



HEALTH

Disease Management Evaluation:

***Developing a Measurement System
(or how to get the left hand side right)***

Preconference Workshop
Singapore Disease Management Conference 2008

Soeren Mattke

Overview

- **The four golden rules of measurement system design**
- **An example: Measuring the performance of a disease management program for diabetes**
- **Maintenance of a measurement system**

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Rule #1



Form Follows Function

- **What is the purpose of the system?**
 - Research
 - Quality improvement
 - Internal management
 - External oversight
 - Public reporting
 - Pay for performance
- **What is it that we are trying to measure?**
 - Logic model
 - Conceptual framework

Rule #2



Take Stock of What You Have

- **What measures are already being used?**
- **What data sources are currently available or easily accessible?**
- **Whom can we ask for help?**

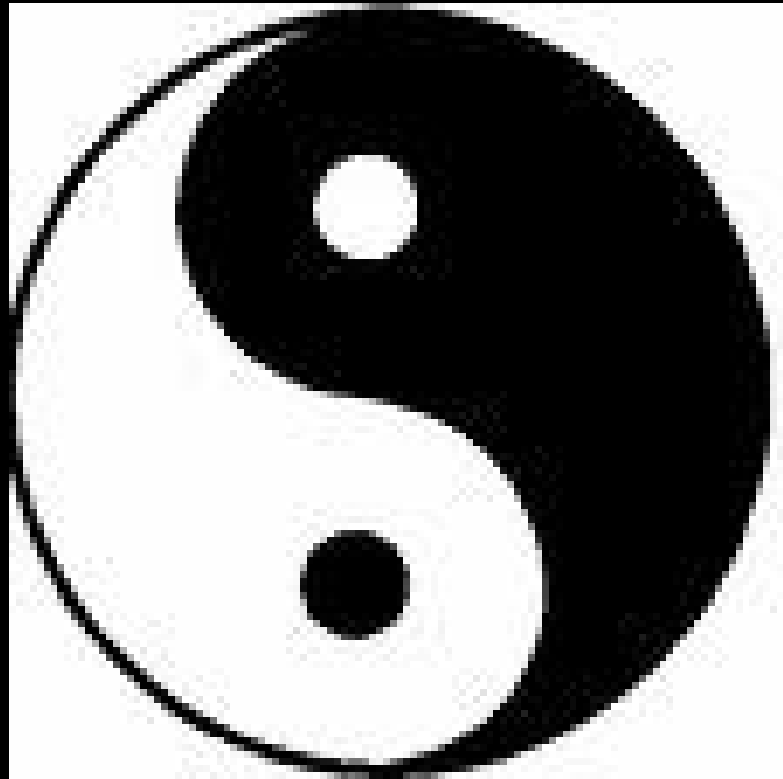
Rule #3



Aim High

- **Use solid and explicit criteria and processes for measures selection**
- **Don't be afraid of additional developmental work and data collection**

Rule #4



Find A Sound Balance

- **Measurement needs to be a compromise between desirable and feasible measures**
 - Primary data collection is costly
 - Providers view data collection as distraction
 - Privacy issues create obstacles
- **The measurement system requirements for evaluation and research should be aligned closely with operational needs**
- **Don't underestimate the challenge of implementation**
 - It will take more time than anticipated
 - It will be more difficult than anticipated
 - A pilot phase will allow to fix initial problems

