Efficiency, Quality and Cost in Health Care

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Accessibility
Quality
Cost

Efficiency, Quality and Cost

- Meaning and measurement of efficiency
- Relationship among efficiency, quality and cost
- Examples and reasons for inefficiency in health care
- Strategies and examples to improve efficiency and quality

Meanings of Efficiency

- Technical
- Production
- Allocative
  - Market
  - Health

Technical Efficiency

When no greater output can be achieved for a given level of resource input. Production occurs on the technical “production possibility frontier.”

Production Efficiency

Optimal combination of resource inputs (labor, equipment, supplies, etc.) to achieve a given output. Production is efficient if a given level of output is achieved at the lowest resource cost.
Allocative Efficiency

Resources are allocated so as to optimize benefit to a population
- Market Efficiency
  - Distribution of goods according to individual preferences
  - Competitive market: marginal cost = marginal price
- Health Efficiency
  - Distribution of health resources to maximize the level of health in the population

Allocative Efficiency

When would market efficiency equal health efficiency? Among the assumptions:
- Complete and accurate information
- No barriers to market access and exchange
- Personal preferences (utilities) for health expenditures coincide with health improvements
- Equivalent purchasing power across purchasers

Measuring Efficiency

- Identifying all inputs
- Pricing (resource cost) of each input
- Identifying relevant outputs
- Valuing the outputs (outcomes)

Outputs of Interest in Health

- Element of service
- Episode of illness or health condition
- Overall health of an individual
- Health of a community or society

Efficiency is not about

- Just cutting costs
- Enhancing revenues
- Making the doctor’s life easier (rather than the patient’s life better)
- Achieving justice

Efficiency, Quality and Cost

- Efficiency, in terms of eliminating waste, is one dimension of quality in health care.
- Quality, in terms of net benefits to health, is part of the equation for health efficiency.
- Cost, in terms of resource costs, is the other part of the equation for efficiency.
Efficiency in Health

- Efficiency is a relationship of value: how much output of value (health benefit) per input of value (resource cost)
- Focus on efficiency forces consideration of both sides of the value proposition: benefits and costs

\[
\text{EFFICIENCY} = \frac{\text{BENEFITS}}{\text{RESOURCE COSTS}}
\]

“An estimated thirty to forty cents of every dollar spent on health care … a half trillion dollars a year … is spent on costs associated with: overuse, underuse, misuse, duplication, system failures … and inefficiency.”

Observed Quality and Costs

![Chart showing observed quality and costs](chart.png)

Percutaneous Coronary Interventions

![Graph showing percutaneous coronary interventions](graph.png)

Episode Treatment Group™ Analysis

![Analysis chart](analysis.png)

From Elliott Fisher

Presented by E. McGlynn, RAND
Why is Health Care Inefficient?

- Payment for wrong outputs (units of service rather than episode of illness or health condition)
- Financial incentives reward inefficiency (complications or re-admission)
- Lack of price incentives to patients
- Providers indifferent to induced costs
- Complex and costly administration

Why is Health Care Inefficient?

- Deficient malpractice system
- Insufficient attention to prevention and long-term results
- Fragmented and uncoordinated delivery system
- Lack of information on performance, cost and quality
- Dysfunctional competition rather than value-based competition

St. John’s Hospital

- 866-bed, not-for-profit hospital and trauma center in Springfield, Missouri
- 32 operating rooms and 45-room trauma center
- 29,000 surgical procedures in 2005
- 74,000 emergency department visits in 2005, 22% of whom are admitted and comprise 20% of the surgical load

St. John’s Hospital

- Problems (2002 analysis by E. Litvak)
  - Lack of flexibility in scheduling elective surgeries that produced unpredictable and excessive use of overtime
  - Mid-week peaks in surgery and resulting backup in admissions that often made it impossible for patients to have a bed on the appropriate floor and receive optimal post-surgical care

St. John’s Hospital

- Solution (peak-flow management techniques; operations research)
  - Set aside a single OR for overflow — both elective and unplanned — surgeries
  - Smooth the scheduling of elective surgeries across the five weekdays

St. John’s Hospital

- Results
  - After smoothing elective surgery, the capacity for ED admissions rose from 647 (October 2004) to 1100 (October 2005)
  - Excluding ICU, a 59% increase in inpatient capacity was realized without adding additional inpatient nursing beds
  - The number of OR rooms needed after 3 p.m. dropped by 45%, and OR overtime declined to a record low level of 2.9%
### St. John’s Hospital

- **Results (continued)**
  - Since 2003, surgical volume has increased by 33%, and trauma surgeons experienced a 4.6% increase in revenue
  - Waiting time for emergent and urgent surgical cases after 3 p.m. was reduced by 45%
  - Prior to smoothing, the rate of patient placement into the appropriate bed for orthopedic patients was 83%; after smoothing, the rate of appropriate placement rose to 96%

### Ways to Increase Efficiency

- **Improve outcomes (health benefits)** without raising costs (i.e., without consuming more resources) or while saving resources
  - OR
  - Reduce costs without reducing benefits (health outcomes) or while improving health outcomes
  - Get more value from every health care dollar

### Strategies to Increase Efficiency

1. **Improve evaluation of technologies, care strategies, and providers**
   - Assess resource costs and health outcomes as a routine part of care
   - Conduct comparative assessments across different technologies and strategies of care
   - Measure physician, hospital, nursing home, and health plan performance on health outcomes

2. **Use evidence more effectively in decisions by care givers and patients**
   - Make information technology and decision-support systems more widely available
   - Disseminate to patients, payers, employers, and regulators evaluative information on the performance of physicians, hospitals, nursing homes, and health plans
   - Research on determinants of choice and dissemination of practices in health care

3. **Deploy engineering methods to improve performance, reduce variability, and optimize utilization of resources**
   - Operations research
   - Systems analysis
   - Process re-design

4. **Enhance “value-based competition” for health care dollars**
   - Payment for covered life, health condition, or episode of illness rather than for units of service
   - Eliminate state barriers to competition among insurers
   - Open pricing information
   - Group purchasing cooperatives for insurance
   - Equitable distribution of high-risk patients
   - Universal coverage
Strategies to Increase Efficiency

5. Provide financial incentives to increase value
   - To providers
     • Pay for performance and reward high-value providers
     • Pay for prevention
     • Pay for management of chronic conditions and coordination across hospital, nursing home, and community-based care
     • Payment coupled to evaluation
     • Stop paying for hospital-acquired infection
   - To patients
     • Income-related co-payment and deductible
     • Lower co-payment and deductible for use of high-value providers

6. Streamline administrative systems and improve the environment of care
   - Uniform insurance forms and procedures
   - Bulk purchasing cooperatives and competitive bidding
   - Information technology
   - Malpractice system reform
   - Preparing the workforce

The Culture of Medicine

- Professionalism: Quality and Efficiency
- From Autonomy to Responsibility
- From individual patient to all patients

Toward Improved Health Care

- [Efficiency = Outcome per Cost] **Value**
- [Quality and Safety] **Performance**
- [Use and Non-Use] **Practice**
- **Standards** [Guidelines]
- **Evidence** [Clinical Research]
- **Opinion** [Personal experience]