INTER-PROFESSIONAL COMMUNICATIONS
CLINICAL INFORMATICS

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OVERVIEW

• Integrated Clinical Informatics Concept explained
• Information Needs of a Clinician
• Approaching a clinical query
• Demonstration of high-quality evidence-based inter-professional resources
• Example Case
"DYNAMIC NATURE" OF HEALTH KNOWLEDGE

• Health Resources are changing at an enormous pace
• Volume of medical literature is expanding at a rate of greater than 7% per year, doubling approximately every 10-15 years\(^1\)
• PubMed has over 22 million citations
• 777,559 citations were added in 2012 and each year this number goes higher
• Clinicians are seeing more patient an hour now
• Time for keeping up-to-date is short
TO PROVIDE EFFECTIVE PATIENT CARE IN THIS INFORMATION AGE
WE NEED TO:

- Learn to get latest health information
- Learn to separate best health information from information overload
- Use this best health information at point of care while seeing patient
- Understand patient preferences and values
A PARADIGM SHIFT FOR CLINICIANS

• From Memory Repositories
  • Holders of a unique body of information

• To Information Managers
  • Continually learning and updating their approach to medical care as medical knowledge continues to evolve
WHAT IS EVIDENCE-BASED MEDICINE / DENTISTRY?

• Evidence-Based Medicine/Dentistry is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.

• Integrates:
  • Clinical Expertise
  • Clinical Research Evidence
  • Patient Values/Preferences
THE CLINICIAN OF THE FUTURE

• “I know a lot, therefore I am”
  (replaceable by a computer)

• “I think, therefore I am”
INFORMATION MASTERY

Usefulness of Clinical Information

\[ \text{Relevance} \times \text{Validity} \]

= Work

- Relevance
  - Whether it changes patient outcomes

- Validity
  - Truthfulness of the evidence

- Work
  - How quickly is the data obtained?
POEMS

- Patient Oriented Evidence that Matters
- Describes the kind of evidence that is most relevant for physicians to know
  - Deal with problems they face in practice
  - Demonstrate improved patient-oriented outcomes
    - Mortality, Morbidity, Quality of Life
  - Change their current practice
DOE

- Disease Oriented Evidence
- Describe the kind of evidence that is least relevant for physicians
  - Uses intermediate or disease-oriented outcomes
    - Pathophysiology, Pharmacology, Etiology
  - This kind of evidence should not change or guide practice because it is premature
DOE VS POEM

• DOE
  • Deals with pathophysiology, pharmacology, etiology
    • Example: Drug A decreases PVCs

• POEM
  • Deals with morbidity, mortality, quality of life
    • Example: Drug A increases mortality
TWO APPROACHES TO EBM/D

• Traditional EBM/D

Ask a Clinical Question

Search Medline & other Literatures

1. Appraise **Validity** of info.
2. Understand the results
3. Evaluate for **Relevancy** for your patient

Apply for patient care

• Information Mastery

Ask a Clinical Question

Search **Systematic Reviews & Meta-Analyses**

1. Are the results **Relevant**?
2. Would results, if valid change the practice?
3. Is information **Valid**?

Apply for patient care
INFORMATION WANTS OF A PHYSICIAN

- Answer to Specific Clinical Question
- General Medical Question
- Preventive Guidelines
- Immunization
- Drug information
- Travel Health
Formulate an answerable question

Specific Clinical Question?

Yes

Therapy = Randomized Control Trials
Diagnosis = Randomized Control Trials
Prognosis = Cohort Studies
Causation/Harm = Cohort or Case-Control Study

No

Identify Information Need Type

Identify appropriate resources

PICO
P = Patient Population
I = Intervention
C = Comparison
O = Outcome

Identify Question Type

Approaching a clinical query
SEARCHING HEALTH INFO EFFECTIVELY

• Ways to narrow your searches on Google
  • Keyword search
    • Enter in all keywords to produce focused search
    • Example: complication cardiac catherization
  • Searching for a phrase
    • Enclose the phrase within quotation marks
    • Particularly effective if you're searching for proper names
    • Example: “food and drug administration” “diabetic foot”
SEATING HEALTH INFO EFFECTIVELY

• Ways to narrow your searches on Google
  • Excluding terms
    • If search term has more than one meaning in different context, you can focus your search by putting a minus sign ("-") in front of words related to meaning you want to avoid
    • Example:
      • For finding information on numbness not related to diabetes:
        • Numbness –diabetes
  • Also can use Google Advanced Search
TOOLS FOR MASTERYING INFORMATION¹

- A method of being *alerted* to new information
  - *Google Alerts, Pubmed RSS Feed*
- A tool for *finding* the information again when you need it.
- Without both:
  - You don’t know that new info. is available
  - You can’t find it when you do need it

ALERTING SERVICES

- **PubMed** (My NCBI) (Medical Literature)
- **Google Alerts** (News)
- eTOCs
  - American Family Physician
  - American Journal of Psychiatry
  - NEJM
  - JAMA
  - Evidence-based Dentistry
www.rowan.edu/som/cim/resources.htm

