What Kind of Evidence is Needed to Change Practice or Policy?

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Background

- Public health framework
- Generating evidence
- Assessing evidence
- Dissemination and advocacy

Contrasting Medicine and Public Health

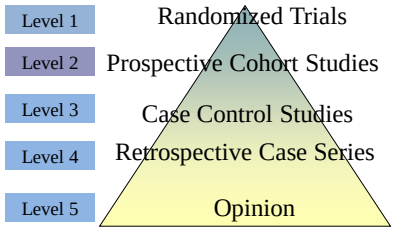
Medicine

- Individual health the priority
- Treating disease after it occurs
- Efficacy
- "Changing Practice"
  - Professional societies
    - Ex: AAOS, OTA
  - Evaluate treatments

Public Health

- Focus on health of the population
- Disease prevention
- Effectiveness
- "Changing Policy"
  - Government
    - Ex: CDC, Ministry of health
  - Evaluate programs or policies

Generating evidence: Levels of Evidence



Public Health Framework for Generating Evidence

- Needs Assessment
  - Epidemiologic studies – how big is the problem?
  - Burden of disease
  - Unmet need
- Program Theory Assessment
  - Logical framework approach

Needs	Input	Output	Outcome	Impact	Long-Term Goal
People are frequently sick from drinking contaminated water and do not currently use methods to treat their water	NGO purchases chlorine tablets and develops infrastructure for distribution to households	Households receive chlorine tablets	Individuals stop drinking contaminated water and start drinking treated water	Incidence of diarrhea decreases	Decrease in mortality, particularly child mortality. Improved physical and cognitive development

From http://www.povertyactionlab.org

Disease control priorities in the Developing World

- Collaborative project involving World Bank, WHO, NIH/Fogarty, and others
- Recognition of surgery as a potentially cost-effective solution in global health

DISEASE CONTROL PRIORITIES PROJECT

www.dcp2.org

June 2008

Promoting Essential Surgery in Low-Income Countries

A Hidden, Cost-Effective Treasure

Health conditions that require surgery have not typically been a top priority in developing countries: They are considered to be at the end of the spectrum of curative care and unaffordable in low-income settings. Yet, surgically treatable conditions, such as injuries, complications of childbirth, hernias, and cataracts, take a serious human and economic toll. Many of these conditions can lead to death or serious disabilities and account for a substantial share of the burden of disease in developing countries.

Basic surgical services do not need to be provided in expensive, high-technology hospitals and can be highly cost-effective—even on par with widely accepted preventive health care such as immunization for measles and tetanus. The Disease Control Priorities Project (DCPP) has found some of the most cost-effective surgical interventions to be

burden on families and communities;

- Addressing complications of pregnancy and childbirth such as obstructed labor;
- Managing a variety of abdominal conditions, such as appendicitis, ulcers, intestinal obstruction, and other conditions that are life-threatening; and
- Elective care for relatively simple surgical conditions such as cataracts, hernias, clubfoot, and middle ear infections.

The Burden of Surgically Treatable Health Conditions

Health conditions that require surgery impose a substantial health burden on the world, gauged in disability-adjusted

Generating Evidence

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- Process Evaluation
  - Is the process being implemented as planned?
- Impact Evaluation
  - Does program or policy achieve goal?
- Economic Analysis
  - What is the impact relative to the cost?

International Orthopaedics (SICOT) (2009) 33:1445–1448
DOI 10.1007/s00264-009-0798-x

ORIGINAL PAPER

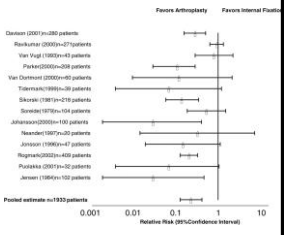
Cost-effectiveness of replacing skeletal traction by interlocked intramedullary nailing for femoral shaft fractures in a provincial trauma hospital in Cambodia

Richard A. Gosselin · Merja Heitto · Lew Zirkle

"At an average cost per patient of $1,107 in the traction group and $888 in the nail group ($p<0.01$), and with better clinical outcomes in the nail group, **internal fixation is more cost-effective than conservative treatment**"

Synthesizing evidence

- Systematic Reviews
  - Best available evidence
  - Not always RCT's
- Meta-analysis: pooled data
  - Not always feasible
- Decision analysis
  - Used frequently in economic analysis



From Bhandari et al., JBJS 2003

Assessing Evidence: Context

- Patient population
- Human resources
  - Trained surgeons
  - Ancillary staff
- Physical Resources
  - Equipment
  - Implants

Crist et al., Orthopaedics, 2008

Dissemination and Advocacy

- Requires different set of skills than skills needed to generate research
- Identifying stake-holders
  - Policy-makers
  - Health-care providers
  - Professional organizations
  - NGOs
  - Implant manufacturers
  - Hospitals
- Summarizing data
  - Policy briefs

Summary

- Research does not impact practice or policy as an afterthought
- Particularly in developing settings, context and generalizability are as important as study quality
- Burden of disease and cost are as important as efficacy in resource-constrained environments
- Journal publication is not the end-game