# Clinical Foundations II: EBM and Resource Review

### How to prepare the perfect CPC

Presented by:

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January 10, 2010

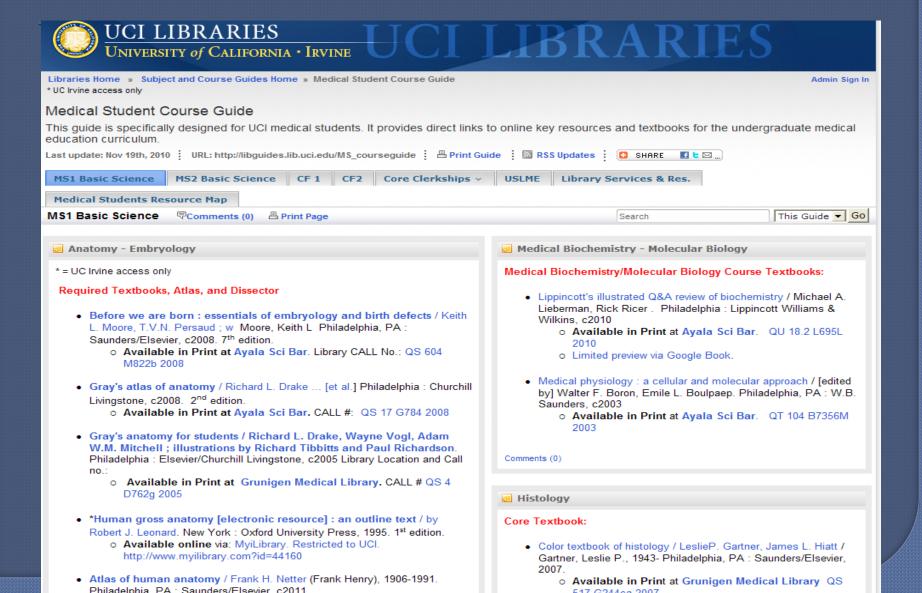


## Learning Objectives

- Distinguish the difference between evidencebased information and expert opinion.
- Search, identify and evaluate relevant RCTs from PubMed for your CPC
- Conduct searches in Cochrane for Systematic Reviews
- Locate practice guidelines in NGC
- Utilize additional evidence-based resources to support your CPC presentation



# Library Course Guide for Medical Students <a href="http://libguides.lib.uci.edu/MS">http://libguides.lib.uci.edu/MS</a> courseguide



## What is EBM?

"It is the integration of:

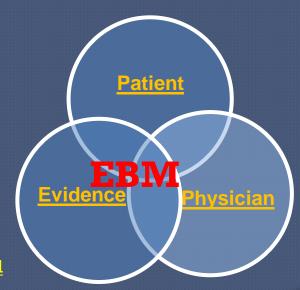
available research evidence with your clinical
experience/expertise and your patient's needs.

#### Ref:

1. Evidence-based medicine: how to practice and teach EBM / David L. Sackett ... [et al.] New York: Churchill Livingstone, 2000.

Dr. Sackett is the founding father of EBM movement.





http://www.youtube.com/watch?v=Nbd--s2dFY0&feature=related

# Other Reasons: Information Overload

Ever-increasing volume of journals and articles makes it impossible to keep up.



# Steps in the Practice of Evidence-Based Medicine

1. Assess Your patient

**2. Identify** Information needs and ask a focused clinical question

4. Evaluate the evidence that you found or identify absence of evidence.

**3.** Search for relevant information from literature

5. Apply the evidence to your patient

**6. Evaluate** the patient's outcome and your practice

Evidence Based Medicine...

Begins with your patient and ends with your patient.





## Clinical Scenario: Right Side Abdominal Pain

Ms EH, a 23 yo Hispanic female presents to the GI clinic complaining of episodes of right sided abdominal pain, fevers, night sweats and a 30 lb weight loss over the last 7 months. She has not had diarrhea or seen blood in her stool. She has a history of episodic vomiting, fever, weight loss, and nausea since she was 18 years old.

• Presents for Dx and management/cure



# Clinical Scenario: Physical Exam

- **CC:** "I often have pain on my right side [abdomen]."
- HPI presents to the GI clinic with severe right-side abdominal pain. often has fevers, night sweats and has had a 30 lb weight loss over the last 7 months.
- FHx: Father passed away at the age of 60 from a colorectal cancer. Mother is alive and well at the age of 72. Family history is also significant for inflammatory Bowel Disease in her uncle.
- PMHx: Has had episodic vomiting, fever, weight loss, and nausea since 18 yo. Was seen at the Santa Ana clinic in 2007 for continual fatigue and weight loss. No firm diagnosis made at the time, and she did not return for follow-up.
- Medications: Takes calcium carbonate (Tums) when pain is bad. It rarely helps. Takes loperamide (Maalox) for diarrhea which patient reports to be effective.
- Vitals: BP: 157/90 mmHg, Pulse: 99, RR: 20, Temp: 100.3, Weight: 90 lbs, Height: 5'3"

