


**Evidence-Based Medicine  
Journal Club:  
How to Use an Article about  
Prognosis**

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# Peds EBM Teaching Slides: Credits and Advertisements

- Adapted from Dr. Susan Guralnick's Stony Brook EBM teaching PowerPoint slides; 2002 APPD EBM workshop
- EBM Workshop for Peds Eds at UIC (Dr. Jordan Hupert et al) and website resources (diagnostic test calc) <http://ebm.peds.uic.edu/>
- JAMA's Users' Guides to EBM on-line [www.cche.net/usersguides/main.asp](http://www.cche.net/usersguides/main.asp)
- UMD Dept of Epidemiology and Prev. Med.

# Developing the “Answerable” Clinical Question

- First step in applying the results of clinical research to patient care
- A well “framed” clinical question will allow an efficient and effective search for evidence

# ACQ: Answerable Clinical Question

- P - The patient's Problem
- I - The potential Intervention  
(test, treatment, prognostic factor, etiology, etc...)
- C - Comparison to another potential intervention (if necessary)
- O - The Outcome of interest

# ACQ: Answerable Clinical Question

- Four Types of Questions:
  - Diagnosis
  - Treatment
  - Prognosis
  - Causation/Etiology

# How to Use an Article about Prognosis

- Prognosis

The possible outcomes of a disease and the frequency with which they can be expected to occur

# How to Use an Article about Prognosis

- Prognostic Factors:

Characteristics of a particular patient that can be used to more accurately predict eventual outcome.

- Demographic (age)
- Disease-Specific (Tumor stage)
- Comorbid conditions

# How to Use an Article about Prognosis

- **Prognostic factors** don't necessarily *cause* the outcome, just have a strong enough association to *predict the development* of the outcome.
- Different from **Risk Factors** - patient characteristics associated with the development of the disease at all.

# How to Use an Article about Prognosis

- Best Study Design:

## Cohort Study

It is usually *impossible* or *unethical* to randomize patients to different prognostic factors.

# How to Use an Article about Prognosis

- Ideal Cohort Study:
  - Well-defined sample of individuals representative of the population of interest
  - Objective outcome criteria

# How to Use an Article about Prognosis

- Randomized Trials:

- Rigorous randomized trials can generate information about prognosis

**But**

- patients entered into the trial are often not representative of the population with the disease

# How to Use an Article about Prognosis

- Case-Control Studies:

- Potential for bias in selecting both cases and controls
- Retrospective data collection about prognostic factors (memory/chart accuracy issues)
- Cannot provide Absolute Risk information, only Relative Risk
- Can be useful when the outcome is rare, or the required duration of follow-up is long

# How to Use an Article about Prognosis

- Are the results of the study VALID?

- Was there a representative and well-defined sample of patients at a similar point in the course of the disease?

*“Referral-filter bias”*

# How to Use an Article about Prognosis

- Are the results of the study VALID?
  - Was follow-up sufficiently long and complete?
    - Patients fail follow-up usually for not inconsequential reasons
      - May have suffered the outcome under study
      - May feel entirely healthy

# How to Use an Article about Prognosis

- Are the results of the study VALID?
  - Was follow-up sufficiently long and complete?
    - The greater the number of patients unavailable for follow-up, the less accurate the estimate regarding the risk of the adverse outcome

# How to Use an Article about Prognosis

- Are the results of the study VALID?
  - When does failure to follow-up compromise the validity of the study?
    - Consider the proportion of unavailable patients to the proportion of patients who have suffered the outcome of interest.
    - The larger the number of “lost” patients relative to the number who have suffered the event, the greater the threat to the validity of the study

# How to Use an Article about Prognosis

- Are the results of the study VALID?

- The larger the number of “lost” patients relative to the number who have suffered the event, the greater the threat to the validity of the study

Example – 20% of pts have the outcome of interest

- 8% of pts were lost to follow-up
- up to 28% may have had the outcome of interest

# How to Use an Article about Prognosis

- Are the results of the study VALID?

- If the number of patients “lost” jeopardizes the validity of the study:

- Look for the reasons for unavailability
- Compare important demographic characteristics of available vs unavailable patients. If they are similar, it may be less of a problem.
- If information about reasons for unavailability is not provided, the strength of inferences from the study are weakened.

# How to Use an Article about Prognosis

- Are the results of the study VALID?
  - Were objective and unbiased outcome criteria used?
  - Was there adjustment for important prognostic factors?

# How to Use an Article about Prognosis

- Are the results of the study VALID?
- Were objective and unbiased outcome criteria used?
  - Clear and sensible definition of adverse outcomes **before** the study starts
  - Outcome events can be objective or can require limited or considerable judgment
  - To minimize bias, individuals determining outcome should be blinded to whether patient has the prognostic factor in question. Not necessary with entirely objective outcome (e.g. death)

# How to Use an Article about Prognosis

- Are the results of the study VALID?
- Was there adjustment for important prognostic factors?
  - Investigators should consider whether the clinical characteristics of the groups is similar and adjust the analysis for any differences found
  - Investigators should adjust for differences in treatment

# How to Use an Article about Prognosis

- What are the results?

Quantitative results from studies of prognosis or risk are **the number of events that occur over time**

# How to Use an Article about Prognosis

- What are the results?
  - How large is the likelihood of the outcome event in a specified period of time?

# How to Use an Article about Prognosis

- What are the results?
  - How precise are the estimates of likelihood?
    - Confidence Intervals

# How to Use an Article about Prognosis

- What are the results?

- How precise are the estimates of likelihood?

Even when valid, a prognostic study provides only an estimate of the true risk

# How to Use an Article about Prognosis

- Will the results help me in caring for my patients?
  - Were the study patients similar to mine?

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- Will the results help me in caring for my patients?
  - Were the study patients similar to mine?

Article should list the patients' important *clinical characteristics*, along with the *definitions* used for these characteristics

# How to Use an Article about Prognosis

- Will the results help me in caring for my patients?
  - Will the results lead directly to selecting or avoiding therapy?

Prognostic data often provide the *basis for sensible decisions* about therapy

# How to Use an Article about Prognosis

- Will the results help me in caring for my patients?
  - Are the results useful for reassuring or counseling patients?

Uniformly good prognosis – Reassuring

Uniformly poor prognosis - Counseling