

**Dispelling Myths about Predictive Modeling:
The Nuts and Bolts of Selecting, Implementing
and Achieving a Healthy ROI
using Predictive Modeling**

SHRM Webcast

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Printable slides at: <http://www.shrm.org/rewards/webcast/06meek.pdf>

Webcast Overview

- The problem and history
- Key predictive modeling concepts
- Evaluating predictive modeling & PHM vendors
- Case Studies
- Measuring Success and ROI

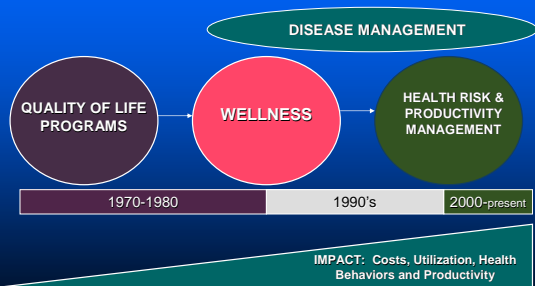
The Problem

- Employers **continue to contend** with the rising cost of health care that is directly impacting the profitability of their organization
- Typically, health plan benefits are one of the **top items** in an organization's budget
- Health plan costs for many employers are projected to **double in 5 years**
- 10-15-20 % of your population is driving 80-90% of your costs
- **URGENT** need for proactive, risk-level management as a prudent business strategy
- Health behaviors and individuals capacity to make prudent self-care decisions account for **50%+** of your claims costs

The Methods | *Most Common Approaches*

- Case Management
 - What/who is being managed?
- Disease Management
 - What happens if I don't have a disease?
- Health Screenings
 - Logistics, resources, ... and then what?
- Health Risk Assessments
 - Predicting morbidity & mortality
 - (expense in the more distant future)
- Wellness Programs
 - Who is most attracted?
- Data Mining
 - Mining what already happened

The History | *Population Health Management*



Key Concepts: Definition & Key Uses PM's

Definition of Predictive Modeling

- *“Predictive modeling is a set of tools used to stratify a population according to its risk of nearly any outcome...ideally, patients are risk-stratified to identify opportunities for intervention before the occurrence of adverse outcomes that result in increased medical costs.”*

Cousins MS, Shickle LM, Bander JA. An introduction to predictive modeling for disease management risk stratification. Disease Management 2002;5:157-167.

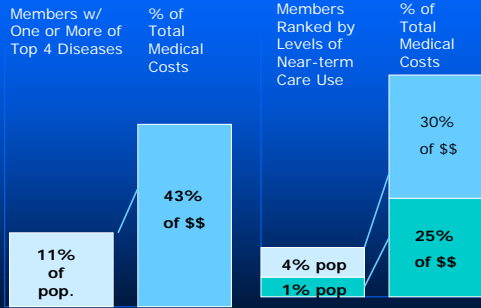
3 Primary Reasons to Use Predictive Modeling?

- To Predict Cost and Risk Adjust:
 - Cost of care for individuals, groups, or a population and to risk-adjust a person, group, or population (compare illness burden or economic outcomes; for payment purposes)
- To Manage Provider-Driven Cost:
 - Provider Profiling (compare risk-adjusted costs of care of a provider to that of a similar group of providers or some other benchmark such as a quality parameter)
 - Look for non-adherence to clinical practice guidelines to target patient-specific or provider-specific care improvement opportunities
- To Manage Consumer-Driven Demand / Cost:
 - ID near-term high care users for proactive care management programs
 - Predict future risk of a specific condition from risk factors

What Data Can Be Used for PM?

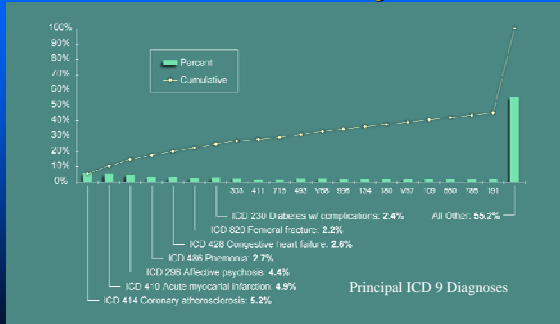
- Demographic data
- Medical claims
- Pharmacy claims
- Lab results
- Patient-supplied data
 - Including medical and psychographic info such as health status, clinical risk status, impactability factors

Is Dx the Best Way to Find People?



