

IBI Annual Forum

San Francisco

March 28, 2017

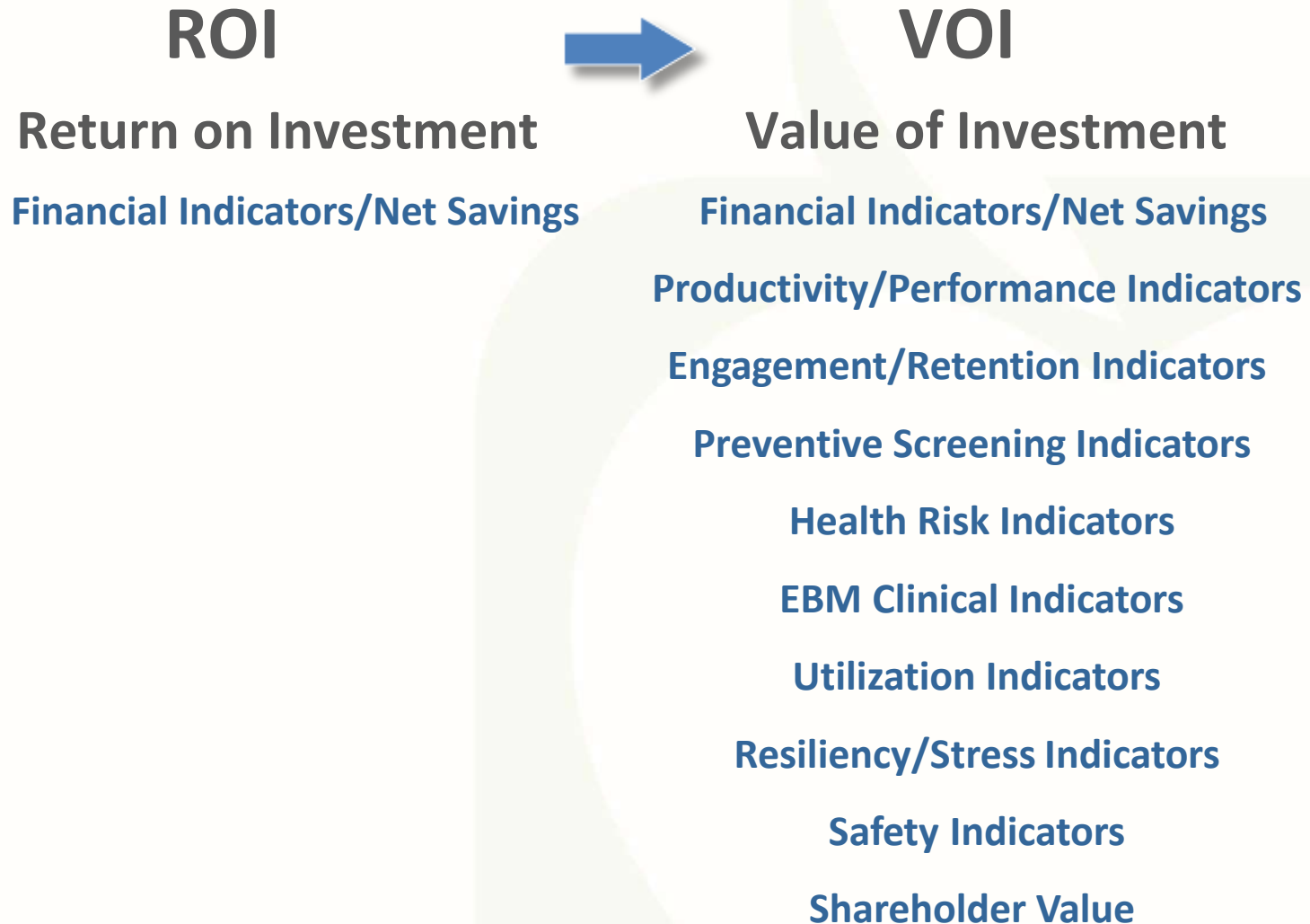
Data Driven, Evidence Based Transformational Population Health Management at World Bank

Ron Loeppke MD, MPH, FACPM
Vice Chairman USPM

Why Wellness/PHM Strategies are a Priority for Employers

- **The inexorable rise in U.S. Health Care Costs**
 - Huge Waste: about 1/3 of Health Care Costs
- **Prevention Opportunities**
 - Prevention efforts could eliminate about 30-50% of the illness burden driving the majority of these health costs
- **Massive Safety and Quality issues in U.S. Health Care system**
 - 200,000 – 400,000 deaths/year and 10-20X sub lethal events
- **Business Value of Health as a key Driver of other Corporate Priorities**
 - Employee Performance/Engagement, Loyalty, Morale
 - Attraction and Retention of Employees
 - Corporate Reputation, Reliability and Sustainability

The Full Value of the Investment (VOI) in Health



The Business Value of Better Health and Productivity

- Market cap value impact from regaining 1 Day of productivity per year per FTE
- 58,000 employees, current 8 Days per FTE of health-related productivity loss

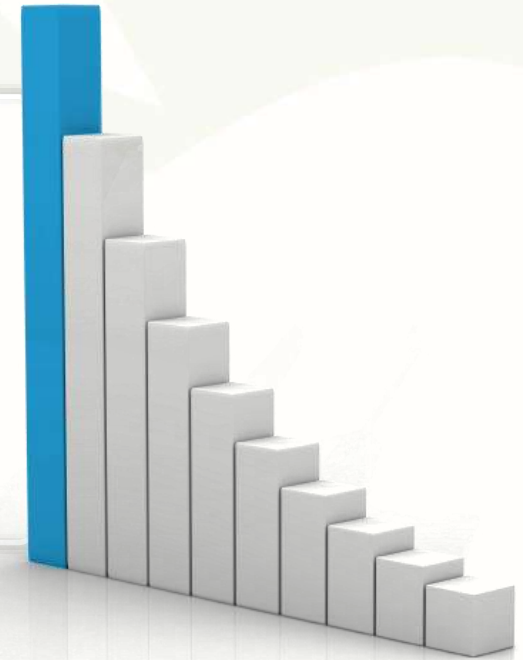
1 Day per FTE of Regained Productivity =
\$18.8M EBITDA impact

