The who, what, where, when, and how of being a scholarly mentor

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Objectives

- State the important EBM components needed to complete a scholarly project
- Describe the skills needed to be a successful scholarly mentor
- Examine the avenues for publication and presentation for a variety of scholarly projects

Leading the Residents – RRC requirements

Someone must lead the following:

1. Every resident must complete <u>two</u> scholarly projects
2. "The program must provide a regularly scheduled forum for residents to explore and analyze evidence pertinent to the practice of family medicine."

Faculty Must Also . . .

1. Encourage and support residents in scholarly activities
2. Some should also demonstrate scholarship through peer-reviewed funding, publications, presentations, and participation in national committees or organizations
3. Participate in faculty development programs designed to enhance the effectiveness of their teaching, administration, leadership, scholarship

Why is this hard? : Common Barriers for Scholarship

- **Faculty**
  - Protected time
  - Shortage of faculty, resources
  - Leaders don't have enough experience to mentor
- **Residents**
  - Lack of structured expectations, experiences
  - Lake of enthusiasm towards evidence-based medicine
- **Faculty & Residents**
  - Fear of statistics
  - Difficulty with evidence synthesis
  - Procrastination

Scholarly activity

- Boyer's description of scholarship
  - **Scholarship of discovery**
    - New knowledge through traditional research
  - **Scholarship of application**
    - Translating knowledge into practical use
  - **Scholarship of integration**
    - Taking knowledge from varied sources and connecting them in meaningful ways
  - **Scholarship of education**
    - Communication knowledge to learners

EBM Components

- Think of scholarly work in individual EBM components
  - Dissecting the clinical question (PICO)
  - Literature searching skills
  - Level of Evidence assignment
  - Evidence synthesis
  - Applying the evidence

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Distill the Clinical Question to P.I.C.O.

Key Elements	Define Search Terms
Patient / Problem	Patient cohort, age, sex Problem, disease, or co-existing conditions.
Intervention	Proposed drug, therapy, test, intervention etc. Possible prognostic factor, or exposure.
Comparison	Alternative course of action/inaction?
Outcome	Goal ***i.e.***, relieve or eliminate the symptoms? reduce the number of adverse events? improve function or test scores?

