Cost Effectiveness in the ICU

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Topics:
- Critical Care Medicine
  - COST Considerations
  - Mass Casualty Preparedness
  - Restructuring care for end-of-life planning
  - Creation of incentives to join the critical care workforce
  - Research support of critical care and comparative effectiveness trials
  - Policy on reimbursement for preventable diseases

What Is Value?
Circa 1300: French defined as “of merit, meaning”
- Is it Economic
- Is it Philosophical
- Is it Ethical

Current Country Condition
- Expectations of the American Public
- What are we willing to pay for end of life care?
- Life expectancy and infant mortality
- Annual cost of health care: Increasing by 8% per year (much higher than inflation rate)
**Methods for Evaluating Cost**

- Health Related Quality of Life
  - Growing expectation of a health standard as we age
- Quality Adjusted Life Years
  - A year of full health quality: Standards for different disease states
  - Measures a unit of benefit from a medical intervention
- Cost versus charge - the difference

**Methods for evaluating cost**

- Cost effectiveness analysis (cost-utility analysis)
  - Evaluates the ratio of the cost of an intervention to the unit of benefit
    - Example: VAP and the effort to prevent it
    - Example: ICU length of stay: First day versus fourth day
  - Incremental cost effectiveness ratio
    - Example of vancomycin versus lenezolid

**Evaluating Cost**

- Cost per QALY of <$100,000 is valued as worthwhile in the US
- Difficulty in looking at short term cost in ICU given relative long term disability

**Is ICU Care Cost Effective?**

- European studies: HRQoL
  - QALY gained: 49-150
  - Cost per HRQoL: € 38,000-118,000
  - Evaluations of Finnish patients with ARDS
  - Evaluation of sepsis with bundle protocols
    - $11,000 per life saved and $15,000 per QALY gained
**Classic Cost Effective Strategies in the ICU**

- Chlorhexidine usage for central line placement
- Pharmacy driven medication reconciliation
- MRSA screening of high risk patients
- Aggressive TBI care up to age 80
- Ventilator bundles
- Transfer to a tertiary trauma center

**Critical Considerations**

- Life expectancy at time of critical illness
- **TYPE of critical illness**
  - Example mechanical ventilation for ARDS versus upper GI bleed

**Poor cost effectiveness**

- Use of rFVII
- 24 hour Attending ICU care
- ??? Early goal directed therapy for sepsis
- Protein C

**Facts for Policymakers and Hospital Administrators**

- ICU admissions per year: 5 million
- 80% of Americans experience the ICU through illness or injury as a patient, family member or close friend
- May is National Critical Care Awareness & Recognition Month
- Trauma is the #1 killer of people 1-44 years old and is the second most expensive disease
Topics:

- TRAUMA and ACUTE CARE
  - Understanding Emergency Medical Treatment and Labor Act
  - Access to Emergency Surgical Care

Mass Casualty Preparedness

- The Issue: No tracking system for equipment, bed capacity or qualified personnel
- The Consequence: Hampers disaster relief efforts and efficiency in emergencies

Mass Casualty Preparedness

- The Proposal:
  - Federal government catalogue of facilities, equipment, bed surge capacity and personnel regionally and nationally
Mass Casualty

- Federal Activity: July 2010-US Senate Committee on Homeland Security Hearing
  - Review of Disaster Medical Preparedness
  - Secretary Of Health and Human Services: “The nation lacks a coordinated health information system that can provide health care data in the early stages of an incident”

Mass Casualty

- US Department of HHS “Strategic Plan” for FY 2010-2015
  - Transform Health Care: Promote adoption of HIT: HIT for Economic and Clinical Health ($$$Recovery Act)
  - Protect American health and safety during emergencies and foster resilience in response
    - Enhance accessible communication strategies
    - Improve integration with Emergency Response Systems