# Step 1 : Assess Your Patient

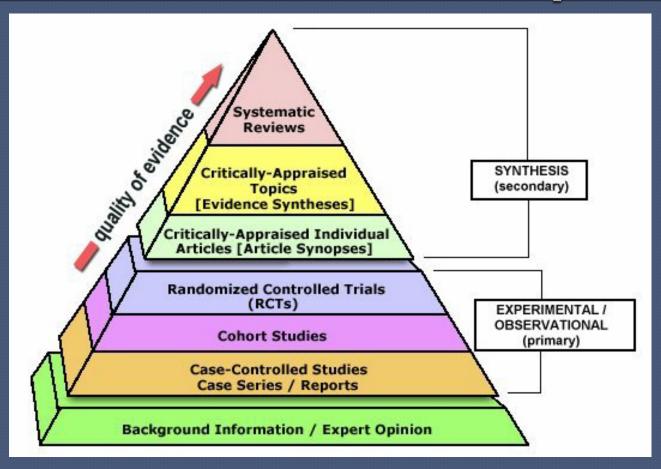
- Acquire the patient's history
- Physical examination
- Discussing the patient's concerns
- Determine the problem (Several clinical questions may arise)

From this, we can construct a clinical question building from the patient and the problem

"Good questions are the backbone of practicing EBM. It takes practice to ask the well-formulated question."

"An undefined problem has an infinite number of solutions."

# Study Type and Methodology Evidence Pyramid



Ref: Based on the "EBM Pyramid and EBM Page Generator," c 2006 Trustees of Dartmouth College and Yale University. All Rights Reserved. Produced by Jan Glover, David Izzo, Karen Odato and Lei Wang.

# Evidence-Based Point-of-Care Resource Tools (Primary vs. Secondary)

### Primary Resources (Original Research)

PubMed@UCI

### Secondary Resources (Synthesis)

- Systematic Reviews, Meta Analysis
  - Cochrane Library
- Practice Guidelines
  - National Guideline Clearinghouse
- Critically Appraised Topics / Article Synopses
  - <u>eMedicine</u>
  - UpToDate

- ACP PIER
- ACP Journal Club

# Step 2 : Ask a Clinical Question

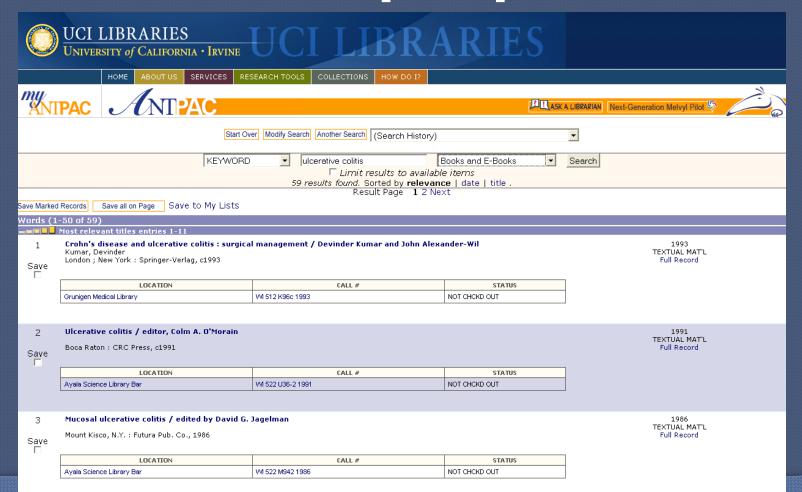
### A Background question:

- Asks for general knowledge about a disorder and available treatment.
- Answers can often be found in medical texts, book chapters and review articles.
  - 1. What are the symptoms of ulcerative colitis?
  - 2. What are the symptoms of Crohn disease?
  - 3. What is the etiology of Crohn disease?
  - 4. What are the available treatments for Crohn disease?



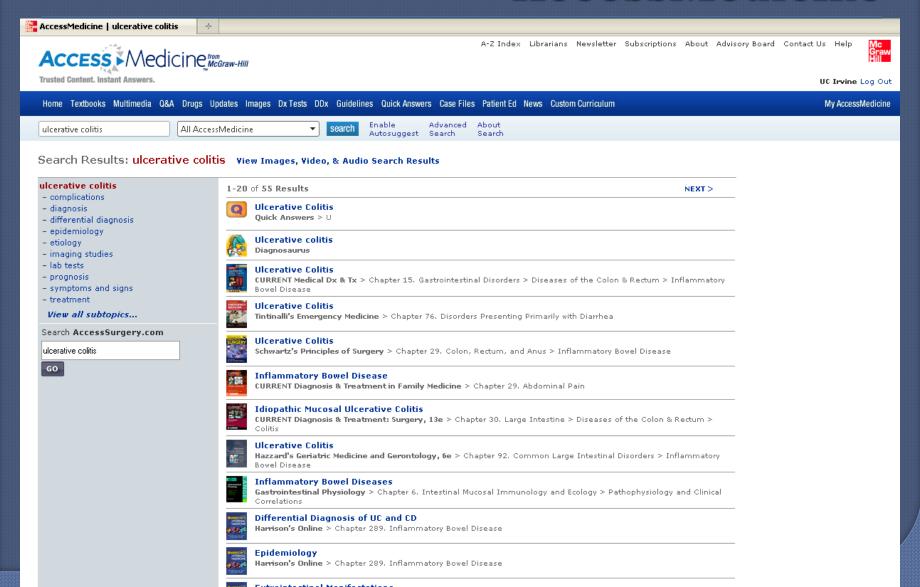
# Background Resources: Books and eBooks