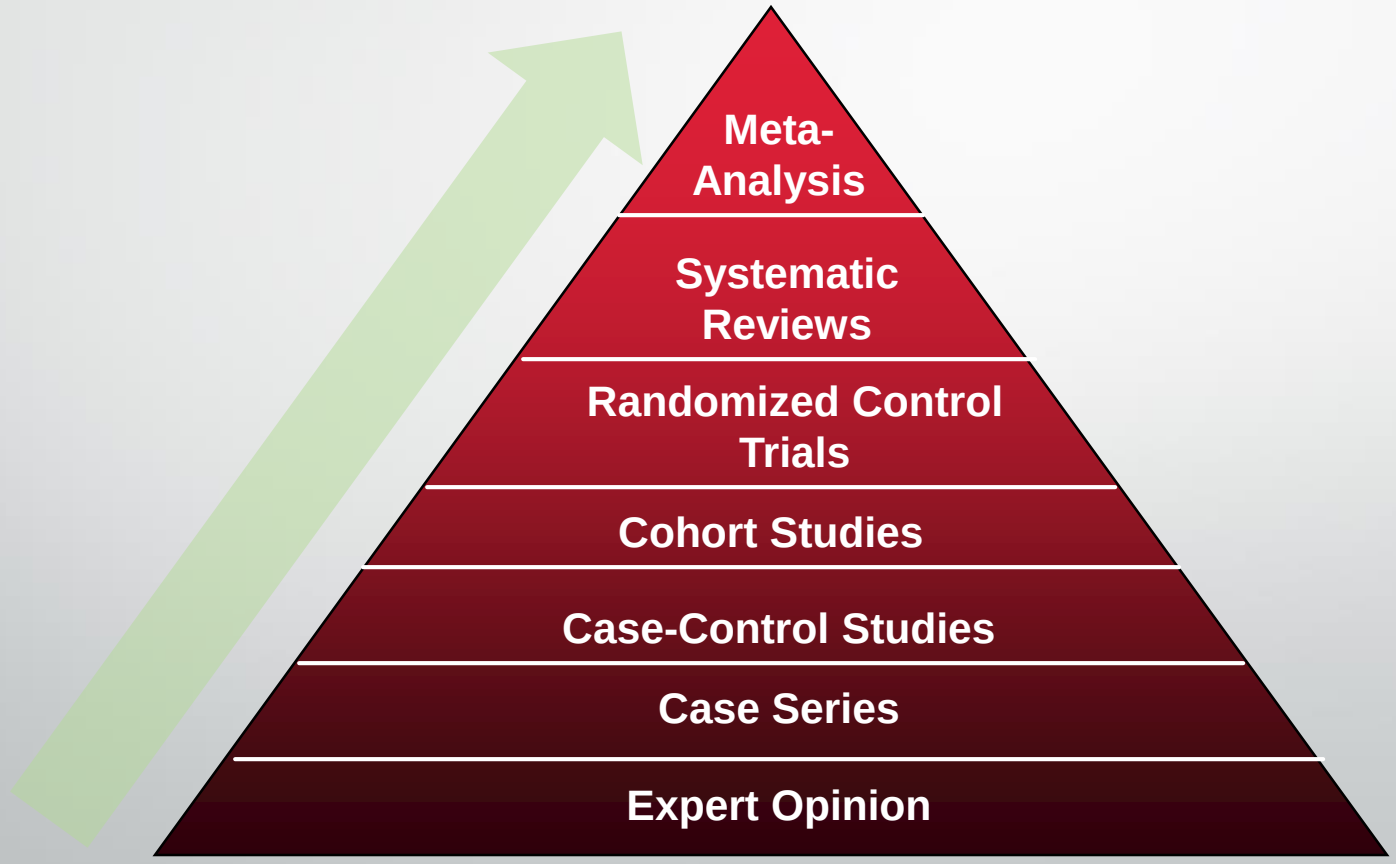
PICO Question 1

You have a 52 y/o male in your clinic you diagnose with BPH, while discussing treatment options, he asks if Saw Palmetto is a good treatment option

a) P: Adult males with BPH
b) I: Saw Palmetto
c) C: Prescription medications (Flomax, Hytrin, Cardura)
d) O: Symptom relief, reduction in symptom score
e) Search terms

. .Let the Evidence Pyramid Be Your Guide

As you move up the pyramid, the amount of available literature decreases, but increases in relevance to the clinical setting.



2011 CEBM Table: Levels of Evidence (STEP)

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or *n*-of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, *n*-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or *n*-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non -randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

LOE Example: Grading the References

Use of Antiemetic Agents in Acute Gastroenteritis

A Systematic Review and Meta-analysis

Lisa Ross DeCamp, MD, MSPH; Julie S. Byerley, MD, MPH; Nipa Doshi, BSPH; Michael J. Steiner, MD

STEP 1

Objective: To perform a systematic review and meta-analysis to determine whether taking antiemetic drugs reduces vomiting and decreases the need for further intervention in children with gastroenteritis without causing significant adverse effects.

Data Sources: Computerized databases, reference lists, and expert recommendations.

Study Selection: Prospective controlled trials evaluating medication use in children with vomiting from gastroenteritis.

Intervention: Antiemetic drug therapy.

Main Outcome Measures: Emesis cessation, use of intravenous fluid rehydration, hospital admission, return to care, and medication adverse effects.

