



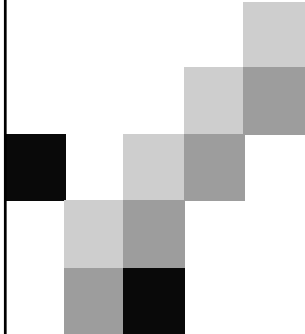
SOCIETY OF ACTUARIES

**Health Spring Meeting
May 2008**

**Session # 49: What's New in Disease Management
Outcomes Evaluations?**

[Susan Jennings, Ph.D.](#)
[Greger J. Vigen, FSA, MAAA](#)

Moderator
Greger J. Vigen, FSA, MAAA



DM Outcomes Guidelines Report

May 2008

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Agenda

- Outcomes project background
- Overview of selected 2007 guidelines
- Preview of 2008 activities
- Questions/discussion

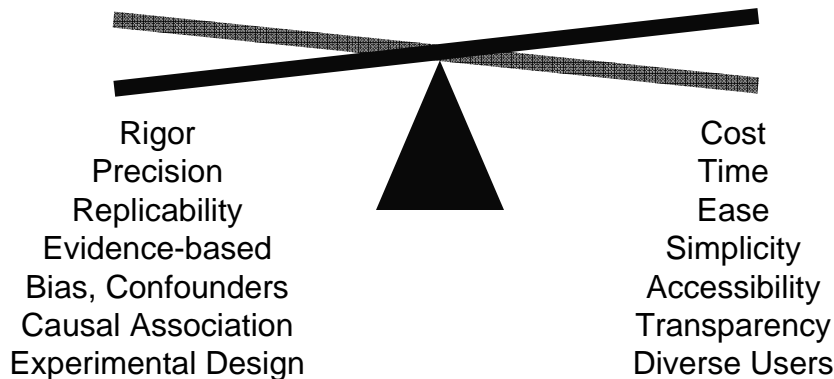
Project Goals

- To develop a set of uniform evaluation guidelines for the disease management community to use for outcomes reporting purposes that are both defensible and practical
- To increase the credibility of evaluations of disease management and other programs along the care continuum
- To promote comparative performance measurement across programs

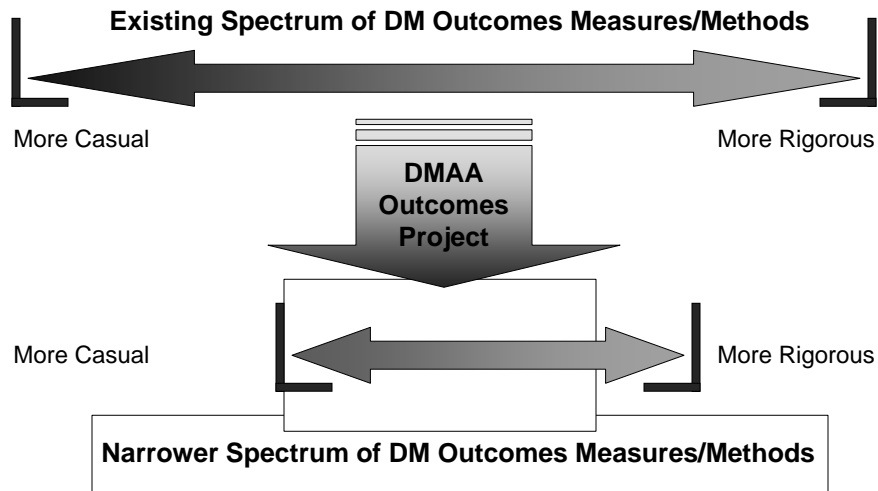
Achieving Optimal Balance

“Suitability”

“Acceptability”



“Squeezing The Bookends”



Project Timeline

- 2000, DM Definition developed
 - DM components include: process and outcomes measurement, evaluation, and management
- 2004, published “Green Book” & “Blue Book”
 - Dictionary of Disease Mgmt. Terminology
 - Disease Mgmt. Program Evaluation Guide
- 2005-06, Outcomes Project, Phase I
 - Dictionary of Disease Mgmt. Terminology, Version II
 - Survey of evaluation strategies by member organizations
 - Outcomes Guideline Report, Volume 1 12/06
- 2007 Outcomes Project, Phase II
 - Outcomes Guideline Report, Volume 2 9/07