13x (EBITDA Multiple)

\$244.4M estimated market cap increase

÷ 292M shares

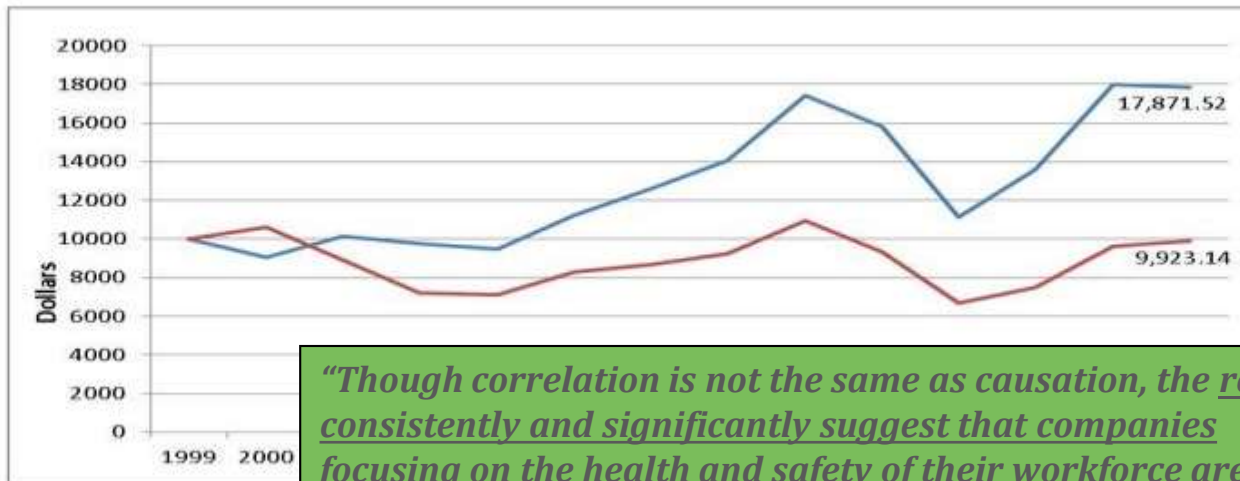
\$0.84 in additional per share value



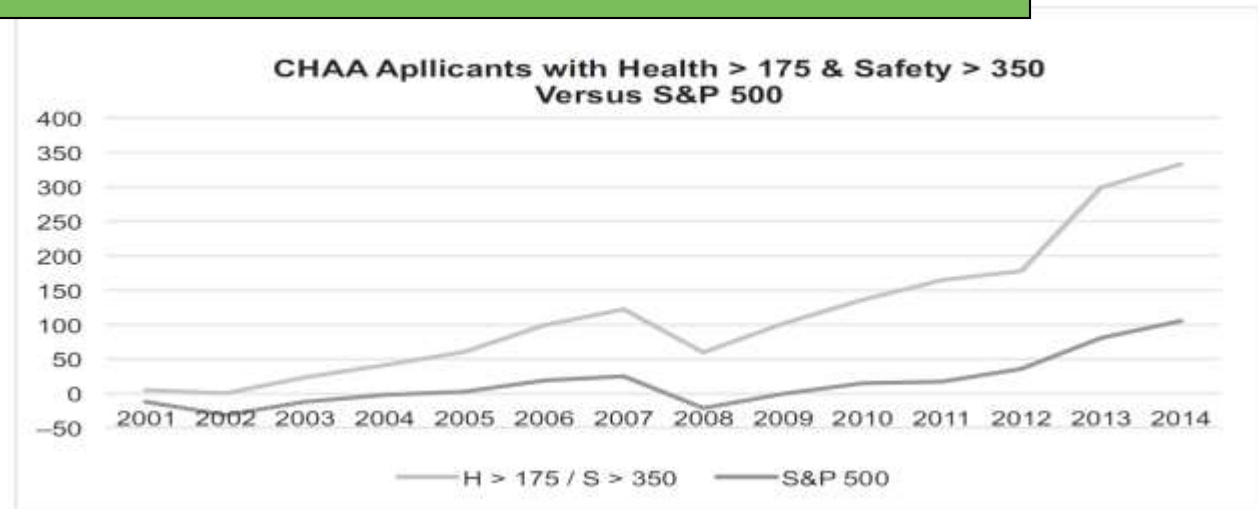
Loeppke R. "The Value of Health and the Power of Prevention". Int J Workplace Health Manage. 2008; 1(2)95-108.

The Link between Healthy/Safe Companies and Healthy Bottom Lines

CHAA vs. S&P 500 Performance Comparison 1999-2012



“Though correlation is not the same as causation, the results consistently and significantly suggest that companies focusing on the health and safety of their workforce are yielding a healthier bottom line for the company.”