Results: The 11 articles that met the inclusion criteria evaluated various antiemetic agents: ondansetron (n=6), domperidone (n=2), trimethobenzamide (n=2), pyrilamine-pentobarbital (n=2), metoclopramide (n=2), dexamethasone (n=1), and promethazine (n=1). Meta-analysis of 6 randomized, double-masked, placebo-controlled trials of ondansetron demonstrated decreased risk of further vomiting (5 studies; relative risk [RR], 0.45; 95% confidence interval [CI], 0.33-0.62; number needed to treat [NNT]=5), reduced need for intravenous fluid (4 studies; RR, 0.41; 95% CI, 0.28-0.62; NNT=5), and decreased risk of immediate hospital admission (5 studies; RR, 0.52; 95% CI, 0.27-0.95; NNT=14). Diarrheal episodes increased in ondansetron-treated patients in 3 studies. Ondansetron use did not significantly affect return to care (5 studies; RR, 1.34; 95% CI, 0.77-2.35).

Conclusions: Ondansetron therapy decreases the risk of persistent vomiting, the use of intravenous fluid, and hospital admissions in children with vomiting due to gastroenteritis. Future treatment guidelines should incorporate ondansetron therapy for select children with gastroenteritis.

Arch Pediatr Adolesc Med. 2008;162(9):858-865

Mentorship

- A mentor is;
  - Someone who takes a special interest in helping another person develop
  - Possess knowledge and experience
  - Seeks to help another to optimize an educational experience

Mentorship

- Effective mentoring;
  - Characterized by mutual respect, trust, integrity
  - Role model timeliness, organization
  - Assures the mentee takes an active role.

Scholarship mentor

- Role of scholarly mentor
  - Experience in scholarship
  - Teach/reinforce appraisal and writing skills
  - Integrate process with resident's overall learning development
  - Develop life long skills of critical appraisal and how to apply evidence to practice
  - Takes responsibility for the quality of the manuscript

Focus on the goals….

- Define your EBM curriculum goals
  - How to ask an answerable question
  - Literature searching skills
  - Grading the evidence
  - Synthesizing the evidence
  - Applying the evidence

EBM curriculum

- Need to start with an EBM curriculum
  - Scholarly projects build on that curriculum
    - Journal club, didactics
  - Study out of Univ of Toronto
    - 60% of FM graduates report not being well trained in critical appraisal, despite an EBM curriculum
- Scholarly projects reinforce that curriculum

Smith M. Research in residency: do research curricula impact post-residency practice? Fam Med2005;37(5):322-7

Approach to mentoring

- Structure, structure, structure
  - High yield, high success projects
  - Break writing into individual skill steps
  - Relatively quick, attainable projects
  - Dedicated time
    - Not just on top of all other requirements

R-2 Writing Project Check list

Resident: Jimi Joslin **Faculty:** Lyon

Topic: When to initiate a B-Blocker

Date: 2/1/17

Goals for the Help Desk Answer writing project.

Develop literature search strategy skills
Gain understanding of levels of evidence
Become familiar with the CEBM Levels of Evidence (LoE) and Strength of Recommendations (SOR).
Gain skills in evidence synthesis and utilizing user-friendly statistics
Practice applying evidence to clinical situations
Develop a product at the end of the project that can be shared with peers
- Publication or presentation (to residency, locally, or nationally)
Hone EBM skills to use during rest of residency as a senior resident.

For successful completion of your project, the scheduled meetings with your faculty advisor and the completed components in your article need to be met. Failure to meet these standards will result in repeating this process and developing an additional project.

1. Timeline for tasks to be completed;

✓ Prior to the project beginning Date 2/1/17
Meet with assigned faculty advisor
Choose question
Review timeline

✓ 1st week Date 2/6 + 2/8 → now
Conduct literature search for the most up to date evidence on the topic
Use the recommended FPIN search sites, then review PubMed, and National Guideline Clearinghouse
Review search results with faculty
Determine which citations to pull full articles

✓ 2nd week Date 2/15
Review articles
Meet with faculty to review your articles, decide which articles (3-5) you will use to write your manuscript.

