



September 14, 2009

## ***Keynote Session II:*** Use of Predictive Models in a Total Health Management Strategy for Employers

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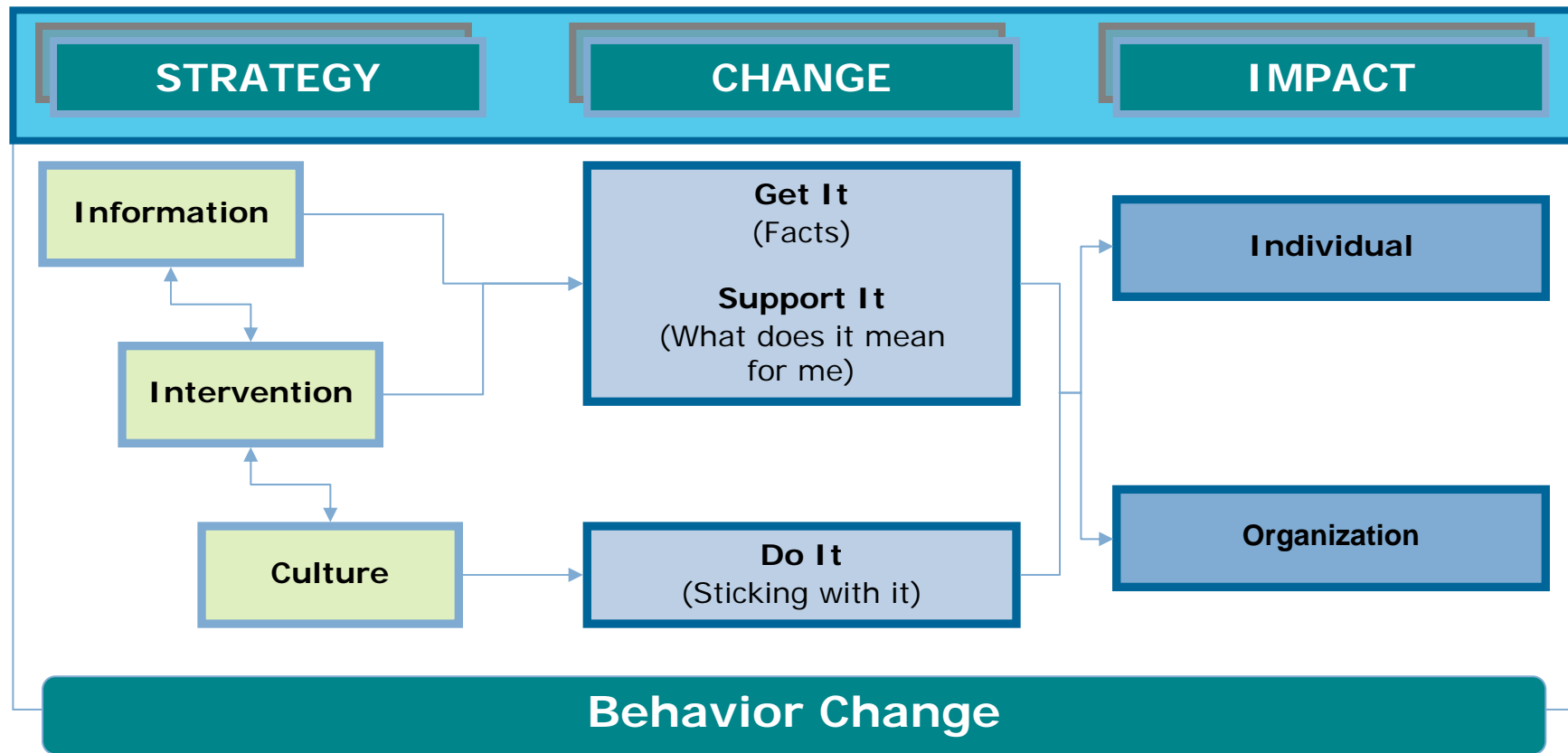
Norwalk, CT

## What is Total Health Management (THM)?

- Healthcare is more than the time we spend at a doctor's office or hospital being treated
- It also has to encompass the other aspects of living and working:
  - Preventive care
  - Absenteeism
  - Presenteeism
  - Behavioral health
- THM is a way of recognizing all of the inputs that impact our health, productivity and life

# Overview of Wellness Program Elements

## Behavior Change Approach



What people need and look for to get themselves to change ...

Knowledge  
Motivation

Self-efficacy / Skills  
Resources

Attitudes  
Self-esteem

Environment  
Reinforcement

## How Predictive Models Aid with THM

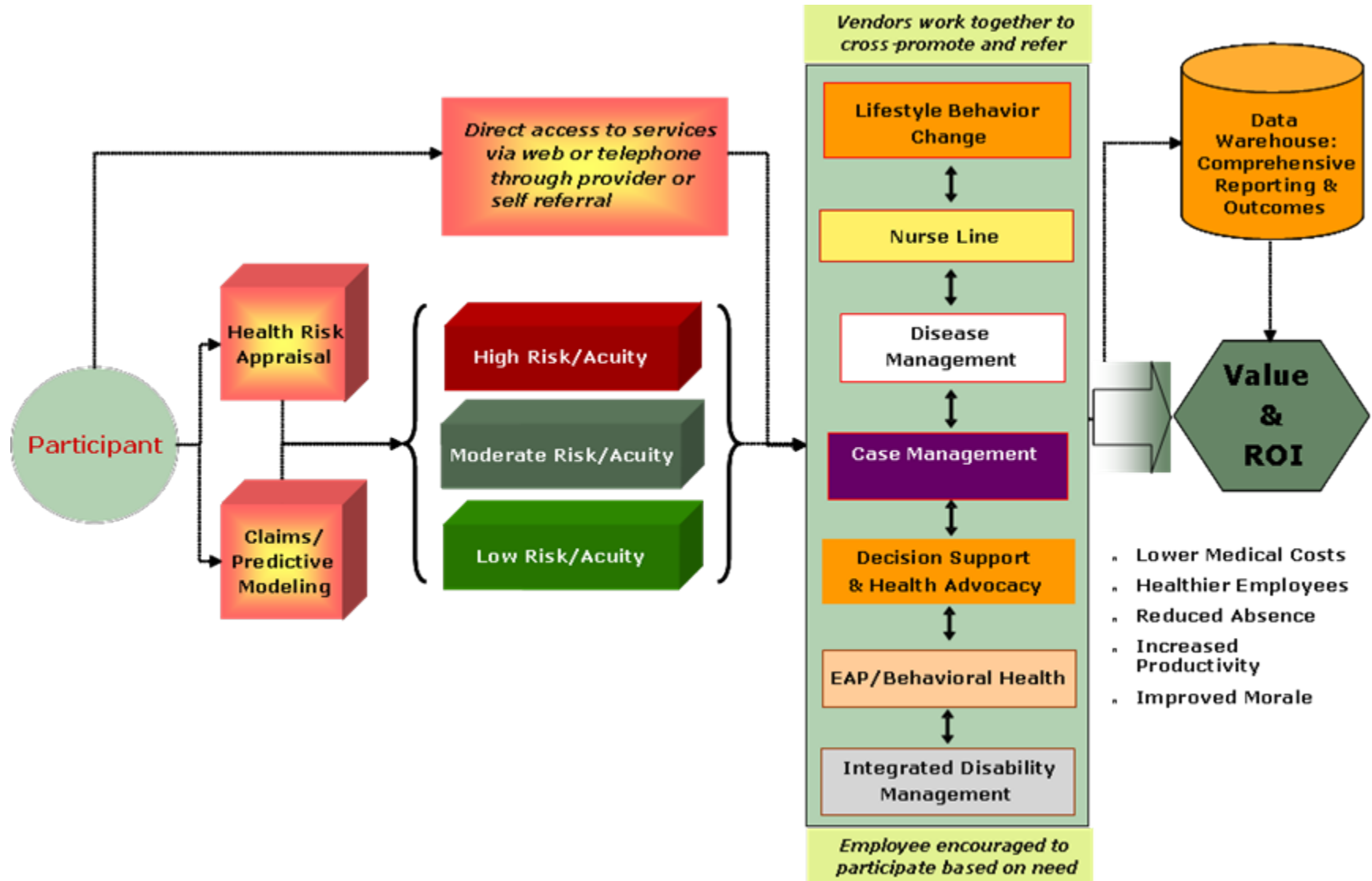
- Identify areas for targeted intervention
- Identify gaps in current programs
- Understand ways to change and improve
  - Benefit design
  - Incentive programs
  - Behavior

## Goals of THM

- Focus on total **population health management**, addressing the entire health continuum
- Emphasis on long term **behavior change** and risk modification
- New technologies are creating **data-driven programs** tailored to individual risk, health status, and learning style
- **Health risk assessments** (HRAs) with **lifestyle coaching** are the central starting point for risk modification programs
- Success is dependent on supportive health plan designs, strong **communication and incentives**
- Disciplined **measurement and evaluation** draw on both health and productivity measures to document program impact and ROI
- Growing body of published research documents **program impact and ROI**