World Bank Population Health Goals & Objectives

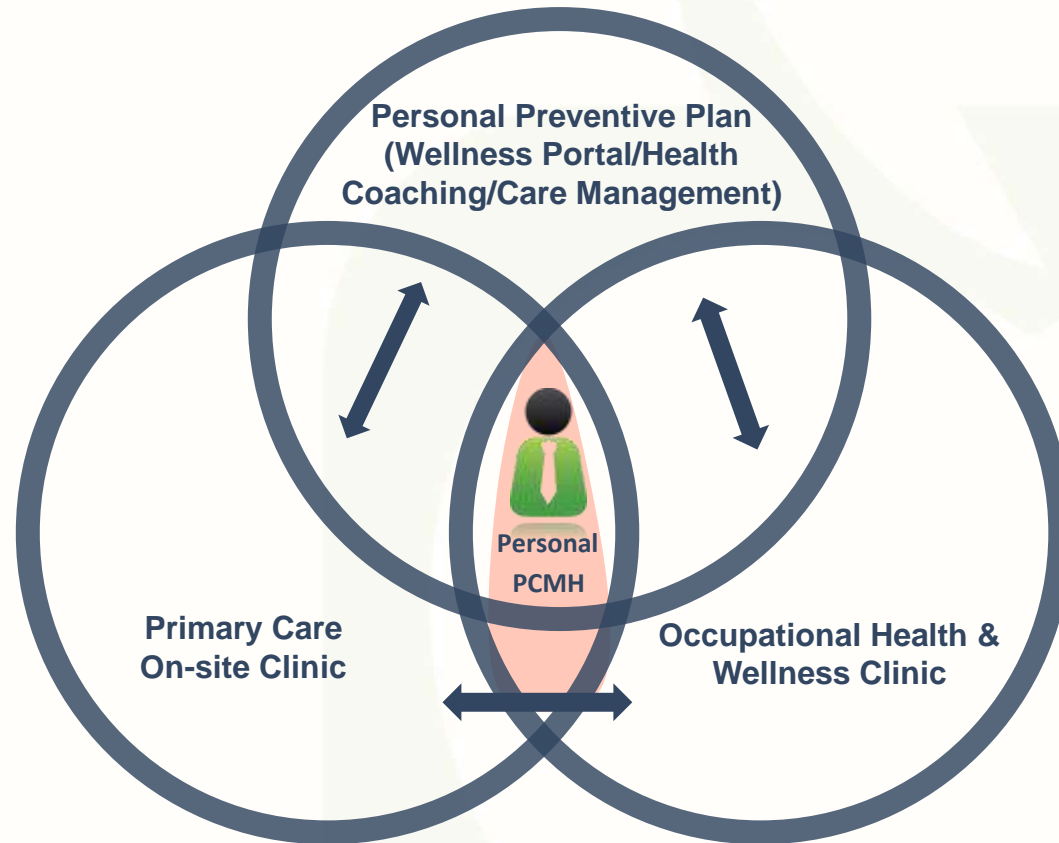
Stated Goal: *“Shift from a model of services that currently **responds** to medical concerns of employees as they arise, to a model that **proactively engages** staff, dependents, and retirees in **pursuing healthier lifestyles** that will ultimately result in a **healthier and more productive workforce** and **overall lower healthcare costs.**”*

Objectives

- Reduce Lifestyle Behavioral Risk
- Reduce Disease Acuity Risk
- Measurable Health Outcomes
- Empower Staff With Greater Control Over Their Personal Health
- Quantifiable & Measureable Satisfaction Improvement
- Make Healthy Choices the Easy Choices
- Measureable Financial Outcomes

World Bank Integrated and Personalized Health & Wellbeing Evidence Based Population Health Management

To protect and promote employee health and well-being wherever they may be, taking account of their individual health status, working environment, and job demands



USPM Population Health Management Solution for WBG

An Integrated Clinical Model of *Evidence Based Preventive Medicine*

Primary, Secondary, & Tertiary Prevention

High-Tech, High-Touch Model

Comprehensive Population Health Management



Whole Population/Whole Person Health Management

PRIMARY PREVENTION

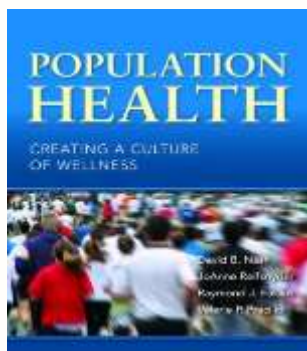
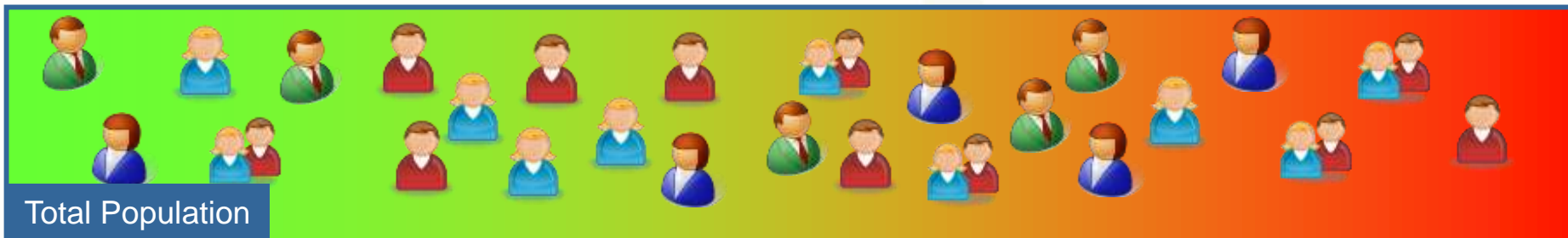
Wellness/Health Promotion

SECONDARY PREVENTION

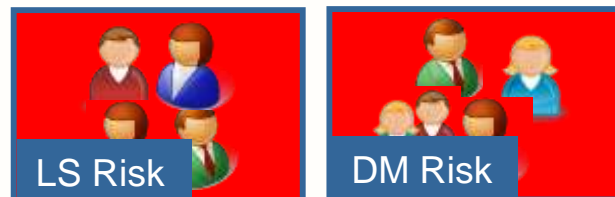
Screening/Early Detection

TERTIARY PREVENTION

EBM Intervention/Care Mgmt



Loeppke, R. "Making the Case for Population Health Management: The Business Value of Better Health," Chapter 7, pp 121-136 in Nash, D., et.al., *Population Health* Textbook. Jones and Bartlett Learning. Sudbury, MA. 2010.



World Bank Data-Driven Population Health Management

Improved Outcomes
Sustainable Behavior Change

Evidence-based Clinical Interventions – At the Individual level (High Touch)

The Preventive Plan Portal (High Tech)

**IH&S Index
Assessment;
Opportunity
Analysis
and
Impact
Extrapolation
Modeling**

Strategy
Formulation

Incentive
Design &
Management

Engagement,
Branding,
Comm. Plan

Precision
Data Analytics,
Reporting and
Outcomes
Measurement

Collaboration & Goal Setting With Leadership – Establish Business Case Projections

Ongoing Lifestyle Health Risk & Disease Acuity Risk Analysis (Risk Scoring)

