Evidence Based Medicine: Using Mobile and Web Based Resources for Clinical Practice

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Evidence-Based Medicine

“Look it up....”

• What is the question?
• Where to find the answer that is valuable in that situation.
• Sorting through the information glut.
Usefulness of Information Equation

\[ U = \frac{V \times R}{W} \]

- \( U \) = usefulness
- \( V \) = validity
- \( R \) = relevance
- \( W \) = work to access and understand

From work by David Slawson and Allen Shaughnessy

PubMed Guide to Searching Medical Research Literature

[See NOTES]
Clinical Practice Guidelines

Who said.....??
What are consensus statements and clinical practice guidelines?

• A consensus statement is a document representing the collective opinion of a panel of experts that is convened to review the research literature on a particular topic.

• Clinical practice guidelines are similar but they go a step further by providing specific algorithms for practice.

• Both are meant to assist in evidence-based clinical decision making.

• AHRQ National Guideline Clearinghouse, includes guideline syntheses and a tool for comparing guidelines (http://www.guideline.gov/).

• Pubmed search limited to “practice guideline”.
Where does UpToDate fit in?

- UpToDate articles represent the opinions of the authors.
- Authors are asked to provide adequate details of the studies upon which their opinions are based.
- Most authors will cite available practice guidelines.
This is not cookbook medicine
Tools for mobile devices

- PubMed4Hh: Mobile Pubmed, PICO Linguist
- UpToDate

(See handout from library on SOLE).

- Clinical Use of mobile devices....
  - Preceptor and/or patient perception of use.....
  Explain to preceptor or patient
  Do not use it in patient room unless it is urgent
  (while you are out of the room or even when you are in
   room, patient may be looking up what you are saying)
How to Make a Question: PICO

- **Patient or Population and/or Problem**
- **Intervention**
- **Comparison**
- **Outcome**
What Type Question?

I need:

1. an overview
2. a “synthesis” of best practice recommendations
3. an answer to a narrow question that isn’t addressed in the synthesis resources
4. drug information
5. evidence-based information about alternative therapies
6. information to share with patients
I need:
an overview of a particular
disease, condition
background information

Example:
What’s the difference between
depression and bipolar disorder?
I have a new patient with sickle cell
anemia; I need an overview of this
condition.

Resources to consider:
What’s the latest on the management of
panic disorder?
What’s the best method of pain control in
children?

a “synthesis” of best practice
recommendations for disease
management
(critically-appraised topics)

In a 70 year old woman with primary
insomnia and a previous adverse reaction
to hypnotics, can cognitive behavior
therapy improve sleep quality and
duration?
In a toddler with croup, does
dexamethasone (or other glucocorticoids)
reduce symptoms better than standard
supportive care?
What is the pediatric dosage of
erthromycin for strep throat?
What drugs have been approved by the
FDA for the treatment of Alzheimer’s?

an answer to a narrow question
that isn’t addressed in the
synthesis resources
(critically-appraised articles and
unfiltered information)

drug information

evidence-based information about
alternative therapies

Is melatonin safe and effective for
treating insomnia?
Does music therapy help surgical patients
heal faster?

