allowing the questions to form a mandatory part of the talk rather than being viewed as an inconvenient afterthought. Informal feedback from the audience was positive, and it was mentioned that it was easy to understand due to the clear logical order of the talk.

The appropriate use of audiovisual aids is a challenging facet of presentation preparation and is something which I aim to get better at. There is a lot written on PowerPoint slide design, but I feel it is something that is generally not done well. I have adopted an approach of simplicity in slide design, with minimal text and plain backgrounds. Sometimes it is effective to just use an image rather than display text, which can take attention away from the speaker. Too much text on a slide with too many points is the classic PowerPoint error and I strive to avoid this at all cost. Relying too much on the slides can spoil a presentation, the worst kind of presentation being where the slides are read verbatim. I try to critically appraise each presentation I experience, noting particularly good elements and devices and aim to bring these into my own presentation practices. I have also become much more conscious of my body language, voice, facial expression and eye contact during
a presentation as I did not previously realise the profound effect these factors can have on the overall experience.

**Part V – Assessment Tools**

Assessment in medical education is essential if medical professionals are to successfully develop the key competencies and roles of medical expert, communicator, collaborator, manager, health advocate, scholar and professional, as described by the CanMEDS working group in 2000. I am involved in assessing my colleagues and being assessed myself using the multi-source-feedback technique, also known as 360° appraisal. It is used as summative assessment in UK postgraduate medical education, despite it being shown that evaluators give less lenient and more accurate ratings when it is used as a formative assessment. 360° appraisal can be very reliable, though that depends on the number of faculty involved in the assessment. In my experience I feel that not enough evaluators are involved in the exercise to produce a valid and reliable assessment for the majority of candidates. Conducting the evaluation carries significant practical challenges which can significantly reduce the number of responses, and therefore decrease the reliability of the evaluation. I feel that the free text comments in 360° appraisal are always the most telling, and so when carrying out the assessment for others, or asking others to complete the assessment for myself, I pay particular attention to these comments as they are undoubtedly the most useful for one’s own personal development.

Mini-CEX is an assessment modality that I regularly undertake myself and evaluate other medical professionals with. It has been central to UK postgraduate medical training for at least the last four years. It is supposed to provide the trainee with a realistic clinical encounter as it is based on an evaluation of the trainee’s performance with a real patient. The reliability of this assessment tool is dependent upon several encounters occurring with multiple examiners as part of an overall assessment, and so a single, one-off mini-CEX cannot provide a meaningful evaluation of a trainee. As part of my own assessment, I aim to undertake as many mini-CEX evaluations as I can so that I am reliably assessed overall. The key to successful use of mini-CEX is the feedback provided to the trainee, and it is my aim when evaluating other medical professionals to provide honest, useful, practical and encouraging feedback in an effort to enhance their professional development. I feel that mini-CEX is a very useful assessment tool when used by evaluators who are trained in the assessment method. I have experienced inappropriate use of mini-CEX which usually involves no actual observation by the assessor, or inadequate provision of feedback, which I intend to avoid and continue to use this assessment tool to the best of my abilities.

**Final thoughts**

Education is above all an immensely enjoyable part of my working life. In this portfolio I have tried to demonstrate how my existing opinions and skills have been combined with the tools and knowledge that I gleaned from my experiences at AMEE 2008 and the ESME course, supplemented with wider reading on the subject. It is not a complete resume of all my activities in medical education, but rather a summary of how the competencies of the ESME certificate course have been linked to specific educational encounters in my working life over the past 6 months, achieving the specific goals of my personal development plan. My activity in medical education is set to increase as I gain seniority, and as I build and reflect upon my knowledge and experiences in medical education in the future, I hope to make a valuable contribution in my role as a skilled medical educator.