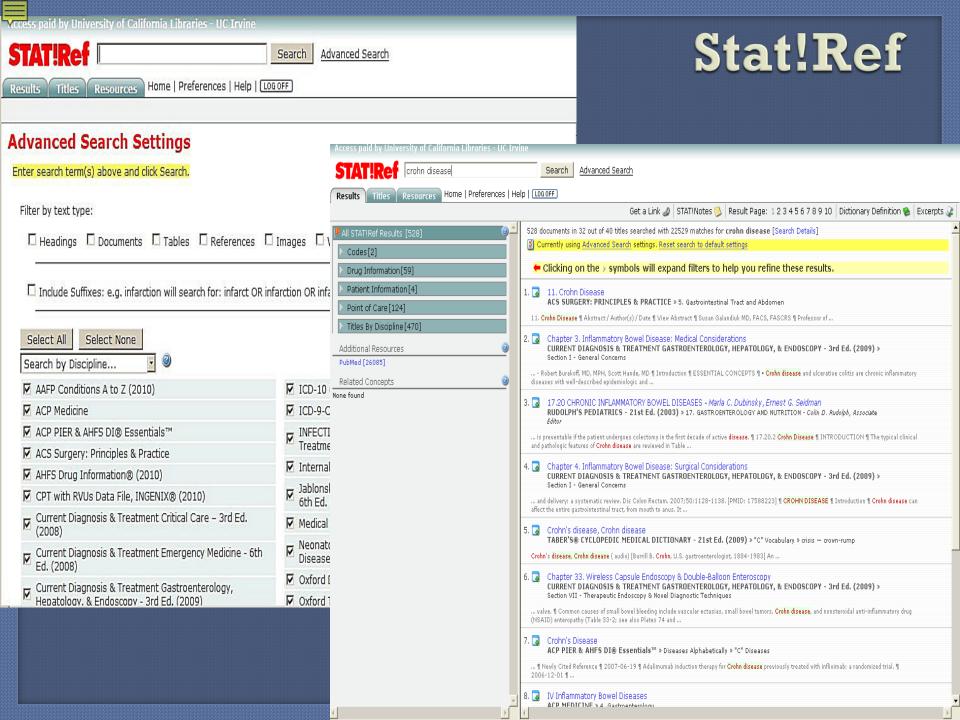
- Antpac antpac.lib.uci.edu -- UCI Libraries Online Catalog
  - Locate both online and print copies of textbooks





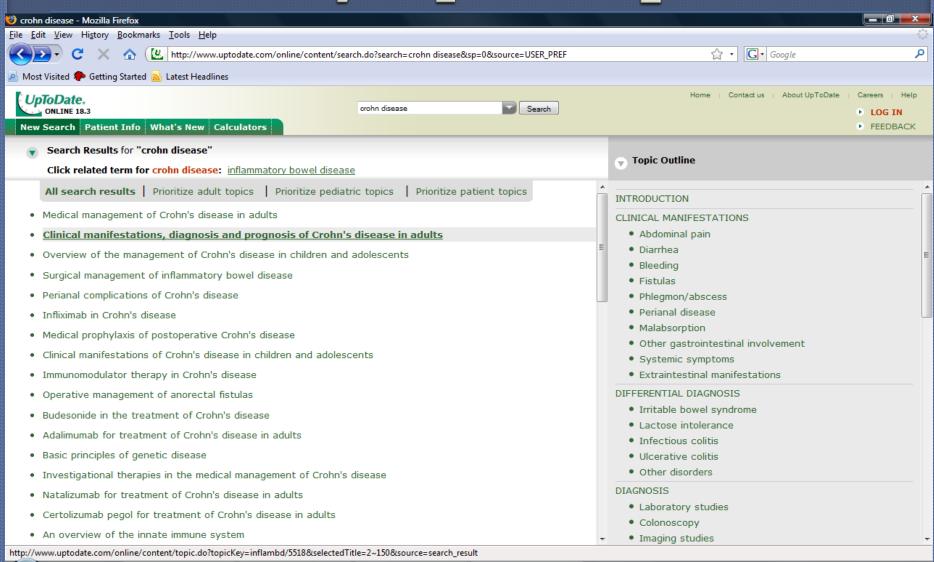
# Background Resources: AccessMedicine







## **Article Synopses: UpToDate**

















# Step 2 : Ask a Clinical Question

### A Foreground question:

- Asks for specific knowledge about a disorder or treatment.
- Usually relates to a specific patient or population
- Includes four components -- PICO

