

2017 SOA Health Meeting

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Actuaries and New Technology – Keeping Up with an
Evolving Profession
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Assessment of Value of New Healthcare Technologies and Practices



Background

- Work on multiple different projects that includes determining ROI on new healthcare technologies and interventions
- General approach involves developing an actuarial cost analysis that incorporates the perspectives and knowledge of clinicians and other experts
- Result is a more holistic analysis that can reach a broader audience

Introduction to Assessment of Value

- Question: Is a new technology or healthcare intervention a “good deal”?
 - Answer: depends on perspective
- Considerations (not exhaustive):
 - Advantages to patients
 - Costs to payers
 - Provider revenues
 - Does new technology increase or decrease long-term cost of healthcare for the community
- Can the perspectives of all parties be adequately represented in a single measure of value?

Defining Value

- Key Perspectives
 - Patient (Health, quality of life, earning ability)
 - Employers
 - Provider
 - Payer (Immediate cost of treatment versus lifetime reduction in healthcare costs)
 - Regulators
 - Technology vendors
- Need to evaluate “community” perspective by considering all stakeholders and decision makers

Defining Value

- Time Value of Money
 - The costs and expected benefits of all possible outcomes should be discounted to reflect the time value of money
 - Especially important since new technology or treatment can have a one-time cost but change peoples' lives over a lifetime
- Quality-Adjusted Life Years
 - Time and quality of one's time has a value
 - Loss of life due to increase mortality
 - Perceived loss of quality of life in the years lived with condition

Assessment of Value Methodology

- Evaluate the technology/intervention from a clinical perspective
- Model expected healthcare utilization and cost impacts
- Identify key measures and assign costs/value to them
- Quantify the overall value from each perspective
- Quantify the overall value from a community perspective

Assessment of Value Example

- Post-acute rehabilitation services for persons with Acquired Brain Injury (ABI)
- Vendor proposed that their rehabilitation services increased quality of life, mortality, and lifetime earnings of its patients while decreasing healthcare costs, long-term care costs, and reliance on others
- Vendor wanted a “white paper” to show the value of their services to politicians, employers, insurers, providers, patients, etc.

Assessment of Value Example

- Step 1: Evaluate the technology/intervention from a clinical perspective:
 - Clinical consultant visited rehabilitation facility and vendor's corporate HQ to understand vendor's care protocols and their efficiency
 - Also included a review of relevant literature
- Step 2: Model expected healthcare utilization and cost impacts
 - Worked with vendor's staff and clinical consultant to understand changes in cost and utilization of affected population with and without post-acute rehabilitation services

Assessment of Value Example

- Step 3: Identify key measures and assign costs/value to them
 - Disability Rating Scale (DRS)
 - Tied costs and benefits to different values of the combined DRS Level of Functionality (LOF) and Employability (EMP). Range from 0 (no disability) 8 (full disability)

Assessment of Value Example

- Step 4: Quantify the overall value from each perspective
 - Modeled economic costs/benefits for:
 - Lost Wages of patients and families
 - Lost employer productivity and training costs
 - Disability income
 - Long-term care costs
 - Healthcare costs
 - Quality adjusted life years lost due to disability
 - Cost of post-acute rehabilitation services
- Step 5: Quantify the overall value from a community perspective
 - Combined total costs/benefits to show that most stakeholders “won” and community “won” in aggregate

Challenges & Recommendations

- Collaborate early and often
 - Took many meetings to understand vendor's care model and how we might objectively measure impact
- Build off of the work of others
 - Literature included somewhat similar, though less complete, analyses that we learned from and approved upon
- Work hard to be sure that all areas understand each other
 - Vendor was not familiar with actuaries
 - Terminology got confused
 - It took effort to explain our modeling approach to vendor