Central Manchester and Manchester Children's University Hospitals NHS Trust

BETting on Clinical Effectiveness. A Foundation Course in Evidence Retrieval, Appraisal and Dissemination.

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November 2001

"Supported by the North Western Deanery under the Blending Service with Training initiative"

ACKNOWLEDGEMENTS

Special thanks to the following people for their help with the project and for their support with teaching on some of the courses:

Mr Kevin Mackway-Jones
Consultant in Emergency Medicine, Manchester Royal Infirmary

Dr Simon Carley
Specialist Registrar in Emergency Medicine, Manchester Royal Infirmary

Mr Kevin Reynard
Consultant in Emergency Medicine, Wythenshawe Hospital

Dr Fiona Lecky
Consultant in Emergency Medicine, Hope Hospital

Dr Bruce Martin
Specialist Registrar in Emergency Medicine, Manchester Royal Infirmary

Dr Ian Crawford
Clinical Research Fellow, Manchester Royal Infirmary

Dr Magnus Harrison
Specialist Registrar in Emergency Medicine, North Staffordshire Royal Infirmary

Dr Steve Jones
Clinical Research Fellow, Manchester Royal Infirmary

Miss Katharine Wylie
Emergency Information Officer, Manchester Royal Infirmary

I am very grateful to Mr Steven Agius (Project Co-ordinator, Department of Postgraduate Medicine and Dentistry, Gateway House) for his supervision during the project.

ABSTRACT

This report investigates the effectiveness of a project established to deliver training in evidence retrieval and critical appraisal skills. It looks at some of the previous research that exists on the concept of Evidence Based Medicine (EBM). The effect that the Critically Appraised Topic (CAT) had on the creation of the Best Evidence Topic (BET) is considered. The methods used to design, publicize, manage, revise and evaluate the training sessions are assessed. The work completed on the website related to the project is discussed. The results section examines the attendance on the six training courses and reviews the findings from the individual workshops that were held. The results are analysed and the value of the training is debated.

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INTRODUCTION

This project was established to provide a building block for members of the Central Manchester and Manchester Children's University Hospitals NHS Trust to become more effective in their clinical areas. A course based around Evidence Based Medicine (EBM) and its principles was designed to teach evidence retrieval and critical appraisal skills and the work produced by the participants after the course was to be disseminated by publishing the work on a related website. In this report the aims and objectives will be defined and a literature review will assess the previous work that has been done in this field. The methods and procedures that were used during the project in an attempt to make it successful will be described and the results that were created through the project will be analysed and discussed. The report will conclude by summarising the work that has been done during this project and by mentioning any further recommendations that should be undertaken if the project is to successfully continue in the immediate future.

A number of the main elements were already in place before work was started on the one-year project. The website which was to be utilised by the course participants to disseminate their work (www.bestbets.org) was already in operation and it had quite a large resource of information in place. The website's database was added to and updated over the year that was spent on the project. Some of the groundwork had been prepared before the beginning of the project, including contacting the people in charge of nursing, research and development. However, there were areas that had not been dealt with previously, so meetings had to be arranged to inform and include interested parties.

The basics of the venture were established, but there was a problem that had not yet been addressed. The work that was being done on the website had to be made accessible to everyone within the Trust as a whole, not just to those working in the Department of Emergency Medicine where it was created. The project was established to design, promote, deliver and evaluate training courses in the retrieval of best evidence and the critical appraisal of this evidence once it was found. It was then expected that the participants who had received the training would be able to disseminate the information and the skills that they had learnt to the other members of staff in the Trust. The participants would therefore become a fundamental link in the clinical effectiveness programme. They could use the website as a means of publicising their new skills by submitting a Best Evidence Topic report (BET) which they had learnt how to write on the course that they had attended.

This report will explore the methods used to design, advertise, manage and revise and edit the training courses. The findings from the evaluation documents that were produced after each of the courses will be shown in the results section of this report. The BestBETs website will be briefly examined and an account of the work that was completed on the website over the year so as to maintain and update the records held on its database will be discussed.

AIMS AND OBJECTIVES

AIM

The project proposed to deliver training to members of staff throughout the Central Manchester and Manchester Children's University Hospitals NHS Trust to enable them to acquire expertise in the retrieval of best evidence and critical appraisal of the evidence and to then encourage them to circulate the information that they had learnt to other Trust employees.

In order to achieve the overall aim of the project the following issues needed to be addressed:

OBJECTIVES

- To design and deliver six comprehensive two-day courses to enable participants to obtain the required skills
- To allow the participants to become the channel for the provision of the clinical effectiveness agenda
- To encourage the students to write and submit BETs for publication on the website
- To improve and extend the website's database with the BETs produced after the courses

REVIEW OF PREVIOUS RESEARCH

EVIDENCE BASED MEDICINE

The training courses were based around the practice of Evidence Based Medicine (EBM). This is the process of systematically locating, appraising and using current research findings as a basis for clinical decisions. It has been described as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients" (Sackett et al, 1996). Many features have informed medical practice in the past, for example, textbooks, personal experience and scientific research, but many of the traditions passed down though generations are erroneous and if personal experience is relied upon there is the risk of biased information being returned. Biases can also occur as a result of having too little time to spend reading the scientific literature. EBM acknowledges the need for information to be presented in the form of a comprehensive summary of the best evidence and to be appraised using an established system. This reduces the risk of biases occurring. EBM has gained more and more acceptance over the last few years, but some individuals in the Health Service are still meeting it with opposition because they are afraid that EBM challenges their powers of authority. A good starting point from which to read about EBM is David Sackett's book *Evidence Based Medicine: how to practice and teach EBM* (Sackett, 2000).

THE BEST EVIDENCE TOPIC (BET) REPORT

In basic terms, best evidence is the best form of evidence that is available to answer a particular question. If high-level evidence exists then the question can be answered with some certainty, but if it does not exist then the best evidence that is available is found and this is used to answer the question instead. Best evidence is evidence that can be obtained without too much difficulty by busy clinicians performing their duties.

