Decision Making within a Health System: CEP and the Role of Information Retrieval

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May 5, 2013
Penn Medicine Center for Evidence-based Practice: Mission and Approach

“To support the quality, safety and value of patient care at Penn through evidence-based practice.”

- Perform reviews of medical literature to inform clinical policy, practice and decision-making
- Offers education in evidence-based medicine to:
  - Faculty
  - Staff
  - Trainees
  via formal courses in systematic reviewing, critical appraisal and informal instruction during clinical rounds
- Provide oversight for computerized clinical decision support (CDS) activities at Penn and collaborate with key stakeholders to develop, implement and measure the impact of CDS interventions

Penn Medicine CEO

Penn Medicine CMO

Center for Evidence-based Practice

Clinical Effectiveness & Quality Improvement

Graduate Medical Education

Office of Medical Affairs

Office of Patient Affairs

Patient Safety Officers

Regulatory Affairs

Infection Control

Director

Administrative Assistant

Research Analysts: 3 positions

Liaisons: 7 clinical, 3 library

Co-Director

Health Economist

Biostatistician

Clinical Decision Support Officer

Total staffing: 5.5 FTE

Annual budget: ~$750,000

http://www.uphs.upenn.edu/cep
Who requests reports from CEP?

- Clinical departments
- Chief Medical Officers
- Nursing administration
- Quality and safety committees
- Pharmacy and therapeutics committees
- Purchasing committees
- Information technology committees
- Administrative departments
- Others…
What technologies does CEP typically address?

FY07-FY12

<table>
<thead>
<tr>
<th>Category</th>
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<tr>
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What types of reports does CEP produce?

Evidence Reviews
- Systematic reviews of *primary studies* to inform decisions

Evidence Advisories
- Systematic reviews of *guidelines and other evidence reviews* to inform decisions

Evidence Inventories
- Systematic review of literature to scope the evidence base
- Identifies the quantity and nature of available evidence

Clinical Practice Guidelines
- Developed alongside task force of key stakeholders
- All guidelines involve first conducting an evidence review

Special Reports
Every project begins with a protocol...

Center for Evidence-based Practice: Protocol for Systematic Review

**SPECIFIC AIM:**

**METHODS:**

Inclusion and exclusion criteria
- Participants:
- Interventions:
- Comparisons:
- Outcomes:

Data collection
- Databases:
- Study designs:
- Study quality assessment:

Data synthesis
- (e.g., relative risks and confidence intervals, meta-analyses, exploration of heterogeneity)

Assessment of quality of evidence base
- (e.g., CEP designed tools, GRADE)

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Searches depend on a number of factors...

- Inquiry topic
- Complexity of question(s)
- Level of detail desired by stakeholder
- Database indexing
- Project timeline

Goal: Locate the highest quality of evidence available, with the best balance of sensitivity and specificity
Example of a recent Evidence Review

**Controlled Medication Agreements for Opioid Use in Chronic Pain**
(Leas & Goldmann, 2013)

**Specific aim:** Evaluate the use and impact of controlled medication agreements (CMAs) for chronic pain patients receiving opioid therapy

**Study designs included:** Systematic reviews, RCTs, observational studies, case reports

**Participants:** physicians and patients who enter into CMAs to manage opioid treatment for chronic pain

**Intervention:** CMAs

**Outcomes:** utilization of an agreement, patient use and misuse of prescribed opioids

**Databases:** Medline, EMBASE

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Search strategy employed...

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Additional Evidence Reviews

- Routine replacement of peripheral intravenous catheters
- Intravenous or rectal acetaminophen for post-operative pain
- Relationship between hemoglobin A1c levels and complications after elective hip and knee surgery
- Hourly rounding and other interventions to improve patient satisfaction associated with nursing responsiveness
- Securement devices for peripherally inserted central venous catheters (PICC) and midline catheters
- Biliary drainage for chemotherapy patients
- Comparative effectiveness of troponin tests for diagnosis of myocardial infarction
- Inpatient pharmacist interventions: impact on ED visits, readmissions, length of stay, mortality, patient knowledge, medication adherence, and patient satisfaction
Advisories, Inventories & Special Reports

Evidence Advisories

- Synthetic fleece (Polartec) attire and peri-op infections: update
- Supplementary feedings for healthy breastfed full-term infants
- Guidelines for use of screening and preventive services
- Implantable cardiac devices: implications for outpatient endoscopy

Evidence Inventory

- Community health worker impact on patient sat and readmission
- Reducing pneumonia readmissions

Special Reports

- Post-discharge telephone calls to reduce hospital readmissions
- Defining and measuring preventable readmissions
Sources of information

- Cochrane Library
  - Systematic Reviews
  - CENTRAL
  - Health Technology Assessment Database
  - DARE

- National Guideline Clearinghouse

- MEDLINE

- EMBASE

- CINAHL

- Government websites

- Professional society websites

- Organization websites
Biggest challenge:

TIME

From Analyst assignment to draft report:

~ 4 – 6 weeks