Integrating Health and Safety in the Workplace

How Closely Aligning Health and Safety Strategies Can Yield Measurable Benefits

Ronald R. Loeppke, MD, MPH, FACOEM, Todd Hohn, CSP, Catherine Baase, MD, FACOEM, FAAFP, William B. Bunn, MD, JD, MPH, FACOEM, Wayne N. Burton, MD, FACOEM, Barry S. Eisenberg, CAE, Trish Ennis, CSP, ARM, CRIS, Raymond Fabius, MD, CPE, DFACPE, R. Jack Hawkins, CSP, T. Warner Hudson, MD, FACOEM, FAAFP, Pamela A. Hymel, MD, MPH, FACOEM, Doris Konicki, MHS, Paul Larson, MS, Robert K. McLellan, MD, MPH, FACOEM, FAAFP, Mark A. Roberts, MD, PhD, MPH, FACOEM, Cary Usrey, Joseph A. Wallace, CSP, RRE, Charles M. Yarborough, MD, MPH, FACOEM, and Justina Siuba, MPH

Objective: To better understand how integrating health and safety strategies in the workplace has evolved and establish a replicable, scalable frame-

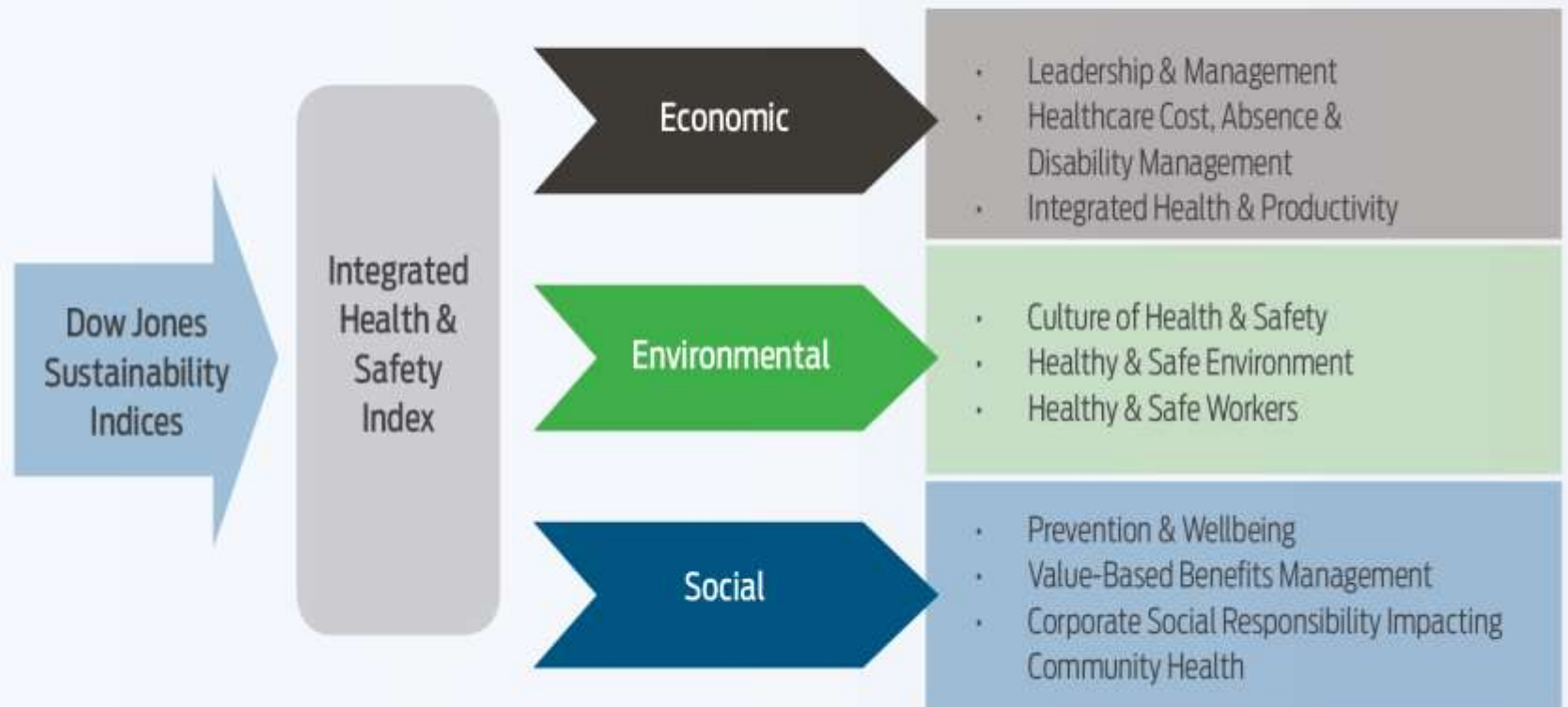
From Chief Health Officer (Dr Baase), The Dow Chemical Company, Midland, MI; Northwestern University and University of Illinois at Chicago, School of Public Health (Dr Bunn), Hilton Head, SC; Chief Medical Officer (Dr Burton), American Express, Chicago; Executive Director (Mr Eisenberg), American College of Occupational and Environmental Medicine, Elk Grove Village, IL; VP Denver Risk Control Manager, Risk Control and Claim Advocacy Practice (Ms Ennis), Willis

work for advancing the concept with a system of health and safety metrics, modeled after the Dow Jones Sustainability Index. **Methods:** Seven leading national and international programs aimed at creating a culture of health and safety in the workplace were compared and contrasted. **Results:** A list of forty variables was selected, making it clear there is a wide variety of approaches to integration of health and safety in the workplace. **Conclusion:** Depending on how well developed the culture of health and safety is within a company, there are unique routes to operationalize and institutionalize

Coinciding with these advances in safety was the rise of a workplace wellness movement in the United States, driven in part by rising health care costs.² As costs increased, employers began to introduce “work-site health promotion” programs on a large scale in an effort to keep their employees healthier and thus reduce total health-related costs (medical/pharmacy costs and absenteeism/presenteeism costs).

Early workplace wellness programs consisted of health screenings, smoking ces-

Integrated Health and Safety Index Assessment (continued)



Loeppke, R; Hohn, T; et.al. "Integrating Health and Safety in the Workplace: How Closely Aligning Health and Safety Strategies can Yield Measureable Benefits." Journal of Occupational & Environmental Medicine 2015; 57 (5): 585-597. May, 2015.