Best Evidence Topic reports, or BETs, are designed to find the best evidence that exists to answer a specific question. The BET is constructed through the use of the highest available level of evidence. Therefore, level one evidence will be used if it exists, and if there is no level one evidence, then level two evidence will be sought, and so forth. BETs were developed in the Department of Emergency Medicine at Manchester Royal Infirmary (MRI) to provide fast evidence-based answers to real life clinical questions. They take into consideration the shortcomings of the current evidence and allow physicians to make the most of the data that is available. Each topic is written by one author and reviewed by another so as to ensure that there is a certain amount of quality control over the process.

Sackett et al, observe that "Evidence Based Medicine is not restricted to randomised trials and meta-analyses" (1996) and BETs allow the inclusion of lower quality evidence

by listing the weaknesses of papers that are included for evaluation. Best Evidence Topics are not systematic reviews and include only published evidence. BETs permit fast access to the best available evidence, summarised in a patient-centred way. Each topic answers a carefully expressed three-part question, which has been based on a real or entirely plausible clinical scenario. As with other styles of EBM topic reviews, each BET has a "clinical bottom line", which enables the busy clinician to immediately inspect the summary.

Best Evidence Topic reports are assembled using four of the stages that underlie all of evidence-based medicine. The first step is to 'ask the right question'. If a BET is to be of any importance to practicing clinicians it is essential that a clinical scenario is developed to demonstrate the relevant subject. The scenario represents a real clinical problem that either has happened or could happen. A three-part question is then prepared from the clinical scenario so as to ensure that the question is well defined. The three-part question is made up of the *patient characteristic*, the *intervention* or *defining question* and the *relevant outcome*. The three-part question needs to be well defined so that an appropriate search strategy can be created. The organization of the question to be asked is central to the creation of a BET report. It should be specific and capable of being answered by the literature.

The second stage in creating a BET is to 'search for the evidence'. Search strategies have to be clear and focused to ensure that as much evidence as possible can be found for each report. The Medline database is used as the main resource for searching for information on a BET. It is necessary when searching Medline to use search terms that are relevant to the subject stated in the three-part question. Methodological filters are applied to the search when it is considered appropriate. The titles and abstracts of the results returned by the search are then examined to find the papers that are relevant to the three-part question. The third step in the format of a BET is to 'appraise the evidence' that has been found. The highest level of evidence available is used to construct the BET. The papers containing the highest level of evidence are identified and they are then critically appraised. If a paper is found to have serious faults it will be said that it is of "insufficient quality for inclusion". However, if a paper does not have too many defects, or if it does, but it still contains the best evidence that is available, it will be included as evidence in the BET. The fourth phase of constructing a BET is to 'summarise the evidence' that has been gathered, by writing the actual BET in the format described on the website (www.bestbets.org), which can be seen in Appendix One.

BETs were first presented in the *Journal of Accident and Emergency Medicine*. They quickly gained a lot of interest, but potential authors had no way of knowing what topics were already being written. It was apparent that a website with a searchable database was urgently needed so the BestBETs website was set up in July 2000. The online database lets visitors browse or search for Best Evidence Topics and there is the opportunity for users to submit their intention to write a BET.

THE CRITICALLY APPRAISED TOPIC (CAT)

The Centre for Evidence Based Medicine, established by the NHS Research and Development department in Oxford, includes links to many resources on EBM (http://cebm.jr2.ox.ac.uk/). The Evidence Based On Call (EBOC) database constructs current information for clinicians. The EBM Toolbox holds an assortment of helpful clinical tools on Evidence Based Medicine. The CATbank can be used to create, store and retrieve Critically Appraised Topics (CATs) and includes the CATmaker, which shows the user how to write a CAT. The CAT was designed to be a one-page summary of the evidence related to a specific clinical question. It includes a title and a question and a declarative answer to the question and title. A clinical scenario follows, which summarises the patient's problem in one brief sentence. The clinical bottom line shows how the evidence could be used in clinical care. The evidence table provides a summary of the article, the size of the population and other relevant information. Comments and references are listed at the end of the Critically Appraised Topic. Unlike BETs, CATs only usually work when based on papers that can withstand meticulous critical appraisal. They often rely on evidence from randomised trials and meta-analyses. The Critically Appraised Topic was utilised by the creators of the Best Evidence Topic as a foundation for developing a method of EBM topic review, and BETs are similar to CATs, but BETs differ in the way that they use the best available evidence instead of simply disregarding any evidence which is not considered to be of high quality. CATs are also produced at the University of Rochester in New York, edited by Brett Robins and Walter A Polashenski. A list of CATs relating to various topics can be viewed on the University's website (http://www.urmc.rochester.edu/MEDICINE/RES/CATS/index.html).

PATIENT-ORIENTED EVIDENCE THAT MATTERS (POEMS)

POEMs or Patient-Oriented Evidence That Matters, are once again similar to both BETs and CATs. They are published by the editors of *The Journal of Family Practice* and can be found on the Internet on the Evidence Based Practice website (http://www.ebponline.net/EBP_POEM_1.html) and on the MedicalInfoRetriever InfoPoems website (http://www.medicalinforetriever.com/index.cfm). POEMs are based on articles that could possibly change the way family medicine is administered. If a paper is to be regarded as a POEM, there are a number of criteria that it has to meet. Firstly, the article must address a current and familiar primary care question. Secondly, it has to measure outcomes that are pertinent to the physician and to his or her patient. Thirdly, there must be a distinct probability that the article contains data that could change the way the physician currently practices. POEMs are more closely related to CATs than to BETs because like CATs they are inclined to look merely for the highest evidence rather than looking generally for the best available evidence that exists on a subject.