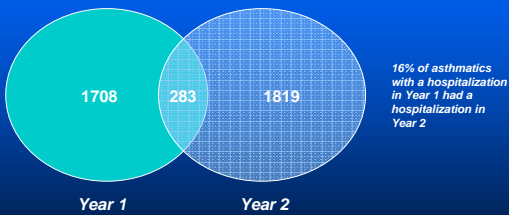
Data Source: Nussbaum, DMAA, 10/02.

Principal Diagnoses Among Managed Care Members At Risk for Future High Utilization



Forman SA, Kellher M. Status One: Breakthroughs on High Risk Population Health Management. Jossey Bass Publishers, San Francisco 1999

Today's high cost patients are not necessarily tomorrow's



Rubinger, MHT, Riv JJ. Predictive modeling points the way to future risk status. Health Manag Tech 2000;2:10-12.

Use of Diagnosis & High-Cost?

	% Stayed High-Cost Year-2	% Became Low-Cost Year-2
Year-1 High Cost People with CAD	27%	73%
Year-1 High Cost People with CHF	37%	63%
Year-1 High Cost People with COPD	38%	62%

Source: Linden et al, Disease Mgmt (6)2; 2003, page 99.

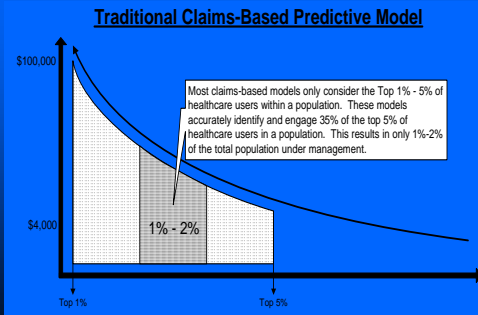
Studies suggest other predictors

- HERO study (Goetzel et al, 1998) shows most powerful predictors of highest near-term care use are depression & stress
- MEDSTAT/IHPM study (Meneades et al, 2000) on 4.1 m lives shows that 46-63% of patients with claims representing 75-79% of all claims costs NOT represented by 10 most costly diseases
- Kaiser Permanente study (Cummings & VandenBos, 1981) shows 40-60% of primary care visits from "worried well" with no diagnosable disorder

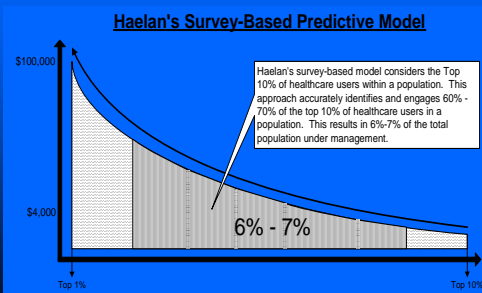
Perceived Health Model

- Health, not as lack of disease, but experienced as some level of illness or wellness
- Illness: A sense of feeling/doing below one's OWN expectation; gap is created that generates care-seeking behavior
- Wellness: A sense of feeling/doing at/near one's own expectation; care-seeking behavior is low
- Using this definition, you can be well with a terminal disease or ill without a clinical diagnosis!

Claims-Models' Limitations



Survey-Based Model



Personality Variables

- The next new phase of improvements in predictive models
- Built on the premise that there are intra-person dynamics that increase or decrease the intervention impact
- Eventually will not only target those at highest risk, but will refine to call only those that we are most likely to impact

Influence of Interventional Models

- Motivational posture vs. telling/advice giving/reminding
- Interventions that quickly and very meaningfully target the key contributing factors with well-demonstrated coaching techniques
 - Coaching varying levels of readiness to change behaviors
 - Coaching stress and stress emotion management
 - Detecting and influencing perceptual/attributional errors
 - Linking to appropriate resources to address basic need issues

Influence of Interventional Models

- Skillsets of coaches
- Background/experience of coaches
- Coaching process variables
- Infrastructure and administrative support
- Workflows and workloads

Influence of Overall Design

- Communication plan; leadership involvement
- Benefit Embedding creates powerful impact
 - Shepherd Chemical: no incentive, response rate: 22.4%
 - American Health Network: \$15 per mo prem diff, response rate: 53%
 - Auction Broadcast: \$25 per mo prem diff, response rate: 69%
 - IDI: \$20 per mo prem diff, response rate: 95%
 - Scott Benefits: \$50 per mo prem diff, response rate: 100%

