



School of Public Health
The University of Sydney

Online continuing education in evidence-based medicine for general practitioners: does it work?

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Funded by Dept Health & Ageing

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Background

Effective strategies to increase the uptake of research into practice

- Computerised or manual reminders: Consistently improve appropriate prescribing patterns & preventive care (Level I Bero 1998)
- Audit and feedback: Improve prescribing & diagnostic test ordering (Level I Thompson 2001)
- Outreach visits: Consistently improve prescribing (Level I Thompson 2001)



Background

Effective strategies to increase the uptake of research into practice

- **Interactive small group CME: Consistently improve physician behaviour, particularly if interactive format & clinically relevant (Level I Davis 1995)
- **Risk communication of tailored health information: Consistently improves the uptake of evidence, particularly for decisions on treatment (Level I Edwards)
- **Basic training in database searching: Increased searches on clinical problems by hospital residents (Level II Haynes 1993)
- **Training in critical appraisal: Increases uptake of high quality evidence (Level II Doust 2000)



Outline

- Development of online EBM course
- Preliminary results from evaluation



Course Objectives

- Be able to critically question some of the decisions made in clinical practice
- Be able to access research-based information that is relevant to the clinical questions
- Be able to recognise some of the features of good as opposed to poor quality information
- Be able to discuss research-based knowledge with patients & apply to a clinical decision
- Be able to evaluate clinical decisions
- Have an appreciation of some of the issues around new primary care knowledge and inquiry through research

Objectives

1. Critical questioning

Course Topics

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Workshop 1. Getting your questions ready for searching

2. Accessing the information

Workshop 2. Shortcuts for busy clinicians: Looking first in high quality summary sources

Workshop 3. Free databases and how to use them

3. Sorting out the good from the bad

Workshop 4: Good quantitative studies – a quick guide to interpreting a paper

Workshop 5: Good studies about diagnostic tests: How accurate are the tests we use?

Workshop 6: Good qualitative studies: questions that ask what, how and why?

4. Making a clinical decision with your patient

Workshop 7: Weighing up the harms and benefits: Tailoring the evidence to your patient

5. Evaluating clinical decisions

Workshop 8: Conducting a single patient open trial (SPOT)

Workshop 9: Audit - Are you making a difference?

Workshop 10: Writing up your experiences: Peer-review and the dissemination of new knowledge

6. Assisting with new knowledge

Workshop 11: Having a clinical trial in your practice

Workshop 12: Beginning to develop a research question



Basic critical thinking skills

Workshop (LMO-022)

Status:

[[Home](#)] [[Convenor](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: 720 mins

Message from your Convenor, Dr Lyndal Trevena:

Lyndal, welcome back. Check the status bars (your automatic journal log) of the units to see where you are up to. If you have any problems, you can contact me as you go through the workshop.



Most units automatically mark themselves complete as you finish them. Lecture notes are the exception - you must hit the 'mark this complete' button yourself. In other words, you decide when you are finished with lecture notes (LPR units).

You will notice that each topic takes about an hour to complete and is made up of 4 units. New topics are released on the dates displayed so you can work your way through the workshop at a fairly leisurely pace. You can see where you are up to by checking the status bar next to each unit. Print the worksheet for each new topic before you start the lecture notes for that topic.

[[Contact Dr Lyndal Trevena](#)]

Starting off...

[Welcome discussion](#)

This is your opportunity to get to know each other before you start out on the workshop.



[Pre-test](#)

Prerequisite. This is rather larger than the usual pre-test and will take about 5 minutes to complete. It is also SLOW TO LOAD, so don't give up on it. It is larger because we are using the international standard for teaching evidence based practice in order to be able to compare our Australian cohort with international cohorts.



Workshop Units...



[Getting your questions ready for searching \(LPR-101\)](#)

If you know how to frame a question expertly, you will achieve much more explicit and useful results when you search for information. This practical guide to framing questions has been prepared for busy clinicians.



15 mins



[Getting your questions ready for searching \(TWS-001\)](#)

This worksheet will help you to formulate a clinical question in a way which will maximise the likelihood retrieving relevant information from a literature search. It is required for the completion of the reflection activities associated with [LPR-101](#)



15 mins

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Background to the project

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Funding for this project...

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Developing a clinical question ready for searching - practice exercise 1

Activity (ACT-051)

Status:

[[Home](#)] [[Facilitator](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: **15 mins**



Message from your Facilitator, Dr Clare McGuinness:

I'm sure we have all been in a situation like Vivi is about to share with us.....

[[Contact Dr Clare McGuinness](#)]

Vivi faces a drug rep with yet another statin



Dr Vivi Lee

Central Park,
Capitol City

I had just finished a fairly routine Thursday morning session in my Central Park practice. I usually try to get drug company reps to come on these mornings as they are generally less hectic and today was no exception. I looked at the stack of articles that the "Meganationalpharm" rep insisted on leaving this morning and felt rather powerless. I am sceptical about the rep's assertions that all of my patients over the age of 30 should have their lipids tested and be considered for statin treatment in order to lower their risk of coronary heart disease. The rep had quoted the results of multicentre trials which meant nothing to me. I want an to find an independent reputable source of information about the treatment of hyperlipidaemia in asymptomatic individuals. In fact just the other day I had a 35-year old advertising executive in my surgery requesting a check-up and I faced the issue of whether I should check his lipids. He admitted to smoking about 15 cigarettes per day but his blood pressure had been normal when I checked it. He had no family history of heart disease and is a very fit member of the same gym I go to myself three times a week where we

frequently bump into each other.