Guideline Development

- Project overseen by Outcomes Steering Committee (OSC), with dedicated workgroups involving over 100 DMAA members
 - Methods
 - Financial measures
 - Selection criteria
 - Clinical metrics/comparative performance measurement (in collaboration with NCQA)
 - Wellness program evaluation
 - Process measurement

Guideline Development (cont)

- Iterative process for refining guideline recommendations, achieving consensus requiring 2/3 majority of OSC for acceptance of guideline
- Final approval by Quality & Research Committee and DMAA Board of Directors
- Presentation at annual Disease Management Leadership Forum in September 2007

Focus on Seven Guidelines

- Principle of equivalence
 - Annual re-qualification
 - Selection criteria
 - Defining outliers
- Trend
- Utilization
- Risk adjustment
- Small populations

Principle of Equivalence

- A person who belongs in the denominator during a measurement period has equal probability of being selected into that denominator (by selection algorithm) in each measurement period
- A person who does not belong in the denominator during a measurement period has equal probability of not being selected into that denominator during each measurement period

Annual Re-qualification

- 2006
 - Annual re-qualification **or**
 - Prospective ID
- 2007 – Annual re-qualification only
 - Each measurement period population is defined uniquely based upon application of identification criteria specific to the measurement period
 - Identical identification criteria are used to define the population and are also applied to each measurement period, baseline or post-implementation, in the same manner
 - As a result, no members automatically qualify for inclusion in later periods, or are automatically carried forward into later periods, simply because they were identified in an earlier period.

Selection Criteria for DM Programs

- Key components
 - Data sources
 - Codes
 - Algorithms for applying sources
 - Exclusions
 - Methods for classifying participants with multiple conditions
- Current status: developed guiding principles
- Challenges:
 - Availability of data sources across organizations
 - Expansion beyond “Big” 5 chronic conditions

Methods to Define Outliers

- Building on last year's work, DMAA has developed a matrix that reviews methods commonly used for defining outliers and recommends review of the matrix when designing DM evaluations.
 - Stop-loss method
 - Percentile distribution method
 - Standard deviation method

Trend

- DMAA recommends the use of the average difference between historical chronic and non-chronic trends to adjust current year non-chronic trend.

Utilization

- DMAA recommends the following measures as a minimum set of useful utilization metrics to complement and corroborate the financial outcomes measures for DM program evaluation:
 - All-cause admission rates per thousand members per year and ER visit rates per thousand members per year for the “diseased” or eligible population;
 - Condition-specific admission per thousand members per year and ER visit rates per thousand members per year for the entire insured or covered population (using principal diagnosis only to define condition-specific events).

Risk Adjustment

- In deciding (1) whether and (2) how to approach risk adjustment for a particular DM program for a specific population, it is useful to categorize outcomes of interest into one of the following 2 categories:
 - Category 1: Those believed to be impacted only by exogenous confounders and not the DM interventions, where there is no concern that program impacts will be altered by risk adjustment (e.g., non-chronic trend)
 - For this category of variables, one should utilize an appropriate risk adjustment method, ideally a commercially available risk adjustment tool or other non-proprietary validated method.

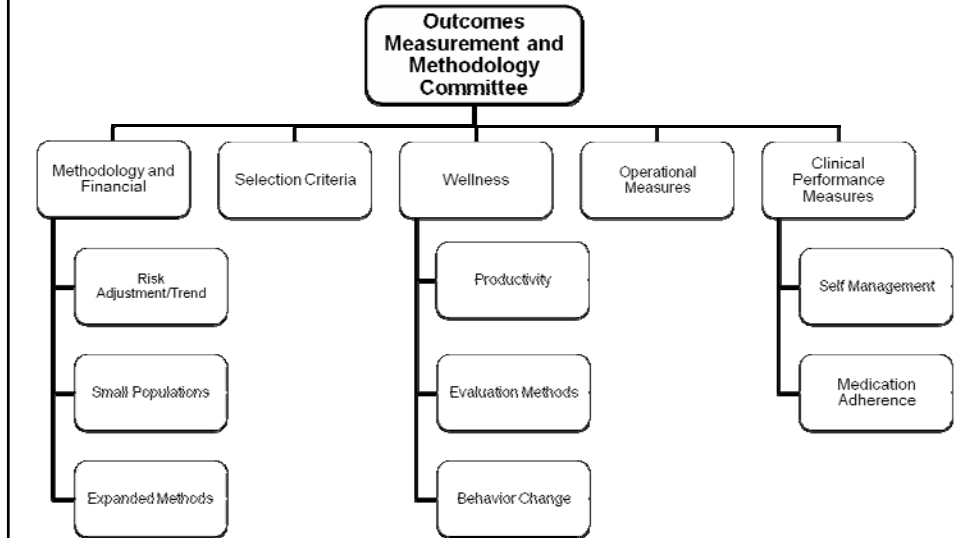
Risk Adjustment (cont.)