✓ 3rd week Date 2/22
Use the evidence table to summarize the articles

Review the table with your faculty

✓ 4th week Date 2/28

Submit your rough draft in HDA format to your faculty

___ Peer Review Date (P)

Address Peer Review suggestions

Review changes with faculty

___ Editor in Chief Review Date (P)

Address the EIC revisions

Review revisions with faculty

2. Following Goals must be met for completion of the project

✓ Literature search

✓ Grading the evidence using LoE and SORT

✓ Synthesising the evidence

✓ Applying the evidence to answer a clinical question

✓ Met deadlines and communicated with faculty mentor

Mentor’s role

- Set clear expectations for each goal
- Establish realistic timelines
  - Negotiate clear deadlines
  - Use scheduled meetings to ensure steady progress
  - Contact mentees when they miss a deadline
    - Are they stuck, afraid, overwhelmed, lost, procrastinating.
  - Be available, timely, model professional communication

Mentor's role

- Understand balance of educational benefit against residency training
  - Limited time, experience
- 1:1 mentoring is instrumental to see to completion
  - Don't loose your resident
- Keep track of goals, know when they have been achieved
  - When it is time to finish the edits, respond to peer review/editor comments

It's about the goals

- Project goals
  - How to ask an answerable question
  - Literature searching skills
  - Grading the evidence
  - Synthesizing the evidence
  - Applying the evidence
- Manuscript submitted after all goals achieved

Resident needs

- Background knowledge
  - Use project to build on existing knowledge
- Structure
  - Timeline, deadlines, time, identifiable goals
- Time
- Energy/interest from faculty

Mentor as co-author

- Important to define roles at this point
  - Who responds to peer reviewer
  - Who responds to editor comments
  - Who follows up to completion

Avoid barriers

- Define when resident is done
  - Before you lose them
- Loose deadlines
- Faculty not engaged
  - Lose structure
- Faculty learning while mentoring

Where to start?

- Find your journal early in the process of writing
- Follow guidelines in Author Instructions
- Pay attention to word, table, figure, and reference limits
- Review articles in similar section of the journal
- The Uniform Requirements for Manuscripts Submitted to Biomedical Journals www.icmje.org
- It is very helpful to have a reference manager software

Manuscript Types

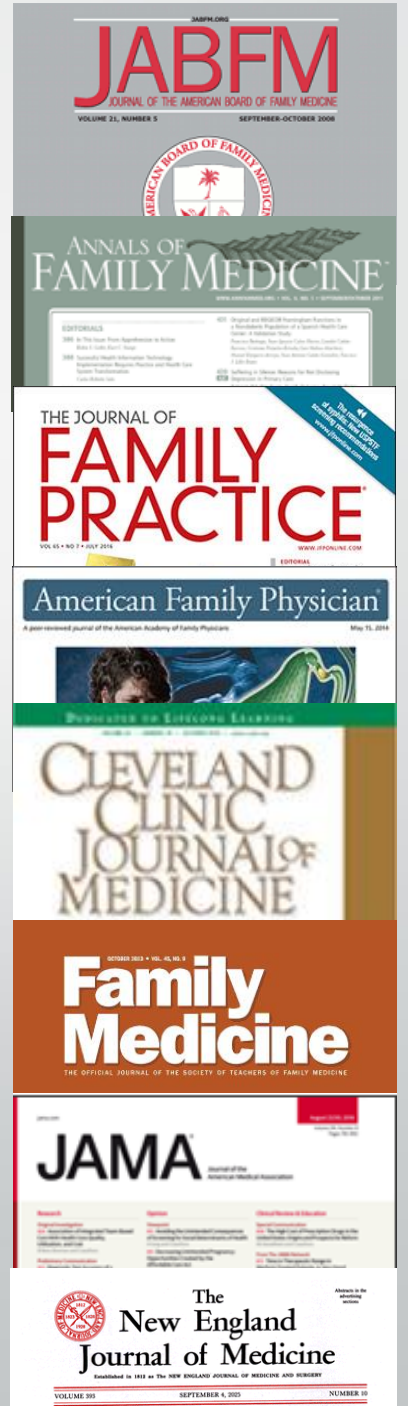
- **Research Study**
  - Report of original data
  - Brief report/short communication
  - Randomized Controlled Trial
  - Observational, Experimental
- **Case report**
  - Descriptive, novel observations
  - Photo quiz
- **Review**
  - Meta-analysis
  - Systematic reviews
  - FPIN writing projects
  - Position Statement/consensus Statement
- **Letter to editor**