# Overview of Wellness Program Elements

## How Services Fit Together



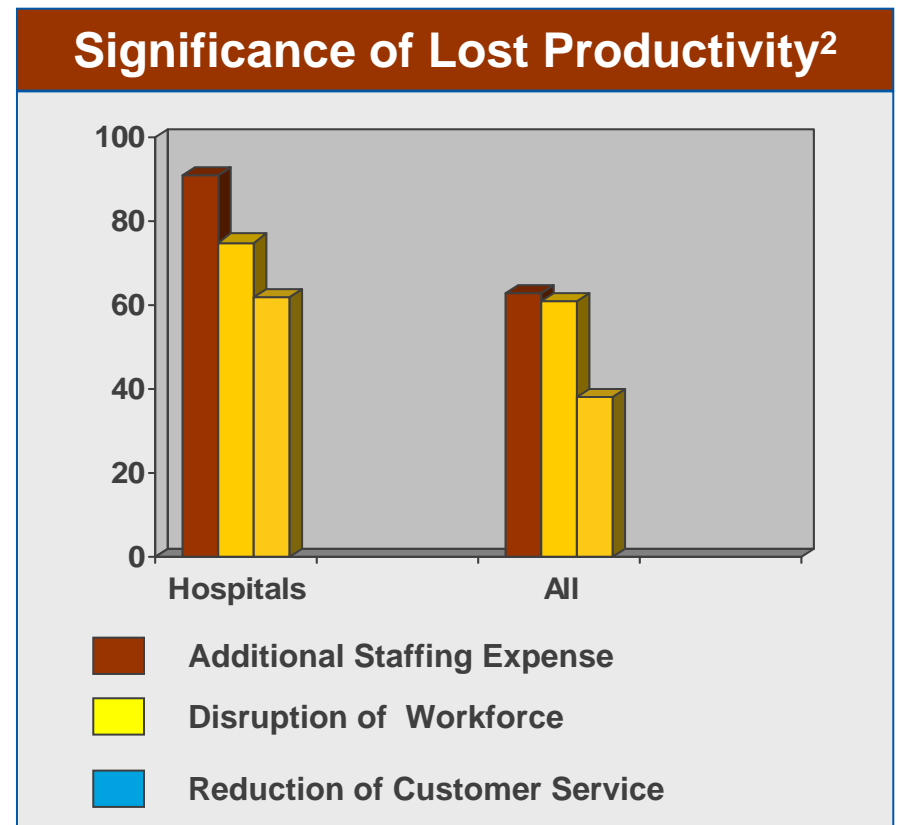
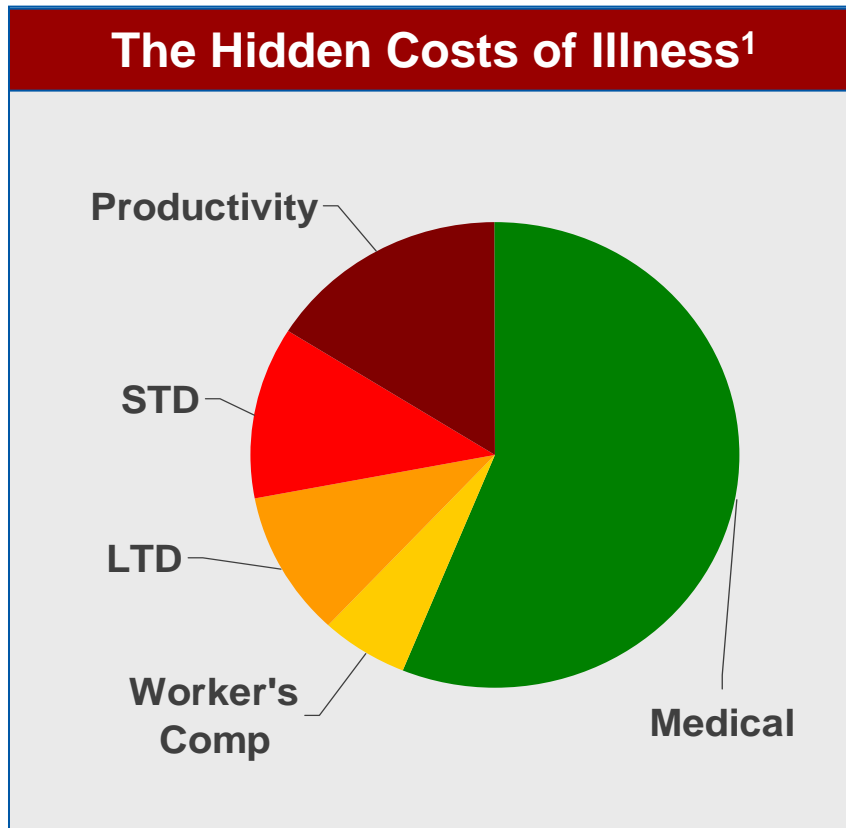
## Strategic Vision

- Keep healthy people healthy, safe, and productive
- Reduce risks to avoid and/or delay onset of illness and disease
- Provide support for making wise, health-related decisions
- Manage chronic conditions to avoid costly complications
- Coordinate care for highly complex patients
- Effectively and safely return disabled employees to work
- Improve the overall health & productivity and reduce costs of the workforce

***“It is not about health benefits, it is about a healthy and productive workforce.”***

# Understanding the Relationship between Health & Productivity

- Address the costs associated with lost time that result from medical conditions and illnesses



1: Active employee health care costs from Mercer National Survey of Employer-Sponsored Health Plans 2006, Large Employers (500+).  
Absence program costs from 2005 Survey on Health, Productivity and Absence Management

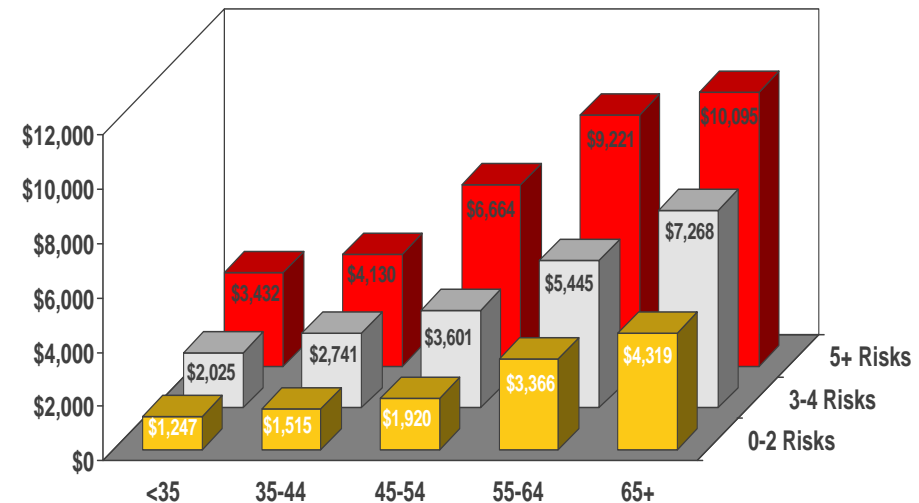
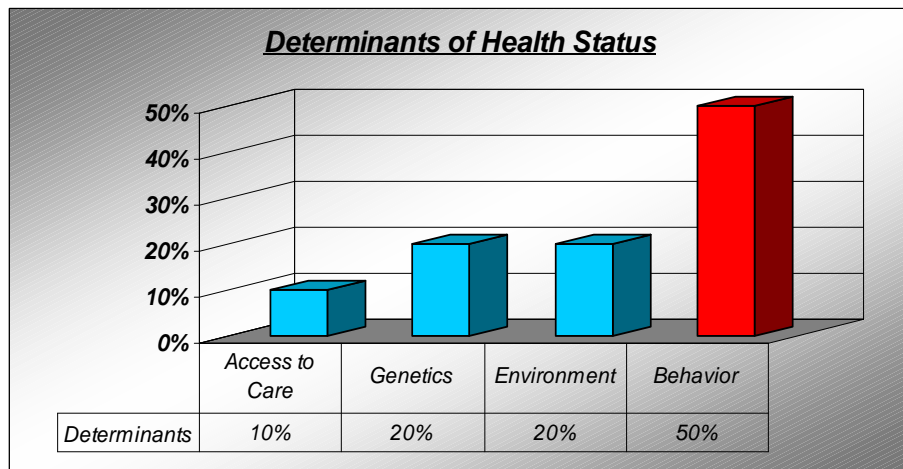
2: Mercer Health and Productivity and absence management programs, 2006



# Managing Health Risks to Mitigate Onset of Future Illnesses

- Health behavior accounts for 50% of medical costs<sup>1</sup>

- Across all ages, higher risk individuals generate higher healthcare costs<sup>2</sup>
- For this population, a 10% reduction in risk would result in 2% lower costs<sup>3</sup>

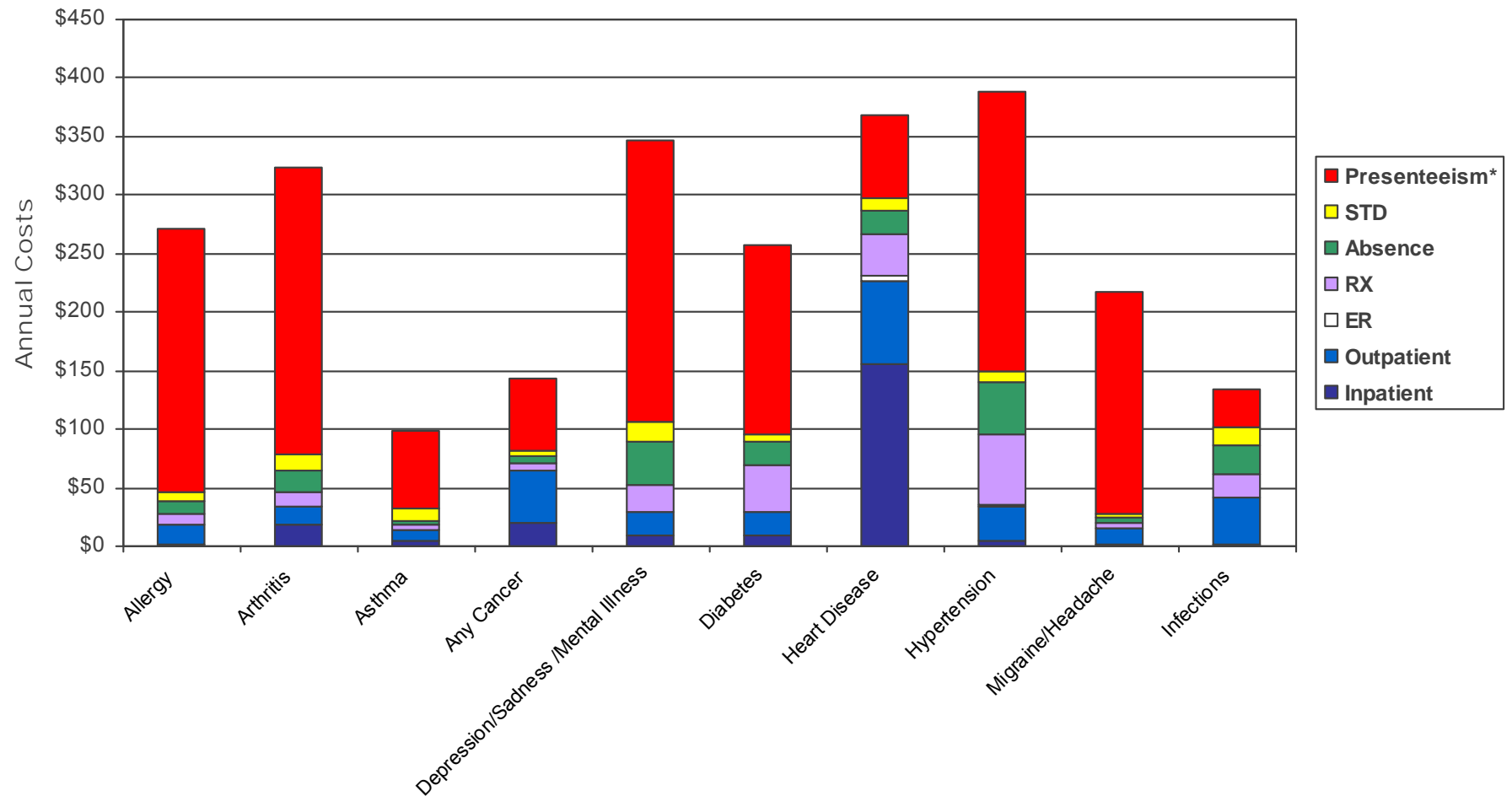


<sup>1</sup> IFTF, Center for Disease Control and Prevention

<sup>2</sup> Staywell data analyzed by University of Michigan (N=43,687); 1997-1999 annual paid amounts