- Category 2: Those believed to be impacted by exogenous confounders as well as by program interventions that potentially may be inappropriately distorted or discounted by risk adjustment (e.g., condition prevalence or severity, casemix)
 - For this category of variables, the next step is to examine the potential magnitude and importance of the potential exogenous confounder(s)
 - If the potential magnitude is large and/or highly important, then one must consider which available risk adjustment methods permit a reasonable job of adjusting for the offending confounders without seriously distorting or discounting program impacts

Small Populations

- Guidelines suggest caution when interpreting medical cost savings measures in small populations: high variability will frequently result in conflicting, misleading or inaccurate indications of program-related impact.
- Current status: need to develop recommendations of what to do when faced with small populations

Preview of 2008 Activities



Methods and Finance Workgroup

■ Goal

- Develop additional recommendations around risk adjustment and trend, small populations, and a methodology that could be applied outside of the five chronics the guidelines currently focus on.

■ Work to Date/Next Steps

- Risk adjustment plans to expand on the current recommendation through examples
- Small populations will offer alternative ways to evaluation outcomes for a small population
- Population based methodology has invited external experts to share their views on a methodology for a more population based program and will analyze the various recommendations for similarities

Selection Criteria

To develop:

- The basic philosophical approach to guide the development of denominator specifications for comparison of disease management programs for five major conditions
 - Diabetes
 - Heart failure
 - Coronary artery disease
 - Asthma
 - COPD
- The basic architecture for condition denominators
- A set of selection criteria recipes embodying the philosophical approach and architecture

Wellness

- Goal
 - Develop recommendations around methods to evaluate a wellness program, specific measures for behavior change areas represented in the impact model and continue the work of productivity/presenteeism begun last year.
- **Work to Date/Next Steps**
 - As a first step, develop principle that could guide the development of a methodology to evaluate a wellness program
 - Prioritize and develop specification for behavior change areas identified in the impact model
 - Continue interview with the developers of presenteeism tools and present the information in the next Outcomes Report

Operational Measures

- **Goal**

- Develop definitions and measures for the key operational related pieces of delivering a population health improvement/disease management program

- **Work to Date/Next Steps**

- Definitions and flow diagram have been developed and specific measures for each area represented in the diagram are being developed/discussed

Clinical Measure Development

- **Goal**

- Develop measures in collaboration with NCQA to address self management and medication adherence

- **Work to Date/Next Steps**

- Group surveyed regarding current self management measurement and self management literature review completed
- Med adherence priorities developed and literature review completed

What's New in Disease Management Outcome Evaluation

Greger Vigen, FSA, MBA
SOA 2008 - Session 49

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Source of material

- Part of this presentation outlines the work generated by the Academy of Actuaries Disease Management committee. The publications represent the work of the entire volunteer committee.
- Many of these slides are developed from material developed by Ian Duncan of Solucia, Inc. Ian chairs the Academy Disease Management Committee.
- Sue Jennings is presenting DMAA directions herself in a separate deck. This discussion will move quickly through history and the Practice Note created by the committee. We will then highlight the CMS decision and ask for your feedback on the role of the actuary and Academy on this topic

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Agenda

1. History of Disease Measurement and ROI Codification
2. SOA Research
3. Academy Practice Note
4. DMAA's Guidelines
5. CMS Voluntary Program / Medicare Health Support Program
6. Other, Miscellaneous Efforts
7. Future Directions
8. Role of the Actuary/SOA/Academy
9. Current events