Translating Health & Safety into the Language of the Dow Jones Sustainability Index

Domains and Metrics	Max Pts
Economic Dimension	
1.1 Organization & Management	75
1.2 Health Information Systems	75
1.3 Occupational Injury and Illness Management	75
1.4 Absence and disability management	60
1.5 Integrated health and productivity management	70
Category Total	355
Environmental Dimensions	
2.1 Health Evaluation of Workers	75
2.2 Workplace health hazard evaluation, inspection and abatement	60
2.3 Education regarding worksite hazards	50
2.4 Personal protective equipment	40
2.5 Toxicological assessment and planning	25
2.6 External Environment	30
2.7 Emergency preparedness, continuity planning and disruption prevention	45
Category Total	325
Social Dimension	
3.1 Population Health Management (primary, secondary and tertiary Prevention)	75
3.2 Innovation - Expanding the Envelope	25
3.3 Travelers Health	30
3.4 Evaluation and Quality Improvement	70
3.5 Mental and Behavioral Health and Misuse of Substances	70
3.6 Health benefits management	50
Category Total	320

***World Bank
USPM Claims Based Opportunity Analysis
and
Impact Extrapolation Models***

World Bank Opportunity Analysis : EMPLOYEES Only

Medical and Pharmacy Claims Summary

Cohort Used for OA Analytics		Count
Dependents (Spouses/Children)	Dep	14393 (61%)
Employees	Emp	9268 (39%)
Total (Employees + Dependents)		23661

Gender Distribution of Employees	Gender	Count
Employees	F	4949
Employees	M	4319
Total		9268

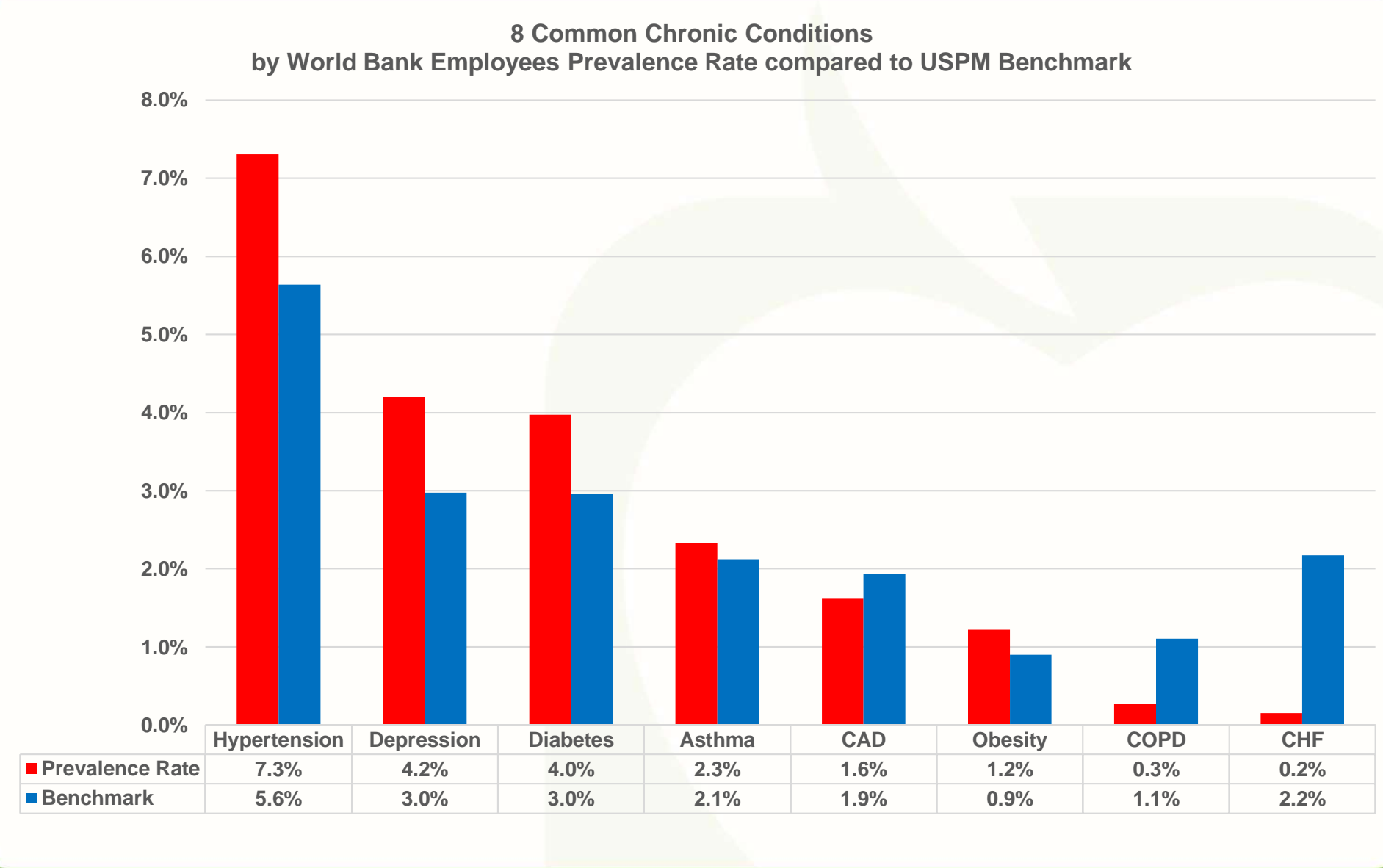
Med Claims Count	Med Claimants Count	Med Paid Amount
321157	8613	\$34,319,790