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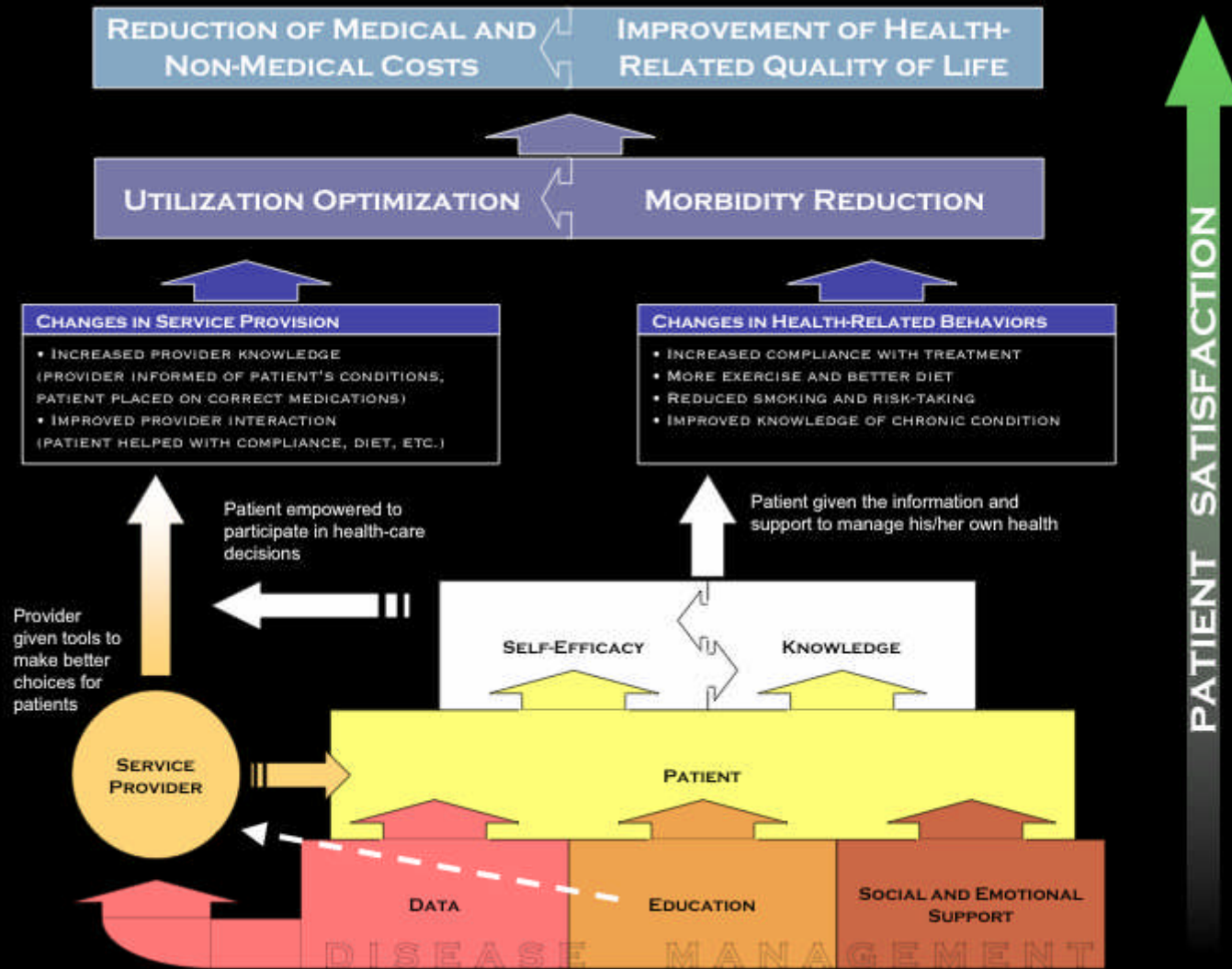
Design Approach

- **Define system functions**
- **Define a conceptual framework, which defines what should be measured**
- **Operationalize the framework, i.e. select the measures that cover the domains of the framework**
- **Implement the monitoring system, i.e. calculate the selected measures from actual data**
- **Design and implement a reporting format to communicate the information**

Functions of Monitoring System

- **Program operations:**
 - **Monitoring of effect**
 - **CQI**
 - **Operations management**
- **Accountability:**
 - **Regulatory requirements**
 - **Informing health policy decisions**
 - **Potential public reporting and P4P schemes**
 - **Competitive advantage**
- **Data for research**

Conceptual Framework



Potential Domains for Measurement System

- Patient knowledge
- Self-efficacy
- Health-related behavior
- Processes of clinical care
- Disease control
- Utilization of medical care
- Cost of care
- Health outcomes and health status
- Patient satisfaction
- Non-medical cost (productivity loss)

Criteria for Measures Evaluation

- **Importance/Relevance**
 - Is there a meaningful problem?
 - Can our intervention improve it?
- **Scientific Soundness**
 - Is the measure supported by evidence
 - Has the construct been implemented correctly?
 - Is the measure reliable and valid?
- **Feasibility**
 - Is the measure well specified?
 - Are required data accessible, reliable and timely?
- **Usability/Actionability**
 - Does the measure provide actionable decision support?