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Next step:

[Help Viv formulate a good clinical question](#)



Developing a clinical question ready for searching - practice exercise 1

Activity (ACT-051)

Status:

[[Home](#)] [[Facilitator](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: **15 mins**



Message from your Facilitator, Dr Clare McGuinness:

Although we have already introduced you to a treatment question on prevention in the previous case, we think it will be helpful to look at a few treatment-question examples, since this is the most common question type in general practice. The next two cases are also clinical questions about a prevention intervention. First, let's look at Adrian's example - a recurring nightmare for most doctors. Tell us about your problem Adrian.....

[[Contact Dr Clare McGuinness](#)]



Adrian's patient with irritable bowel syndrome has been on the Internet

I had a visit from a young female patient, a 23-year old student who has been suffering with intermittent 'colicky' abdominal pain and diarrhoea for the past 6 months. She has had a host of investigations including colonoscopy and came away from her recent visit to the gastroenterologist with a diagnosis of 'irritable bowel syndrome'. When I spoke to her on the phone last week she sounded unconvinced about the diagnosis and was particularly concerned that the specialist couldn't tell her what caused IBS nor how it might be treated. She came in to the surgery this week and caught me completely off-guard by arriving with a print-out of an Internet search and a long list of questions. Her major concerns centred around the desire to find a treatment that would relieve her symptoms and seemed keen to try peppermint rather than the antidepressants (an SSRI) that the specialist had prescribed.

Dr Adrian Bizzi
Middle Park



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Next step:

[Help Adrian to formulate a well structured clinical question](#)



Developing a clinical question ready for searching - practice exercise 1

Activity (ACT-051)

Status:

[[Home](#)] [[Facilitator](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: **15 mins**



Message from your Facilitator, Dr Clare McGuinness:

Ahhhhh... the old alternative therapy question. I must admit, Bob, I am surprised to hear that you have a health food store in Charolais Downs - home of the prime steak and chips meal! Just does to show that the market for alternative medicine is burgeoning everywhere.

[[Contact Dr Clare McGuinness](#)]



Bob is confronted with remedies from the local health food store

I managed to get out of the surgery and take a walk down the main street of Charolais Downs this week. It was a fine and mild winter's day that followed a week of cold wet weather. I had spent all morning seeing people with coughs and colds. As I walked down to the cake shop to buy lunch, I noticed a fancy sign and display table outside the health food shop, extolling the virtues of zinc, echinacea and vitamin C for treating colds and flu. As you can imagine, I have my doubts about these alternate therapies, although they seem very popular with many of my patients. In fact a few of them that morning had asked about these 'natural remedies' and seeing this snappy display I realised why!

Dr Bob Blunt
GP, Charolais Downs

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Next step:

[Help Bob formulate a well-structured clinical question](#)



Developing a clinical question ready for searching - practise exercise 2

Activity (ACT-052)

Status:

[[Home](#)] [[Facilitator](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: **15 mins**



Message from your Facilitator, Dr Clare McGuinness:

Hi, Lyndal. In this unit, we help Seb, Anna and Timida to work out how to structure an everyday clinical question to prepare to look for the current evidence in the literature. You will need to use your worksheet from [TWS-001](#) to record your own questions as you go.

[[Contact Dr Clare McGuinness](#)]

Seb considers the resource implications of ankle injuries in Misty Peaks



I always do the weekend shift in Misty Peaks during July and September, preferring to have a couple of days off during the week to ski. My radiographical colleague in the local 20-bed hospital is not feeling terribly well and has asked me to only send him urgent cases for X-rays this weekend. As it happens, I have seen a couple of ankle injuries this morning, one in a hiker who twisted his ankle on uneven ground on one of the local trails, and the other in a young netballer from the local team playing at home this weekend. I felt reasonably confident that both were simply a sprain, but I wonder how accurate clinical examination is as a diagnostic test compared with an X-ray.

Dr Seb Free
GP, Misty Peaks



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Next step:

[Suggest a well-structured clinical question for Seb](#)



Developing a clinical question ready for searching - practise exercise 2

Activity (ACT-052)

Status:

[[Home](#)] [[Facilitator](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: **15 mins**



Message from your Facilitator, Dr Clare McGuinness:

Who would want to treat us doctors?! But in Anna's situation, which of us would not want to find out for ourselves?

[[Contact Dr Clare McGuinness](#)]



Anna's daughter has 'glue ear' and she gets conflicting advice

Anna is in a real state. Her 3-year old daughter has suffered from recurrent bouts of otitis media which she tends to treat opportunistically at home with antibiotic samples she gets from the surgery. This was OK the first couple of times she got sick, but after 18 months on and off antibiotics Anna had a nagging feeling of guilt and asked her partner Adrian to take a look at her daughter. Being particularly keen to be conscientious with the daughter of a colleague he referred her to have audiometry and tympanometry which showed bilateral 'glue ear'. Anna is unsure about the evidence that 'grommets' will improve her daughter's hearing compared with a wait and see approach.

Dr Anna Capabelli
Middle Park



In conjunction with



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Next step:

[Help Anna develop a suitable well-structured clinical question](#)



Developing a clinical question ready for searching - practise exercise 2

Activity (ACT-052)

Status:

Estimate: **15 mins**

[[Home](#)] [[Facilitator](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]



Message from your Facilitator, Dr Clare McGuinness:

I am not surprised that this question has become a focus for Timida. I look forward to what we might corporately find out about this over the next few units.

[[Contact Dr Clare McGuinness](#)]



Timida wonders about a parent who refuses to have her child immunised

Timida spoke with Anna in the tearoom about one of the consultations that she had had that morning. She felt frustrated that the mother of a 6-month old baby seeing her about nappy rash, continued to refuse to have her child immunised. Timida had quite rightly asked about the baby's immunisation status and got a very hostile response from the mother. Timida commented to Anna that she felt completely unprepared for such a response and wished that she had a better understanding of the reasons parents commonly refuse to have their children immunised.