Rx Claims Count	Rx Claimants Count	Rx Paid Amount
64625	6583	\$7,271,053

<p>Employees represented 39% of the Total Eligible Population and drove 46% of the Total Cost of \$90,336,377</p>	<p>Total Paid = \$41,590,844</p>
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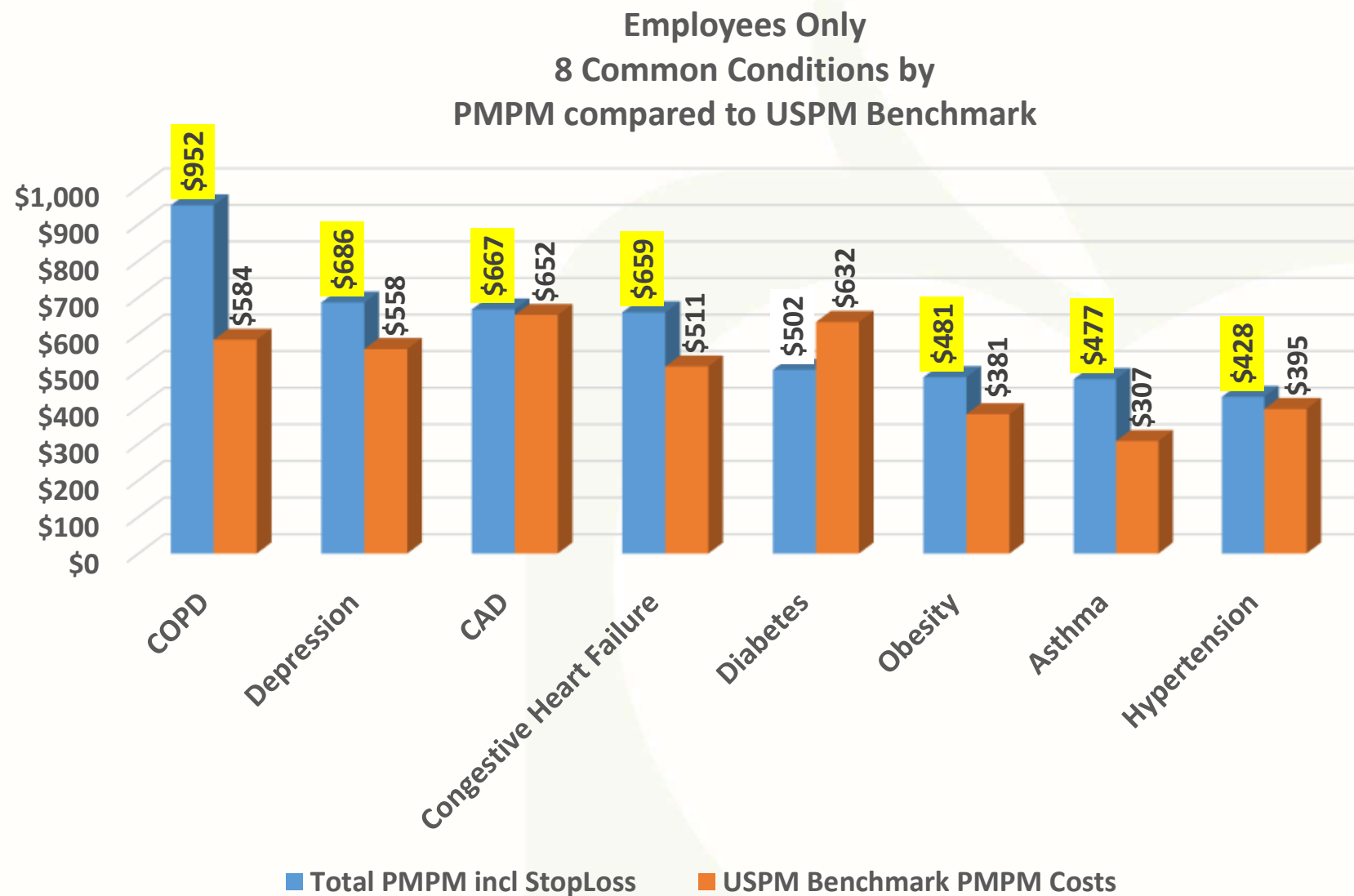
World Bank Opportunity Analysis Employees Only

8 Common Chronic Conditions Prevalence Rate vs USPM Benchmark



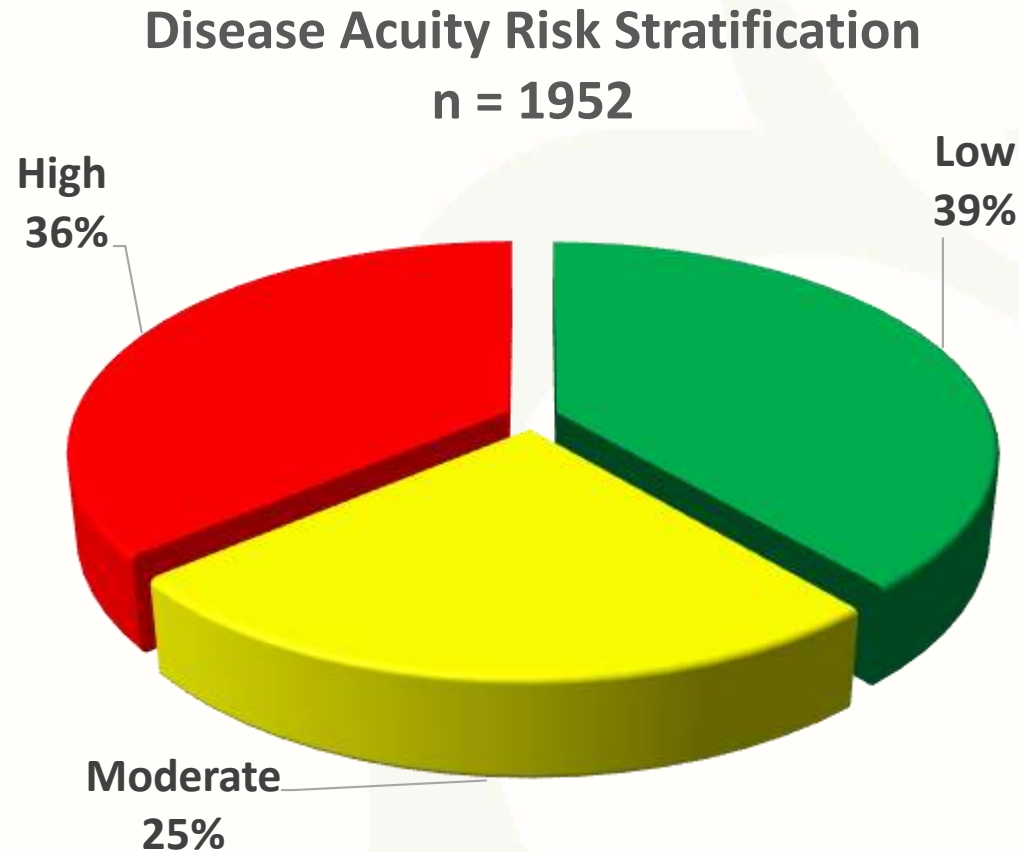
World Bank Opportunity Analysis Employees Only