Which Domains to Include?

- Patient knowledge

- Self-efficacy

- Health-related behavior

- Processes of clinical care

- Disease control

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Program design

Clinical program operations

Financial program operations

Health policy decisions

Economic policy decisions

Knowledge and Self-Efficacy

- **Key elements of disease management intervention**
- **Self-efficacy is an established predictor of behavior change**
- **Measures for self-efficacy four areas (smoking cessation, weight management, exercise and physical activity, treatment adherence) available**
- **Knowledge tests have been developed**
- **Data collection feasible but demanding**
- **Additional research could help to simplify instruments**

Health-Related Behavior

- **Clearly relevant**
 - **Central goal for disease management intervention**
 - **Early measure of program success**
- **Measure availability is mixed**
 - **Available for smoking, weight and exercise as general measures**
 - **SMBG as diabetes-specific measure**
 - **Medication compliance and diet adherence are more difficult to measure**
- **Feasible to measure based on patient self-report**

Processes of Clinical Care and Disease Control

- **Clearly relevant**
- **Well-established process measures exist for diabetes**
 - Testing for HbA1c, lipids, microalbumin
 - Eye and foot exams
 - Treatment with ASA, ACEI/ARB, statins
- **Measures of disease control are also well-established:**
 - Control of HbA1c, LDL, blood pressure
- **Feasible to measure from encounter data plus some data from medical records or lab data**
- **Moving target problem**

Health Outcomes

- **Ultimate concern of patients, providers and policymakers**
- **Well-established endpoints exist for diabetes care**
 - **End-organ damage (renal failure, blindness, amputations)**
 - **Cardiovascular events**
 - **Mortality**
- **Feasible to measure from encounter data plus some data collection**
- **Challenges are risk adjustment, length of observation period and sample size limitations**
- **Can be modeled as expected values based on measures of disease control**

Measures of Utilization and Direct Medical Cost

- **Straightforward to measure**
- **Data typically available**
- **Attribution to intervention particularly challenging:**
 - **Regression to mean**
 - **Selection issues**
 - **Strong secular trends and competing effects**
 - **Attrition**

Health Status and Patient Satisfaction

- **SF-family presents readily available and well-established global measures for health-related quality of life**
- **ADL and IADL-type measures can be use for functional status**
- **Diabetes-specific instruments could be added**
- **Many satisfaction instruments are available**
- **Data collection through patient surveys is required**

Impact of Health on Productivity

- Indirect cost might even exceed direct medical cost
- Measures availability:
 - Numerous established instruments exist to estimate absenteeism and presenteeism
 - Monetization still difficult
- Requires dedicated data collection from participants and employers
- Issues:
 - Substantial gaps remain in research
 - Further work necessary on rigorous monetization method

Some Thoughts on Data Sources

- **Administrative data should be used whenever possible**
 - + **Provide a wealth of information based on standardized coding systems**
 - + **Readily available, even for potential comparison groups**
 - **Require some creativity and the ability to imagine how clinical processes are reflected in admin data**
 - **Reflect the scope and data quality of its original purpose**
- **It might be necessary to augment admin data with data from medical records and patient surveys**
- **Use of EMRs will make clinical data more accessible**
 - **BUT by no means guarantee data availability**

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Rule #5



Plan Ahead

- **Measures used for operational purposes require ongoing maintenance to ensure that they continue to meet their requirements in the long run**
 - **Roadside assistance: Ad hoc review to deal with comments and concerns (as needed)**
 - **Oil change: Measures maintenance to keep measures up to date (annual)**
 - **Tune-up: Full re-evaluation to assess whether expectations have materialized and initial rationale still holds (tri-annual)**

Summary

- **Measurement system design is as much an art as science**
- **As in any art, creativity is required but the rules of the dominant schools should be followed**
- **Numerous sources are available**
 - **ICICE website: <http://www.rand.org/health/projects/icice/>**
 - **NQMC: <http://www.qualitymeasures.ahrq.gov/>**
 - **DMAA: http://www.dmaa.org/research_initiatives.asp**
- **Good planning and pilot testing usually avoids severe mistakes**



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