Dr Timida Young
Middle Park

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Next step:

[Help Timida develop a well-structured clinical question](#)



Message from your Facilitator, Dr Angela Bettess:

Hi Lyndal. Bob has found an article that he thinks may help answer his question about HRT and breast cancer. It is the recent randomised controlled trial Bob saw reported about in the newspaper. Now he wants your help to appraise this paper. You will need a copy of page two of worksheet [TWS-004](#) for this activity.

[[Contact Dr Angela Bettess](#)]

Instructions for the activity



To complete this exercise you'll need to have a copy of the full text article located by Bob, along with a copy of the critical appraisal checklist ([TWS-004](#)). There is a hyperlink to the reference below. To follow the link, click on the article's title and print a copy of the paper.

Remember Bob's question was: "*In postmenopausal women (P), does HRT (I) compared with no HRT (C) affect the incidence of breast cancer (O)?*"

The reference he has found is: [The Writing Group for the Women's Health Initiative Investigators. 2002. 'Risks and Benefits of Oestrogen Plus Progestin in Healthy Postmenopausal women.' JAMA, vol. 288, pp. 321-333.](#)

Dr Bob Blunt
GP, Charolais Downs

(This link is to the PDF version of the article - you will need Acrobat Reader to download it).

Bob needs to digest this article quickly. His patients are demanding answers...now! Are the author's claims reasonable? What do the numbers mean? Can he apply the results to his patients in Charolais Downs? **(To find information about Bob's practice, click on his picture above)**

Once you have printed off the trial paper and the worksheet, you can start to appraise the paper, by answering the questions on the worksheet. You will probably find that it is not necessary to read the entire article (unless you want to!), but you can "probe" the relevant sections to get the answers you need. Once you have filled out your worksheet, move on to the next step, where we will vote in polls and answer MCQ's to decide whether Bob can answer his clinical question.



Question 1. Does the review ask a clearly-focused question? (Consider the PICO framework.)

Result of Votes:

- | | | |
|-----------|--|----------|
| A) Yes | | 11 (73%) |
| B) No | | 2 (13%) |
| C) Unsure | | 2 (13%) |

Your Vote on 3 Oct 2002 12:29 PM

- A) Yes

Question 2. Is an RCT the appropriate study design to answer the question?

Result of Votes:

- | | | |
|-----------|--|----------|
| A) Yes | | 12 (80%) |
| B) No | | 3 (20%) |
| C) Unsure | | 0 (0%) |

Your Vote on 3 Oct 2002 12:29 PM

- A) Yes

Question 3. Were patients randomised appropriately?

Result of Votes:

- | | | |
|-----------|--|----------|
| A) Yes | | 11 (73%) |
| B) No | | 3 (20%) |
| C) Unsure | | 1 (7%) |

Your Vote on 3 Oct 2002 12:29 PM

- A) Yes



Question 4. Was follow-up complete?

Result of Votes:

- | | | |
|-----------|--|---------|
| A) Yes | | 8 (53%) |
| B) No | | 5 (33%) |
| C) Unsure | | 2 (13%) |

Your Vote on 3 Oct 2002 12:29 PM

- A) Yes

Question 5. Were patients analysed in the groups to which they were assigned?

Result of Votes:

- | | | |
|-----------|--|----------|
| A) Yes | | 13 (87%) |
| B) No | | 0 (0%) |
| C) Unsure | | 2 (13%) |

Your Vote on 3 Oct 2002 12:29 PM

- A) Yes

Question 6. Were researchers and/or participants 'blinded' about group assignment?

Result of Votes:

- | | | |
|-----------|--|---------|
| A) Yes | | 8 (53%) |
| B) No | | 4 (27%) |
| C) Unsure | | 3 (20%) |

Your Vote on 3 Oct 2002 12:29 PM

- A) Yes



Question 7. Were the groups similar at the start of the trial?

Result of Votes:

- | | | |
|-----------|--|----------|
| A) Yes | | 11 (73%) |
| B) No | | 1 (7%) |
| C) Unsure | | 3 (20%) |

Your Vote on 3 Oct 2002 12:29 PM

- A) Yes

Question 8. Were the groups treated equally (apart from the intervention)?

Result of Votes:

- | | | |
|-----------|--|---------|
| A) Yes | | 8 (53%) |
| B) No | | 3 (20%) |
| C) Unsure | | 4 (27%) |

Your Vote on 3 Oct 2002 12:29 PM

- A) Yes



Panel commentary on study validity

1.1 Does it ask a clearly-focused question? (Consider the PICO framework)

Yes. The study aims to assess the major health benefits and risks of the most commonly used combined hormone preparation in postmenopausal US women.

1.2 Is an RCT the appropriate study design to answer the question?

Yes, this is a question about treatment/prevention and an RCT is the preferred study design for this question type.

1.3 Were patients randomised appropriately?

Yes. Randomisation was done by a computer using a block algorithm and stratifying for age and clinical centre site.

1.4 Was follow-up complete?

Yes, pretty close to it. The follow-up rate was an impressive 96.5% (i.e. only 3.5% lost to follow-up) out of 16 025 women in the study!!

1.5 Were patients analysed in the groups to which they were assigned?

Yes. Patients were analysed in the groups to which they were assigned, although the drop out rates were fairly high in both groups. 42% of women in the hormone group and 38% in the placebo stopped taking their medication at some time. There were also women in both groups who initiated HRT treatment through their own doctors; 6.2% in hormone group and 10.7% in placebo. The low adherence would tend to underestimate the harms anyway.

The exception to this were 331 women who had had a hysterectomy and had to be reassigned to combined HRT after it became known that unopposed oestrogens were not safe to continue. Analyses both including and excluding these women did not alter the final results.

