

# In-House Technology Assessment at a Major Academic Medical Center: the First Two Years

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## Challenge

The University of Pennsylvania Health System (UPHS) is a major US academic medical center. UPHS consists of three teaching hospitals, two primary care and specialty networks, a rehabilitative nursing facility, a hospice, and two home health agencies. UPHS has a total of over 12,500 employees, and it handles over 77,000 adult admissions and nearly 1.4 million outpatient visits per year.

UPHS is also a leading center for medical research, developing and testing new diagnostics and treatments, and putting the latest research advances into practice. There is a rich vein of clinical evidence to be mined, as well as a strong corps of clinical leaders, many of whom help develop clinical practice guidelines for nationwide use.

With so many institutions and so many providers, the potential for variations in practice is high. Such variations can adversely affect the quality, safety, and value of care.

## Establishment of CEP

The Center for Evidence-based Practice (CEP) opened in July 2006. Its mission is to summarize scientific evidence for UPHS decision making about clinical policy, and to build evidence-based collaborative enterprises with outside organizations to promote patient care quality and value. The center is associated with the health system's central management rather than one of the component hospitals. Its primary financial support comes from the office of the Chief Medical Officer (CMO).

## CEP Organization

### Director and co-director

- Both trained in internal medicine, with additional degrees in epidemiology. Part of time spent in hospital practice.
- Report to the Chief Medical Officer.

### Research analysts (2)

- One with clinical (MD) and epidemiologic (MPH) training.
- One with research doctorate (PhD) and 13 years experience in TA.

### Center administrator

- Supporting personnel with primary appointments elsewhere:
  - Infectious disease specialist (MD).
  - Health economist (PhD).
  - Clinical liaison librarian (MSLIS).

Close collaboration with the staff of the Department of Clinical Effectiveness and Quality Improvement (CEQI). CEQI supplies medical records and billing information and assists with implementation of new guidelines.

Consultations as necessary with other health system staff.

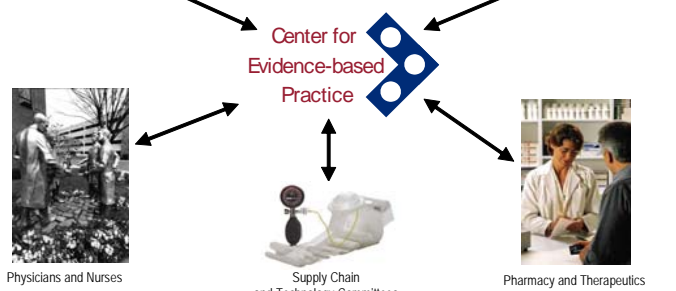
### UPHS Executive Staff (Chief Medical Officer)

- Sets priorities for clinical guideline development
- Uses CEP evidence to develop quality improvement partnerships



### Clinical Effectiveness and Quality Improvement

- Provides local utilization and outcomes data
- Uses CEP evidence to develop quality programs



### Clinical partners

- Request review of drugs, devices, procedures, and processes of care
- Provide clinical context for evidence reviews

