A Hospital-focused Evidence-based Practice Center Creates and Adapts Clinical Guidelines for Local and National Use

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Organization of the center
• The University of Pennsylvania Health System consists of 3 teaching hospitals, 2 primary care and specialty networks, a rehabilitation facility, hospice, and a home health agency.
• Given UPHS’s size, the potential for practice variations is high.
• Practice variations can adversely affect the quality, safety, and value of care.
• The Center for Evidence-based Practice (CEP) opened in July 2006 to reduce unnecessary variations in care and maximize the value of each dollar spent on care.
• CEP synthesizes scientific evidence to inform decisions regarding clinical practice, formularies, and purchases.
• CEP’s primary financial support comes from the office of the Chief Medical Officer.

Staffing and resources
Two physician co-directors
Trained in clinical epidemiology
Regular patient care responsibilities in our hospitals
Three full-time research analysts
Doctoral-level training
Diverse backgrounds: health policy, nursing, & biophysics
Four physician and nurse liaisons
Clinical leaders at the hospitals and outpatient practices
Bring topics needing review to CEP’s attention
Help disseminate report findings back to their institutions
Two clinical liaison librarians
Assist with searching for and acquiring evidence
Assist with information management
Teach evidence-based practice methods to library users
Consulting partners
• Biostatistician
• Health economist
Administrative assistant
Total staffing: 5.5 FTE

CEP evidence report products
Evidence Reviews (57% of projects)
• Full search for primary and review articles
• Evidence tables
• Meta-analysis where appropriate
Evidence Advisories (30% of projects)
• Narrow search, mainly for reviews & guidelines
• Summary of findings
Evidence Inventories (< 5% of projects)
• Report the quantity and nature of evidence
• Helps scope future reports
Guideline projects (standalone) (8% of projects)
How does a hospital evidence-based practice center differ from a national evidence-based practice center?

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Hospital-based center</th>
<th>National center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example center</td>
<td>UPHS Center for Evidence-based Practice</td>
<td>AHRQ-designated EPC, Federal HTA agency (non-US)</td>
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<tr>
<td>Priorities</td>
<td>Set by clinical and administrative leaders in the hospital</td>
<td>Set by national policymakers and researchers</td>
</tr>
<tr>
<td>Emphasis</td>
<td>Quality and safety of care Areas related to unsatisfactory performance on benchmarks</td>
<td>Conditions affecting large numbers of patients Cost of care, dissemination of new technology</td>
</tr>
<tr>
<td>Funding</td>
<td>Mostly internal, some federal and grant funding</td>
<td>Federal (national health system or US government agency)</td>
</tr>
<tr>
<td>Scope of reports</td>
<td>Narrow (e.g. telephone calls to improve medication adherence)</td>
<td>Broad (e.g. all interventions to improve medication adherence)</td>
</tr>
<tr>
<td>Turnaround time</td>
<td>2-12 weeks</td>
<td>12-24 months</td>
</tr>
<tr>
<td>Cost evaluations</td>
<td>Possible, hospital perspective with specific local data</td>
<td>Common at non-US centers, societal perspective</td>
</tr>
<tr>
<td>Data sources</td>
<td>Published evidence, local experience</td>
<td>Published evidence only</td>
</tr>
<tr>
<td>Searches</td>
<td>Comprehensive but focused</td>
<td>Comprehensive and broad</td>
</tr>
<tr>
<td>Methods</td>
<td>Pragmatic, best-evidence approach</td>
<td>Formal, scripted approach</td>
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<tr>
<td>Dissemination</td>
<td>Integration into local guidelines and clinical decision support</td>
<td>Integration into national reimbursement policies and guidelines Peer reviewed publications (most topics)</td>
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<tr>
<td>Impact measurement</td>
<td>Simple evaluations of changes in practice patterns</td>
<td>Large-scale evaluations requiring additional funding</td>
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Sample topics

**Process of care**
- Guidelines for admission to long-term acute care hospitals
- One to one nursing care for patient safety
- Management of acute lower GI bleeding
- Symptom-triggered vs. fixed-schedule treatment in alcohol withdrawal syndrome

**Device**
- Antimicrobial sutures for preventing surgical site infections
- Portable intermittent compression devices to prevent VTE
- Indications for robotic-assisted surgery

**Drug**
- Hyperthermic intraperitoneal chemotherapy
- Safety and effectiveness of rhBMP-2 for spinal fusion

**Diagnostic Test**
- Brief screening tests for depression in ED patients
- Use of ultrasound for diagnosis of DVT in asymptomatic patients

**Other**
- Physician compensation and medical professionalism
- Defining preventable readmission

Users of CEP evidence reports

<table>
<thead>
<tr>
<th>Source of report requests</th>
<th>FY 2006-09</th>
<th>FY 2009-12</th>
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<tbody>
<tr>
<td>Clinical department</td>
<td>18 (24%)</td>
<td>29 (22%)</td>
</tr>
<tr>
<td>Chief Medical Officer</td>
<td>11 (15%)</td>
<td>32 (24%)</td>
</tr>
<tr>
<td>Quality/Safety committee</td>
<td>10 (14%)</td>
<td>20 (15%)</td>
</tr>
<tr>
<td>Purchasing committee</td>
<td>23 (31%)</td>
<td>9 (7%)</td>
</tr>
<tr>
<td>P &amp; T committee</td>
<td>5 (7%)</td>
<td>13 (10%)</td>
</tr>
<tr>
<td>Other (includes nursing, administrative, IT)</td>
<td>7 (9%)</td>
<td>29 (22%)</td>
</tr>
<tr>
<td><strong>Total reports</strong></td>
<td><strong>74 (100%)</strong></td>
<td><strong>132 (100%)</strong></td>
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How do you contact CEP or obtain reports?

Online: www.uphs.upenn.edu/cep
E-mail: craig.umscheid@uphs.upenn.edu
Phone: 215-662-2463
Address: 3535 Market Street, Suite 50, Philadelphia, PA 19104

Dissemination

- CEP intranet site
- PROVE (Penn Reviews of Value & Effectiveness) and InfoPOEMS e-mails to clinical staff
- Clinical decision support
- In-person presentations to clients and stakeholders
- National Guideline Clearinghouse
- Health Technology Assessment database (searchable via Cochrane Library)
- Peer-reviewed publications

Clinical decision support

- 35 of our reports have been integrated into inpatient and outpatient electronic medical record systems to make evidence available at the time and place where clinical decisions are made.
- For example, our Evidence Advisory on transfusion thresholds identified existing guidelines.
- Those recommended indications for transfusion are presented in the inpatient EMR screen for ordering RBCs. The physician must check one of those indications or specify the rationale for transfusion.
- Since the CDS screen went live, 15% fewer patients were transfused and total RBC orders decreased 21%.

Education

- Lead decision-making course for med students
- EBM elective available to residents
- Participation in Clinical Investigator Toolbox and Healthcare Systems Leadership resident programs
- Lead systematic review and meta-analysis course for residents and fellows (in MSCE program)
- Lead critical appraisal course for fellows and junior faculty
- CME credit for task force participants
- Local and national conferences and workshops

Partnerships

- AHRQ: Partner in the ECRI Institute-Penn Medicine Evidence-based Practice Center (with special designation in cancer topics).
- CDC: Co-authored infection control guidelines in areas of catheter-associated UTI, norovirus, and organ transplant. Guidelines in progress on surgical site infections and infection control in the neonatal ICU.
- Others: CEP has conducted evidence reviews to support guideline projects at the Children’s Hospital of Philadelphia and to support policy positions of the American Association of Medical Colleges and of the Society for Healthcare Epidemiology of America.