OTHER RELEVANT SOURCES

One of the major resources for Evidence Based Health Care (EBHC) is a website produced by Andrew Booth of the School of Health and Related Research (ScHARR) at the University of Sheffield. The Netting the Evidence website (http://nettingtheevidence.org.uk) contains links to many sites with information on EBM, including sources showing the user how to search for the evidence and how to appraise the evidence once it has been found, and listings of some of the journals and organisations that deal with EBM. There is a link to the Users' Guides to the Medical Literature, containing very useful guidelines on EBM (http://www.cche.net/principles/main.asp), which were originally published as a series in the *Journal of the American Medical Association* (JAMA) in 1992. Netting the Evidence also connects the user to the Wisdom Centre, an initiative supported by the Trent Sheffield Deanery (http://www.wisdomnet.co.uk). The Centre runs the WISDOM Seminars on Evidence Based Practice (EBP) and there are links to some EBP websites.

Bandolier (http://www.jr2.ox.ac.uk/bandolier/) is a monthly evidence-based healthcare journal that endeavours to explain the information from selected systematic reviews and clinical trials. The University of Illinois at Chicago produce *Evidence Based Medicine: Finding the Best Clinical Literature*, a guide created to assist the healthcare professional to become an effective and efficient user of the medical literature (http://www.uic.edu/depts/lib/lhsp/resources/ebm.shtml). The TRIP (Turning Research Into Practice) database was created in 1997 and searches over seventy sites of specialist medical information. It was originally intended to act as a storage facility for only evidence-based data, but it has expanded over time to include peer-reviewed journals and other publications (http://www.tripdatabase.com/). The *Clinical Evidence* directory "summarises the current state of knowledge, ignorance, and uncertainty about the prevention and treatment of clinical conditions, based on thorough searches and appraisal of the literature". It "describes the best available evidence, and where there is no good evidence it says so". It is similar therefore to the work done in a BET report (http://www.evidence.org/lpBinCE/lpext.dll?f=templates&fn=main-h.htm&2.0). There are a large number of sources with information on Evidence Based Medicine and it is beyond the scope of this report to mention them all at this point. The sources referred to in this section are therefore just a small selection of the vast amount available to the user.

METHODOLOGY

In this part of the report there will be a description of the procedures that were used to accomplish the project. These procedures include development, promotion, administration, revision and evaluation of the training courses and maintaining the website to update the records held on the database.

DESIGNING THE COURSE

The dates of the six training courses were decided upon at an early stage and were then finalised by booking rooms at the Advanced Life Support Group (ALSG) at Salford Quays and at the Trust's Postgraduate Health Sciences Centre. The choice was often made according to availability because a lot of the existing options had been reserved before the project began. It would have been ideal to hold all of the courses at the Postgraduate Centre (instead of just one), but it was heavily booked throughout the year so the ALSG was used for five courses. This might have deterred people from applying for the courses because they were not being offered on site. The courses were to be provided in two small group, two-hour workshops over two days, with up to twelve people in each of the small groups (up to twenty four on each of the six courses). The outline for the course was determined at the beginning of the project. On the first of the two days the Introduction to the Web, Searching for the Evidence (Sensitivity) and Critical Appraisal parts one and two were to be taught. On the second day, Searching for the Evidence (Specificity), teaching BestBETs and Critical Appraisal parts three and four were to be delivered.

The critical appraisal book to be used for the courses and to give to the participants to aid their learning was decided upon. Iain Crombie's The Pocket Guide to Critical Appraisal was eventually chosen after careful deliberation (Crombie, 1996). Two other books were considered, but were rejected because they were not as easy to use and they cost more than the Crombie book (Sackett, 2000 and Greenhalgh, 1997). It was determined which critical appraisal checklists would be used to teach the appraisal sessions and how many critical appraisal topics would be covered (surveys, reviews, trials, diagnostic studies).

During the second and third month of the project the lesson plans for the evidence retrieval sessions were created. The Introduction to the Web session was designed to start at a basic level to cover everyone's needs and then to gradually move onto more advanced techniques. The Searching for the Evidence sessions would cover two areas, sensitivity and specificity and a general search around the topic of cot death was designed. It was decided that the OVID interface would be used to teach Medline on, as it is more sophisticated than the other interfaces that exist. The handouts for the sessions were produced and photocopied for the number of people that were expected to attend the course and the evaluation forms were discussed and developed. A copy of the evaluation form can be seen in Appendix Two.

ADVERTISING THE COURSE

A poster was designed to promote the courses. This was placed on the Trust Intranet, both on the Homepage and on the staff development page. A great deal of emphasis was put on the fact that the training was free in order to make the courses sound more appealing. A mail shot was organised at the end of the second month on the project and each department in the Trust's hospitals (MRI, St Mary's, Royal Eye & Dental hospitals) received several copies of the promotional leaflet. Posters were placed on all the notice boards throughout the corridors of each of the hospitals and particular attention was paid to targeting the boards outside meeting places such as the restaurants and staff rooms. Large posters were placed on the notice boards in the Postgraduate Centre to try to encourage junior doctors (one of the main groups to be targeted) to attend the course. A copy of the poster used to promote the six courses can be found in Appendix Two. Application forms were created and were given out attached to the leaflets in the mail shot and a version of the form can also be found in Appendix Two. It was important to receive as much information as was possible from the application forms, but it was also necessary not to make them too lengthy or people might not want to fill them in. The same considerations had to be made over the evaluation forms (Appendix Two).

COURSE ADMINISTRATION

The first piece of administration to perform was to develop the application forms and to keep copies of the forms received from the applicants, both as hard copies and as recorded data on an electronic database. Letters were sent to the potential candidates advising them of general instructions such as directions to the venues and the outline of the 2-day's events. One of the most demanding parts of administering the course was trying to find trainers to teach the critical appraisal sessions. The trainers were all chosen from staff in the emergency departments in the area and so they were obviously very busy people and could not abandon their daily work to teach on the course. It was sometimes necessary to wait until one or two days before the course to ascertain whether particular trainers could attend the courses or not.