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Early History of Evaluation

1. Epidemiologists and others always favored randomized controls but this was difficult to do in health plan populations
2. DM companies originally used a method that compared managed versus unmanaged member experience. Eventually the shortcomings were recognized - regression to the mean (RTM) and selection bias)
3. This led to the development of the "population" methods prevalent today. Overcomes selection bias, RTM (somewhat). Introduces new issues: comparability of population between periods, and the need for a trend adjuster

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Society of Actuaries Research

1. As actuaries became more involved in the evaluation of programs, SOA health section recognized the need for education in this developing field.
2. Grants from the health section and CKER (Committee on Knowledge Extension and Research) led to the publication of 8 peer-reviewed papers between 2003 and 2006.
3. "Evaluating the Results of Care Management Interventions: Comparative Analysis of Different Outcomes Measures" by Henry Dove, Ph.D. and Ian Duncan, FSA, MAAA. Research sponsored by the Society of Actuaries Health Section. Available at : [//www.soa.org/research/health/](http://www.soa.org/research/health/)

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SOA Research (contd.)

4. One paper (on comparative chronic and non-chronic trends) was published in NAAJ in 2006. A related paper on trend, introducing different methods of calculation that avoid some of the bias inherent in using non-chronic trend, is under review by Disease Management.
5. Unlike many of the other initiatives discussed here, the SOA papers address Care Management broadly (not just DM).

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Academy – Approach to Publication

1. Academy has three levels of publications:
 - a. Issue Brief: An introductory text for actuaries who have little exposure to the topic.
 - b. Practice Note: a more detailed exposition that covers an issue comprehensively. Will address different approaches/methods used by actuaries and may be mildly prescriptive but lacks the prescriptive force of the Standard of Practice.
 - c. Standard of Practice: actuarial methods as practiced by most actuaries working in the field.

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Academy - Disease Management

1. DM Issue brief published in 2005.
2. The Practice Note was released for public comment in August. Final version was released in December 2007. The note is available at http://www.actuary.org/pdf/practnotes/health_dm07.pdf
3. No standard of practice is planned at this time, although one will probably be released in the next couple of years as practice in this area becomes more standardized.

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Slide 7

GT1 according to the Yearbook, a practice note is "to provide information to actuaries on current or emerging practices in which their peers are engaged. they are intended to supplement the available actuarial literature, especially where practices addressed are subject to evolving technology, recently adopted external requirements, or advances in actuarial science....[they]are not interpretations of actuarial standards of practice nor are they meant to be a codification of generally accepted actuarial practice. Actuaries are not in any way bound to comply with practice notes or to conform their work to the practices described in practice notes.'

Geralyn Trujillo, 10/15/2007

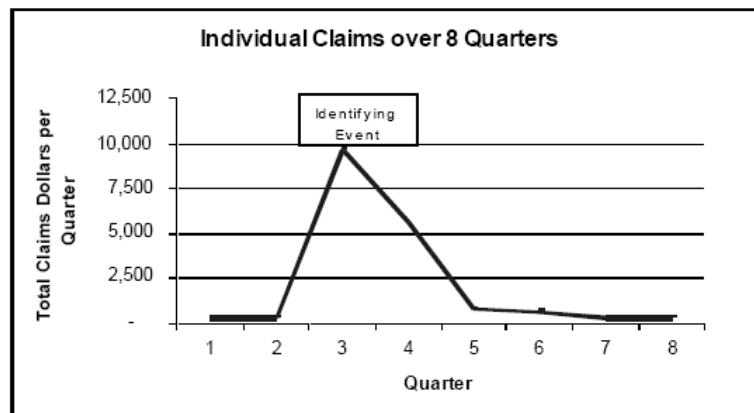
Academy - Practice Note

1. Measurement methodologies (difference in correlation and causality, and comparison groups)
2. Evaluation (equivalence, what to measure, financial outcome, time period, regression to mean, and selection/participation bias)
3. Data sources (data integration and consistent application)
4. Trend (typical calculations, choice of trend adjustor)
5. Operational issues (multiple programs)
6. Validation of results (wide ranges of results)
7. And, a host of future developments (health management, individual data integration, disease registries, behavior change, episode groupers, etc.)

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Academy - Variation over time

Figure 1



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DMAA Initiatives

1. DMAA, the industry trade association, has long sought to standardize methods among member companies. Variety of methods and powerful company interests made this impossible.
2. DMAA's first effort, the Outcomes Guideline Report, was published in 2004. Similar to the Academy Practice Note, it tended to be comprehensive rather than prescriptive. At the same time, Ian Duncan edited the Dictionary of DM Terminology, in an attempt to standardize terminology and definitions.