<sup>3</sup> Assumes 70% population have 0-2 risks, 20% 3-4 risks and 10% 5+ risks; also, assumes distribution across age ranges from <35 through 65+ of 24%, 27%, 26%, 17% and 7%, respectively

# Overall Economic Burden of Illness, by Condition

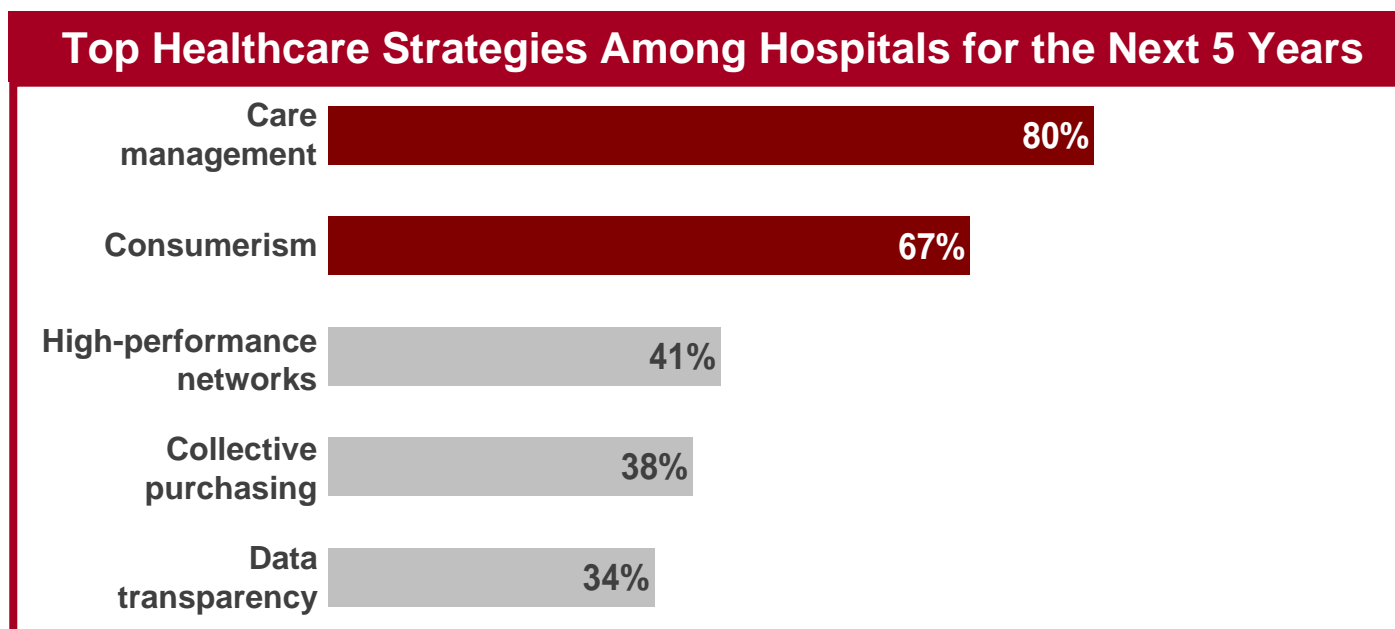


\*Presenteeism: Individuals are at work but are not fully functioning because of illness or other medical conditions, resulting in decreased productivity.

Source: Goetzel, Long, Ozminkowski, et al. JOEM 2004; 46:4.

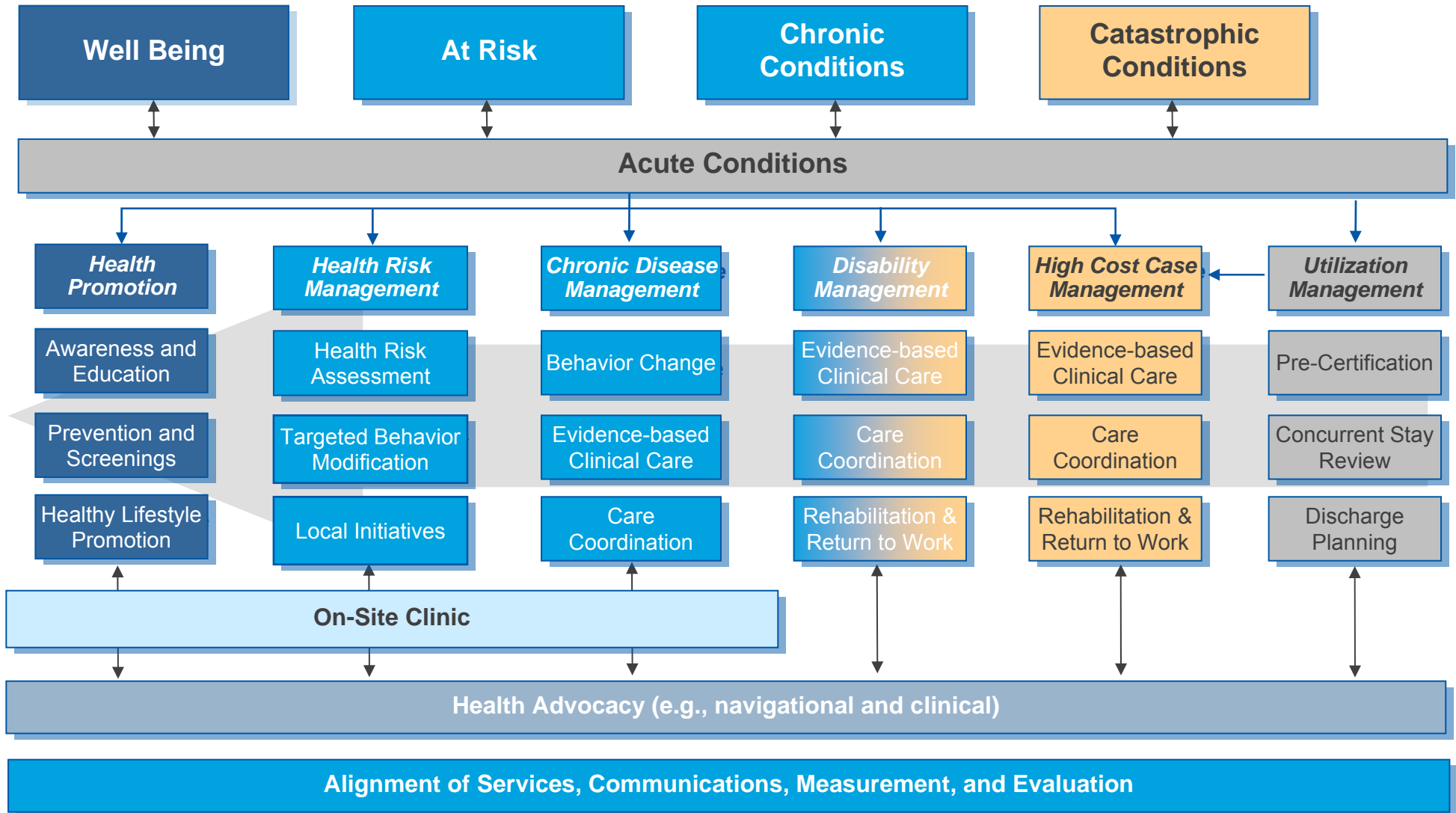
## Hospital Employers – Trends

- Opportunities from traditional initiatives may be limited
  - Only 35% of hospital employers indicate that reducing benefits/shifting costs will be a top strategy over the next five years
- Although employers will continue their use of traditional initiatives, many are considering alternative strategies such as member engagement and population health management