Teaching packs were sent out to the participants from the April course onwards. The packs were hand delivered in an attempt to ensure that they reached the participants a week before the course. This was done to give each participant sufficient time to read through the material in the packs. Letters or emails were sent to each of the participants asking for information on their BETs about two months after each course had been completed and again a month before the end of the actual project. Copies of the evaluation forms returned after each course were retained and evaluation reports were then created. A CD ROM was produced to provide a fixed format from which to deliver the course.

COURSE REVISION

Following the completion of the first course, some significant changes were made to the course outline. The amount of papers to be critically appraised would be increased to five instead of four. A qualitative paper was added to the sessions from the March course onwards. It was decided that all the evidence retrieval sessions would now be delivered on day one and that all the critical appraisal sessions would be provided on day two. The first day commenced with an Introduction to Evidence Based Medicine and a guide showing the students how to write three-part questions and continued with the Introduction to the Web, Searching for the Evidence One (Sensitivity) and Searching for the Evidence Two (Specificity) sessions. Appendix Three contains examples of the course material used for the evidence retrieval sessions. On the second day, an Introduction to Critical Appraisal and surveys opened the day's events, followed by trials and reviews, diagnostic and qualitative studies and finishing with Putting it all together, a look at the BestBETs website and how to write BETs. The Searching for the Evidence search strategy was to be designed around an existing BET instead of the one created on cot death (see Appendix Four). From the April course onwards, the survey, trial and review papers were sent out to the participants a week before the course, along with the critical appraisal book by Crombie, so that the students had sufficient time to read them before they attended the sessions. Three of the papers were now to be seen therefore and two papers (the diagnostic studies and qualitative) remained unseen until the second day. The teaching pack proved to be a useful strategy as it saved some time during the sessions because the students just had to familiarise themselves with the papers on the day.

EVALUATING THE COURSES

The evaluation forms were designed to discover whether or not the course was being delivered successfully, at an appropriate level and according to the participant's needs. The forms were handed in anonymously; therefore people could write exactly what they wanted to and not feel they would be criticized for writing anything that might be considered detrimental about the training being offered. Unfortunately, not all the forms were returned during any of the six courses and this may have had an affect on the results noted in the evaluation reports. The results may have been quite different if all of the forms had been returned for each of the courses. It was decided that the evaluation forms would be handed out and then returned after each of the actual sessions rather than allowing the participants to take them away and return them at a later date. It would have been too lengthy a process to let the students take the forms away and there would have been a significant chance that the forms would never have been returned.

In addition to the set questions where respondents ticked the appropriate boxes, there was also an opportunity for individuals to make general comments about the training they had received. Most of the participants took advantage of this and made comments in the spaces provided and some of these comments are recorded later in the report. After the courses the evaluation forms were analysed and evaluation reports were written. Microsoft Excel was used to show the appearance of the results.

WEBSITE MAINTENANCE

Work on updating the website began almost immediately after the project had commenced. There were a lot of BETs that needed to be input so the first task was to learn how to enter them on to the website. Once the backlog of BETs to be edited were cleared, it was then necessary to organise the hard copy collection of the Best Evidence Topics. All the BETs from numbers one to two hundred and fifty were printed out in a standard format and placed in folders. The files were then saved to disk as a precaution. The website was updated continuously throughout the year, adding new BETs when they were submitted and ensuring that the quality of the BETs was controlled constantly. Several meetings were held over the year to discuss the work that still needed to be carried out on the website. The proposals for development of the website will be discussed later in this report.

STATEMENT OF RESULTS

In this section the results collected from the evaluation forms for the six training courses shall be discussed.

COURSE ATTENDANCE

In total, 84 people from the Central Manchester and Manchester Children's University Hospitals NHS Trust attended the six training courses. This grand total consists of 9 participants from the 18th and 19th January course, 14 from 5th and 6th March, 12 from 2nd and 3rd April's course, 10 students on 8th and 9th May, 20 on 21st and 22nd June and 19 on 12th and 13th July. The table below shows the types of personnel that attended the sessions. The departments in the Trust with the highest number of attendants were the Cytogenetics Department (14%), the various psychiatry departments (11%) and the Oral Surgery Day Case Unit (8%). On the whole, however, the participants came from different departments than their fellow students. This meant that there were always quite a wide variety of disciplines to teach across and it was at first difficult to know exactly what to teach that would encompass all these different skills. Most of the participants worked at the Manchester Royal Infirmary, 64 people, with 18 from St Mary's Hospital. There were only 2 participants from the Royal Eye Hospital and there were no students whatsoever from the Dental Hospital. The majority of the students (82%) were female.

OCCUPATION	NUMBER OF PARTICIPANTS
NURSES	41
DOCTORS	10
CONSULTANTS	4
SCIENTISTS	10
CYTOGENETICISTS	2
PHYSIOTHERAPISTS	3
CLINICAL AUDIT FACILITATORS	2
DIETICIANS	3
SENIOR DIETICIAN	1
CHILD MENTAL HEALTH PRACTITIONER	1
CLINICAL GOVERNANCE COORDINATOR	1
OCCUPATIONAL THERAPIST	1
RESEARCH OFFICER	1
RESEARCH ASSISTANT	1
ASSISTANT PSYCHOLOGIST	1
QA COORDINATOR	1
RADIOGRAPHER	1

Table showing the different categories of personnel that attended the six courses.

On the first two courses the evaluation forms were given out after every session on the two days. After the April course the forms were given out after most of the sessions, with the exception of the Searching for the Evidence sessions, when they were given out only after both of the sessions had been taught. It was decided that there would just be one evaluation after both of the Searching for the Evidence sessions because they both received similar evaluation on the January and March courses. The best response rate for return of the evaluation forms was on day one and the worst response on day two throughout the six courses. Of all the forms that were handed out, 74% were returned for the Introduction to EBM sessions, 86% for the Introduction to the Web sessions, 93% for both of the Searching for the Evidence sessions, 71% for the Introduction to Critical Appraisal and Surveys sessions, 50% for the Reviews and Trials sessions, 50% for the Qualitative and Diagnostic Studies sessions and 39% for the BestBETs/Summary sessions.