Topic	Form	Request from	Type	Duration (weeks)	Meta-analysis
Nuclear medicine for patients with suspected GI bleed	Guideline	Clinical department	Test	In prog.	No
Subcutaneous injection of hydrogen peroxide	Advisory	Physic	Drug	2	No
Tamiflu: from occasionally preventable hospital-acquired infections	Advisory	CMO	Process	1	No
Shin splints	Evidence review	Hospital NTC	Drug	In prog.	No
Resprocessing of single-use medical devices	Evidence review	Hospital NTC	Drug	2	No
Cadmium based contrast agents and nephrotoxic systemic. Renos.	Guideline	Hospital CMO	Process	1	No
Pre-operative pregnancy testing	Guideline	Hospital PAT committee	Drug	26	No
Post-operative use of COX-2 inhibitors in bone surgery	Evidence review	CMO	Process	16	No
Weight based dosing regimens for antihypertensive therapy	Special	CMO	Process	In prog.	No
Prevention and management of nonpneumonia in healthcare settings	Special	CMO (external client)	Process	In prog.	No
Prevention of catheter-associated urinary tract infections	Special	CMO (external client)	Process	In prog.	No
Interventions for critical care	Evidence review	CMO	Drug	4	No
Point of care testing for monitoring anticoagulation therapy	Guideline	Primary care network	Device/ process	22	No
Regimen for maintaining patency of central venous catheters	Guideline	Hospital NTC	Process	10	No
Inpatient telemetry monitoring	Guideline	Clinical department	Process	26	No
Preoperative blood conservation in the OR	Guideline	Hospital OR director	Process	In prog.	Yes
Synthetic, flexible (phobic) attire in the OR	Advisory	Hospital OR director	Process	2	No
Dexamethasone in aortic aneurysm	Evidence review	Hospital PAT committee	Drug	3	No
Laminar flow in operating rooms	Evidence review	Hospital CMO	Device	2	Yes
Induced hypothermia post-cardiac arrest	Evidence review	Hospital NTC	Device	4	Yes
Stem cell autografts at UPHS	Evidence review	Health System CSCC	Process	23	Yes
Fondaparinux in treatment of venous thromboembolism	Guideline	CMO	Drug	30	No
Thrombolytics in hip fracture patients	Guideline	CMO	Process	30	No
Endial and general nutrition	Guideline	CMO	Drug	43	Yes
Oncobiologics at UPHS	Guideline	Health System CSCC	Drug	41	Yes
Recombinant factor VIIa	Guideline	Clinical department	Drug	18	Yes
Cardiac catheterization systems for interventional cardiology	Evidence review	Health System CSCC	Device	13	No
Best practices for the equivalent to (supplement discharge process) (U) toward for the diagnosis of deep venous thrombosis in asymptomatic residents	Guideline	Clinical department	Test	18	No
Droptenon (a) (b) (c) use for adult patients with stroke	Guideline	Hospital PAT committee	Drug	13	No
Apremilast use in adult cardiac surgery	Guideline	CMO	Drug	17	Yes
Transition of care for patients on anticoagulation	Guideline	CMO	Process	Yes	Yes
Immunosuppressants in transplant patients	Guideline	CMO	Drug	No	No

## Information Products

CEP presently provides three types of information products to UPHS (see table), though the lines between those types are of necessity blurred.

**Guidelines:** These include a standard evidence review and a set of recommendations for implementing the findings in clinical practice.

**Evidence reviews:** These reports range from 10 to 40 pages, and include a full literature search and meta-analysis of published trial results when appropriate.

**Evidence advisories:** These are short-form, quick-turnaround responses to focused questions not requiring a detailed search for primary evidence.

## Process: 'best evidence' approach

CEP policy is to base reports on the best evidence available. That means that when possible, reports will be based on good-quality evidence-based guidelines or systematic reviews that have already been published. If such evidence is not available, we proceed to search for primary evidence in the clinical literature. Evidence is summarized in tables, with the most important evidence highlighted for easy identification.

## Translating EB findings into practice

Since CEP exists for the purpose of improving the quality and efficiency of care at UPHS, developing and implementing strategies for translating evidence-based conclusions into routine practice at our hospitals is a crucial part of our work. Techniques used for this purpose include:

- Presentations to hospital purchasing committees and other individuals and groups that make decisions about technology selection and adoption.
- Creation of practice guidelines to be adopted by hospital clinical staff.
- Creation of standard order sets.

## Academic contributions

- Elective program in evidence-based practice for residents.
- Continuing education programs for UPHS physicians and nurses.
- Presentations at national and international conferences.
- Publications in peer-reviewed literature.
- Conferences for regional clinical, payor, government, and industry leaders.
- Academic detailing (outreach to prescribers).

## Lessons learned

- A small TA center within an academic health system can provide systematic evaluations of evidence to support clinical decisions on high-impact topics.
- TA users include health system central administration, purchasing and pharmacy standing committees in the component hospitals, and physician and nursing practice leaders.
- Hospital TA topics include processes of care, as well as emerging and/or costly technologies.