Metrics to Measure Impactability

- # in total population as denominator
- # on original call list
- # engaged in coaching or care management intervention
- # in various coaching pathways
- # with targeted clinical/behavioral outcomes
- Average session count & # with 1-3, 4-10, 10+ sessions
- Satisfaction with coaching

Key Staffing & Operational Considerations

Critical Success Factors: Check Capacity

- Size of target population
- % of people stratified needing health advocacy
- Build capacity to be at 50 new high risk per health advocate per month
- Example:
 - 10,000 Eligibles deployed at 2,000 per month
 - 200 high-risk per month
 - Requires 4 health advocates

Critical Success Factors: Check Skill Sets

- Selection criteria of health advocates one of the most important factors in successful PHM programs
 - Varied clinical background; at least 5 years experience as case manager; passionate about the work
 - Clinical psychologist/medical social workers great fit for this role
- Most need additional training in broadening from a DM or CM approach to a health advocacy approach
- Most need close attention to precepting in the first 3-4 months of the project
- Set-up and monitor performance criteria and outreach standards

Critical Success Factors: Check Workflows

- How are members identified as high risk and how will that information be communicated/assigned to health advocates?
- Are procedures in place for
 - Number of attempts?
 - Live and answering machine scripts that are HIPAA compliant?
 - Notification letters--pre-call, if no response?
 - Referrals to your internal/external DM programs and/or care coordinators?
- Materials in place for mailings to members covering certain topics of health information?
- System capacity/processing speed and documentation procedures?

Keys to improving enrollment

- Excellent Predictive Modeling
- Excellent staff
- Good procedures
- Commitment to doing the process pieces very well
- Broadening the intervention model from DM to health advocacy

Measuring Success and ROI

Success Benchmarks

- 60-70% engagement of high-risk individuals into intervention program
- At least ½ of engaged group receiving more than 1-2 sessions
- Satisfied and retained staff
- Net savings of .5-3% of total premium across entire high & low-risk population

Case Study | *City County Insurance Services*

Benefit Services - Oregon Cities/Counties | 6/05-6/06
9,341 eligible employees & retirees

Process and Plan Results (2005 to 2006)

- Incentive Completion Rate: 69.8%
- Coaching Engagement Rate: 59.17%
- Negative trend of -7% in plan net claims paid
- Financial impact: 2006 benefit rates 2.5% less than 2005

Next Steps:

- Take what was learned from first year and design changes to continue to drive participation and coaching engagement higher
- Continue to work with unions to help them see the benefit
- Perform definitive outcomes analysis with independent third party

Case Study | *North Carolina Banker's Association*

East Coast Banking Association | 4/05-4/06
2,341 eligible participants

Results (2005 to 2006)

- Incentive Completion Rate: 47%
- Coaching Engagement Rate: 58% with At-Risk of 13%
- Financial Impact: After just one year, trend was \$2m under projections.

Key Factors

- Communication strategy was key
- Big difference between predictive modeling that has high accuracy rates and other rules/stratifiers/ retrospective looks at claims in terms of finding the right people and coaching them EARLY
- Need to manage much more of this at-risk group, e.g., >8%, not ½ of 1% with traditional methods
- Health outcomes were also powerful with statistically significant improvements at the TOTAL population level in physical symptoms, emotions, functional ability and positive changes in behavior

Absolutely 3 Steps in the Process that MUST Go Well to Achieve ROI

- Ya gotta find the right people!
- Ya gotta have an intervention that works!
- Enough of the right people have to engage in that intervention to produce enough benefit to SEE a positive benefit to cost ratio!

These parameters should form the basis of your due diligence!!

The Keys to ROI

- PM should find 10% high-risk; 1-3% not enough
- PM should have > 50% sensitivity/ specificity
- Engagement levels (which depend largely on how good your PM is) should be > 60%
- Average session count should be > 4

Key RFP questions to ask HM Vendor

- What is key purpose of your model? Key strengths? What type of data needed? What timeframe required to be valid?
- How did you develop? Where is validation study?
- What is sensitivity? Specificity? How does that fit with my needs?
- What % does your PM find? What are your specific engagement levels?
- Describe your intervention model
- How does all of the above fit with my requirements in terms of generating an ROI?