THE INDIVIDUAL WORKSHOPS

INTRODUCTION TO EVIDENCE BASED MEDICINE

The overall response over the six courses was that this was a "Good" session (31 replies), whilst 28 thought it was "Excellent" and 3 people thought it was "Fair". The spreadsheet in Appendix Five shows the responses given to the specific checkbox questions. Some general comments were made about this session. The participants realised the importance of learning how to ask the right questions, "It was helpful to see how the right question needs to be carefully defined before a search begins". One person replied that they had "gained sufficient knowledge to ask pertinent questions and how/what to look for when deciding on evidence based knowledge". The participants enjoyed making three-part questions based on their own clinical scenarios and the workshop "Made me think of the right wording for questions to ask". 82% of the participants who responded to the question "Overall, how much have you improved upon your learning?" said that their learning had greatly improved after this session. One person "didn't know anything about this topic before" and it was good to know that they had learnt a lot during the session. The students thought this was a "good introduction, enough to encourage further research".

INTRODUCTION TO THE WEB

The general response to this session over the six courses was that it was "Good" (33 replies), although 21 thought it was "Excellent", 15 that it was "Fair" and 3 that it needed improvement. The spreadsheet in Appendix Five shows the answers to the questions with checkboxes. The most significant comments from this session over the six courses were that there should be "computers for everyone to practice on" in a "computer lab" or similar setting. The evaluation forms show that the participants would have preferred to be able to sit at individual PCs so that they could run through what was being taught. However, some admitted that this would be "rather costly". At the beginning of these sessions the participants were advised that help was on offer after the course, back at

the MRI, on a one to one basis should they need extra tuition. Some people found the sessions too basic for their needs but acknowledged, “it is always difficult to meet a range of skill bases”. 64% of those who responded thought that their learning had improved after this session. People enjoyed this session but wanted hands on experience so they could “put into practice” what they were being taught.

SEARCHING FOR THE EVIDENCE ONE AND TWO (SENSITIVITY AND SPECIFICITY)

The response rate for the two Searching for the Evidence sessions over the six courses was overall “Good” (36 responses), with 29 “Excellent”, 11 “Fair” and 2 “Needs improvement” replies. The spreadsheet in Appendix Six shows the answers to the specific questions where there were boxes to tick. Once again in this section of the course the participants expressed their desire to have some “hands on experience” with the “individual use of computers” so that they could “practice supervised”. One person reflected the thoughts of many of the students when they said that the sessions “answered a few queries I had and encouraged me to adopt a more systematic approach”. Some of the participants stated that they enjoyed the group work “immensely” during these sessions. A few participants thought “it would be useful to have information on the Cochrane Library and to compare this to Medline”. However, they realised the time constraints on the course, “I appreciate this would be another half day session”. 56% of the respondents noted that they had “considerably” improved on their learning in these sessions. After the two sessions the students felt that they “had a better understanding of the information available” and that they were “confident that” they could “now search for information more effectively and efficiently”.

INTRODUCTION TO CRITICAL APPRAISAL AND SURVEYS

The overall response to this session over the six courses was that it was “Excellent” (31 replies), 24 people thought it was “Good” and 5 thought that it was “Fair”. The spreadsheet in Appendix Six shows the answers to the tick box questions. The participants thought that the critical appraisal checklists that they were given would be a valuable and beneficial tool for the future when they were appraising different papers themselves. It became apparent to the participants after this session that a person has to be more “structured in assessing papers and not rely on their initial reactions”. It was thought that the workshop could be improved by extending the time devoted to this part of the course, “Need at least half a day for this session”. Of those that responded to the question, 65% thought that their learning had improved following this session. One of the students made an important observation on critical appraisal, “Although overall I consider my knowledge to be relatively good, regarding general critical appraisal, I do not utilise the skills often enough. This morning’s session has highlighted how easy it is to forget/deskill”.

REVIEWS AND TRIALS

The verdict on this session over the six courses was that it was “Good” (22 replies), with 19 people noting an “Excellent” response and 1 a “Fair” reply. Appendix Seven shows the answers to the specific checkbox questions for this session. Some of the participants felt that more time was needed for this session and wondered whether the course could be extended so as to increase the time that could be spent discussing each of the critical appraisal sections of the course. It was thought that the “group work was excellent” and that it was a “shame time [was] so tight” for the session. The response rate to the question about improvement on learning was quite low for these sessions, but of those that did reply, 45% said that their learning had improved. Several participants noted that they would now be “more critical and questioning about papers”.

QUALITATIVE AND DIAGNOSTIC STUDIES

This session recorded a “Good” response over the six courses (22 replies). The remaining 20 participants thought that the session was “Excellent”. The spreadsheet in Appendix Seven shows the results for the specific questions for this session. Terms such as “very useful” and “enlightening” were used to describe this part of the course and one participant wrote, “The penny is starting to drop – understood this session”. It was felt that this was a “good extension to the morning sessions”. One participant wanted these studies, which are the two unseen papers, to be made available prior to the course. The response rate for the question about improvement in learning was even lower in these sessions. Of those that did reply, 40% said that their learning had improved after attending the sessions. One participant said that the workshop had “Inspired me to do more reading on the subject!” and another person commented that the session contained “Critical Appraisal of an excellent paper (i.e. with very few flaws)”.

BESTBETS/SUMMARY

The participants on the six courses thought that this was an “Excellent” session overall (21 replies), with the remaining 12 people recording a “Good” response. The spreadsheet for this session can be found in Appendix Eight. Some of the participants used this evaluation form to give their opinion of the whole course. Some said that they now had a “much more systematic approach to searching after this and other sessions” and that they would now “take a more organised and concise approach to appraising a paper. Using a pre-printed appraisal sheet was very helpful as it ensured all the questions were asked”. Once again there was a demand for “hands on” experience on the course. Many of the students felt that they now had a “Better understanding of how to do BETs”, but a suggestion was made for an extra day to be added to the course so that there could be a “third day to work on [the] BET”. 67% of the participants observed an improvement in their learning during these sessions.