1.6 Were researchers and/or participants 'blinded' about group assignment?

Yes, participants and researchers were 'blinded' through use of placebo. All medication bottles had a unique bottle number and barcode to allow for blind dispensing.

1.7 Were the groups similar at the start of the trial?

Yes. Table 1 on p.4 of the article shows that there was no significant difference between the two groups at baseline across a large range of variables such as age, ethnicity, previous hormone use, BMI, blood pressure, smoking, parity, diabetes, CHD history, family history of breast cancer etc.

1.8 Were the groups treated equally (apart from the intervention)?

Yes, the blinding of staff and participants made this possible.



Message from your Facilitator, Dr Angela Bettess:

Lyndal, below is your marked quiz with an explanation of the answers. How did you go? If you had trouble, you might like to read [LPR-104](#).

[[Contact Dr Angela Bettess](#)]

You answered 4 of 4 correctly.

Question 1. Bob noticed that for these figures, some of the 95% confidence intervals cross 1.0. What does this mean?

Choose one answer

- A) The result is very significant
- B) There is doubt about whether or not the result is statistically significant
- C) The result is not statistically significant
- D) It has no bearing on the results



Explanation

The result is not statistically significant

Question 2. Which of the following composite disease types showed a statistically significant reduction with oestrogen plus progestin HRT?

Choose one answer

- A) Total cardiovascular disease including arterial and venous
- B) Total cancer
- C) Rate of fractures
- D) Total mortality
- E) Overall risk of "an event" or global index



Explanation

Rate of fractures



Question 3. Bob also wants to know how precise the estimates of effects are in this study. He notes that there are over 16000 women in the trial. In terms of precision, this should mean:

Choose one answer

- A) The large number of patients in the meta-analysis **increases** the 95% CI, and therefore **decreases** the precision of the estimates of effect
- B) The large number of patients in the meta-analysis **decreases** the 95% CI, and therefore **increases** the precision of the estimates of effect
- C) The number of patients has no effect on the precision of the estimates.



Explanation

The large number of patients in the meta-analysis **decreases** the 95% CI, and therefore **increases** the precision of the estimates of effect

Question 4. This means that:

Choose one or more answers.

- A) Combined oestrogen plus progestin may contribute to 8 additional cases of invasive breast cancer for every year that 10,000 women take it
- B) In the trial, 124 out of 8102 women on placebo developed invasive breast cancer over 5.2 years (i.e. 153 per 10,000) - see Table 2 in the JAMA paper
- C) In the trial, 166 out of 8506 women on combined HRT developed invasive breast cancer over 5.2 years (i.e. 195 per 10,000) - See Table 2 in the JAMA paper
- D) The absolute risk difference is $(195-153)/10,000 = 42$ additional cases of invasive breast cancer in 10,000 women taking HRT over 5.2 years
- E) This means that 238 women need to be treated with combined HRT for 5.2 years to cause one case of invasive breast cancer (Number needed to harm (NNH) = $10,000/42 = 238$)



Explanation

All are correct!



Message from your Facilitator, Dr Angela Bettess:

The panel have interpreted the review results, Lyndal. How well did your interpretation match theirs?

[[Contact Dr Angela Bettess](#)]

Panel commentary on review results

2.1 How large was the treatment effect (OR/RR/difference)?

There was a 29% increase in the risk from coronary heart disease, a 26% increase in the risk of breast cancer and a 41% increase in the risk of stroke. On the other hand there was a 37% reduction in the rate colorectal cancer, and a 34% reduction in the rate of hip fracture. (**NB:** If the 95%CI crosses 1.0 then the result is not statistically significant)

Remember though, that these are relative risk or hazard reductions and it is important to consider the prevalence of these conditions to give you an absolute risk reduction or number needed to treat (NNT). (For example 30% of 1000 is a lot more than 30% of 50!!). The paper **does** then go on to provide absolute excess risks per 10 000 person-years attributable to oestrogen plus progestin as: 7 more deaths due to CHD per 10 000 women; 8 more strokes per 10 000 women; 8 more pulmonary emboli per 10 000 women (these appear to be fatal and non-fatal); and 8 more invasive breast cancers per 10 000 women. On the benefits side, there would be 6 fewer colorectal cancers per 10 000 women and 5 fewer hip fractures per 10 000 women.

Interestingly when the risk of composite disease types is measured you get the following picture:

1. an increased risk of total cardiovascular disease including arterial and venous HR 1.22 (95%CI 1.09-1.36)
2. a non-significant effect on total cancer HR 1.03 (95%CI 0.90-1.36)-this is presumably because the risks of breast cancer and bowel cancer balance each other out to a certain degree
3. an overall reduction in rate of fractures generally HR 0.76 (95%CI 0.69-0.85)
4. a non-significant effect on total mortality HR 0.98 (95%CI 0.82-1.18). **NB:** This may be affected by the cessation of the trial at 5 years, particularly for cancer mortality. Survival rates for breast cancer tend to be slightly better than colorectal cancer survival rates in postmenopausal women
5. An overall increase in the risk of 'an event' or global index HR 1.15 (95%CI 1.03-1.28)

2.2 How precise was the estimate of this effect (CI)?

Since there were over 16,000 women in this trial (a very large sample!!) then we would expect the 95% confidence intervals in this study to be quite small. Note that some of the 95%CIs quoted in the abstract for this paper cross 1.0 and are therefore not significant (e.g. endometrial cancer).



Using the responses you have written on your worksheet TWS-004, answer the following questions about the results of Bob's chosen RCT paper.

Question 1. Are the patients in the review very different from Bob's own?

Result of Votes:

- | | | |
|-----------|--|----------|
| A) Yes | | 4 (25%) |
| B) No | | 11 (69%) |
| C) Unsure | | 1 (6%) |

Your Vote on 3 Oct 2002 1:57 PM

- C) Unsure

Question 2. Are all the important clinical outcomes included?