8 Common Chronic Conditions Per Member Per Month (PMPM) Costs



World Bank Opportunity Analysis Employees Only

8 Chronic Conditions: Disease Acuity Risk Stratification



World Bank – Employees 8 Chronic Conditions Medical/Rx Total Costs and Per Person Per Year (PPPY) Costs

EMPLOYEES - 8 Common Chronic Conditions with Hierarchy Applied

Comorbidities	Persons	Medical Paid	Rx Paid	Total Paid	PPPY Total Paid
5	2	\$9,779	\$13,697	\$23,476	\$17,547
4	13	\$189,765	\$42,953	\$232,719	\$17,955
3	70	\$440,387	\$190,146	\$630,533	\$10,198
2	406	\$2,374,295	\$849,358	\$3,223,653	\$8,932
1	1461	\$6,887,326	\$1,689,013	\$8,576,339	\$5,623
Total	1952	\$9,901,552	\$2,785,169	\$12,686,721	\$6,499

Total Eligible Employees	9268	\$34,319,791	\$7,271,054	\$41,590,844	\$4,488
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Percent of Total	21.06%	28.85%	38.30%	30.50%	144.83%
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**** 21.06% of the population with the 8 Common Chronic Conditions drive 30.50% of the Total Paid ****

**** Population with the 8 Common Chronic Conditions have 144.83% higher Per Person Per Year Total Paid ****

World Bank USPM Impact Extrapolation Model

Extrapolated Potential Hospitalization/ER Cost Reductions
from
applying Validation Institute Analysis of USPM results
to the
USPM Impact Extrapolation Model
of
Evidence Based Care Management of 8 Conditions

USPM Earns Prestigious Certificate of Validation of Outcome Results from the Intel-GE Validation Institute

“US Preventive Medicine (USPM) is the first, and as of now only, wellness company to achieve a sustained and significant reduction in wellness-sensitive medical events (Hospitalizations/ER Visits) in Diabetes, Asthma, Coronary Artery Disease, Hypertension, Chronic Obstructive Pulmonary Disease and Congestive Heart Failure--across that portion of its entire book of business for which comprehensive claims data was available over 4 years.

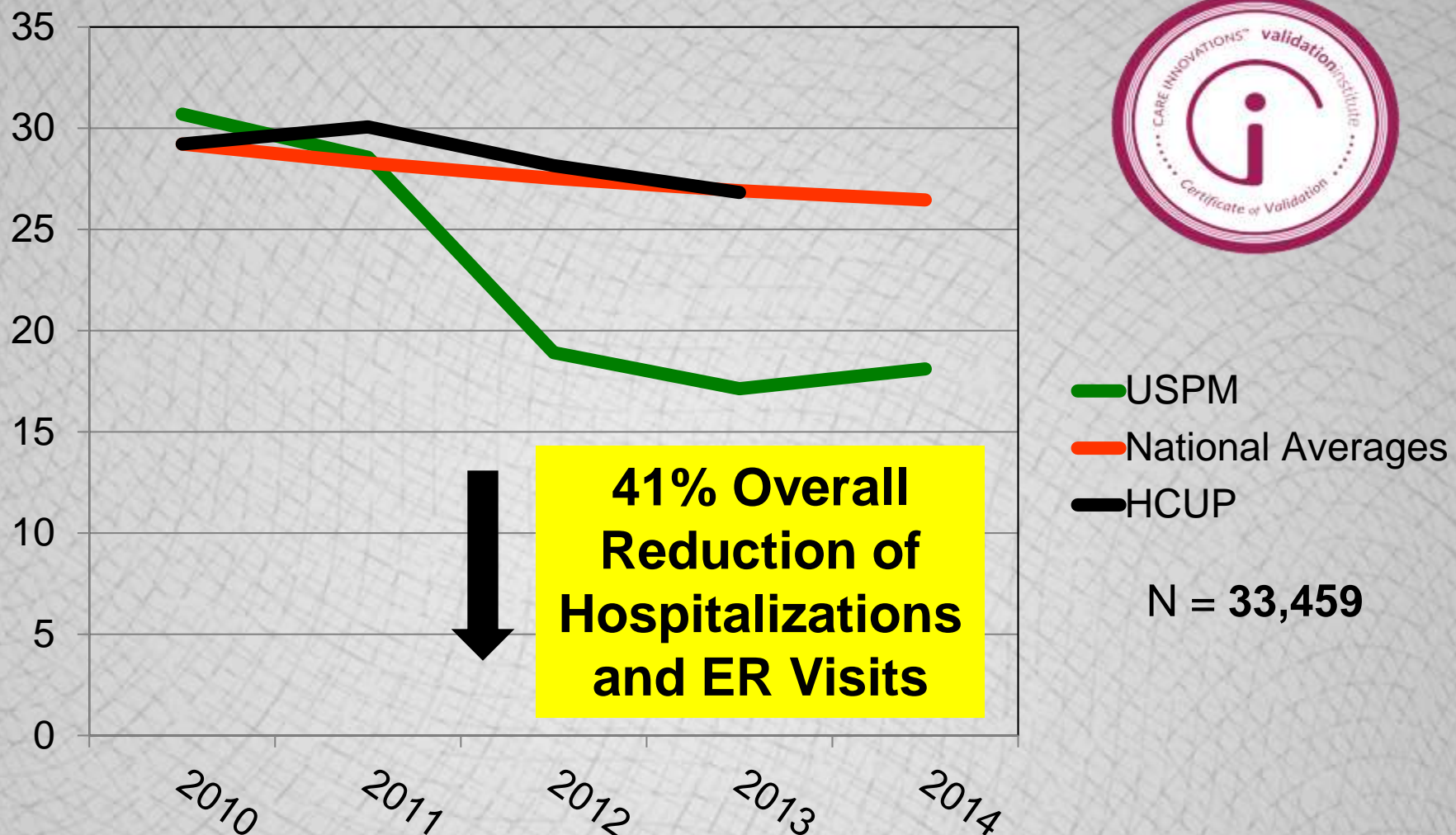
The reduction achieved by USPM significantly outpaced the much smaller national decline in these events, as evidenced by both the database maintained by the Disease Management Purchasing Consortium and the federal Healthcare Cost and Utilization Project (HCUP) database.