### What is PICO?

- P the patient and problem of interest
- I the main intervention (therapeutic, diagnostic, prognostic) or exposure (etiologic/harm)
- C a comparison intervention if relevant.
- O the clinical outcome of interest

## Why Bother with PICO?

- Helps focus on evidence directly relevant to your patient's needs and your specific knowledge needs
- Forces you to ask a specific and answerable question
- Helps make a search of the medical literature easier by identifying specific search concepts and keywords
- Questions are answerable, reinforcing the satisfaction of finding evidence that makes you a better, more effective clinician

# Step 2 : Ask a Clinical Question

### A clinical question usually falls into one of four clinical categories:

Therapy

How to select treatments that do more good than harm and that are worth the effort and cost of using them

Diagnosis

How to select and interpret diagnostic tests

Harm/Etiology

How to identify causes for disease (including iatrogenic forms)

Prognosis

How to estimate the patient's likely clinical course over time and anticipate likely complications of disease

## Case Scenario Recap

Elena Hildago, a 23 yo hispanic female presents to the GI clinic complaining of episodes of right sided abdominal pain, fevers, night sweats and a 30 lb weight loss over the last 7 months.

She has not had diarrhea or seen blood in her stool. She has a history of episodic vomiting, fever, weight loss, and nausea since she was 18 years old.



## A Therapy Question

In a 23 yo Hispanic female with newly diagnosed Crohn Disease, is treatment with infliximab or azathioprine vs. budesonide (corticosteroid) effective in inducing remission?

PICO Therapy			
Patient / Problem	23 yo hispanic female diagnosed with Crohn's disease		
<b>I</b> ntervention	infliximab OR azathioprine		
Comparison	budesonide OR corticosteroid		
Outcome	remission of symptoms		



## A Diagnosis Question

What is the sensitivity and specificity of capsule endoscopy in comparison to either Magnetic Resonance Imaging (MRI) or Computed Tomography (CT Scan) in detecting patients with Crohn disease or ulcerative colitis?

PICO Diagnosis			
Patient / Problem	Patients with suspected Crohn disease or Ulcerative colitis		
Intervention	Capsule endoscopy		
Comparison	MRI OR CT Scan		
Outcome	Sensitivity and specificity of the test		



## An Etiology Question

In patients with Crohn disease, does treatment with infliximab or azathioprine increase the risk of developing lymphoma or other malignancies?

PICO Etiology			
Patient / Problem	Patients with Crohn disease		
Intervention	infliximab OR azathioprine		
Comparison	placebo		
Outcome	increase the risk of developing lymphoma or other malignancies		

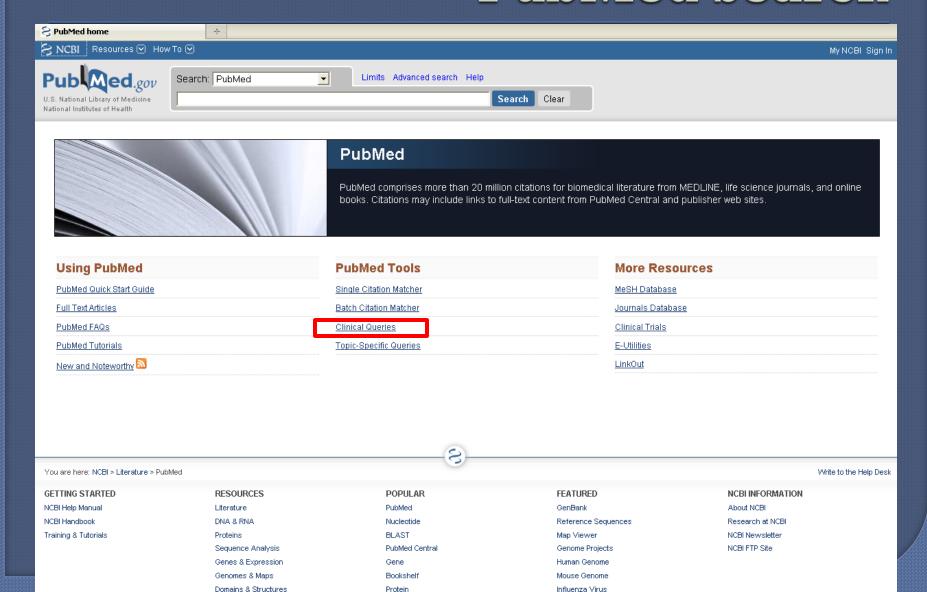


## A Prognosis Question

In patients with Crohn disease does scheduled maintenance therapy with infliximab increase the rate of remission and improve the quality of life?