Result of Votes:

- | | | |
|-----------|--|----------|
| A) Yes | | 12 (75%) |
| B) No | | 4 (25%) |
| C) Unsure | | 0 (0%) |

Your Vote on 3 Oct 2002 1:57 PM

- B) No

Question 3. Do the benefits outweigh the harms overall?

Result of Votes:

- | | | |
|-----------|--|----------|
| A) Yes | | 2 (13%) |
| B) No | | 12 (75%) |
| C) Unsure | | 2 (13%) |

Your Vote on 3 Oct 2002 1:57 PM

- B) No



Quantitative studies: a guide to interpreting a paper - practise exercise 2

Activity (ACT-058)

Status:

[[Home](#)] [[Facilitator](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: **15 mins**



Message from your Facilitator, Dr Angela Bettess:

Bob is keen to find out if all these results the study reports are actually applicable to his patients. Bob's picture in the first step includes a link to information about his practice in Charolais Downs. Read this information now if you have not already done so. The panel commentary follows.

[[Contact Dr Angela Bettess](#)]

Panel commentary: Can Bob apply the study results to his patients?

3.1 Are the patients in the trial very different from Bob's own?

The women in the trial are mainly white and postmenopausal. They are from a number of regions in the US not stated in this paper but published elsewhere. They were recruited from the general population by a direct mailing campaign to eligible women in conjunction with a media awareness program. On this basis they are fairly representative of the general community, but practitioners working with particular ethnic groups might have concerns about generalising these results.

3.2 Are all the important clinical outcomes included?

Most of the important clinical outcomes of morbidity and mortality are measured but there is no record of quality-of-life related outcomes that may be important to many women such as frequency of hot flushes, insomnia, libido, weight gain etc.

3.3 Do the benefits outweigh the harms overall?

According to the measures of significant mortality and morbidity the harms do outweigh the benefits in this case. Nevertheless, many patients may place a high value on some of the clinical outcomes related to quality of life not reported in this paper and are worth discussing with individual women.

Looking at Bob's original question, "*In postmenopausal women (P), does HRT (I) compared with no HRT (C) effect the incidence of breast cancer (O)?*" this study shows that combined oestrogen and progesterone HRT over 5 years increases the risk of breast cancer by 26% (**relative** risk increase). However, when you consider the prevalence of breast cancer and therefore the **absolute** increased risk is around 8 additional cases of invasive breast cancer for every 10,000 women. If you work out the NNH then you need to treat 1250 women with combined HRT to cause one new case of invasive breast cancer. (When it comes to applying this with a patient you may, however, wish to consider the fact that there is also a reduction in hip fractures and bowel cancer and an increased risk of cardiovascular events. We will look at this in more detail within future units of the Critical Thinking Workshop.)



Basic critical thinking skills

Workshop (LMO-022)

Status:

[[Home](#)] [[Convenor](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: **720 mins**



Tailoring the evidence to your patient - practise exercise 2

Activity (ACT-064)

Status:

[[Home](#)] [[Facilitator](#)] [[Goals](#)] [[Authority](#)] [[Points](#)]

Estimate: **15 mins**



Message from your Facilitator, Dr Lyndal Trevena:

Hi Lyndal. In [ACT-056](#) and [ACT-058](#), Bob, Adrian and Anna had all found references to answer their clinical questions about HRT, IBS and glue ear, respectively. Bob has already weighed up the pros and cons of his clinical decision, and has filled out his balance sheet to show us how. Let's hear from Bob first...

[[Contact Dr Lyndal Trevena](#)]

Bob has done his balance sheet and made a decision about HRT



Dr Bob Blunt

GP, Charolais Downs

'My patients were worried about the recent reports linking HRT to breast cancer. I have been right through the process of developing a clinical question, searching the literature and finding and appraising a paper I found in JAMA. It's been a pretty involved, but interesting process, and I think I'm nearly up to date enough to make a really well informed clinical decision about HRT with my menopausal patients.

The reference I found (in case you would like to check my balance sheet against the paper) is:

The Writing Group for the Women's Health Initiative Investigators. [Risks and Benefits of Oestrogen Plus Progestin in Healthy Postmenopausal women](#). JAMA 2002;288(3):321-333. (This link is to the PDF version of the article - you will need Acrobat Reader to view it).

*My final step has been to fill out the balance sheet from TWS-007 using the randomised controlled trial paper I found. I have picked out the Pros and Cons of HRT from the paper, and written them on the balance sheet, which you can see below. The points marked with * are those reported in the JAMA paper (**NOTE: figures are for every year that 10 000 women take HRT**). I have also added some other issues (without a *) I believe are relevant to my patients.'*



| Clinical Decision | |
|---|--|
| Starting HRT in a menopausal woman | |
| Reference JAMA 2002; 288(5): 321-333 - Risks and Benefits of oestrogen plus Progesterin in Healthy Menopausal Women | |
| Pros/Benefits | Cons/Harms |
| FOR EVERY YEAR THAT 10 000 WOMEN TAKE HRT: | |
| * 6 fewer bowel cancers | * 8 new cases breast cancer |
| * 5 fewer hip fractures | * 7 more cv deaths |
| * 24% reduction in fractures generally | * 8 more strokes |
| * Symptomatic relief hot flashes (for most women) | * 8 more pulmonary emboli |
| * ↓ vaginal dryness for most ♀ | * Cost of medication |
| Reference | * No difference in overall mortality after 5 years |
| | |
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Evaluation

- Controlled before and after study design
- Validated instrument (Taylor 2002)
 - Self reported EBM behaviour (for keeping up-to-date and for solving a clinical problem)
 - Confidence in EBM skills
 - Attitude to EBM
 - Knowledge of EBM concepts (eg generalisability, NNT, sample size and confidence intervals etc)