CENTER FOR INFORMATION MASTERY

RESOURCES

Mobile Friendly Information Mastery Website

Evidence-Based Custom Search Engine

Google™ Custom Search

Select from list below:

General Questions
Specific Clinical Questions
Prevention
Drugs
Immunization
Travel Health
Derm Atlas
Research Database
Medical Calculators
Patient Handouts

IN THE NEWS

News by Specialty
Source: MD Consult

Today’s Health News

Updated:

Two Generic Versions
In some patients, the medications were released more slowly than extended-release Concerta
Publ.Date: Fri, 14 Nov 2014 12:00:00 EST

Safe, Successful Kidney Dialysis Possible in Ebola Patients
Emory doctors report on successful and safe protocol
Website for Specific Clinical Questions

Back to Resource

- **Cochrane Library *****  
  [www.thecochranelibrary.com](http://www.thecochranelibrary.com), [Free RowanSOM Link](#)  
  Includes full text of the systematic reviews of the effects of healthcare prepared by the Cochrane Collaboration.

- **Dynamed**  
  [www.dynamicmedical.com](http://www.dynamicmedical.com), [Free RowanSOM Link](#)  
  A medical information database with 1,800 clinical topic summaries. Designed for use at the point of care, providing best available evidence and updated daily. To obtain a serial number: Send an e-mail request to dynamedsupport@ebscohost.com. Please include your full name and the name of your institution. Specify the type of device you are using and a serial number will be emailed to you within 24 hours. Or, ask for a serial number from your campus library’s information desk.

- **Essential Evidence Plus *****  
  [Mobile Link](#), [Free RowanSOM Link](#)  
  Essential Evidence Plus is the only evidence-based, point-of-care clinical decision support system that gives you access to over 13,000 topics, guidelines, abstracts, and summaries.

- **FIRST Consult ****  
  [www.firstconsult.com](http://www.firstconsult.com), [Free Rutgers Stratford Link](#)  
  A web and PDA based clinical information system that provides continuously updated, evidence-based guidance on the latest in patient evaluation, diagnosis, and management. Designed for rapid access at the point of patient care.

- **MDConsult**  
  [www.mdconsult.com](http://www.mdconsult.com), [Free Rutgers Stratford Link](#)  
  MDConsult provides searchable, full-text access to over 50 of the world’s most important medical journals, a collection of over 40 reference books, more than 1000 clinical practice guidelines, and almost 3,500 customizable patient education handouts. It also includes full-text drug information.

- **Clinical Key**
PREVENTIVE GUIDELINES resources

Electronic Preventive Services Selector (ePSS)
- Recommendations for Preventive Pediatric Health Care (PDF)
- Men: Stay Healthy at 50+
- Women: Stay Healthy at 50+
- Men: Stay Healthy at Any Age (en español)
- Women: Stay Healthy at Any Age (en español)
Drug & Herb Information

Online Drug Reference

- Drug Information Portal
- MD Consult - Drugs (Rutgers Stratford)
- ePocrates online
- PDR.net (FREE - Registration Required)
- FDA MedWatch

Drug-Drug or Drug-Herb Interaction Tools

- ePocrate online
- DrugDigest - Check Interactions
A 29 year old pregnant female with poor dentition presents to primary care office with a tooth ache.
FORMULATING QUESTION

• Why Bother?
  • This process helps you to obtain a “Relevant Answer”
  • This process helps you understand the question and makes you concentrate
  • It will help you identify a relevant path of sources
The Elements of a Well-Formulated Question

Patient or Population
- Who is the question about?

Intervention or Exposure
- What is being done or what is happening to the patient?

Comparison(s)
- What could be done instead of the intervention?

Outcome(s)
- How does the intervention affect the patient?
FORMULATING QUESTION

- As it relates to our case:
  - **Patient or Population**
    - Pregnant patient
  - **Intervention or Exposure**
    - Dental procedure or Dental X-ray
  - **Comparison(s)**
    - Delay care until delivery
  - **Outcome(s)**
    - Dental Pain or Deterioration of tooth/gums
FORMULATING QUESTION

• As it relates to our case:
  • Is it safer to perform dental x-ray or provide routine dental care in pregnant female to reduce dental pain?
SEARCH STRATEGY

- Search for the PATIENT / POPULATION and INTERVENTION elements first
- Include the OUTCOME(S) and/or COMPARISON(S) to narrow your search, if necessary.
- So, you would start with:

Dental X-ray or Dental Procedure AND Pregnancy
FINDING EVIDENCE

- Use the Hierarchy of Evidence
- Use Level of Evidence (1 being best)
- Pay attention to POEMs
SUMMARY

• Formulate an answerable searchable questions using PICO mnemonic whenever there is a question at point of care

• Search for evidence that is appropriate for the question type
  • Practice, practice, practice searching skills to acquire relevant and valid information
THANK YOU

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www.rowan.edu/som/cim