EBM Searching, Step 3: Create and execute a search strategy.

Search Strategy **P=Patient** **I=Intervention** **M=Methodology**

1. **Exp Bacteriuria**
2. **(asymptomatic or symptomless or no symptoms).mp.**
3. 1 and 2
4. **Exp Antibacterial Agents**
5. 3 and 4
6. Limit 5 to "all aged (65 and over)"
7. Limit 6 to (english language and humans)
8. **Limit 7 to (meta analysis or randomized controlled trial)**
9. **Exp Cohort Studies**
10. 7 and 9
11. 8 or 10
12. from 11 keep 8-9

We didn't need to use C = "no antibiotics," but just looked for a study with two arms; one with antibiotics; one without. We also didn't need to use O = Outcome in the strategy. It's better to scan the results of the abstract for the outcome and then read the article.

Nicolle LE. Mayhew WJ. Bryan L.

Prospective randomized comparison of therapy and no therapy for asymptomatic bacteriuria in institutionalized elderly women.

American Journal of Medicine. 83(1):27-33, 1987 Jul.

Fifty elderly (mean age, 83.4 +/- 8.8 years) institutionalized women with asymptomatic bacteriuria were randomly assigned either to receive therapy for treatment of all episodes of bacteriuria identified on monthly culture or to receive no therapy unless symptoms developed. Subjects were followed for one year. The therapy group had a mean monthly prevalence of bacteriuria 31 +/- 15 percent lower than those in the no-therapy group, but periods free of bacteriuria lasting six months or longer were documented for only five (24 percent) subjects. For residents receiving no therapy, 71 percent showed persistent infection with the same organism(s). Antimicrobial therapy was associated with an increased incidence of reinfection (1.67 versus 0.87 per patient-year) and adverse antimicrobial drug effects (0.51 versus 0.046 per patient-year) as well as isolation of increasingly resistant organisms in recurrent infection when compared with no therapy. No differences in genitourinary morbidity or mortality were observed between the groups. **Thus, despite a lowered prevalence of bacteriuria, no short-term benefits were identified and some harmful effects were observed with treatment of asymptomatic bacteriuria. These data support current recommendations of no therapy for asymptomatic bacteriuria in this population.**

EBM Searching, Step 4: Search EBM resources

From DynaMed –Asymptomatic Bacteriuria - Treatment in the Elderly

> **"Routine treatment of asymptomatic bacteriuria in older women appears to reduce bacteriuria but does not appear to improve symptoms (level 2 [mid-level] evidence)"**
>
> - based on small randomized trial
> - 50 older women with asymptomatic bacteriuria randomized to antibiotics vs. placebo
> - urine cultures positive at 6 months in 9 of 23 women given antibiotics vs. 18 of 27 given placebo (p = 0.05)
> - more women in antibiotic group reported symptoms of urinary tract infection

Reference - J Am Geriatr Soc 1996;44(3):293

The Well-Built Clinical Question

UT Southwestern Medical Center Library

Developed by: Laura Wilder, MLS

EBM Searching, Step 1: Start with the patient. A clinical problem or question arises out of the care of the patient.

Late on a Friday afternoon you are paged by an intern on the general medicine service. She is discharging a patient of yours and would like to arrange follow-up. The patient is a frail 72 year-old woman with hypertension and severe congestive heart failure. A nursing home resident, she was brought to the ER on Wednesday night with an exacerbation of CHF and chest pain. She was admitted, ruled out, and did well with diuresis. All parties agree that she is ready for discharge.

As you are about to hang up, the intern asks one more question. In the ER, a urine sample was sent for analysis which came back positive for E. coli, indicating bacteriuria. The patient has no symptoms. However, given her multiple medical problems and frailty, the intern would like to treat her. You are not sure that using any antibiotics on an asymptomatic patient will decrease morbidity or mortality.

Depending on your knowledge base, you may have a number of questions about this case. However, one problem or concern seems to be highlighted here. The patient has no symptoms; the intern would like to treat her; you are not sure that using any antibiotics will help this patient. You decide to find an evidence-based answer.

EBM Searching, Step 2: Construct a relevant, answerable question derived from the case.

Elements of a Good Question = PICO (M)

PATIENT or PROBLEM: How would you describe a group of patients similar to yours? What are the most important characteristics of the patient?	Asymptomatic Bacteriuria Elderly or Frail Elderly
INTERVENTION, EXPOSURE, OR PROGNOSTIC FACTOR: Which new intervention, prognostic factor, or exposure are you considering or investigating? What do you want to do for the patient?	Antibiotics or Antibacterial Agents
COMPARISON: What is the main alternative to compare with the intervention? Are you trying to decide between two drugs, a drug and no medication, a drug and a placebo, or two diagnostic tests? Usually this is used for the standard treatment or diagnostic tool, often called the reference or gold standard.	None or Placebo or No Antibiotics
OUTCOME: What can you hope to accomplish, measure, improve, or affect? What are you trying to do for your patient? Relieve or eliminate symptoms? Reduce the number of adverse events? Improve function?	Reduce Morbidity and/or Mortality

Start with these parameters and formulate an answerable, clinical question from them. The structure of the question might look like this:

In patients with [PATIENT/PROBLEM]	**does [INTERVENTION]**	**or [COMPARISON]**	**affect [OUTCOME]?**

Our question: In elderly patients with asymptomatic bacteriuria, does the administration of antibiotics reduce morbidity and/or mortality?

Formulating the clinical question is done to focus your thoughts and help you search the literature. So when you create your PICO, think about it in terms of creating a search strategy. You want to end up with a question that makes sense and that can be searched effectively. You might not need to include all the items in the PICO formula in the search strategy, but they will help you decide the important aspects of your case.

Two other important parameters to consider: type of question and type of study

Type of question: Is this a therapy question? Diagnosis? Etiology or Harm? Prognosis?

Type of study: What is the best study design to answer the question? Meta-analysis? Systematic Review? RCT? Cohort Study?

This is the "M" or methodology in PICO (M).