Clinical Technology Assessment: An approach to Technology Assessment at Massachusetts General Hospital.

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Outline: Clinical Technology Assessment at MGH

- Background and History
- Structure
- Responsibility of the committee
- Approach
  - Examples
Clinical Technology Assessment: “Real World” business decision

♦ Approach

– Institutional perspective with recognition of “zero sum game”
  • Money spent on new technology cannot be spent elsewhere

– Broad reach across diagnostics, therapeutics, surgical and other interventional therapies
Introduction (contd...) 

- Focus on recurring costs as compared to strictly capital costs.
- Involvement of the stakeholder throughout the process.
- Extensive evaluation of the clinical, financial and operational impact of introduction of new technology on the hospital’s mission.
Background and History

♦ Innovative Diagnostics and Therapeutics Committee was instituted in 1999
♦ Permanent standing subcommittee of the Medical Policy Committee
♦ Charged with responsibility for formal review of new technologies
♦ Responsible for “Right Sizing” the adoption of new technologies
  – Making the technology available to the right folks and provide the greatest value.
  – Avoid overuse/under use of the technology
Council for Technology Adoption and Innovative Process Promotion (CTAIPP)

♦ Instituted in 2005 as a result of the Strategic Planning Initiative at MGH

Role:
♦ Undertake existing role of IDT
♦ Promote and foster technologic advances in keeping with MGH strategic plan
♦ Transparent and standardized approach to innovation
Membership
Chairs: CMO, Paediatric Surgeon and Senior Clinical Associate for Innovation

♦ Chief Medical Officer
♦ Biomedical Engineering
♦ Patient Care Services
♦ Research
♦ Finance
♦ Pathology
♦ Institute for Technology Assessment

♦ CIMIT: Center for the Integration of Medicine and Innovative Technology
♦ Critical Care
♦ Ethicist
♦ Decision Support Unit
♦ Legal counsel
PDCA Approach to Technology

Introduction

♦ PLAN
  ♦ Work with the stakeholders to develop local consensus around “Right Sizing” the adoption or promotion of new technology

♦ DO
  ♦ CTAIPP provides recommendation along with necessary funding

♦ CHECK
  ♦ Stakeholders return to CTAIPP to provide outcome information.
  ♦ CTAIPP determines appropriateness of original assumptions

♦ ACT
  ♦ Revise assumptions and reinitiate implementation scheme
Clinical Assessment

Key Questions addressed by the clinical stakeholders regarding the new technology

♦ Is it safe and effective?
♦ Is it an improvement over existing technology? - Value?
♦ Is there an urgent need for the technology?
♦ Has the technology received regulatory approval?
  ♦ If so, are there constraints?
♦ What are the social, ethical and political impacts of the technology?
Financial/Operational Assessment

Key Questions

♦ Does it fit into the strategic plan of the hospital and support the mission statement?
♦ How much does it cost?
  – What are the reimbursement opportunities?
  Will it effect personnel mix/Nursing acuity?
  – Will it be cost effective?
♦ What are the risk management/legal liability issues and impacts?
Committee Decisions: Scenarios

This committee is a “consultative” group and not a “adjudicatory” group

♦ Adoption
  – Provisionally (limited number of cases)
  – Full with clear eligibility criteria and treatment limits
♦ Approve for research use only
♦ Do not adopt
Technologies assessed

♦ Drotrecogin (Xigris): Used in sepsis
♦ Drug Eluting Stents
♦ Magnetoencephlography
♦ Nitric oxide as a diagnostic aid for Pulmonary hypertension
♦ Bosentan use in SAH
♦ Left Ventricular Assist Device
♦ Carotid Artery Stents
♦ Oncotype DX Testing for Recurrent breast Cancer
♦ NT Pro BNP Testing
♦ Hand Held Echocardiography
♦ Many more…. 
Example: NT Pro- BNP (B-Type Natriuretic Peptide) testing