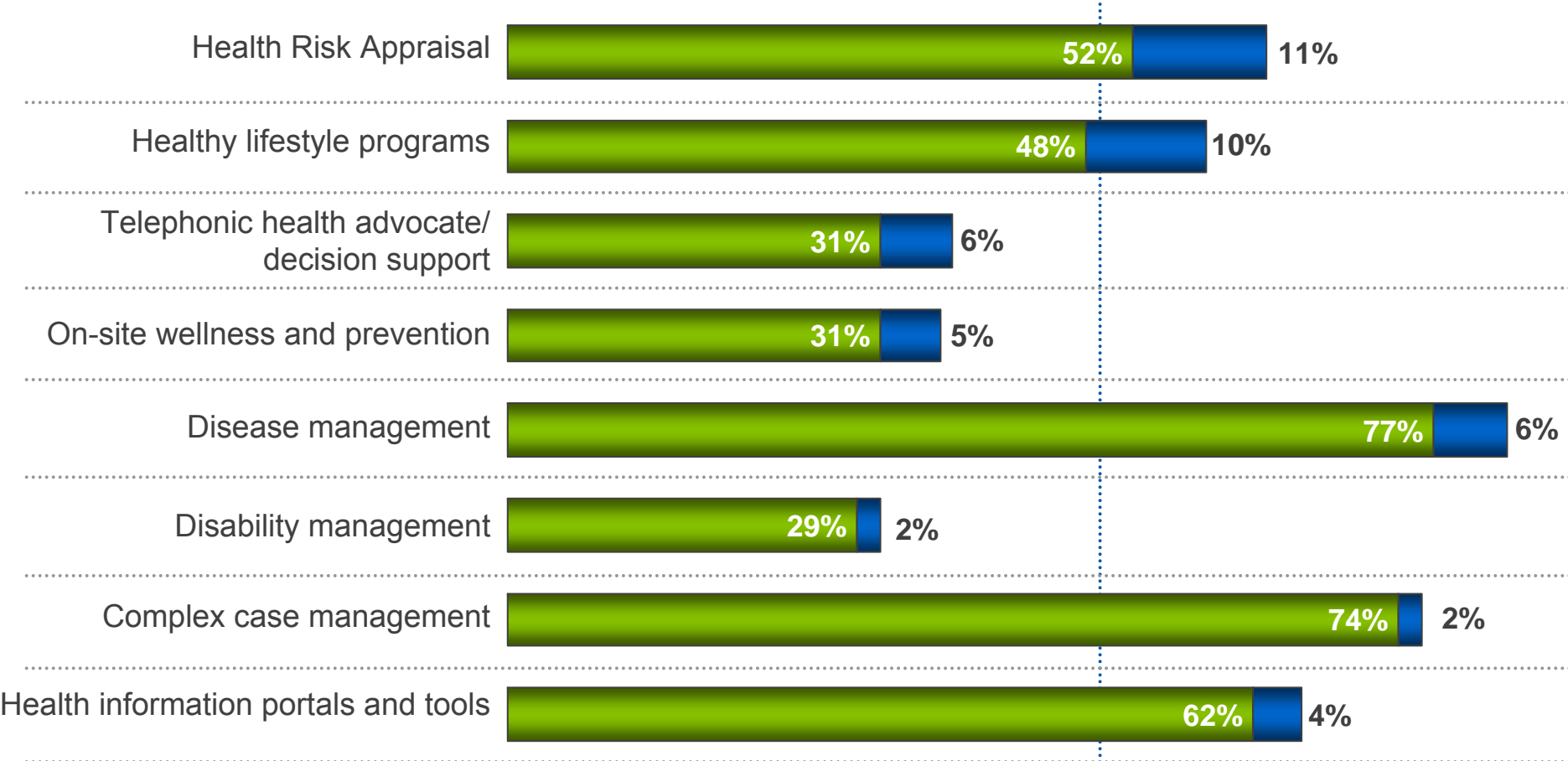
Source: Mercer National Survey of Employer-Sponsored Health Plans

# Best Practice Principles - Addressing the Entire Healthcare Continuum



# Employers Increase Use of Health Management

Percent of Respondents Offering Program



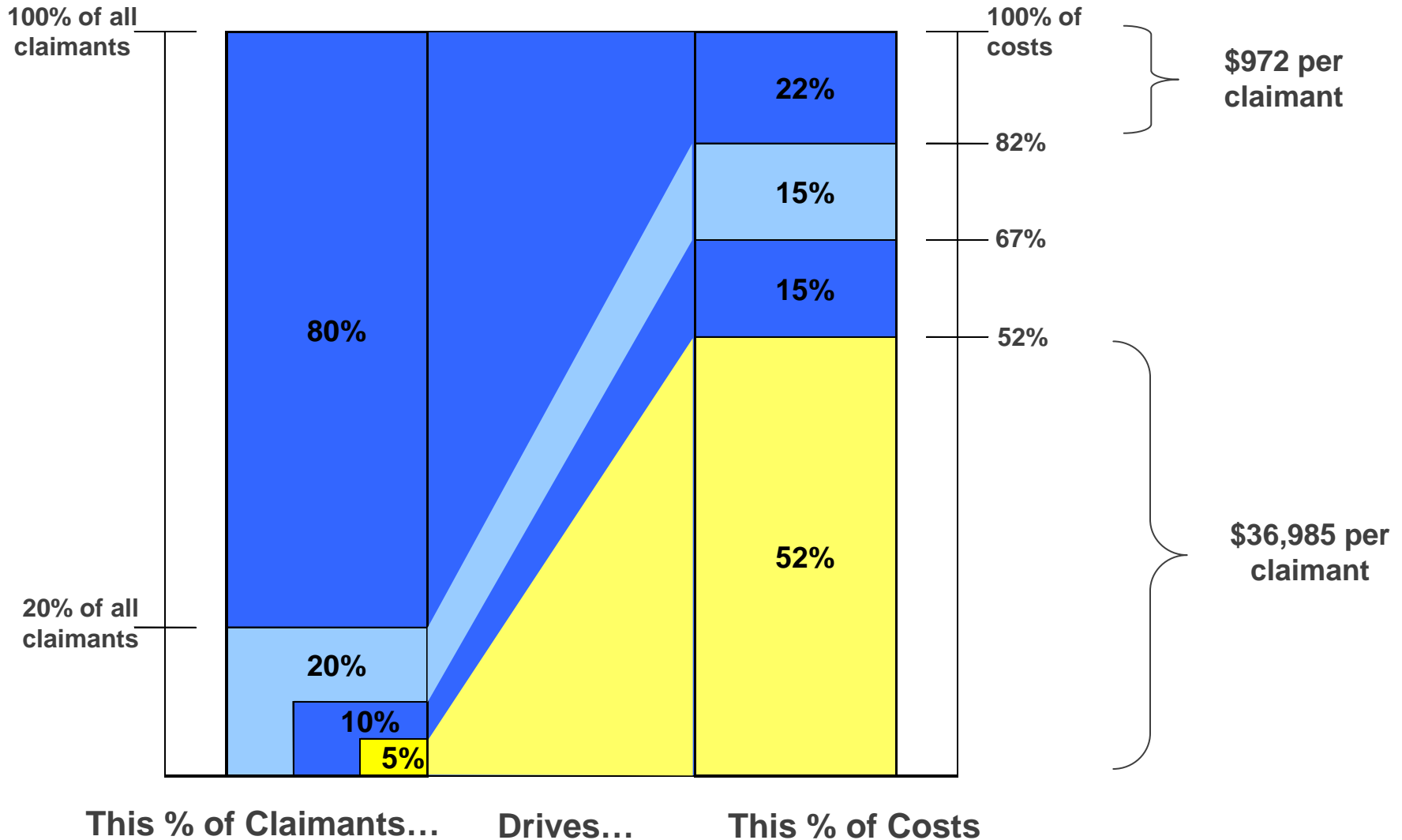
■ In place in 2007 ■ Added for 2008

50%

Source: Mercer's 2008 Client PULSE Survey

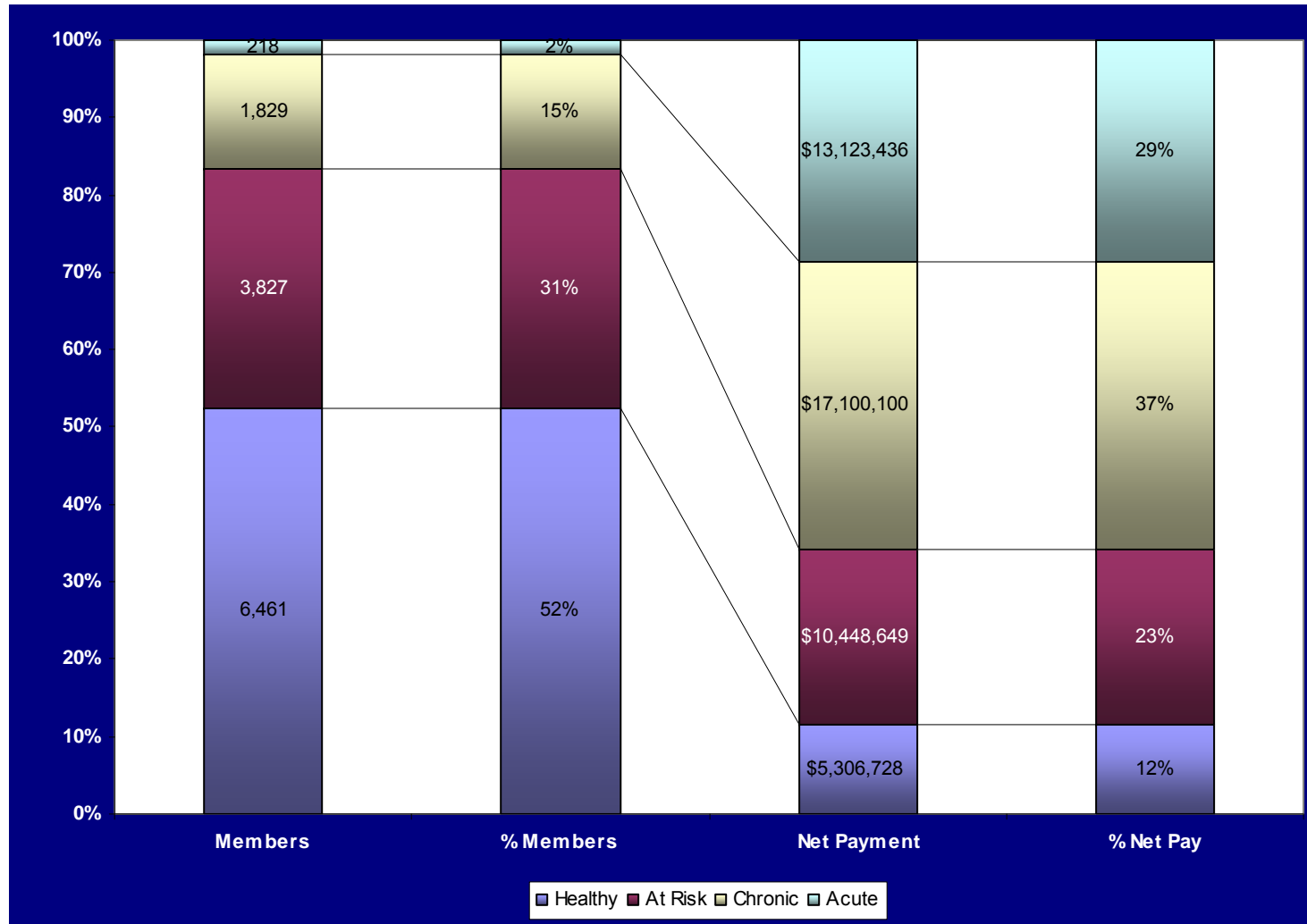
# Employers Are Interested in Using Their Data