PICO Prognosis			
Patient / Problem	Patients with Crohn disease		
<b>I</b> ntervention	Scheduled maintenance therapy with infliximab		
Comparison	episodic treatment		
Outcome	increase the rate of remission and improve the quality of life		

# Step 3: Find the Best Evidence -- PubMed Search

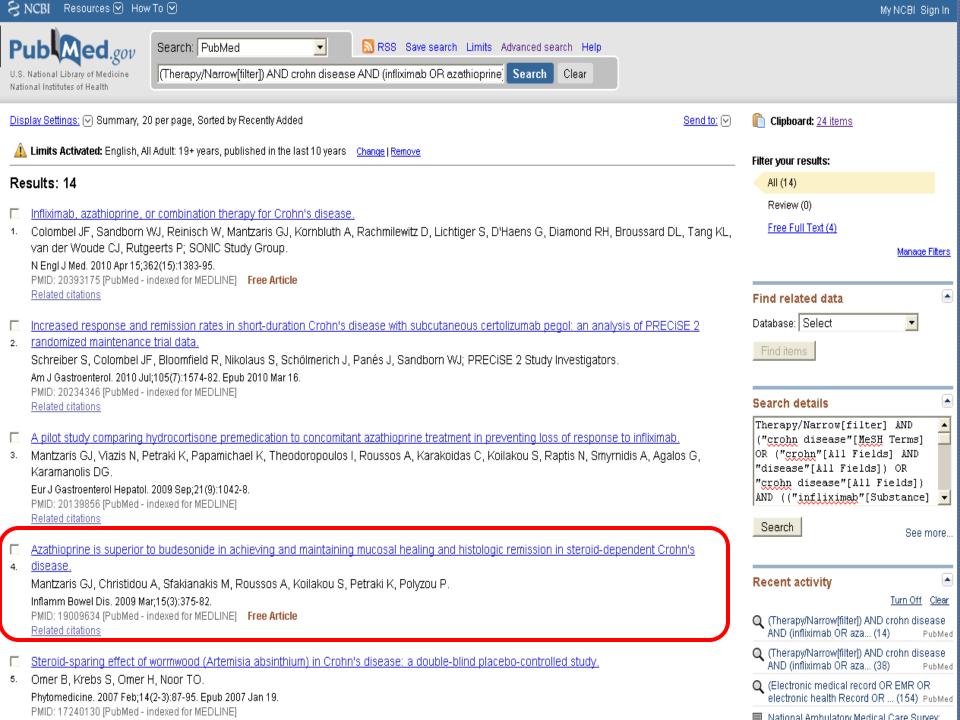


## PubMed Clinical Queries

Search Strategy:

(Therapy/Narrow[filter]) AND (crohn disease AND (infliximab OR azathioprine) AND (budesonide OR Corticosteroids)

Limits: Published in the last 10 years, English,
 All Adults: 19+ years



## PubMed Search Results

Display Settings: 

✓ Abstract

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FULL TEXT ONLINE



Inflamm Bowel Dis. 2009 Mar;15(3):375-82.

Azathioprine is superior to budesonide in achieving and maintaining mucosal healing and histologic remission in steroid-dependent Crohn's disease.

Mantzaris GJ, Christidou A, Sfakianakis M, Roussos A, Koilakou S, Petraki K, Polyzou P.

First Department of Gastroenterology, Evangelismos Hospital, Athens, Greece. gman195@yahoo.gr

#### Abstract

BACKGROUND: The effects of azathioprine (AZA) and budesonide (BUD) on mucosal healing and histologic remission of Crohn's disease (CD) are insufficiently studied. In this prospective study we evaluated the comparative effects of AZA and BUD on endoscopic and histologic activity in patients with steroid-dependent Crohn's ileocolitis or proximal colitis who had achieved clinical remission on conventional steroids.

METHODS: Patients were randomized to AZA (2.0-2.5 mg/kg a day) or BUD (6-9 mg a day) for 1 year. The study protocol included clinical examination, laboratory tests, calculation of the Crohn's Disease Activity Index (CDAI), completion of the Inflammatory Bowel Disease Questionnaire (IBDQ), at baseline and then every 2 months for 1 year. Ileocolonoscopy with regional biopsies was performed at baseline and then at the end of the study to assess mucosal healing and the histologic activity of CD.

**RESULTS:** Thirty-eight patients were randomized to AZA and 39 to BUD. At the end of the study 32 and 25 patients in the AZA and BUD groups, respectively, were in clinical remission (P = 0.07). The Crohn's Disease Endoscopic Index of Severity (CDEIS) score fell significantly only in the AZA group (P < 0.0001). Complete or near complete healing was achieved in 83% of AZA-treated patients compared with only 24% of BUD-treated patients (P < 0.0001). Histologic activity as assessed by an average histology score (AHS) fell significantly only in the AZA group (P < 0.001 versus baseline) and was significantly lower than in the BUD group at the end of the study (P < 0.001). Eight patients in the AZA group were withdrawn for adverse events (P = 0.001) or relapse of disease compared with 14 patients in the BUD group who were withdrawn for relapse of disease.