End of Life Planning

- “Death Panels” as part of the new health care policy
  - No stipulation of “pulling the plug on grandma”
  - Provision for Medicare-supported advice on how individuals can create living wills with provisions for hospice/comfort care
  - Outcome: The provision was dropped
End of Life Planning

- Recommendations from “Roundtable for Critical Care Policy”
  - Support Medicare reimbursed discussions of time-sensitive end-of-life discussions
  - Support funding for care coordination and transitions of care
- Allow more people to die at home by having strong end of life planning

Expansion of the Critical Care Workforce

- Demands of critical care are outpacing the supply of qualified practitioners
- Proposal
  - Loan repayment programs
  - Support for residency training and NP training in critical illness
  - Pay differential for nursing, RT and ancillary staff

Expansion of the Critical Care Workforce

- HHS focus on workforce expansion:
  - Underserved geographic areas
  - Primary care
  - Indian Health Services
- Affordable Care Act: Authorized the development of a Health Care Commission evaluating workforce gaps
  - Currently underway

HR 1581: Patient-Focused Critical Care Enhancement Act

- Optimize delivery of critical care
- Expand the critical care workforce
- Failed in subcommittee
- Senate had a similar experience in 2008
To err is human.
To forgive is divine.
But to pay for hospital error is no longer tolerable.

Financial Impact

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cases in 2007</th>
<th>$/stay</th>
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<tbody>
<tr>
<td>Stage III &amp; IV Pressure Ulcers</td>
<td>257,412</td>
<td>$43,180</td>
</tr>
<tr>
<td>Falls &amp; Trauma</td>
<td>193,566</td>
<td>$33,894</td>
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<tr>
<td>Deep Vein Thrombosis/Pulmonary Embolism</td>
<td>140,010</td>
<td>$50,937</td>
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<tr>
<td>Vascular Catheter-Associated Infection</td>
<td>29,536</td>
<td>$103,027</td>
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<tr>
<td>Certain Manifestations of Poor Control of Blood Sugar Levels</td>
<td>16,060</td>
<td>Range: $35k-45,989</td>
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<td>Catheter-Associated Urinary Tract Infections</td>
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<td>$44,043</td>
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<tr>
<td>Foreign Object Retained After Surgery</td>
<td>750</td>
<td>$63,631</td>
</tr>
<tr>
<td>Surgical Site Infections Following Certain Elective Procedures</td>
<td>747</td>
<td>Range: $63k-180,142</td>
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<tr>
<td>Infection after Coronary Artery Bypass</td>
<td>69</td>
<td>$299,237</td>
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<tr>
<td>Air Embolism</td>
<td>57</td>
<td>$71,636</td>
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<tr>
<td>Blood Incompatibility</td>
<td>24</td>
<td>$50,455</td>
</tr>
</tbody>
</table>

Policy Change for Hospital Acquired Conditions

- Deficit Reduction Act of 2005:
  Medicare would withhold payment for hospital conditions acquired during hospital stay
  - “could be reasonably prevented through the application of evidence-based guidelines”
  - Are conditions 100% preventable?
**Policy Change for Hospital Acquired Conditions**

- Currently NOT reimbursed:
  - Retained object from surgery
  - Air embolism
  - Pressure ulcers
  - Falls and trauma
  - Catheter-associated UTI
  - IV line infection
  - Manifestation of poor blood glucose control
  - Various surgical site infections
  - Blood incompatibility
  - DVT and PE after orthopedic procedures

- Currently being considered
  - Ventilator associated pneumonia
  - Staph septicemia
  - C-difficile infection
  - Line-related pneumothorax

- Affordable Care Act puts penalties on hospitals in lowest quartile of performance of hospital acquired conditions
  - savings: $3.2 billion over 10 years

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**EMTALA**

- November 10, 2003: Triggered when an individual or advocate of the individual requests examination at an emergency setting (at least 1/3 of patients are seen emergently there)
- The hospital must stabilize or make an appropriate transfer
- Prior insurance authorization MAY be sought as long as it does not delay treatment