- No gold standard for the evaluation of Congestive Heart Failure (CHF) exists!
  - Clinical findings are unreliable especially in mild – moderate failure: Hence the need for better markers

- Diagnosis
  - Strong NPV (~98%) for R/O of CHF
  - Potential use as a screening test (~70% PPV) in “at risk” population—Emergency Department

- Prognosis
  - BNP and NT-proBNP levels increase with CHF disease severity
  - Assess asymptomatic LVD in post-MI patients

- Monitoring of drug therapy
  - Guide the selection of drug therapy and monitor its efficacy
Stakeholder involved

♦ Clinical Laboratory
♦ Cardiology Division
♦ Emergency Department
♦ Hospital Management
Pre-Implementation Utilization (Early 2005)

- Approximately 35 requests/month for BNP
  - Test volume gradually increasing
- Specimens sent to commercial (Reference) laboratory
  - Cost/specimen = $154
  - Annual Cost: $64,680
Estimated utilization

- The issue that needed to be addressed was the possibility of uncontrolled increase in the utilization of the test (especially in inpatients) to 60,000 tests/yr, similar to Troponin test utilization.
  - As the clinicians would be inclined to assess LVD when evaluating myocardial injury.
- This would cost the hospital more than $1M just for BNP testing.
CTAIPP Recommendation

♦ Unrestricted access to BNP assay in the Emergency Department and in the Outpatient clinics.

♦ Restricted access to BNP on inpatient units
  – Congestive heart failure pathway only in the Provider Order Entry system.

  • Prompt to physicians: instructions on appropriate utilization and clinical evidence for the test based on clinical literature
Post Intervention Utilization

Predicted Volume 416/month

- September: 167
- October: 285
- November: 335
- December: 416
- January: 430
- February: 358
- March: 448
Summary

♦ As expected, the utilization of NT Pro BNP tests increased, but due to the careful review of the proposal and effective enforcement of the recommendation through Education and continuous reinforcement to the house-staff, the suspected exponential increase in test volume was prevented.

♦ Based on outcome, CTAIPP suggested continuing the implementation of their recommendations
Example 2: Hand Held Echocardiography

♦ This is an ongoing project
♦ Project was an outgrowth of the Cardiac Clinical Performance Management team’s evaluation of current and future utilization of cardiac echo
  – Increase in echo demand on both an inpatient and outpatient basis
  – Wait time for an outpatient echo was previously more than 90 days
♦ Institution of the outpatient echo centre initially cut outpatient wait times to less than 45 days
Stakeholders involved

♦ Cardiology
  – Cardiology Division
  – ECHO Lab
♦ Emergency Department
♦ Intensive Care Units
♦ Hospital Management
Background

♦ Newly developed portable echo devices have sufficient image clarity for limited cardiac echo

♦ Cardiac echo performed by non-echo cardiographers in specific and limited clinical situations for optimal management.

♦ Useful in diagnosis of:
  • Pericardial Effusion
  • LV function
  • Volume Status
Project Goals

- Develop a cohort of MDs skilled in limited bedside echo able to teach other physicians
  - “Train the Trainers” approach
  - “Certification” Process
- Provide expanded availability of echocardiography in limited, appropriate clinical circumstances
- Improve patient care and reduce wait time for formal ECHO
Summary

♦ This project is ongoing.

♦ CTAIPP evaluated the technology and its potential for providing clinical benefit to the clinicians and the patients.

♦ CTAIPP approved the adoption of this technology based on its innovative approach to an institutional problem while improving quality of patient care.

♦ This project has been funded and we are in the process of refining the training program before starting the first round of training in late Spring.
Lessons learned

♦ Importance of the role of the stakeholder
  – Critical element of success was the involvement of the clinical stakeholder
  – Involvement of the stakeholder in framing of the clinical argument and “Right Sizing” the technology and assisting in the operational and financial modelling.

♦ Most important role of the committee is bridging the gap of “informational asymmetry”.
Thank you!!