ANALYSIS AND DISCUSSION

The courses all proved to be successful. All six of the proposed courses proceeded as planned. A large number of the participants returned to their departments and passed on information about the course and as a result some of their colleagues attended later courses and a waiting list has been drawn up with some of their colleagues' names on who would like to attend any future courses if they occur. A number of the students thanked the trainers for the course when they were leaving the venue and were very enthusiastic about what they had learnt, and many of the final evaluation forms contained written appreciation. The general consensus was that the participants would now think about the way in which they read research, that it is important to keep reading papers and appraising them and that they had learnt a great deal about how to use databases, both on the Web and through Medline. Although not quite as many people received training as was originally planned, the people who did receive the training benefited from it immensely and are now fully capable of becoming the channel for the provision of the clinical effectiveness agenda.

During the first session on the courses, the participants began the first stage of writing their BETs by designing their three-part questions. The questions were collected at the end of the first day, photocopied and returned to the students the following day so that they had a hard copy of their questions to take away with them. The participants wrote their email addresses on the sheet with their three-part questions so that they could be contacted in the future to determine if they would be continuing with their BET. The teaching packs were sent out to the participants a week before each of the courses. This saved some valuable time on the second day of the course when the participants could just scan the papers as they had already read them at least once before attending the sessions. The students were asked to arrive on each course prepared with a clinical scenario that they had encountered in their work that had caused problems or raised questions. They each arrived with their scenario in their minds and formulated their three-part questions from this problem. Therefore, preparing the participants before the course saved more time on the actual day.

It was difficult to cover material that would encompass all the disciplines of the people that attended the six courses. Quite a lot of the participants felt that the sessions should be tailored to meet the different specialities of the students, saying that they should be placed in more focused groups. Given the time constraints, however, it was felt that it was not possible to cover specific aspects of all the participants work so the course was kept at a general level to try to include everyone. Suggestions were also made that there could have been a better choice of papers to reflect the mixed group and that there should be more of a variety of papers used for the critical appraisal sessions. It was impossible to meet the needs of every person on each of the courses so the papers that were appraised (all based on EBM) were chosen carefully in an attempt to make them as appealing to as many of the participants as was feasible.

One of the main complaints that the participants expressed during the training sessions was that they felt that hands-on experience at an individual PC was needed during the

evidence retrieval sessions in order for them to practice what was being taught. Many of the students thought that the training that was being offered (the trainer standing at the front of the room, offering explanations and taking the students through a search) could not be as effective as if each student had access to a terminal to develop new skills, whilst an expert was in the room offering help. It would of course have been useful to have individual computers for people to log on to, but there was not enough time or money for this method of training and a lot of the participants realised that there were both time and financial constraints on the sessions. The strategy developed to solve this problem was to offer one-to-one tuition after the courses with one of the Information Officers in the Emergency Department at the Manchester Royal Infirmary. Several people took advantage of the offer of personal tuition and were pleased with the new skills that they acquired through this strategy.

The database on the BestBETs website has been effectively improved and extended throughout the year that was spent on the project. Over one hundred BETs have been submitted over this period and then recorded on the database so that as many people can examine them as possible. Unfortunately, although some of the participants have expressed their desire to write a BET both whilst on the course and when contacted afterwards, there have not been any BETs submitted by any of the applicants off the courses. It is expected that, given more time, some of the participants will produce a number of BETs in the future, even if it is after this initial project has been completed. The participants are all very busy people and their work produces great demands on them so it not really surprising if it takes them a while to write their BETs.

CONCLUSION AND FURTHER RECOMMENDATIONS

CONCLUSION

This project was established to deliver training to all professional staff of the Central Manchester and Manchester Children's University Hospitals NHS Trust in evidence retrieval and critical appraisal techniques with the intention that the participants of the courses could then spread the information that they had learnt to other members of staff in the Trust. The courses were successfully designed to convey as much information to the students as was feasible, promoted efficiently to guarantee that the staff members knew about the training being offered, and carefully administered to ensure that they ran smoothly and that all the data that needed to be recorded was done so accordingly. Meetings were held to discuss any amendments that were needed and the course outline was then revised.

The students that attended the six courses were very satisfied with the training that they received and they can now pass on their experiences and new skills to other people in their departments and around the hospitals that they work in. A large number of the students that responded to the evaluation forms felt that their learning had improved after the training that they obtained. The participants learnt new information about the different search tools on the Internet that can be utilised to find information and how to use one of the medical databases (Medline) to find the papers that they need, by firstly expanding their search and being sensitive and then focusing their search and being more specific. In the critical appraisal sessions the students began to realise the importance of questioning papers and finding the inaccuracies that are often hidden in them and of using checklists to ensure a more structured approach to assessing papers. Offering tuition on a one-to-one basis at the Manchester Royal Infirmary after the courses solved the one real criticism that was made of the sessions, not having individual access to computers.

The website was enhanced and extended over the time that was spent on the project, with over one hundred BETs being published on the database during this period. The students were actively encouraged to write and submit their BETs, using the three-part questions that they had produced during the first training session as the basis for their Best Evidence Topic.

FURTHER RECOMMENDATIONS

It is planned that the project will be continued in the future, although perhaps not quite in its current form. A decision still has to be made with regard to a second round of face-to-face courses in 2002 and as to whether or not they would only include members of staff in the Trust or if they would be open to staff from all of the hospitals in the Manchester region. The course outline will be input onto the BestBETs website so that people will be

able to complete distance learning programmes. One advantage of the distance learning method of training would be that the people who participate on the web courses could do their work at their own speed rather than having to keep up with those around them.

The BestBETs website will be maintained and updated further. Work to be carried out on the website will include adding a critical appraisal section to the site and producing a 'tree' of the BETs, with headings and links to follow, instead of having just one long, uninspiring list of BETs. The searches for the Best Evidence Topics will be rerun on the Medline database so that any new articles that have been input on Medline since the BET was published can be found and critically appraised. Each BET can then be continuously updated in the future to ensure that the website does not become out of date.

