Practical Tips for Practicing EBP at the Bedside

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Goals for today’s concurrent session

• Discuss strategies to integrate EBP practice meaningfully into our clinical spaces

• Discover ways to best integrate librarians into your teams or your clinical question workflow

• Examine mobile medical apps / evidence-based practice resources for use on rounds
In my previous position, I was a clinical librarian.
I joined inpatient care teams for teaching rounds.
On Mondays + Wednesdays, you’d find me rounding with General Internal Medicine. Tuesdays were for Pediatrics. And on Thursdays, I was in the ICU.
I was there to support evidence-based decision-making at the point of care and to model EBP.
What is the diagnostic and clinical utility of folate testing in the inpatient setting?

In patients with a MELD score of 28, what is the anticipated 3 month mortality?

In patients with cancer and recent pulmonary embolism and/or deep vein thrombosis, is a DOAC as safe and effective as a LMWH for preventing recurrence and incurring mortality benefit?

In sickle cell patients with several hospitalizations due to Acute Chest Syndrome, what is their overall life expectancy & prognosis?

In patients with bone marrow transplantation, what is expected time course of immune reconstitution/recovery?

In patients with AVF infection, what is the ideal duration of antibiotic treatment?
After talking about this with some clinicians here at Duke, we decided to pilot our own virtual librarian / EBP rounds
Our pilot: Virtual EBP Rounds

- Attending/EBP champion introduces the team to EBP practice
- Librarians as resources – available virtually through email/texting, with optional follow-up the next day via Zoom
- Develop a clinical question
  - Delegating task to team with guidance from attending/EBP champion
  - Send questions virtually (email/text) to the librarian
- Time Limitations
  - Short call vs Long Call vs Post Call
Example

• Patient: 65 yo M with HFrEF (EF25%), DM2, HTN, and poor access to health care p/w decompensated HF.

• Med Student Question: “Should we continue or stop home ACE-I/ARBs and beta blockers during a heart failure exacerbation”

• Evidence: ACCF/AHA guidelines and DynaMed
Management:
- during symptomatic exacerbation of heart failure requiring hospitalization in patients on chronic maintenance treatment with guideline-directed medical therapy, continuation of guideline-directed medical therapy recommended in absence of hemodynamic instability or contraindications (ACCF/AHA Class I, Level B) (Circulation 2013 Oct 15;128(16):e240) – this is the guideline...it's 88 pages (sekt), but I'm attaching for what it is worth! 😊

Treatment considerations after initial stabilization of acute heart failure

- **thromboembolism prophylaxis** with unfractionated heparin, low-molecular-weight heparin, or fondaparinux recommended unless high risk for bleeding (ACCF/AHA Class I, Level B, ACP Strong recommendation, Moderate quality evidence, ACCP Grade 1B)
  - [DynaMed Level 2](https://www.dynamed.com)
- **IMPROVE Combined Risk Calculator** predicts in-hospital risks
  - see [Deep vein thrombosis (DVT) prophylaxis for medical patients for complete information](https://www.dynamed.com)
- **start (or continue) oral beta blockers (ACCF/AHA Class I, Level B)** after optimization of volume status and successful discontinuation of IV diuretics, vasodilators, and inotropic agents; start at low dose and only in stable patients
  - **continuation of usual outpatient beta blocker regimen during hospitalization for decompensated heart failure does not appear to worsen symptoms or increase mortality or length of hospital stay**
  - [DynaMed Level 2](https://www.dynamed.com)
  - **beta blocker therapy during hospitalization for decompensated heart failure associated with lower postdischarge mortality**
  - [DynaMed Level 2](https://www.dynamed.com)
  - see **Beta blockers for heart failure** for complete information
- **start or continue angiotensin-converting enzyme (ACE) inhibitors (or angiotensin receptor blocker [ARB])** in stable patients prior to hospital discharge (ACCF/AHA Class I, Level B)
  - see **Angiotensin receptor blockers for heart failure** for complete information
  - addition of aldosterone antagonist recommended in selected patients with New York Heart Association (NYHA) class II-IV heart failure and left ventricular ejection fraction ≤ 35%, unless contraindicated, to reduce morbidity and mortality (ACCF/AHA Class I, Level A)
  - see **Heart failure with reduced ejection fraction** for additional supportive care options.
Refining the Question

Follow Up Questions from Librarian:
- Is the patient hemodynamically stable?
- Any contraindications?
- Has the patient been stabilized in terms of their acute heart failure?