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DMAA Initiatives (contd.)

3. In 2006 DMAA assembled a number of workgroups to produce a new and more prescriptive volume.
4. Published in December 2006, it represented a consensus document (industry subscribed to the methodology).
5. Recommended a population-based, adjusted historical control methodology. Trend should be estimated from the non-chronic population.

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DMAA Initiatives (contd.)

6. Committees continued work in 2007. 2007 Guidelines addressed some of the shortcomings noted in industry discussion of 2006 Guidelines.
 - a. An attempt was made to avoid some of the bias inherent in the non-chronic trend.
 - b. Risk-adjustment is encouraged.
 - c. Began a discussion of small sample size problems.
 - d. Began a discussion of measurement of clinical and other quality metrics.

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CMS Health Support Program - Status

- Formerly known as the Voluntary Chronic Care Improvement Pilot
- In January, CMS published a fact sheet about the program.
 - “Preliminary evaluations of the MHS program indicate that Phase I of the program is not meeting the statutory requirements. The CMS will determine whether to expand the pilot into Phase II if the results of the independent evaluation indicate that any of the programs (or program components) meet the conditions for expansion as specified in statute.”
- CMS is not planning to continue with program
- The implications to other programs are not clear. The CMS program is quite unique, uses a high-touch holistic approach, with high performance standards (a 5% net savings).

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CMS Health Support Program - Report

- The July 07 preliminary report on the first six month of the program has been released
- Given the very short six month timing, no major health changes were reported. However, some observations about the program startup were interesting
 - Fees (for the Medicare population) ranged from \$74 to \$159 per beneficiary
 - This was 5.3% to 11.2% of average PMPM cost
 - The intervention group was “statistically and substantively different from the non-participant populations . . . Participants have lower rates of co-morbid conditions” – but wide variation by program
 - Early patient satisfaction was high and physician support was strong

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Miscellaneous efforts

1. The adjusted historical control methodology is the most-widely used methodology in the industry. The work done by DMAA, the Academy and SOA recognize this.
2. Nevertheless, some researchers continue to attempt to develop alternative methodologies. See, for example, papers published by Ariel Linden. So far, no alternative methodology has proven to have the appeal of the adjusted historical control methodology.
3. Some attendees may be familiar with the DM Purchasing Consortium “White Paper”. This is not a methodology paper, but rather an attempt to explain some of the problems of equivalence and regression to the mean via analogy (“planes on the ground”).

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Future Directions

1. DMAA continues to address areas such as small samples that are crucial to employers.
2. DMAA has re-branded itself to include a broader range of interventions, including wellness (though probably not UM or Case Management). Expect to see more effort placed in the problems of evaluating wellness programs and programs that integrate multiple interventions.
3. Some research has focused on unbiased methods for estimating trend, and measuring integrated programs
4. Expect an Academy Standard of Practice in the next few years.
5. The actuaries continue to communicate with the DMAA and are working to strengthen this relationship

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Future Directions – major questions

6. As an industry, we need to reconcile the randomized trial results with the typical methodology and results. Given the visibility of the Medicare decision, this is not even more urgent than in previous years
7. Typical analysis has focused on what happens in total. We need to answer questions about why things happen and being to investigate causality
8. The industry is moving beyond DM into health management, web support, HRA integration, disease registries, behavior change, episode groupers, etc. This can improve the power, but adds fees, and makes analysis even more complex

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Discussion of actuary role on DM

- We are at a crucial point in the industry
- Today's forum provides a excellent opportunity to discuss the role of the actuary in this analysis
- We would also like to hear your views on the role of the Academy and/or Society in this discussion

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Questions from the 2007 SOA meeting

1. Does your organization conduct DM/CM evaluations?
2. Do you conduct or oversee CM evaluations?
3. Do you think CM programs reduce medical costs?
If so, which diseases
4. What's your comfort level that trend-adjusted historical-control (e.g., adjusted pre-post) adequately measures outcomes?

Very Low-1 2 3 4 5 6-Very High

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Current Events

- Discussion events after this presentation was created

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Questions?

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