- 20% of your claimants drives 82% of total costs



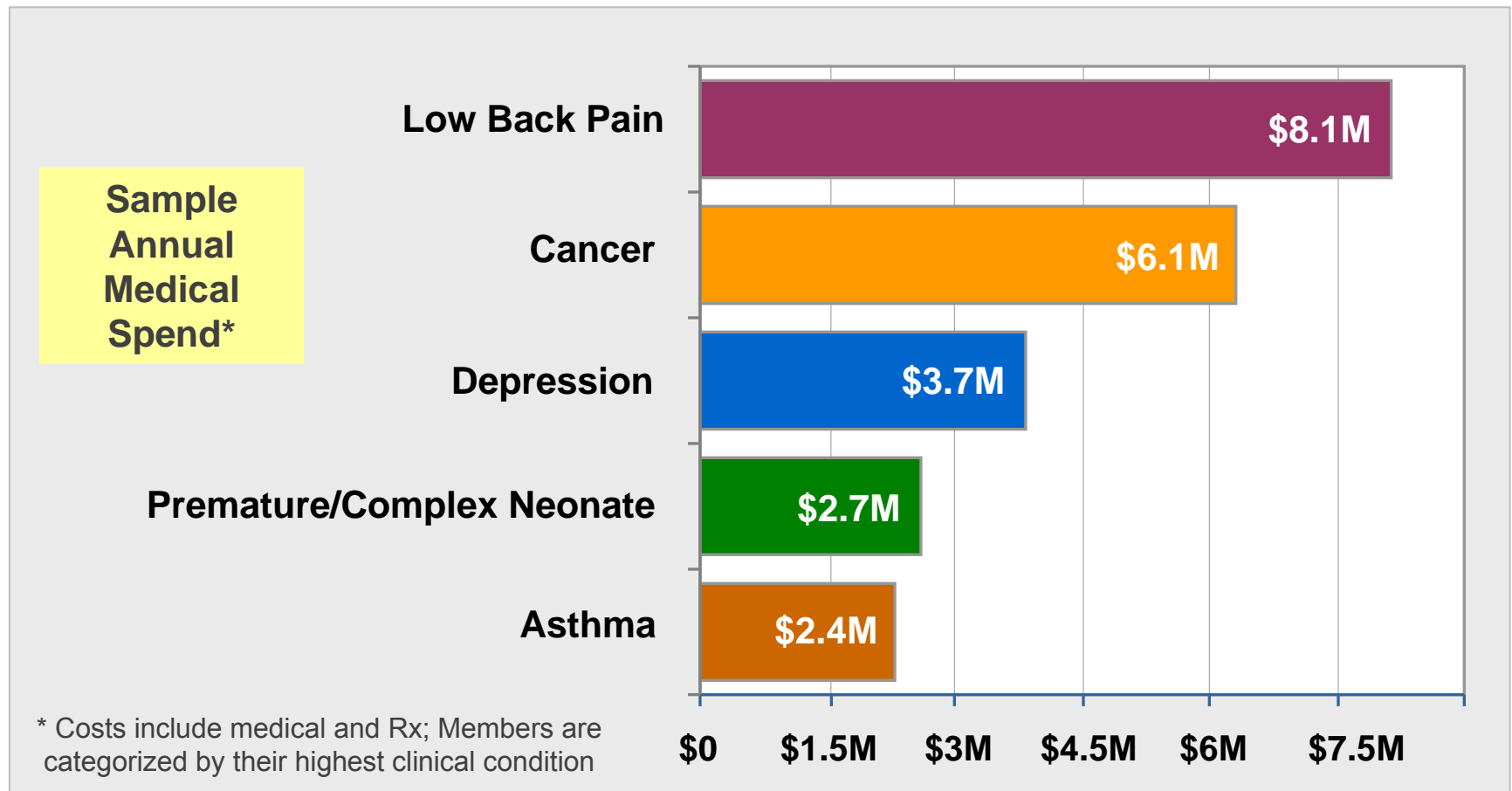
# How One Employer Responded to Generic Health Plan Information

Total Costs: \$46M for 12,000 Employees



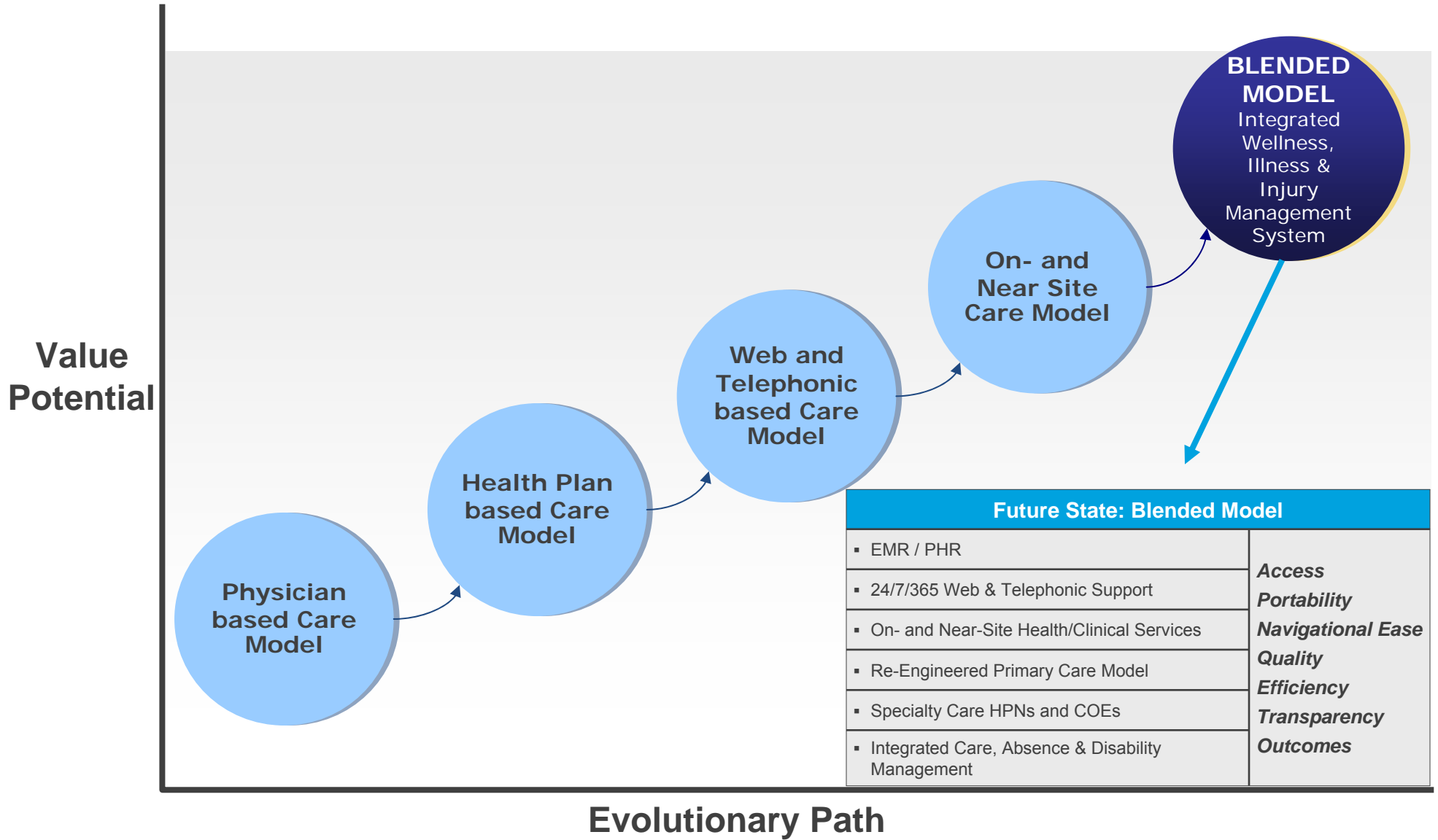
# Targeting Chronic Conditions

*Focus on your high cost conditions with greatest ROI opportunity*





# Using THM Tools to Make a Change



## Business Case for THM

- THM Business Case Model
  - Generates prospective projection of possible cost avoidance based on potential outcomes
  - Savings components of this model include:
    - Optimal LM, CM and DM programs
    - High performing networks
    - On-site or near-site health services
    - Optimal pharmacy management, both clinical and financial (includes EBD → Dx-Rx Pairing)
    - Comprehensive disability management
    - Absence management (indirect and direct)

## One Useful THM Tool: HERO Best Practice Scorecard©

- What is HERO?
  - The Health Enhancement Research Organization is a national not-for-profit coalition of organizations with common interests in health promotion, disease management, and health related productivity research.
- What is the Mercer/HERO Collaboration?
  - Since February 2008, HERO and Mercer have created a working collaboration to develop the HERO Scorecard Version 3.0 (Scorecard) and create, co-own, and operate a large-scale health management benchmarking and best practice normative database.
- What is the Scorecard?
  - The HERO Best Practice Scorecard v3 (Scorecard) is an online employer survey tool consisting of about 62 questions. The tool assesses the employer's health management practices based on best practice standards and compares results to the other respondents and the maximum points available. Completed Scorecards will populate a database to support normative reporting and research.
  - Our objective is that the Scorecard be universally accepted as the standard health management benchmarking and best practice tool.