Strategies

- Plan with reasonable due dates for your co-authors
- Literature review
  - Should have done this before starting your project
  - Develop expertise
  - Have a system to highlight/summarize each relevant paper
  - Identify the gaps

Find a Journal

- Identify candidates during literature search
- PubMed Indexed?
- Publication fee?
- Impact Factor
- Visit websites
  - Aims & Scope
  - Editorial Board
- Review examples of their recent articles
- Choose 1 primary target and several secondary
- Communicate with editorial team if in doubt



Project Examples

- Case reports
- FPIN projects - Clinical Inquiries/Help Desk Answers
- Survey based studies

Case Studies

- Journal background research
  - Review published case studies to get ideas
- Anything counts
  - Some journals want unique cases, other common teaching cases
- Keep log of cases
  - Pt identification
  - Images, pictures
- Plant the seed early in learners
  - Better documentation

Journal options

- AFP case or photo quiz
- JAMA clinical challenge
- JFP case report or photo quiz
- Poster presentations

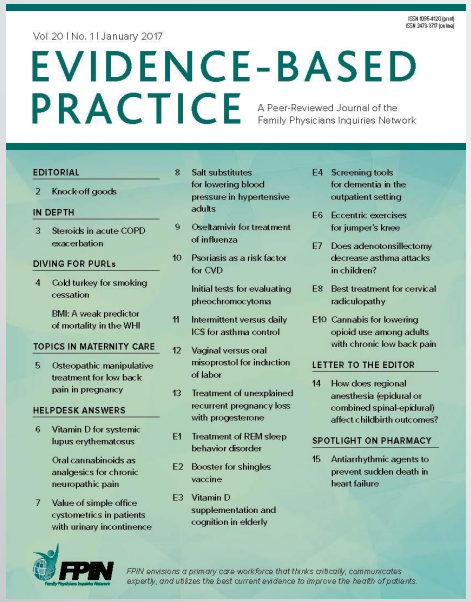
FPIN projects

- Family Physician Inquiries Network
  - Membership organization
  - Resident and faculty publication opportunities in Evidence-Based Practice

HelpDesk Answers

- 450-600 word manuscript
- Brief, structured evidence-based answers to clinical questions
- Peer reviewed
- Guidance provided by an assigned Deputy Editor
- Published in *Evidence-Based Practice*
- Can be finalized within an academic year

Where are HDAs Published?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FPIN envisions a primary care workforce that thinks critically, communicates expertly, and utilizes the best current evidence to improve the health of patients.

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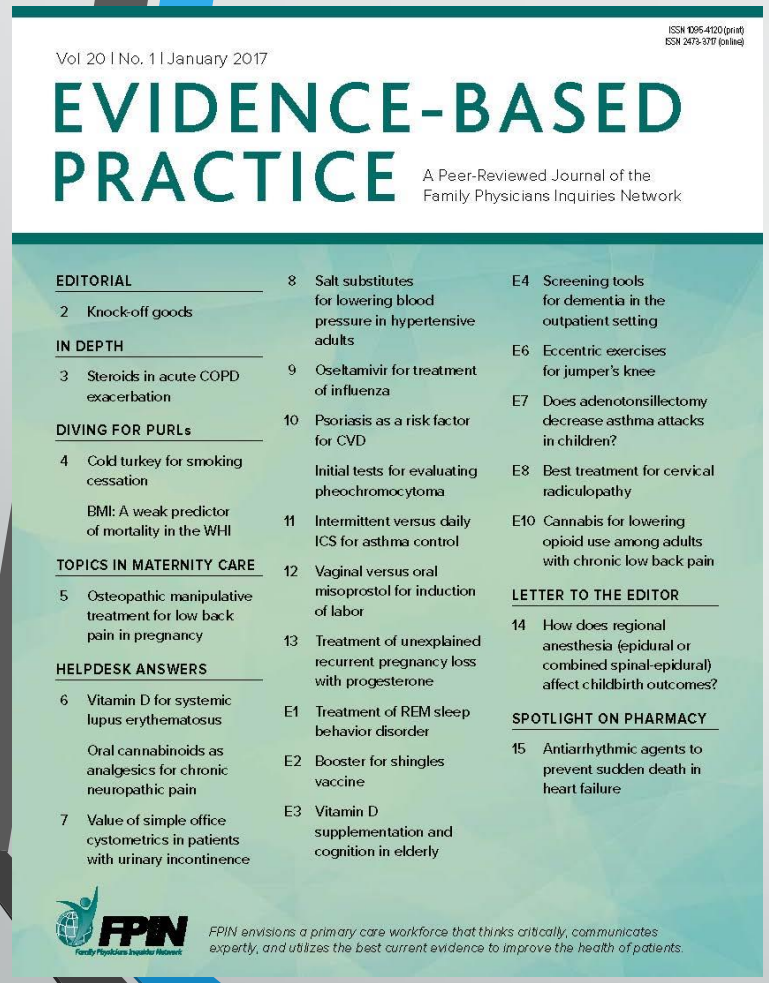