Participants

Intervention group (online EBM course)

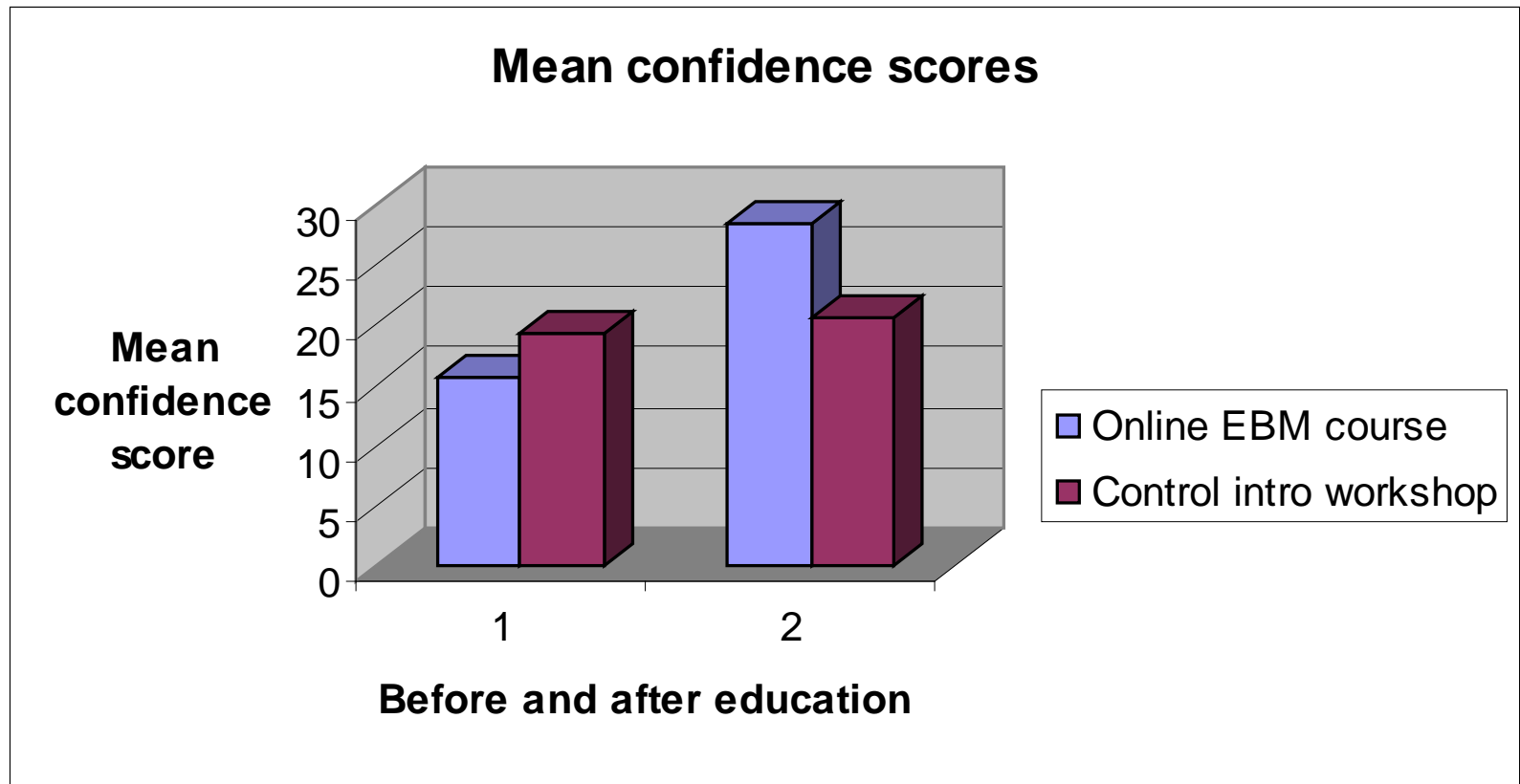
- 193 enrolled
- 15 completed so far

Control group (introductory face-to-face workshop)

- 109 at baseline
- 67 gave follow-up address
- 28 returned postal survey (6-12 months later)