## Sample HERO Scorecard Results for ABC Company

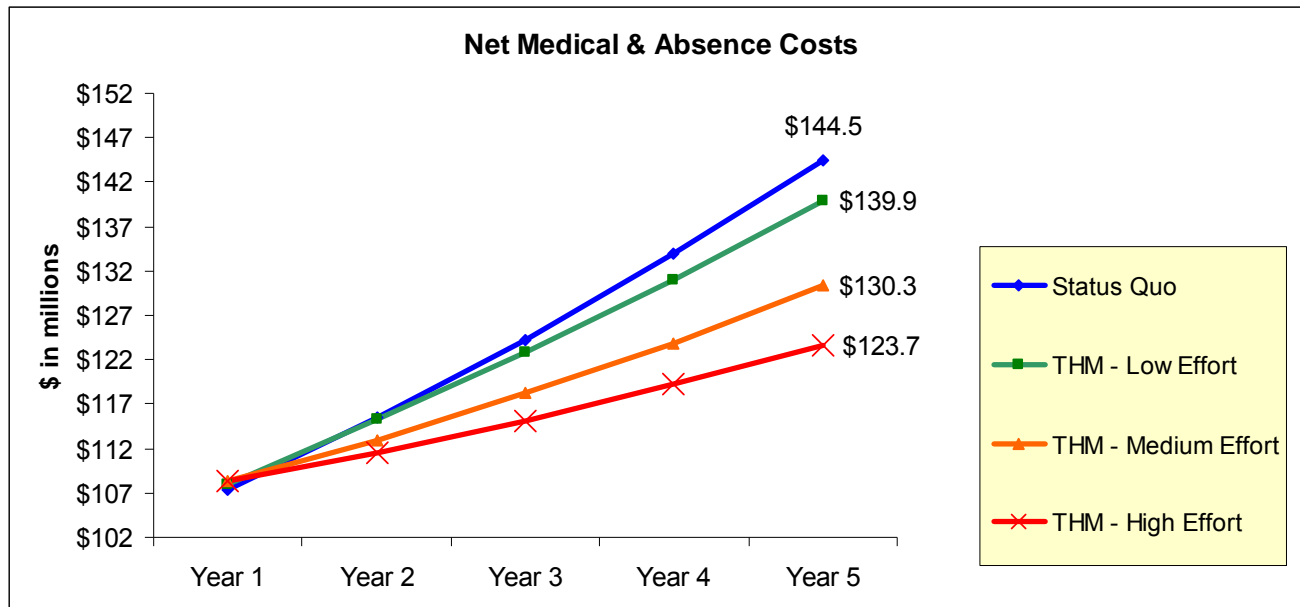
- ABC Company scored 82 out of a possible score of 200 (optimal is 160) on the HERO Scorecard
- ABC Company scored below the current average of 100 in the HERO database
- ABC Company's self-reported scores met or exceeded respondent scores on average in *three out of six* categories:
  - *Leadership Engagement, Programs and Program Level Management*
- ABC Company's self-reported scores were lower than respondent scores on average in three out of six categories:
  - *Strategic Planning, Engagement Methods, Measurement and Evaluation*
- ABC Company's score is indicative of leadership's recent expression of interest in implementing a state-of-the-art wellness program, continued support in offering rich benefit programs, particularly the medical coverage and on-site clinic services, and its attention to monitoring the cost of these programs.
  - *However, the results also confirm that strategic planning and evaluating the effectiveness of these programs, with an emphasis on getting employees engaged, is an area of opportunity for ABC Company.*

# HERO Scorecard Results for ABC Company

- The Scorecard provides ABC Company the opportunity to :
  - Understand the current state of supporting a best practice Total Health Management program in the following categories:
    - Section 1: Strategic planning
    - Section 2: Leadership engagement
    - Section 3: Program level management
    - Section 4: Programs
    - Section 5: Engagement methods
    - Section 6: Measurement and evaluation
  - Compare the organization's scores with national averages
  - Benchmark against industry and peers
  - Aid in program evaluation/design, gap analysis, strategic planning, and vendor selection
  - Collaborate internally throughout the Scorecard completion and scoring discussions to build awareness and a common framework for addressing improvement opportunities
- The Scorecard was collaboratively completed by the individuals within Professional Development

# What Savings Might We Achieve?

## Financial Model (Summary Output)



### 5-Year Savings Opportunity \*

Medical	\$25.6 M
Direct Absence	\$3.1 M
Indirect Absence	\$3.1 M
<b>Total</b>	<b>\$31.8 M</b>

\* Net savings based on medium effort

#### Key Assumptions:

- 6,400 employees
- \$122,971 average salary
- \$11,013 annual medical benefits costs per employee
- Direct absence cost of 1.4% of payroll
- Indirect absence cost of 1.3% of payroll
- Status Quo Costs in Year 1 = \$107.3M:
  - Medical \$70.2M
  - Direct Absence \$21.2M
  - Indirect Absence \$15.9M

# Overview of Wellness Program Elements

## Key Program Components

Cornerstone of the Health Management Program	The Key to Behavior Change	
Health Risk Assessments	Lifestyle Management	Health Campaigns and Education
<ul style="list-style-type: none"> <li>▪ A questionnaire that assesses an individual’s health habits, personal and family medical history, health status to predict a risk of disease and health improvement opportunities</li> <li>▪ Stratifies participants by risk and readiness to change so that appropriate programs can be targeted based on individual need</li> <li>▪ A critical first step in <i>building awareness</i> of health issues and risks</li> </ul>	<ul style="list-style-type: none"> <li>▪ Programs help individuals in all risk levels improve, better manage their health and reduce the risk of developing a chronic disease</li> <li>▪ Provides tools/resources necessary to help participants take action/long-term behavior change</li> <li>▪ Individual tailored programs designed to reduce/improve lifestyle behaviors, delivered via many different venues</li> </ul>	<ul style="list-style-type: none"> <li>▪ Population-based activities that motivate individuals to get involved in attempting a behavior change</li> <li>▪ Target a specific behavior (nutrition, exercise, weight lose, smoking cessation, etc.)</li> <li>▪ Conducted over a specific period of time (2-4 months)</li> <li>▪ May be an individual or team effort</li> <li>▪ Provide incentives or recognition for participation</li> </ul>

# Targeting Health Risks - Interrelation with Disease

It is well documented that health risks lead to disease and chronic health problems. The chart below provides the correlation between health risks and disease states

Health Risks	Asthma	Cancers	Cardiovascular Disease	Diabetes	COPD	Pregnancy High Risk	Depression	Gastrointestinal Disease	Low Back Pain	Stroke
High Body Mass Index										
Tobacco Use										
High Stress										
Inactivity										
High Blood Pressure										
High Blood Glucose										



# Predictive Health Risk Analysis

## Introduction

- Mercer's Predictive Health Risk Analysis (PRA), developed in collaboration with the University of Michigan (U of M), is an effective approach for gaining insight into the possible health risks within a population.
- Health risks (e.g., smoking, stress, obesity) are directly associated with the early onset of specific diseases and chronic health conditions. As health care costs continue to rise, increasing focus has been placed on determining the cost drivers and actions that can be taken to mitigate this escalating trend. Focusing on reducing health risks is one strategy considered by employers as part of their overall health care strategy.

# Predictive Health Risk Analysis

## The Impact of Health Risks

- The spectrum of health in a population includes healthy individuals who require minimal health care services, those with acute illnesses that seek occasional care, and the small portion of the population that drive a majority of costs which are individuals with newly diagnosed or advanced diseases and end of life conditions. Understanding what and who are driving cost is the first step in developing effective strategies.
- From published research, we know:
  - Individuals with health risks cost 10% to 70% more in direct medical expenses compared to healthy individuals
  - Medical care costs of people with chronic diseases account for more than 75% of the nation's \$2 trillion medical care costs
  - Results from one research study of multiple corporation showed that excess medical costs ranged 15% to 31% higher for those with more health risks
  - Chronic disease in U.S. is estimated at 44.8 per 1,000; prevalence may double based on heredity, regional and cultural issues
  - People with chronic disease make up less than 20% of an employer's population but can account for 40 - 60% of total health care costs
  - Indirect costs associated with chronic disease can be three to four times higher than direct medical expenses

# Predictive Health Risk Analysis

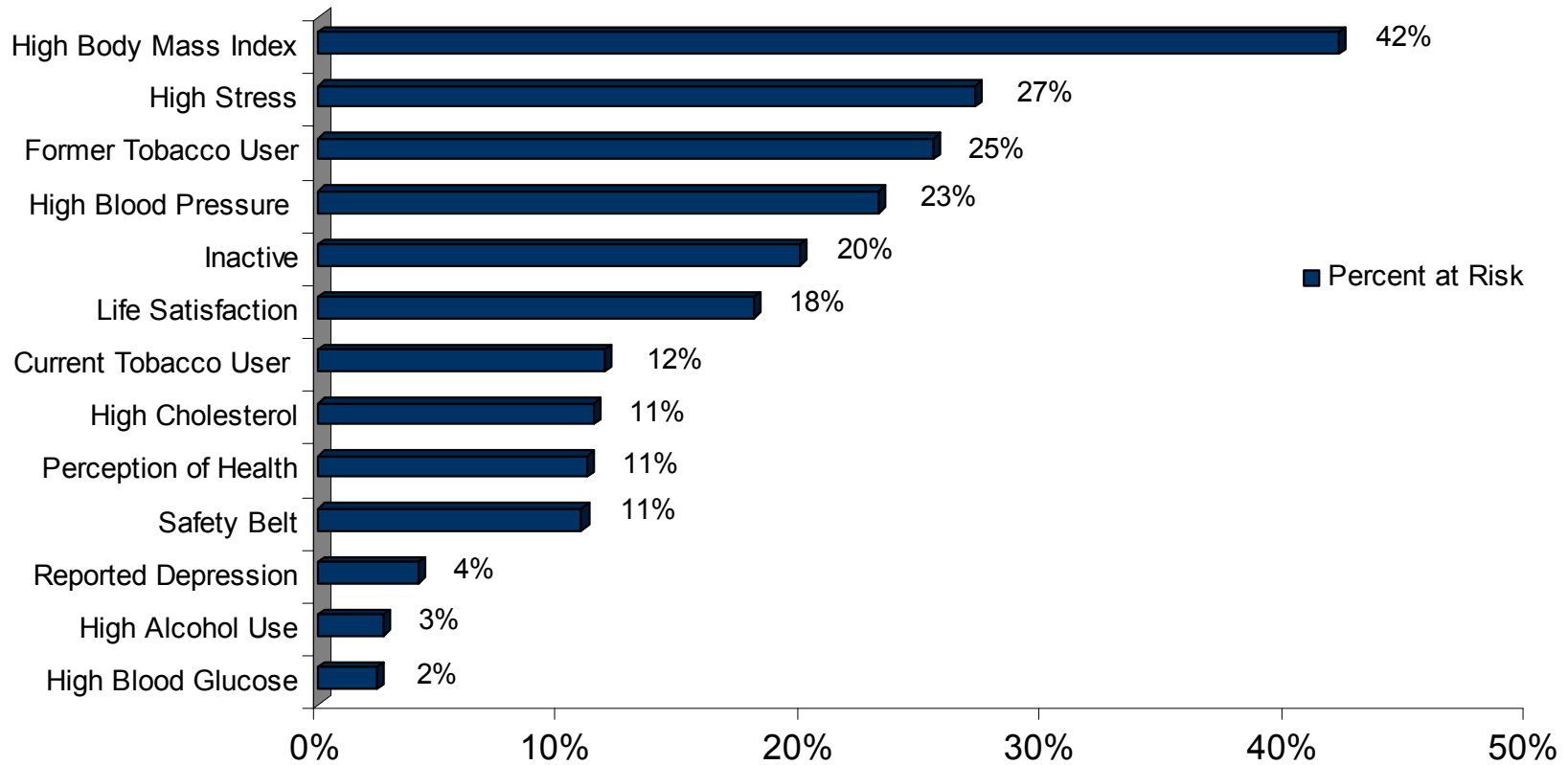
## The Correlation of Health Risks and Disease

- Health risks are directly associated with the early onset of specific diseases and chronic health conditions. The chart below shows documented correlated areas of health risks and disease states. These 10 health risk categories are some of those addressed in the PRA.