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HDAs HELPDESK ANSWERS

Does treatment with vitamin D supplementation improve patient outcomes in systemic lupus erythematosus?

EVIDENCE-BASED ANSWER

In patients with systemic lupus erythematosus (SLE) and vitamin D levels less than 30 ng/mL, oral supplementation with vitamin D 2,000 IU decreases disease activity (SOR: **B**, RCT). However, in a population of mixed vitamin D–sufficient and –insufficient patients, even high doses of vitamin D do not seem to affect disease activity (SOR: **B**, small RCT).

A 2013 RCT of 267 Egyptian patients with SLE and vitamin D levels less than 30 ng/mL (average age 39 years, 85% women; 88% follow-up) assessed whether vitamin D supplementation (2,000 IU/d) over 12 months would decrease disease activity compared with placebo as measured by the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI).[1]

Scores in the SLEDAI range from 0 to 105, with scores of 3.8 or more considered active disease.[2] The vitamin D group (n=178) and placebo group (n=89) were divided into those with baseline vitamin D deficiency (<10 ng/mL) and insufficiency (10–30 ng/mL). Within-group analysis showed the SLEDAI decreased in the vitamin D group from a mean of 4.9 before treatment to 3.2 after treatment in patients with vitamin D insufficiency (P=.01) and from 4.9 to 3 for vitamin D–deficient patients (P=.05). No significant change occurred in the placebo group (4.8–4.5 for insufficient patients and 4.9–4.6 for deficient patients). No direct comparison between the vitamin D group and placebo group was described. Limitations included low baseline disease activity and relatively low vitamin D dosing.

A 2015 crossover study of 34 northern Italian women with SLE and SLEDAI scores less than 6 (average age 32.5 years, 85% Caucasian) compared the effect of 2 vitamin D dosing protocols on disease activity.[3] Patients were randomized to receive a standard regimen (SR) of 25,000 IU cholecalciferol monthly or an intensive regimen (IR) of a 300,000 IU bolus then 50,000 IU monthly for the first year. For the second year, treatment regimens were flipped. The combined mean baseline vitamin D level was 32 ng/mL, but 36% of patients in the SR and 60% in the IR group were vitamin D insufficient.

Only 3 patients (2 in the IR group and 1 in the SR group) experienced a disease flare, with SLEDAI scores increasing to 6 to 8. Excluding these patients, no significant change in SLEDAI was noted in either group, but actual results were not reported. Limitations included selection bias for patients with inactive disease.[3]

Elise Butkiewicz, MD
Joseph Tribuna, MD
Overlook FMRP
Atlantic Health System
Summit, NJ