**EMTALA on Call**

- An on call list must be maintained to best meet the needs of the patient within the context of the hospital’s capacity
  - May take call at several hospitals
  - No rule for mandating the amount of coverage
  - Penalties-Medicare revoked and $50K
Access to Emergency Surgical Care

- Many surgeons take 5-10 call nights per month at several hospitals
- Insurance offers incentive to not take emergency call
- There is a surgical workforce shortage
- Trauma accounts for 11% of emergency (non-obstetric) care

Access to Emergency Surgical Care

- Surgical Specialists providing emergency care:
  - GS down from 16 to 11 per 100,000
  - NS 1 per 100,000
  - Ortho down from 9 to 6 per 100,000
- Medicare payments of key emergency procedures down 6-50% !!!

Recommendations and Progress

- Institute of Medicine and the ACS lobby for regional coordinated trauma systems
- Propose that $224 million go to trauma and emergency medical funding within the Labor/Education and HHS Appropriations Act of 2011
America’s Affordable Health Choices Act HR 3200

- Establishes Emergency Care Regional Pilot Projects
- Supports Emergency Care Research
- Provides financial support to challenged trauma centers
- Provides 5% bonus for E/M services (10% in underserved areas)
- Establishes Emergency Care Coordination Center

Access to Emergency Medical Services Act 2009 HR 1188

- Improve access to emergency medical services
- Quality and efficiency of care furnished in emergency departments
- Establish a commission to examine factors that affect the effective delivery
- Providing for additional payments for certain physician services furnished in such emergency departments
- Failed

Tort Reform

- States such as California and Texas have a $ cap on medical malpractice
- Growing federal movement in this direction
- HEALTH Act of 2011: Up for full House vote
  - “For” argue it would limit practice of defensive medicine
  - “Against” vote would take the power out of states’ hands and set an arbitrary limit
- Stay tuned...

Summary of Patient Protection and Affordable Care Act

- Signed into law March 23rd 2010
- Constitutionality being contested: Supreme Court decision this month
- Requires individuals to maintain minimal required insurance coverage (individual mandate)
- Increases coverage for preexisting conditions
- Expands access to coverage for 30 million
Summary of Patient Protection and Affordable Care Act

- Increases national spending but decreases Medicare expenditures
- Guaranteed issue and partial community rating: Insurance companies must offer same premium to people of same age and same geographical location
- Medicaid eligibility is expanded to people with incomes up to 133% of poverty level
- Families up to 400% of poverty level can receive federal subsidies and sliding scale discounts

Summary of Patient Protection and Affordable Care Act

- Minimum standards for health insurance policies and no lifetime coverage caps
- Co-payments and deductibles are eliminated for essential services
- Additional support is provided for NIH research and private research in the area of comparative effectiveness
- Physician payment will be based on QUALITY NOT QUANTITY

<table>
<thead>
<tr>
<th>Federal Poverty Line (FPL)</th>
<th>Maximum Premium as a % of Income (2014)</th>
<th>Maximum Annual Premium (current), by Family Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
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<tr>
<td>100%</td>
<td>$2,097</td>
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<tr>
<td>133.33%</td>
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<tr>
<td>166.67%</td>
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<td>300%</td>
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<td>$299</td>
</tr>
<tr>
<td>400%</td>
<td>$2,097</td>
<td>$299</td>
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</tbody>
</table>

Table 1: Maximum Out-of-Pocket Premium Payments Under PPMCA, II Currently Implemented

For the 46 contiguous states and the District of Columbia.

Source: CMS (based on "Update of the NIH Poverty Guidelines," Title II of PPMCA, January 22, 2001, http://aspe.hhs.gov/t2/2000/nihpg.pdf, and PPMCA, for the second last operating year plan available to eligible individuals. For each observation, the maximum family size premium is the highest premium observed for each FPL category, regardless of number of enrollees.)
To Get Involved

- www.criticalcareroundtable.org
- www.facs.org

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