	Asthma	Cancers	Cardiovascular Diseases	Depression	Diabetes	Gastro-Intestinal Disease	High-risk Pregnancy	Low Back Pain	Injuries/Accidents	Stroke
1. High Body Mass Index		X	X		X	X	X	X		
2. Former Tobacco User	X	X	X		X		X			
3. Current Tobacco User	X	X	X		X	X	X			X
4. High Blood Pressure			X		X		X			X
5. High Stress		X	X	X		X	X	X		X
6. Inactivity			X	X	X			X	X	X
7. Life Satisfaction				X			X			
8. High Cholesterol			X		X					X
9. Safety Belt Use									X	
10. Perception of Health				X						
11. Reported Depression				X				X	X	
12. High Alcohol Use		X		X			X	X	X	
13. High Blood Glucose			X		X		X			X

# Predictive Health Risk Analysis

## Health Risk Distribution



## Predictive Health Risk Analysis

### Excess Cost\* Associated with Health Risks

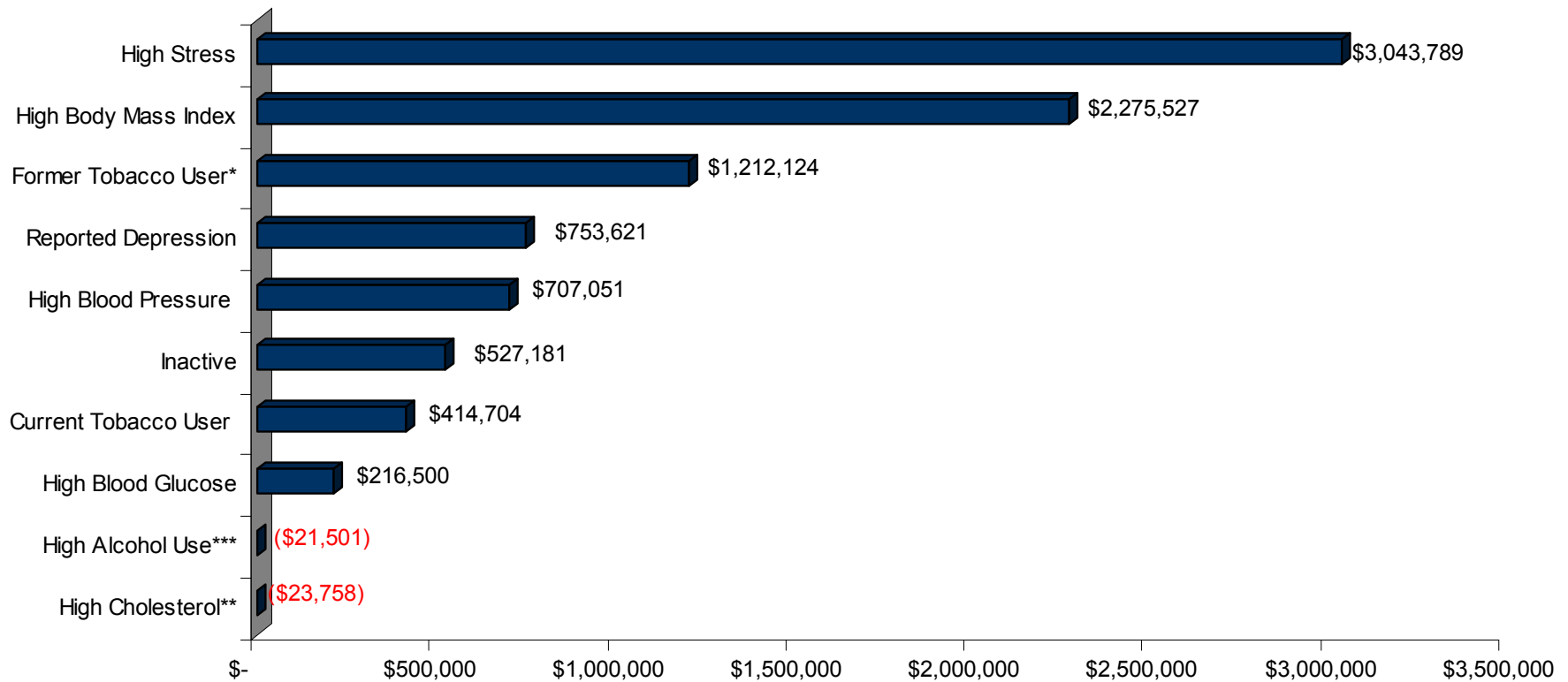
- Based on the Health Enhancement Research Organization (HERO) studies, individuals with a health risk cost more than those without that particular risk. This additional cost is considered “excess” cost or cost that could be avoided or delayed with reduction of the risk
- For Company ABC, high stress may be the greatest excess cost
  - Impacts approximately 1508 individuals or 27% of the population
  - From previous studies, individuals with high stress cost \$2,018 per year more than an individual without the risk factor
  - This amounts to more than \$3 million dollars per year in excess cost
- The total potential excess cost of all risk factors for this Company ABC population is just over \$9 million dollars per year

*\* The results in this report are illustrative only and should not be used as a basis for making investment, budgeting or other financial decisions. Numerous assumptions were made to prepare these illustrations. Actual results through a more extensive analysis may differ. Further, certain underlying assumptions may not be appropriate to every organization. Therefore these results represent illustrative and not client-specific projections.*

# Predictive Health Risk Analysis

## Excess Cost\* Associated with Health Risks

Total potential excess costs: **\$9,105,237**



\*The average cost for a former tobacco user is higher than a current tobacco user, since health conditions such as cancer are a driver to quit smoking.

\*\*The negative association for high cholesterol is due to the notion that isolated episodes of high cholesterol do not have an associated excess cost.

However, high cholesterol as a confounder to other risk factors does contribute to excess costs.

\*\*\*The negative association for high alcohol is twofold:

- 1) Individuals exhibiting alcohol abuse symptoms often avoid visiting physicians.
- 2) Individuals exhibiting alcohol abuse symptoms may not record their real alcohol use level on an HRA.

# Predictive Health Risk Analysis

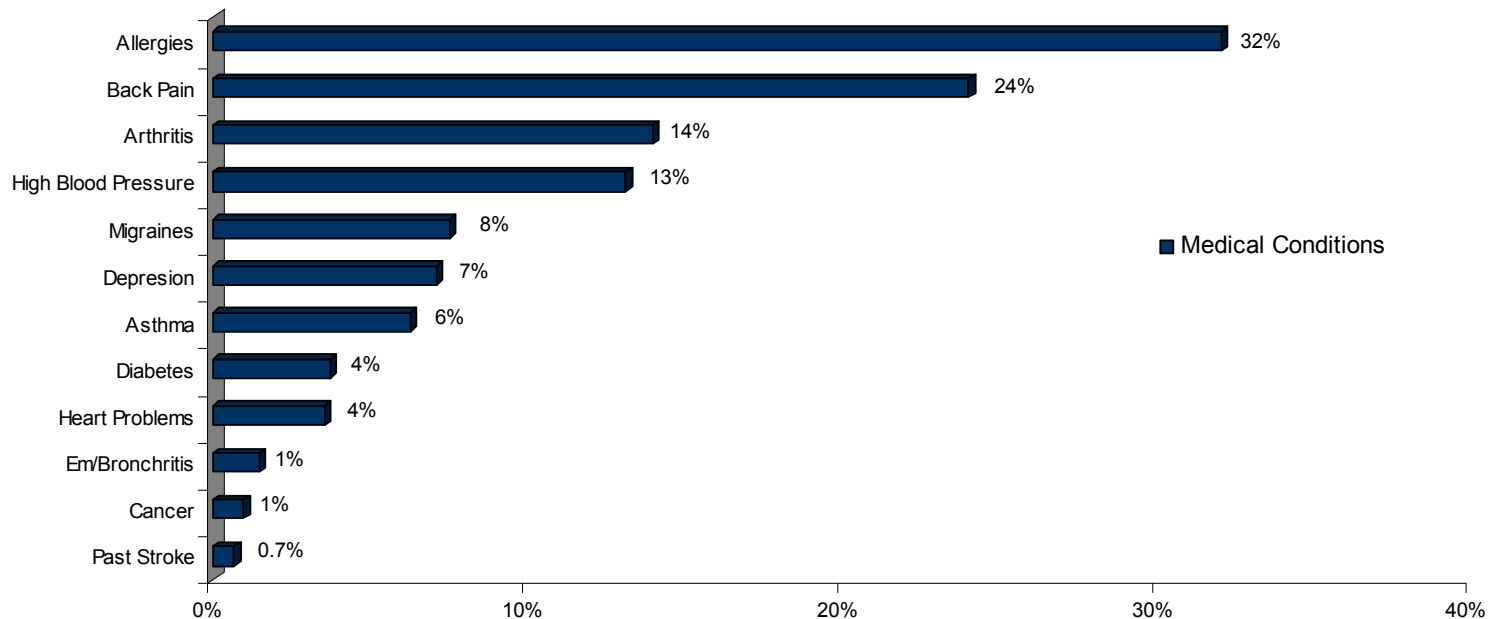
## Potential Savings Opportunities

- Assisting individuals in reducing their health risks through behavior modification programs and disease management programs can be an effective component of an employer's short- and long-term health care strategy.
- Behavior modification programs, sometimes referred to as health promotion or wellness programs, typically provide a longer-term return on investment (break even around the three year mark). However, by implementing programs that follow best practice guidelines, employers have seen returns as high as 5:1 in direct medical costs.
- The PRA identified the following:
  - Approximately \$790,000 of the \$9,100,000 in excess costs could be saved by reducing the risk in the Company ABC's population by 10%
    - Company ABC could reduce costs by \$300,000 by reducing the percentage of employees with high stress by 10% (27% to 24%)
    - Company ABC could reduce costs by more than \$227,000 by reducing the percentage of employees with high body mass index by 10% (42% to 38%)

# Predictive Health Risk Analysis

## Medical Conditions

- Based on the model organization created by the University of Michigan for this analysis using Company ABC demographics, it is probable that the following medical conditions may be prevalent within your population.
  - Implementation of health management programs, such as disease and case management, to assist your moderate and high risk population in managing their conditions may lead to additional medical cost savings.