1. Abou-Raya A, Abou-Raya S, Helmii M. The effect of vitamin D supplementation on inflammatory and hemostatic markers and disease activity in patients with systemic lupus erythematosus: a randomized placebo-controlled trial. *J Rheumatol*. 2013; 40(3):265–272. **[STEP 2]**
2. Gladman DD, Ibanez D, Urowitz MB. Systemic lupus erythematosus disease activity index 2000. *J Rheumatol*. 2002; 29(2):288–291. **[STEP 2]**
3. Andreoli L, Dall'Ara F, Piantoni S, et al. A 24-month prospective study on the efficacy and safety of two different monthly regimens of vitamin D supplementation in pre-menopausal women with systemic lupus erythematosus. *Lupus*. 2015; 24(4-5):499–506. **[STEP 2]**

Are cannabinoids taken orally an effective treatment for adults with chronic neuropathic pain?

EVIDENCE-BASED ANSWER

The answer is unclear. Nabilone and nabiximols, as adjuncts to any stable analgesia regimen including opioids, tricyclics, and anti-inflammatory medications, reduce neuropathic pain by 1 to 2 points more than placebo on 11-point pain scales. However, nabilone is not as effective as dihydrocodeine when the 2 are compared directly (SOR: **B**, small RCTs).

In 2012, a flexible-dose, double-blinded RCT compared the efficacy of nabilone as an adjunct to the treatment of diabetic peripheral neuropathic pain versus placebo.[1] During the 4-week single-blinded run-in phase, 37 patients on a stable pain medication regimen including NSAIDs, gabapentin, tricyclic antidepressants, serotonin-norepinephrine reuptake inhibitors, opioids, or acetaminophen with pain rated more than 4 on a 0 to 10 numerical pain scale, received nabilone 0.5 to 2 mg BID.

Twenty-six patients achieved at least 30% pain relief and were advanced to the second double-blinded phase, during which they were randomly assigned to nabilone or placebo. The nabilone group continued their stable dose of nabilone

- Provides answers to questions you experience on a daily basis

Writing process

- Develop own clinical question to answer, or select question on FPIN website
- Tools on FPIN website to help guide writing process
- Peer and editorial review completed until publication ready
- Published in Evidence Based Practice
- 9-12 month total process

Survey studies

- Start with a good research question
  - Background literature search
  - Colleagues
- Introduce the survey
- Craft survey to make it effective
  - Response rate, completion rate, accuracy
- Avoid errors
  - Coverage error
  - Nonresponse error
  - Measurement error

Presenting Survey results

- Poster presentations - local or national
- Journal - see list of options

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PRiMER

peer-reviewed reports in medical education research

STFM Launches Open Access Scholarly Journal

Faculty, researchers, residents, and students now have access to a new venue for dissemination of academic research. ***Peer-Reviewed Reports in Medical Education Research (PRiMER),*** an online journal released today, publishes brief reports (1000 words or less) on original research relevant to education in family medicine and closely related areas, such as primary care, preventive medicine, and public health.

As a companion to other STFM journals, ***PRiMER*** fills a gap between the presentation of research results at conferences and the development of full-length articles suitable for submission to traditional print journals. Submitted manuscripts may evolve from conference presentations, or may communicate the results of studies or projects that are small in scope, exploratory, confirmatory, or in an early stage (eg, pilot studies).

"There have always been issues that stand between what gets published in the academic literature, and what does not," said Christopher Morley, PhD, editor in chief of ***PRiMER***. "Traditionally, papers presenting negative results, pilot studies, single-institution contexts, and so forth, have faced an uphill battle. However, if properly qualified, with limitations described, there is important knowledge to be gained from negative results, or from early hypothesis-generating work."

One of the goals of the journal is to facilitate scholarly productivity and writing skills of early-stage scholars. Dr Morley and the editorial team will provide feedback and mentoring to writers who show promise. "We will work with authors to publish original reports that are methodologically sound and empirically useful. There is certainly room for this type of journal in academic publishing."

http://stfm.cmail19.com/t/ViewEmail/j/C54ED2529EC9A0ED/0BD42FD41D6BD4749A8E73400EDACAB4

Summary

- Start with your scholarly project goals and break EBM into individual steps
- As a mentor, provide structure, support and time to resident
- Be aware of publication/presentation options for your project