CONCLUSIONS: In patients with steroid-dependent inflammatory Crohn's ileocolitis or proximal colitis who achieve clinical remission with conventional steroids, a 1-year treatment with AZA was superior to BUD in achieving and maintaining mucosal healing and histologic remission.

PMID: 19009634 [PubMed - indexed for MEDLINE] Free Article

Dublication Types, MeSH Terms, Substances

LinkOut - more resources



Budesonide versus mesalamine for maintaining re [Clin Gastroenterol Hepatol. 2003]

A prospective randomized observer-blind 2-year trial of azathioprine m [Am J Gastroenterol. 2004]

Endoscopic and histologic healing of Crohn's (ileo-) colitis with az: [Gastrointest Endosc. 1999]

Review Budesonide for maintenance of remission [Cochrane Database Syst Rev. 2009]

Review Methotrexate for induction of remission in refractor [Cochrane Database Syst Rev. 2005]

See reviews...

See all...

### Cited by 2 PubMed Central articles 📤

Review Role of endoscopy in predicting the disease course in [World J Gastroenterol. 2010]

Limitations in assessment of mucosal healing in inflammatory by [World J Gastroenterol. 2010]

AII	linke	Fram	thic	record
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Related Citations

Compound (MeSH Keyword)

Substance (MeSH Keyword)

Cited in PMC

Pecent activity

- 7





### Azathioprine Is Superior to Budesonide in Achieving and Maintaining Mucosal Healing and Histologic Remission in Steroid-dependent Crohn's Disease

Gerassimos J. Mantzaris, MD, PhD,\* Angeliki Christidou, MD,\* Michael Sfakianakis, PhD,<sup>†</sup> Anastassios Roussos, MSc, MD, PhD,\* Stavroula Koilakou, MD,\* Kalliopi Petraki, MD, PhD,<sup>‡</sup> and Paraskevi Polyzou, MD, PhD\*

Background: The effects of azathioprine (AZA) and budesonide (BUD) on mucosal healing and histologic remission of Crohn's disease (CD) are insufficiently studied. In this prospective study we evaluated the comparative effects of AZA and BUD on endoscopic and histologic activity in patients with steroid-dependent Crohn's ileocolitis or proximal colitis who had achieved clinical remission on conventional steroids.

Methods: Patients were randomized to AZA (2.0-2.5 mg/kg a day) or BUD (6-9 mg a day) for 1 year. The study protocol included clinical examination, laboratory tests, calculation of the Crohn's Disease Activity Index (CDAI), completion of the Inflammatory Bowel Disease Questionnaire (IBDQ), at baseline and then every 2 months for 1 year. Ileocolonoscopy with regional biopsies was performed at baseline and then at the end of the study to assess mucosal healing and the histologic activity of CD.

Results: Thirty-eight patients were randomized to AZA and 39 to BUD. At the end of the study 32 and 25 patients in the AZA

events (n = 6) or relapse of disease compared with 14 patients in the BUD group who were withdrawn for relapse of disease.

Conclusions: In patients with steroid-dependent inflammatory Crohn's ileocolitis or proximal colitis who achieve clinical remission with conventional steroids, a 1-year treatment with AZA was superior to BUD in achieving and maintaining mucosal healing and histologic remission.

(Inflamm Bowel Dis 2009;15:375-382)

Key Words: Crohn's disease, azathioprine, budesonide, mucosal healing, histologic remission

Crohn's disease (CD) is a lifelong idiopathic intestinal inflammatory disease characterized by a chronic relapsing or unremitting course that reduces health-related quality of life (QOL).<sup>1,2</sup> Corticosteroids are the first-line treatment for active CD but even after the first course a substantial proportion of patients become dependent or





## Finding Systematic Reviews



from The Cochrane Collaboration

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Title, Abstract or Keywords GO

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or try an Advanced Search

#### BROWSE COCHRANE DATABASE OF SYSTEMATIC REVIEWS

Issue 12 of 12, Dec 2010

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Consumer & communication strategies (35)

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Endocrine & metabolic (83)

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#### SPECIAL COLLECTIONS



Burns



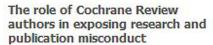
Opportunistic infections and HIV-associated malignancies in people with HIV/AIDs



Depression and anxiety in people with physical

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### EDITORIAL 5





At the Joint Colloquium of the Cochrane & Campbell Collaborations in Keystone in October 2010, we ran a

workshop about the problems of detecting research misconduct,[1] and had a wonderful discussion with participants. The US Office of Research Integrity defines research misconduct as...