information to share with patients

Where can I find some nutrition
information for my newly-diagnosed
patient with diabetes?
<table>
<thead>
<tr>
<th>I Need:</th>
<th>Consider Websites:</th>
<th>Consider Apps:</th>
<th>Consider Books:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview of disease or condition; background information</td>
<td>Medscape</td>
<td>Medscape</td>
<td>The following books are available at SWC sites. They are also available in the electronic format in Clinical Key, R2 or LWW.</td>
</tr>
<tr>
<td></td>
<td>ClinicalKey</td>
<td>UpToDate</td>
<td>Ferri: Practical Guide to the Care of the Medical Patient. 2014 (ClinicalKey)</td>
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<tr>
<td></td>
<td>UpToDate</td>
<td>Pubmed</td>
<td>Goldman: Goldman's Cecil Medicine. 2012 (ClinicalKey)</td>
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<tr>
<td></td>
<td>PubMed</td>
<td>UpToDate</td>
<td>Kliegman: Nelson Textbook of Pediatrics. 2011 (ClinicalKey)</td>
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<td></td>
<td>The Cochrane Library</td>
<td>Pubmed 4Hh</td>
<td>Johns Hopkins: The Harriet Lane Handbook. 2015 (ClinicalKey)</td>
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<tr>
<td></td>
<td>The TRIP Database</td>
<td></td>
<td>Case Files in Psychiatry. 2012 (R2)</td>
</tr>
<tr>
<td>An answer to a narrow question that isn’t addressed in the synthesis resources (unfiltered information)</td>
<td>PubMed</td>
<td>Pubmed 4Hh</td>
<td>Marx: Rosen's Emergency Medicine. 2009 (ClinicalKey)</td>
</tr>
<tr>
<td></td>
<td>ClinicalKey</td>
<td></td>
<td>Hacker and Moore’s Essentials of Obstetrics and Gynecology. 2010 (ClinicalKey)</td>
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<tr>
<td>Drug information</td>
<td>Drug Information Portal</td>
<td>Epocrates</td>
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<td></td>
<td>CDC Vaccines</td>
<td>JHU ABX Guide</td>
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<td></td>
<td>Vaccines.gov</td>
<td>Shots by STFM</td>
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<td></td>
<td>Shots by STFM</td>
<td>Micromedex</td>
<td></td>
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<tr>
<td>Information on availability of clinical trials</td>
<td>ClinicalTrials</td>
<td>ClinicalTrials</td>
<td></td>
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<tr>
<td>Information to share with patients</td>
<td>CDC</td>
<td>UpToDate</td>
<td></td>
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<tr>
<td></td>
<td>Non-profit organization supporting specific disease</td>
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<td></td>
<td>USA Health Publications</td>
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<td></td>
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</tbody>
</table>

Adapted from Dartmouth University “Finding Good Answers” handout. Updated July 16, 2014
<table>
<thead>
<tr>
<th>Author</th>
<th>Population</th>
<th>Findings</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kellogg, et al 2004 current as of 06 2006</td>
<td>36 pregnancy adolescents females evaluated for abuse</td>
<td>2 of 36 had findings of abuse</td>
<td>Vaginal penetration generally does not result in observational evidence of healed injury to peri hymenal tissue</td>
</tr>
<tr>
<td>Heger et al 2002</td>
<td>2384 children evaluated for abuse 2 decades of results 5 year study</td>
<td>96% had normal medical exams including disclosed abused, behavioral changes exposure to abuse or medical condition 95% reporting abuse normal 99% referred for behavioral changes or exposure to abuse were normal Of 182 referred for medical conditions, 92% normal 8% with stds normal exam</td>
<td>4% of children referred for medical eval of SA Histories form the child remains the single most important diagnostic feature.</td>
</tr>
<tr>
<td>Heger et al Heppenstall-Heger</td>
<td>13 boys and 81 girls injuries as a result of a sexual assault or anogenital trauma.</td>
<td>Only 2 of 39 cases of peri hymenal trauma healed with vascular changes.</td>
<td>Most injuries heal without scarring</td>
</tr>
<tr>
<td>Adams, 1994</td>
<td>236 children with the purp convicted for sexual abuse were review. Blind reviewers viewed the photos</td>
<td>Only 14% of the cases were viewed as abnormal</td>
<td>Abnormal genital findings are not common in sexually abused girls</td>
</tr>
<tr>
<td>Pillai 2008</td>
<td>Review of recent literature 10 papers</td>
<td>Genital injuries generally heal rapidly and most heal without residua Hymen healing does not leave scarring but may have scarring or vascular changes to surrounding tissues</td>
<td></td>
</tr>
<tr>
<td>Child Abuse and Neglect 1998</td>
<td>Follows the unusual rapidly healing process of hymens</td>
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<tr>
<td>I NEED:</td>
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<tr>
<td><strong>Overview of disease or condition; background information</strong></td>
<td>Describe the pathophysiology of the disease and the history of the disease. Pictures of peripheral smear, diagnostic criteria, and clinical presentation including labs. Differentiate between a CBC of a patient that present with DBA and a patient that present with acute lymphoid leukemia.</td>
<td></td>
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</tr>
<tr>
<td><strong>A synthesis of best practice recommendations for disease management</strong></td>
<td><em>(critically-appraised topics)</em> Standard of care for treating DBA.</td>
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</tr>
<tr>
<td><strong>An answer to a narrow question that isn’t addressed in the synthesis resources</strong></td>
<td><em>(critically-appraised articles &amp; unfiltered information)</em> What to do when the usual treatment fails.</td>
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</tr>
<tr>
<td><strong>Drug information</strong></td>
<td>What drugs and at what dose for a 20 kg child?</td>
<td></td>
<td></td>
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<tr>
<td><strong>Evidence-based information about complementary and/or alternative therapies</strong></td>
<td>Any clinical trials?</td>
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<tr>
<td><strong>Information to share with patients</strong></td>
<td>Information for the parents about Diamond Blackfan Anemia</td>
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</tbody>
</table>