REFERENCES AND BIBLIOGRAPHY

Bandolier on http://www.jr2.ox.ac.uk/bandolier/, version current at 03/10/01

Bare Bones 101 web tutorial www.sc.edu/beaufort/library/bones.html, version current at 03/10/01

BestBETs website www.bestbets.org, version current at 09/10/01

Centre for Evidence Based Medicine (Oxford) website http://cebm.jr2.ox.ac.uk/, version current at 09/10/01

Clinical Evidence directory on http://www.evidence.org/lpBinCE/lpext.dll?f=templates&fn=main-h.htm&2.0, version current at 03/10/01

Crombie, Iain K (1996) *The Pocket Guide to Critical Appraisal: A Handbook for Healthcare Professionals* BMJ Publishing

Dept of Health website www.doh.gov.uk, version current at 03/10/01

EBM Online http://ebm.bmjjournals.com/, version current at 03/10/01

Evidence Based Medicine Tool Kit (University of Alberta) http://www.med.ualberta.ca/ebm/ebm.htm, version current at 03/10/01

Evidence Based Practice Patient-Oriented Evidence That Matters http://www.ebponline.net/EBP_POEM_1.html, version current at 03/10/01

Greenhalgh, T (1997) *How to read a paper: the basics of evidence based medicine* BMJ Books

MedicalInfoRetriever InfoPOEMS website http://www.medicalinforetriever.com/index.cfm, version current at 03/10/01

Medline database via the Ovid interface http://ovid.bma.org.uk/, version current at 03/10/01

OMNI http://omni.ac.uk, version current at 03/10/01

Resource Discovery Network (RDN) Virtual Training Suite Internet Medic http://omni.ac.uk/vts/medic/index.htm, version current at 03/10/01

A Scharr Introduction to Evidence Based Practice on the Internet (Sheffield University) www.nettingtheevidence.org.uk or http://www.shef.ac.uk/~scharr/ir/netting/, version current at 03/10/01

Sackett, DL et al (1996) Editorials. Evidence based medicine: what it is and what it isn't *British Medical Journal* 312: 71-2, January

Sackett, DL et al (2000) 2nd ed. *Evidence-Based Medicine: How to Practice and Teach EBM* Churchill Livingstone

The TRIP (Turning Research Into Practice) database http://www.tripdatabase.com/, version current at 03/10/01

University of Illinois at Chicago *Evidence Based Medicine: Finding the Best Clinical Literature* on http://www.uic.edu/depts/lib/lhsp/resources/ebm.shtml, version current at 03/10/01

University of Rochester's Internal Medicine/Pediatric Residency & Primary Care Programme in Internal Medicine Critically Appraised Topics http://www.urmc.rochester.edu/MEDICINE/RES/CATS/index.html, version current at 03/10/01

User's Guides to the Medical Literature (1992) *Journal of the American Medical Association* 268 (17): 2420-5, November and on http://www.cche.net/principles/main.asp, version current at 03/10/01

WISDOM Centre Seminars on Evidence Based Practice on http://www.wisdomnet.co.uk, version current at 03/10/01

APPENDIX ONE

The Format of a Best Evidence Topic (BET) Report

Title

Report by

Search checked by

Three-part question

Clinical Scenario

Search strategy

Search outcome x papers found of which y irrelevant and z of insufficient quality for inc lusion

Relevant papers

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses

Comment

Clinical bottom line

References

APPENDIX TWO

A copy of the application form, the BestBETs poster and the evaluation form that were used to administer, promote and evaluate the courses.

APPLICATION FORM FOR COURSES TEACHING BEST EVIDENCE RETRIEVAL AND CRITICAL APPRAISAL SKILLS

NAME OF APPLICANT _____

HOSPITAL _____

DEPARTMENT _____

CONTACT NUMBER _____

EMAIL (If applicable) _____

OCCUPATION - Nurse ” Doctor ”

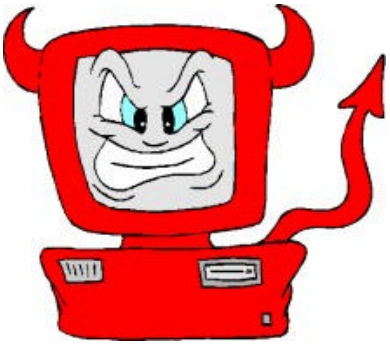
Other (please specify) _____

DATE OF COURSE YOU WISH TO ATTEND (please tick one of the boxes below) –

18/19 Jan	•	5/6 March	•	2/3 April	•
8/9 May	•	21/22 June	•	12/13 July	•

When complete, please return this form to Caroline Green, Emergency Information Officer, A&E Department, Manchester Royal Infirmary, Oxford Road, Manchester. M13 9WL. Alternatively, email your application to cgreen_75@hotmail.com or fax: 0161 276 6925.

Information getting the better of you?



Then why not get the best out of the medical and nursing literature.

Learn where to find best evidence on the WWW, how to develop search techniques and strategies to find best evidence and how to critically appraise the evidence in a **FREE** 2-day course.

DAY 1: EBM & BestBETs	DAY 2:Critical Appraisal 1
Introduction to the Web	Critical Appraisal 2
Searching for the Evidence 1	Critical Appraisal 3
Searching for the Evidence 2	Critical Appraisal 4

The courses are available to all members of staff.

DATE: 18/19 January	VENUE: ALSG (Advanced Life Support Group)
05/06 March	ALSG
02/03 April	ALSG
08/09 May	ALSG
21/22 June	CMHT (Postgraduate Health Sciences Centre)
12/13 July	ALSG

For further information and to reserve a place on a course, please contact Caroline Green, Emergency Information Officer, tel: 0161 276 5798. See appraisal at work on the BestBETs website: http://www.bestbets.org

BestBETs
BEST EVIDENCE TOPICS

EBM at its best

EVALUATION FORM

COURSE TITLE: DATE:

Please tick one box only

Content	**Excellent**	**Good**	**Fair**	**Needs improvement**	**Poor**
Covered useful material					
Practical to my needs and interests					
Well organised					
Presented at the right level					
Useful visual aids and handouts					

Presentation	**Excellent**	**Good**	**Fair**	**Needs improvement**	**Poor**
Trainer's knowledge of material					
Trainer covered material clearly					

Learning	**Advanced**	**Good**	**Standard**	**Beginner**
Before you attended this course, how would you rate your skills in this area?				