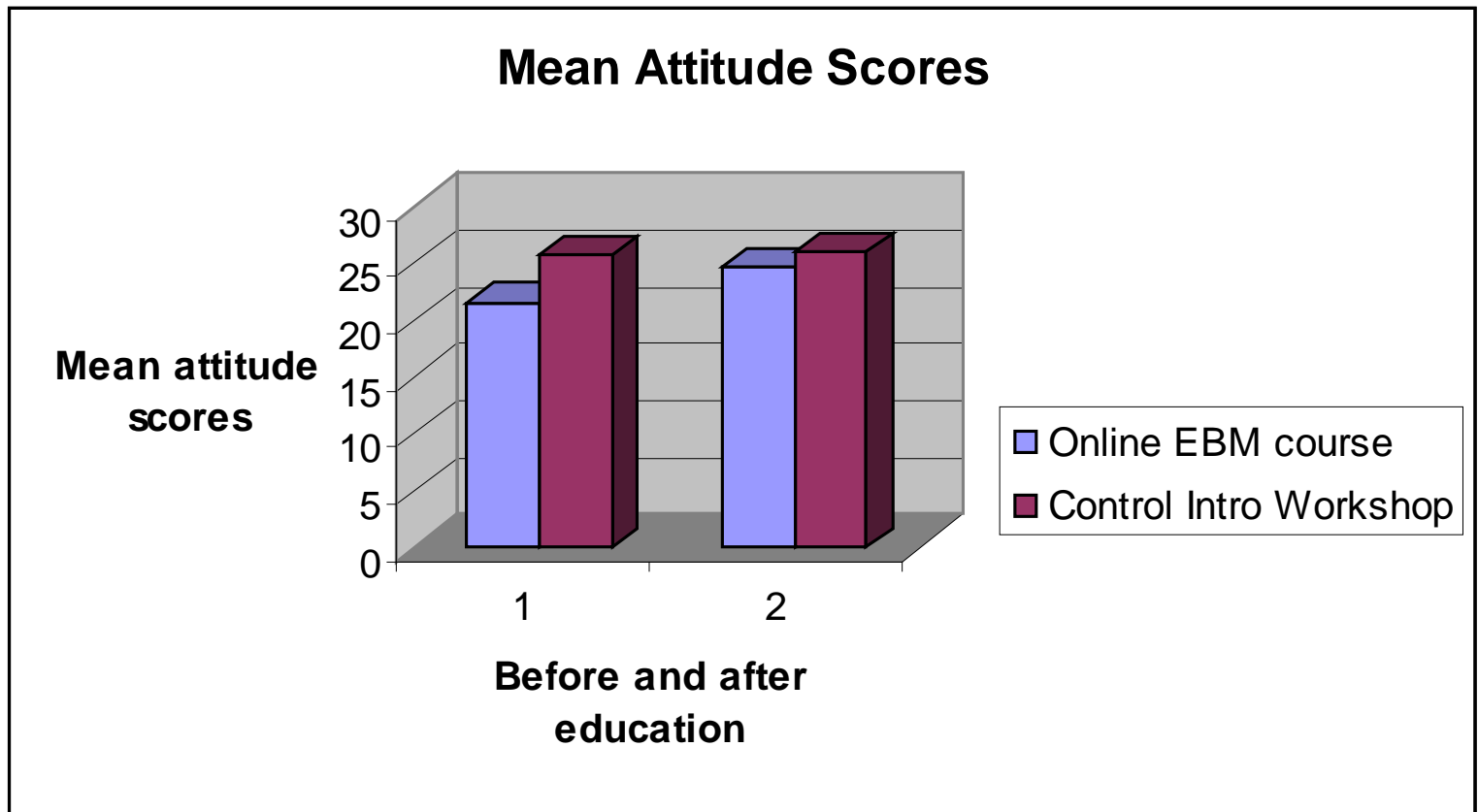


Mean confidence in EBM scores



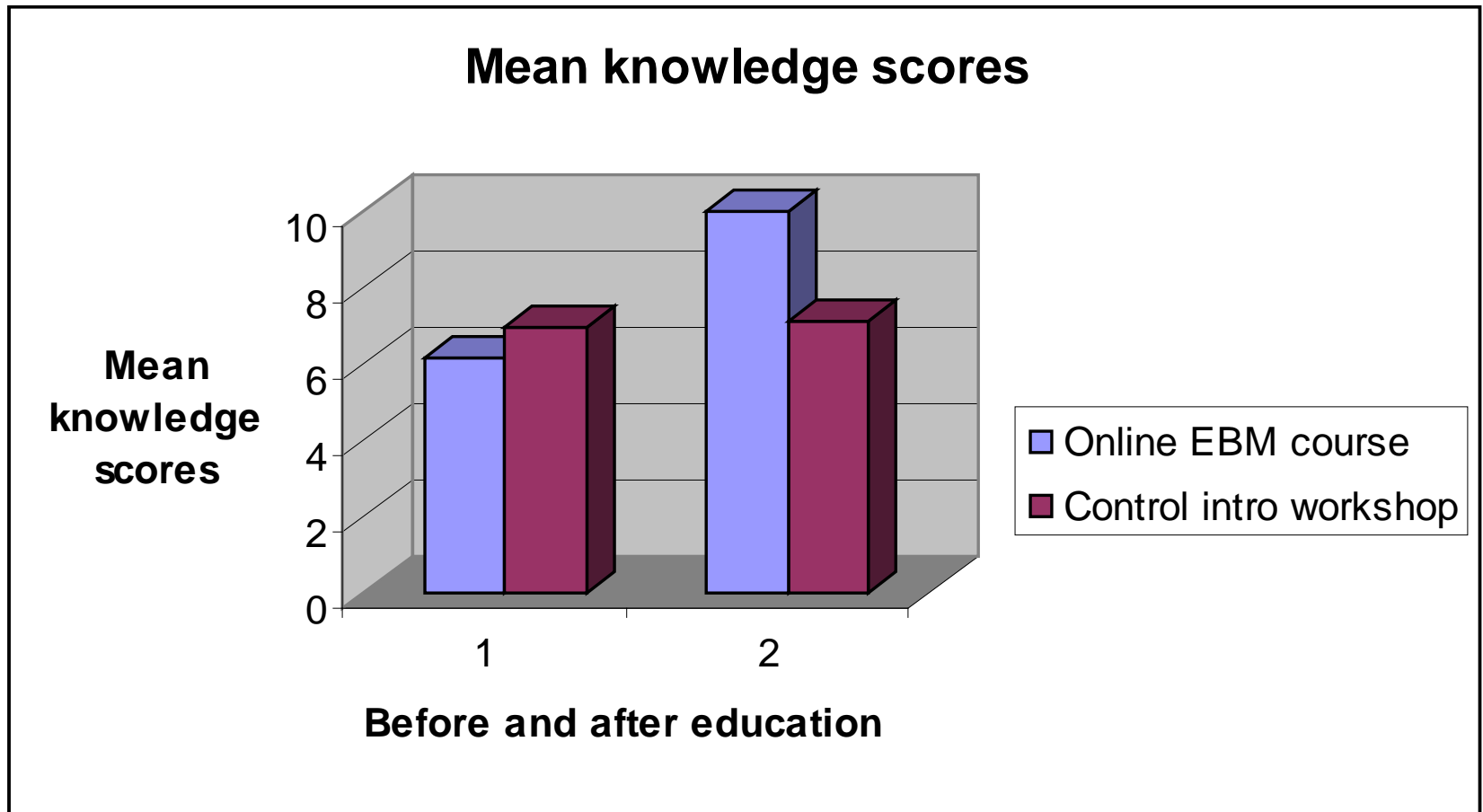


Mean attitude scores



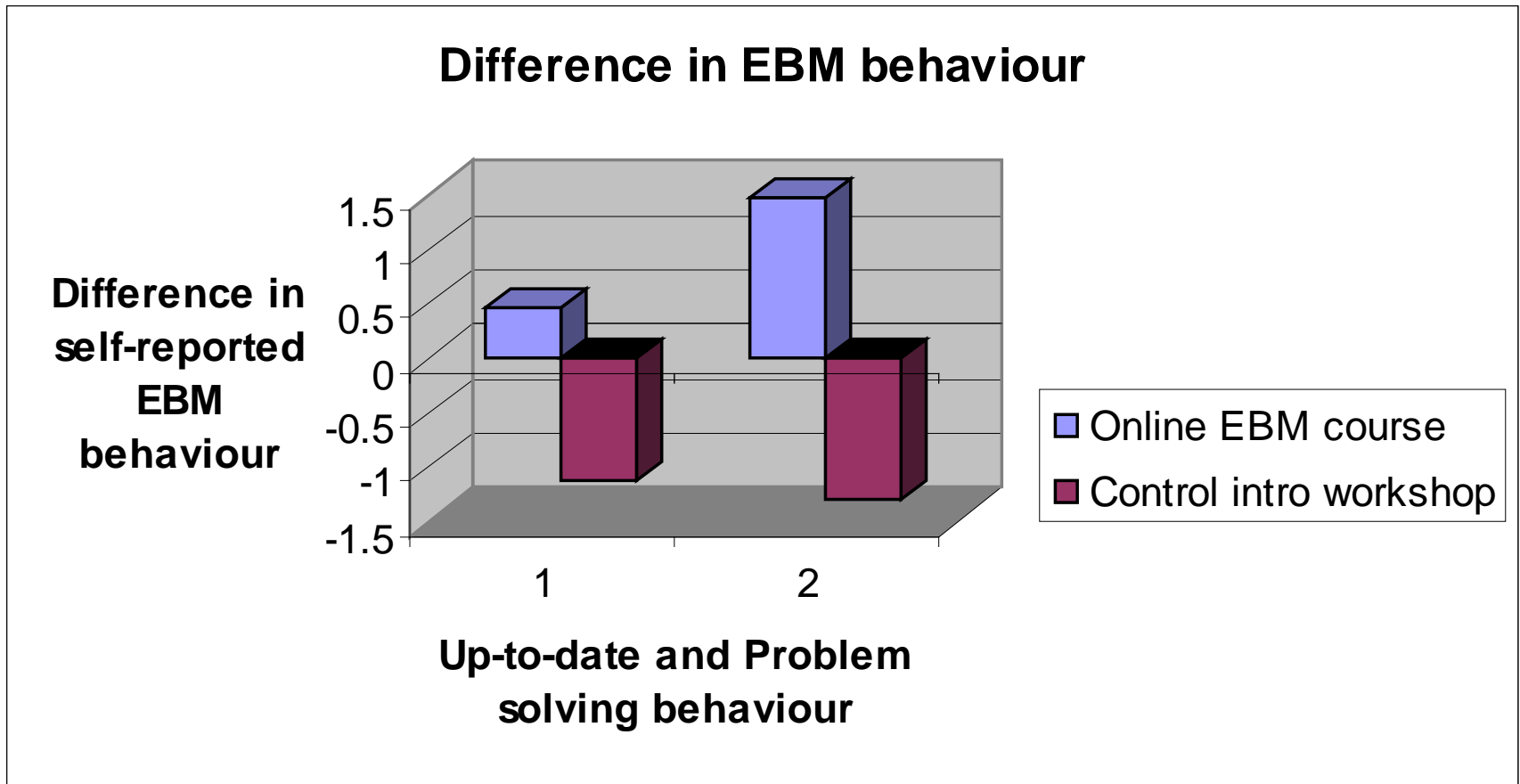


Mean Knowledge Scores





Self-reported EBM behaviour





Discussion

- Preliminary data only on small numbers but encouraging trends thus far
- Challenges persist with possible ‘drop-outs’ who only complete the first few hours of the course
- ‘Drop-outs’ may reflect that learning needs for searching were met. ??necessity of engaging majority of GPs in critical appraisal
- Optional online discussion allows many to ‘lurk’. Is this a problem?



Conclusion

- Online continuing education in EBP is feasible for general practitioners
- Preliminary data suggests that it has the ability to increase knowledge, confidence, attitude and EBP behaviour compared with a control group introduced to clinical questioning only



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Preliminary before and after results

Intervention

Mean confidence (pre) = 15.7

Mean confidence (post) = 28.5

(P<0.001)

Mean attitude (pre) = 21.6

Mean attitude (post) = 24.6

(P=0.075)

Mean knowledge (pre) = 6.2

Mean knowledge (post) = 10.0

(P=0.003)

Behaviour Up-to-date increased 0.4667

(p=0.438)

Behaviour Prob solving increased 1.4667

(P=0.131)

Control

Mean confidence (pre) = 19.39

Mean confidence (post) = 20.57

(P=0.310)

Mean attitude (pre) = 25.82

Mean attitude (post) = 26.07

(P=0.710)

Mean knowledge (pre) = 7.00

Mean knowledge (post) = 7.13

(P=0.912)

Behaviour Up-to-date decreased 1.1304

(p=0.138)

Behaviour Prob solving decreased 1.2917

(P=0.063)