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HIGHLIGHTED NEW AND UPDATED COCHRANE REVIEWS



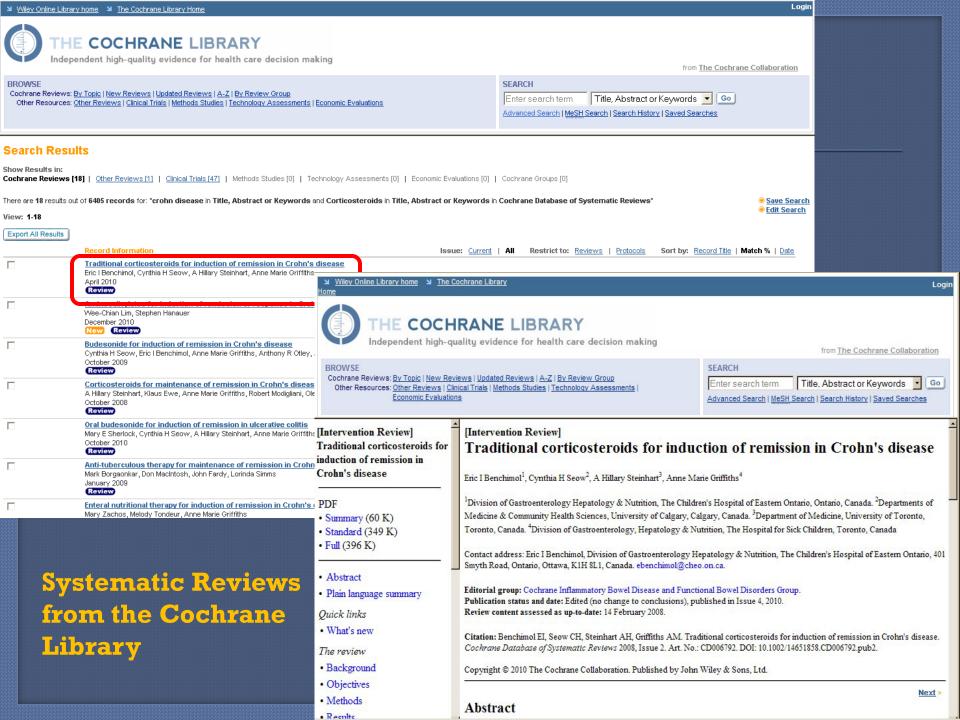
Music interventions for mechanically ventilated patients



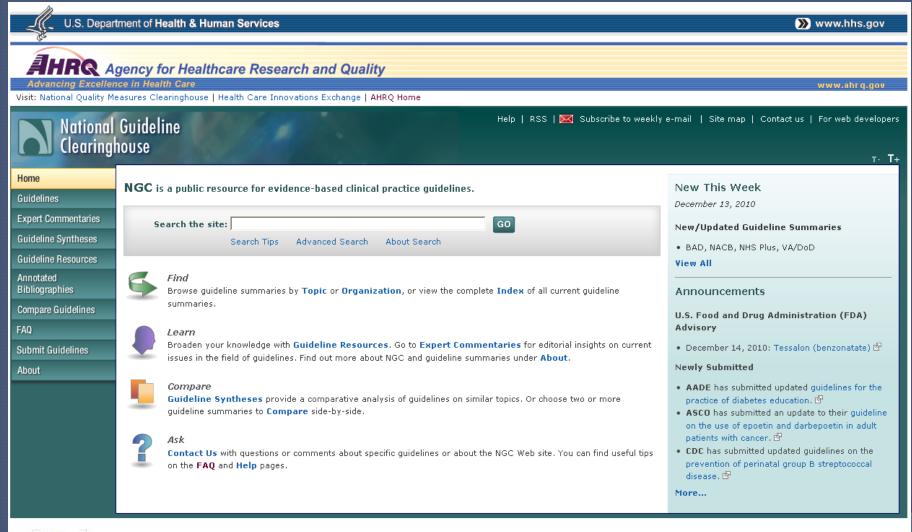
## Narrative vs. Systematic Reviews

FEATURE	Narrative review	Systematic Review
-Subject coverage	Broad in scope	A focused clinical question
-Sources & Search	<ul> <li>Not specified, potentially biased</li> </ul>	<ul> <li>Comprehensive sources &amp; explicit search strategy</li> </ul>
-Study Selection	<ul> <li>Not specified, potentially biased</li> </ul>	<ul> <li>Criterion-based selection, uniformly applied</li> </ul>
-Appraisal	<ul> <li>Variable &amp; opinion based</li> </ul>	Rigorous critical appraisal
-Synthesis	• Qualitative summary	Ouantitative summary     (includes a statistical synthesis)

Ref: Annals of Internal medicine Marc 1997, v. 126(5) pp389-391.



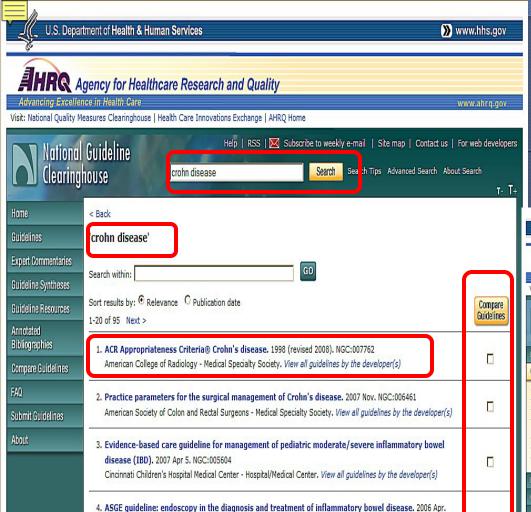
## Finding Practice Guidelines





### Clinical Practice Guidelines

- Official statements that outline how to prevent, diagnose and treat specific medical conditions
- Issued by medical specialty societies, government agencies and other health organizations.
- May be published as journal articles, books, organizational publications.
- Also known as practice parameters, clinical policies, standards, treatment protocols, etc.