How could this workshop be improved?

What other training would you like to see offered?

Overall, how much have you improved upon your learning?

Any other comments or suggestions?

	Excellent	**Good**	**Fair**	**Needs improvement**	**Poor**
Overall, how would you evaluate this training session?					

APPENDIX THREE

Examples of the course material used for the Introduction to the Web and Searching for the Evidence One and Two sessions.

APPENDIX FOUR

A copy of the Best Evidence Topic used for the search strategy for the Searching for the Evidence sessions.

APPENDIX FIVE

Spreadsheets showing the results from the Introduction to Evidence Based Medicine and the Introduction to the Web sessions.

INTRODUCTION TO EVIDENCE BASED MEDICINE

Content	Excellent	Good	Fair	Needs improvement	Poor
Covered useful material	31	30	1	0	0
Practical to needs and interests	28	29	4	1	0
Well organised	32	27	1	2	0
Presented at right level	33	27	2	0	0
Useful visual aids and handouts	25	32	4	0	1

Presentation	Excellent	Good	Fair
Trainer's knowledge of material	47	14	1
Trainer covered material clearly	45	17	0

Learning	Advanced	Good	Standard	Beginner
Skills in this area?	0	5	37	20

	Excellent	Good	Fair
Evaluation of this session	28	31	3

INTRODUCTION TO THE WEB

Content	Excellent	Good	Fair	Needs improvement	Poor
Covered useful material	29	35	5	2	1
Practical to needs and interests	21	38	9	1	3
Well organised	25	37	8	2	0
Presented at right level	20	31	11	7	3
Useful visual aids and handouts	32	33	5	2	0

Presentation	Excellent	Good	Fair	Needs improvement
Trainer's knowledge of material	38	32	1	1
Trainer covered material clearly	30	30	9	3

Learning	Advanced	Good	Standard	Beginner
Skills in this area?	1	17	20	34

	Excellent	Good	Fair	Needs improvement
Evaluation of this session	21	33	15	3

APPENDIX SIX

Spreadsheets showing the results from the Searching for the Evidence One and Two and the Introduction to Critical Appraisal and Surveys sessions.

SEARCHING FOR THE EVIDENCE ONE AND TWO

Content	Excellent	Good	Fair	Needs improvement	Poor
Covered useful material	39	33	5	1	0
Practical to needs and interests	30	39	7	1	1
Well organised	38	31	9	0	0
Presented at right level	31	43	3	1	0
Useful visual aids and handouts	36	39	1	2	0

Presentation	Excellent	Good	Fair	Needs improvement
Trainer's knowledge of material	44	29	2	3
Trainer covered material clearly	46	27	3	2

Learning	Advanced	Good	Standard	Beginner
Skills in this area?	0	12	28	38

	Excellent	Good	Fair	Needs improvement
Evaluation of this session	26	41	9	2

INTRODUCTION TO CRITICAL APPRAISAL AND SURVEYS

Content	Excellent	Good	Fair	Needs improvement	Poor
Covered useful material	36	21	1	2	0
Practical to needs and interests	34	20	3	2	1
Well organised	32	25	3	0	0
Presented at right level	30	22	6	1	1
Useful visual aids and handouts	22	27	8	3	0

Presentation	Excellent	Good	Fair
Trainer's knowledge of material	48	12	0
Trainer covered material clearly	38	21	1

Learning	Advanced	Good	Standard	Beginner
Skills in this area?	0	8	28	24

	Excellent	Good	Fair
Evaluation of this session	31	27	2

APPENDIX SEVEN

Spreadsheets showing the results from the Reviews and Trials and Qualitative and Diagnostic Studies sessions.

REVIEWS AND TRIALS

Content	**Excellent**	**Good**	**Fair**
Covered useful material	23	19	0
Practical to needs and interests	22	18	2
Well organised	22	17	3
Presented at right level	17	21	4
Useful visual aids and handouts	14	22	6

Presentation	**Excellent**	**Good**	**Fair**
Trainer's knowledge of material	29	13	0
Trainer covered material clearly	26	15	1

Learning	**Advanced**	**Good**	**Standard**	**Beginner**
Skills in this area?	0	10	17	15

	Excellent	**Good**	**Fair**
Evaluation of this session	19	22	1

QUALITATIVE AND DIAGNOSTIC STUDIES

Content	**Excellent**	**Good**	**Fair**
Covered useful material	19	22	1
Practical to needs and interests	16	24	2
Well organised	19	23	0
Presented at right level	17	22	3
Useful visual aids and handouts	15	26	1

Presentation	**Excellent**	**Good**
Trainer's knowledge of material	31	11
Trainer covered material clearly	30	12

Learning	**Advanced**	**Good**	**Standard**	**Beginner**
Skills in this area?	1	4	19	18

	Excellent	**Good**
Evaluation of this session	20	22

APPENDIX EIGHT

A spreadsheet to show the results from the BestBETs/Summary session.

BESTBETS/SUMMARY

Content	**Excellent**	**Good**	**Fair**
Covered useful material	17	16	0
Practical to needs and interests	16	15	2
Well organised	17	16	0
Presented at right level	18	14	1
Useful visual aids and handouts	20	12	1

Presentation	**Excellent**	**Good**
Trainer's knowledge of material	20	13
Trainer covered material clearly	19	14

Learning	**Advanced**	**Good**	**Standard**	**Beginner**
Skills in this area?	0	4	10	19

	Excellent	**Good**
Evaluation of this session	18	15