Final Question: In patients admitted to the hospital with HFrEF does an initiation of an ACEi prior to discharge improve 30 day mortality?
The Search – Going beyond point-of-care tools

• In PubMed:

(Systolic Heart Failure OR HFrEF OR heart failure reduced ejection fraction) **AND** (ACE inhibitor OR ACE inhibitors OR ACEi OR Angiotensin converting enzyme inhibitors OR lisinopril OR Benazepril OR Captopril OR Enalapril OR Fosinopril OR Lisinopril OR Moexipril OR Perindopril OR Quinapril) **AND** (hospitalization OR hospitalized OR inpatient OR inpatients)
Answers

Here are some papers I identified; I’ve also attached them to this email.
--this seems to address your outcome of interest (mortality) as well as others

--this is more of a narrative review, but it is very well done.

Wasn’t sure if these would be related/useful:
[https://openheart.bmj.com/content/7/2/e001228.long](https://openheart.bmj.com/content/7/2/e001228.long)

What We Learned

• Teams may need guidance to form a clinical question
• Varied interest
• Teams liked seeing how to search
• Introduced team to available resources beyond UpToDate
• Closing the loop is important!
How to start practicing EBP on rounds...
Create a safe space that allows for inquiry + questioning
Promote the use of PICO
Use the parking lot
Use the right tool/app for the question
If possible, involve your medical librarians
Close the loop
Mobile Apps – beyond UpToDate
Apps

- Point of Care Tools: UpToDate, DynaMed, MDCalc (free)
- Guidelines: USPSTF (free), Guideline Central (free)
- Drugs: Lexicomp, Johns Hopkins ABX guide, Micromedex
- Searching PubMed: UCentral – their PRIME PubMed (free) search is good and includes Clinical Queries; new PubMed is also mobile-optimized (just be sure to access through your institution)
- Finding landmark studies (great for IM/critical care): Journal Club ($ for app; Journal Club wiki website is free)
- EBM Calculators found in: Mediquations ($), EBM stats calc, MedCalc (free and $), and more
- Other EBM apps: Diagnose (free) + EBPC (free)
Q. Is there a good evidence-based resource that lists out important info such as Predictive Value, SN/SP, Likelihood Ratios, NNT, and other metrics for tests, studies, and findings?

A. Yes! The Evidence Based Patient Care (EBPC) app
EBPC app

The Evidence Based Primary Care (EBPC) app aims to provide metrics and probability calculations for a large number of laboratory, imaging, symptoms, and physical findings in order to enhance medical decision making.
EBPC app

The app also provides statistical calculations for history and physical exam findings and laboratory and radiology tests.
EBPC app

Depending on which option you have chosen, your selection (disease, test, or finding of interest) may lead you to one calculator or multiple calculators.
EBPC app

Once you have chosen the calculator most relevant to your inquiry, you are taken to that calculator’s home screen. All calculator screens are structured the same. The disease of interest is listed on the top with the test or finding listed just below.

Enter your pre-test probability.

The bottom portion of the screen gives the html address to the article used to provide relevant metrics (sensitivity, specificity, predictive values, and likelihood ratios).

2004 systematic review totaling 78 studies. Diagnostic standards for DVT were mostly compression ultrasonography, venography, or both.
Q. Is there a good evidence-based resource that allows users to incorporate validated findings from the history, physical examination and investigations to calculate an evidence-based likelihood of disease?

A. Yes! The Diagnose app
Diagnose app

• Adjust your pre-test probability using the slider. The pre-test probability supported by current literature is provided as a starting point.

• Input the positive and negative findings from your workup. Tapping on the row will toggle through the positive, negative, and unknown state.

• The post-test probability is calculated and displayed at the bottom.
A mobile way to search PubMed – uCentral!
EBM Calculators!

Relative Risk 0.188
95% CI [0.055, 0.361]

Relative Risk Reduction 81.2 %
95% CI [31.6, 94.5]

Absolute Risk Reduction 4.3 %
95% CI [1.5, 7.9]

Number Needed to Treat 24 patients

Significant (95% CI)
Remember: most of you have a librarian or two at your institutions.

Reach out.