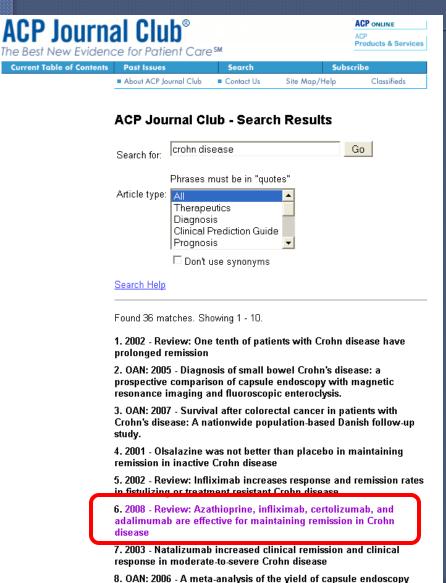
American Society for Gastrointestinal Endoscopy - Medical Specialty Society, View all guidelines by the developer(s.

NGC:004977

# Are there any practice guidelines regarding the treatment of Crohn's disease?



# Critically Appraised Individual Study



compared to other diagnostic modalities in patients with



### Which interventions are effective for maintaining remission in Crohn disease?

#### Review scope

Studies selected evaluated interventions for maintaining remission in Crohn disease. Outcome was maintenance of remission (or relapse).

#### Review methods

MEDLINE (1966 to May 2007) and Cochrane Library (Issue 2, 2007) were searched for randomized controlled trials (RCTs) or systematic reviews or meta-analyses of RCTs; then Cochrane Inflammatory Bowel Disease Group was contacted. 8 interventions (azathioprine, 5-aminosalicylates, corticosteroids, budesonide, antimycobacterial agents, probiotics, omega-3 fatty acids, and enteral nutrition) were evaluated in systematic reviews, and 6 interventions (methotrexate, infliximab, adalimumab, natalizumab, certolizumab, and cyclosporine) were evaluated in RCTs.

#### Main results

Meta-analysis showed that azathioprine and omega-3 fatty acids were more effective than placebo for maintaining remission (Table). Single studies showed that methotrexate, infliximab, adalimumab, natalizumab, and certalizumab were more effective than placebo and enteral nutrition.

## What Else is Left?

### Step 4:

Appraise the evidence for its quality and usefulness (validity and applicability)

Critical Appraisal Resource:

### **UCI School of Medicine EBM Guide Book**

http://www.lib.uci.edu/grunigen/ebm/guide/index.html

Use this resource to assist you in critically analyzing the medical literature, and preparing a presentation.

## UCI LIBRARIES

http://www.lib.uci.edu/grunigen/ebm/guide/ebmguide\_page15.html

### **EBM Guidebook**

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- 2. CAMeL Critical Appraisal

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- ii. Diagnostic Tests
- iii. Review Articles
- iv. Screening Tests
- v. Prognosis
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- 2. Sample Presentation
- VI. Overview of Statistics
  - 1. Statistics Without Statistics
  - 2. Ten Ways to Cheat
- VII. Glossary of Terms

Terms marked with an asterisk (\*) are defined in the Glossary.

References

■ Back to Evidence-Based Instruction page



### EBM Guidebook

from the Medical Student Survival Manual 18th Edition UCI School of Medicine 2005-2006

Read the Guidebook online





## Step 5:

Implement useful findings to treat the patient along with your clinical expertise, and the patient's preferences, values and concerns.

## Step 6:

Evaluate your performance with this patient (the evidence, intervention, and EBM process)

## **Key Points to Remember**

- Summarize your case scenario
- 2. Identify your knowledge gaps:
  - Ask a background clinical question from the scenario and find the answer from a reliable source.
  - Ask a focused clinical question in PICO format
- 3. Conduct searches to fill your knowledge gaps:
  - Search PubMed for a clinical study
  - Search Cochrane Library for a systematic review
  - Search NGC for a practice guideline
  - Search ACP Journal Club for a synopsis
- 4. Appraise the article you found
- 5. Prepare your CPC presentation

# Online In-Class Exercise & Exit Survey

- Please login with your UCInetID and complete the class exercise at: <a href="https://eee.uci.edu/quiz/CF2">https://eee.uci.edu/quiz/CF2</a> CPC
- Volunteers presenting their work will receive a gift bag

### Before you leave:

Complete the online survey at:
<a href="http://eee.uci.edu/survey/CF2">http://eee.uci.edu/survey/CF2</a> CPC Survey

## Questions and Comments??

Feel free to contact your medical librarians anytime!

Steve Clancy

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