# Predictive Health Risk Analysis

## Summary

- Of Company ABC medical costs, over \$9.1 million may be due to health risk factors; when reducing risk by as little as 10%, almost \$2 million\* may be saved within 2-3 years utilizing an aggressive Health and Productivity Management Program
- In general, even more of an employer's health care dollars – up to 50% – can be actionable
  - Health risks lead to actionable diseases such as diabetes, coronary artery disease and pulmonary disease
  - These risks and their associated disease can be related to and affected by consumer education, primary prevention, medical management and disease management

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# Current State Assessment – Healthcare Utilization

## Correlation of Risks and Conditions



### Correlation Among Top Risks and Conditions

Health Risks*	Medical Conditions					
	Musculo-skeletal (\$480k)	Cardio-vascular (\$436k)	Diabetes (\$87k)	Depression (\$175k)	Cancer (\$524k)	Gastro-intestinal (\$284k)
High Body Mass Index (42%)	X	X	X	X	X	X
High Stress (27%)	X	X	X	X	X	X
Former Tobacco Use (25%)		X			X	
Hypertension (23%)		X				
Inactivity (20%)	X	X	X	X		

- The chart above shows documented correlation of specific health risks and disease states
- Health Risks are displayed in descending order of high risk prevalence based on PRA results
- Medical Conditions are based on Company ABC’s Aetna claim data from 2008.

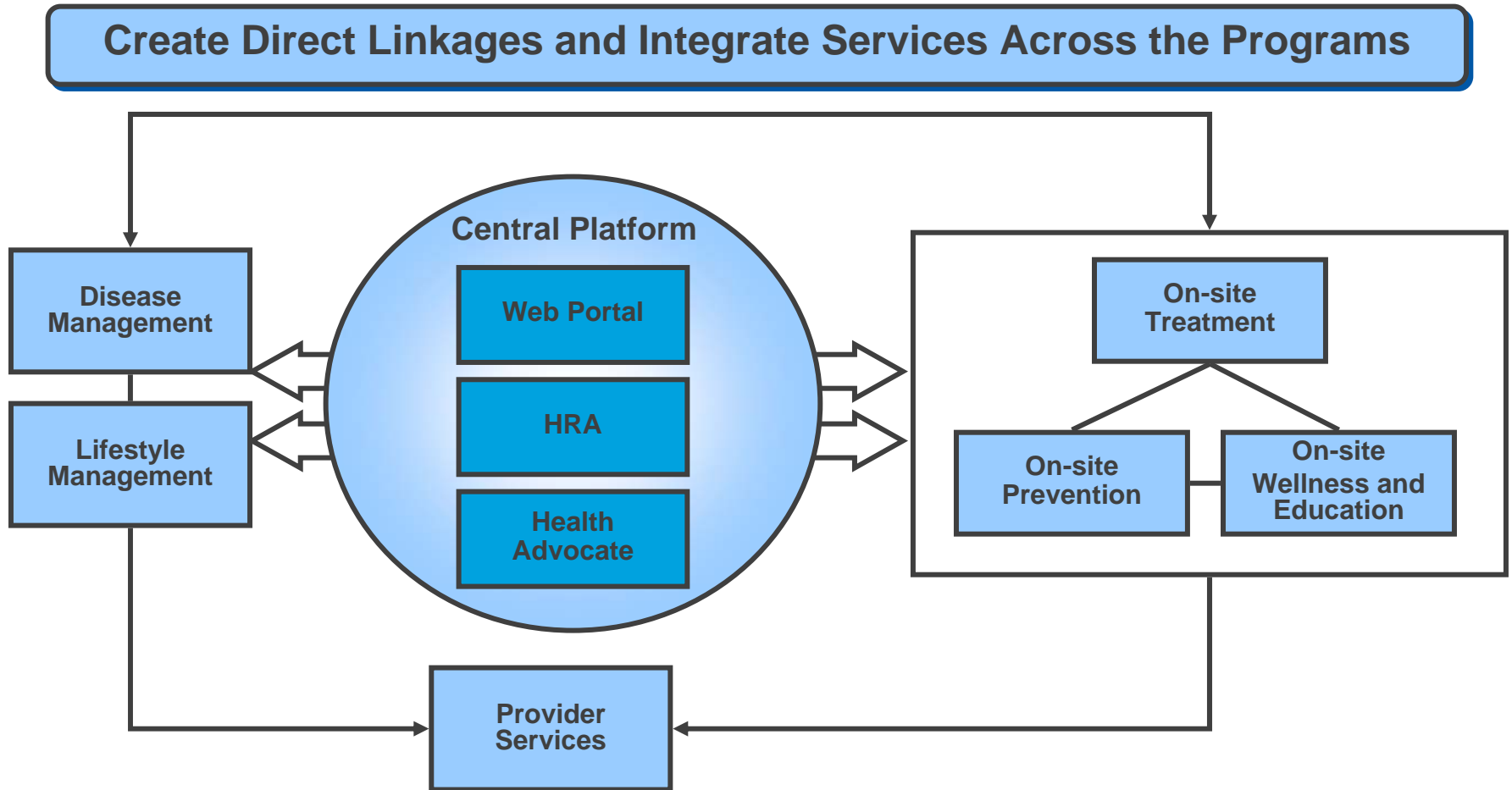
\*Source: Mercer’s Predictive Risk Analysis, in collaboration with the University of Michigan (Dr. Dee Eddington’s risk methodology)

## Benefit Design Options Supporting Wellness

- Reducing co-pays and deductibles for chronic maintenance medications for conditions such as Asthma, Diabetes, Hypertension; commonly known as Rx / Dx pairing
- Create an adequate preventive care allowance with either no, or reduced co-pay or deductible
- Cover alternative, or complimentary care options vs. only mainstream medical care options
- Reducing employee's out-of-pocket costs for deductibles, copays or cost-contributions in exchange for participating in wellness program
- Incentives for program participation, engagement, and/or results

# Strategic Vision

## Health Management Map



# Strategic Vision

## Evolution of Employee Engagement

### Old Way of Thinking:

Insurance for When I Get Sick or Disabled



#### Well or Sick ...

- "I go to the doctor whenever I need to and pay my \$15 copayment."
- "I don't have to worry about what treatment option is best for me – the doctor knows best."
- "I'm not sick now, but I still have coverage so that even if I don't use it, the coverage is always there."

Plans create a barrier to the reality of true cost and quality

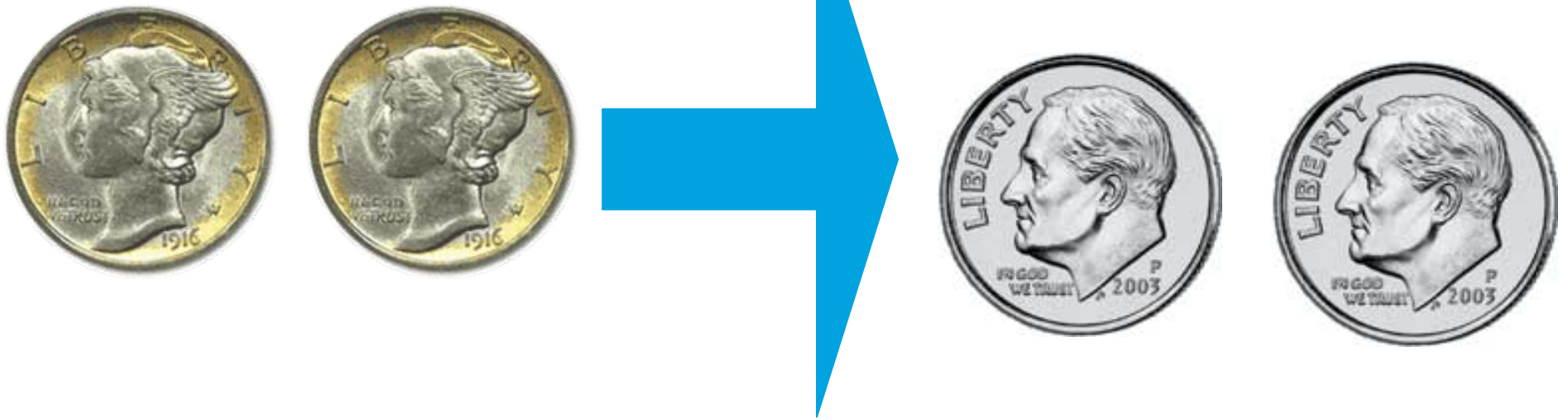
### New Way of Thinking:

Resources for Healthy Living



- Practice a healthy lifestyle
- Have regular preventive and diagnostic examinations
- Pay for what is needed, when its needed – think about cost and quality when purchasing care
- Take health risk assessment, engage in programs/resources available
- Think about cost and quality when choosing doctor, hospital, treatment options, prescription drugs
- Get prompt, quality care and follow doctors' orders for illnesses and injury
- Manage chronic conditions for optimal quality of life
- Understand catastrophic coverage for serious illness or injury

# THM: A Paradigm Shift



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