Adapted from Dartmouth University “Finding Good Answers” handout
Meet Haley!
Case 1

Your next patient has a diagnosis of Diamond Blackfan Anemia.
Your preceptor has ask you to:

1. Describe the pathophysiology of the disease and the history of the disease. Pictures of peripheral smear, diagnostic criteria, and clinical presentation including labs.
2. Standard of care for treating DBA.
3. What drugs and at what dose for a 20 kg child?
4. What to do when the usual treatment fails
5. Any clinical trials?
6. Differentiate between a CBC of a patient that present with DBA and a patient that present with acute lymphoid leukemia
7. Information for the parents
Counting Down the Days
Post BMT and First Set Of Immunizations!
2. Clearing House
3. ePPS Application

Use cards
Look up and Down Load!
ePPS

- Age: 77
- Sex: Female
- Pregnant: No
- Tobacco user: No
- Sexually active: No
- Does she need colorectal screening?
"Must" corresponds to "Level A," very strong recommendations; "should" to "Level B," strong recommendations; and "might" to "Level C," weak recommendations.

<table>
<thead>
<tr>
<th>Level</th>
<th>Recommendation</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>A strong recommendation that the clinicians provide the intervention to eligible patients. Good evidence was found that the intervention improves important health outcomes and concludes that benefits substantially outweigh harm.</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>A recommendation that clinicians provide (the service) to eligible patients. At least fair evidence was found that the intervention improves health outcomes and concludes that benefits outweigh harm.</td>
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<tr>
<td><strong>C</strong></td>
<td>No recommendation for or against the routine provision of the intervention is made. At least fair evidence was found that the intervention can improve health outcomes, but concludes that the balance of benefits and harms is too close to justify a general recommendation.</td>
<td></td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>Recommendation is made against routinely providing the intervention to asymptomatic patients. At least fair evidence was found that the intervention is ineffective or that harms outweigh benefits.</td>
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<tr>
<td><strong>I</strong></td>
<td>The conclusion is that the evidence is insufficient to recommend for or against routinely providing the intervention. Evidence that the intervention is effective is lacking, or poor quality, or conflicting, and the balance of benefits and harms cannot be determined.</td>
<td></td>
</tr>
</tbody>
</table>
Bugs and Drugs

What is the most prevalent microorganism for skin in Lewisburg West Virginia and what Antibiotic kills it?

http://www.epocrates.com/e/BugsAndDrugs

(Ipad or I phones only)
Additional Resources

• Finding Evidence-Based Answers to Clinical Questions – Quickly and Effectively
  • [http://www.dartmouth.edu/~biomed/resources.html#guides/ebm_resources.shtml](http://www.dartmouth.edu/~biomed/resources.html#guides/ebm_resources.shtml)
  • See also the Biomedical Libraries’ [Evidence-Based Medicine Research Guide](http://www.dartmouth.edu/~library/biomed/guides/research/ebm-teach.html)
  • [http://www.dartmouth.edu/~biomed/services.html#EBP_docs/evidencecycle.pdf](http://www.dartmouth.edu/~biomed/services.html#EBP_docs/evidencecycle.pdf)