Intel-GE Validation Institute

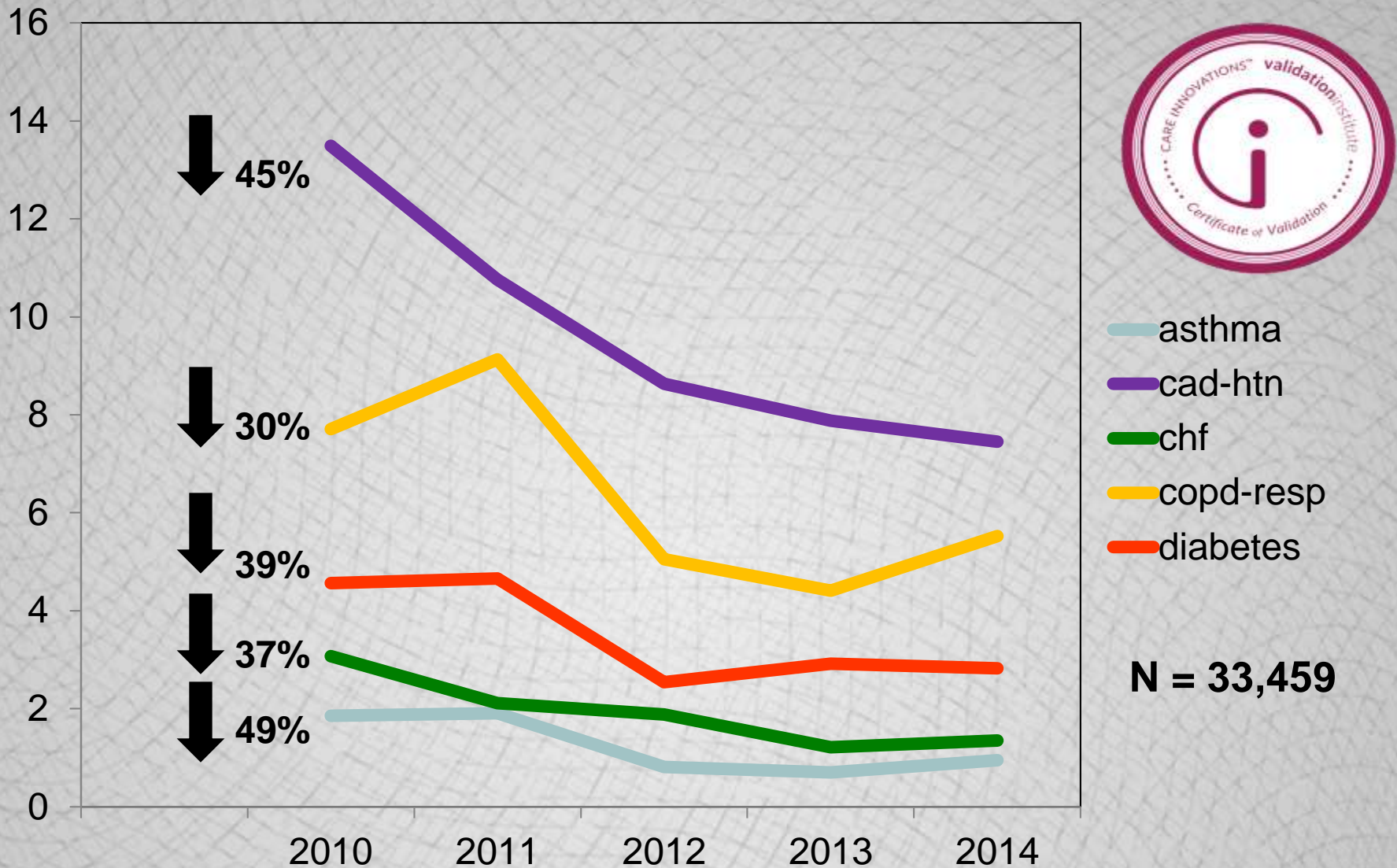
<http://www.validationinstitute.com/validated-organizations/>

USPM Total Hospital admits & ER visits across Conditions vs *DMPC and *HCUP national averages (per 1000 members)



*Disease Management Purchasing Consortium and the federal Healthcare Cost and Utilization Project (HCUP) databases

USPM Event Rate Trend Reductions (Hospital admits and ER visits, per 1000 members)



World Bank Employees Only: Extrapolated Potential Hospital and ER Cost Savings from Care Management of 8 Chronic Conditions (33% participation rate of those qualifying)

Employees Only Full Utilization including all comorbidities

Condition	People with Condition	IP Paid	ER Paid	Total IP/ER Paid
CHF	14	\$28,796	\$8,123	\$36,920
CAD	150	\$62,083	\$73,447	\$135,530
COPD	25	\$29,480	\$15,578	\$45,058
Diabetes	368	\$122,588	\$49,741	\$172,329
Depression	389	\$311,189	\$91,906	\$403,094
Hypertension	677	\$432,997	\$155,504	\$588,501
Obesity	113	\$57,459	\$9,219	\$66,678
Asthma	216	\$126,605	\$23,340	\$149,945
Total	1952	\$1,171,197	\$426,859	\$1,598,056

Intel-GE Validation Institute of USPM results applied to Impact Extrapolation Potential Cost Savings Model (with 33% Participation Rate of those Individuals Qualifying)

Year	IP and ER Paid	IP and ER % Reductions	Estimated Savings from Pre-Program	Cumulative Savings
Pre-Program	\$1,598,056			
Year 1	\$1,487,790	6.9%	\$110,266	\$110,266
Year 2	\$984,402	38.4%	\$613,653	\$723,919
Year 3	\$891,715	44.2%	\$706,341	\$1,430,260
Year 4	\$942,853	41.0%	\$655,203	\$2,085,463
Total Paid:	\$5,904,816	Total Est. Savings:	\$2,085,463	

Participation Rate across Wellness Programs and CM Programs

33%	43%	53%	63%	73%
\$2,085,463	\$2,294,009	\$2,502,555	\$2,711,101	\$2,919,648

World Bank USPM Health Risk Impact Extrapolation Model

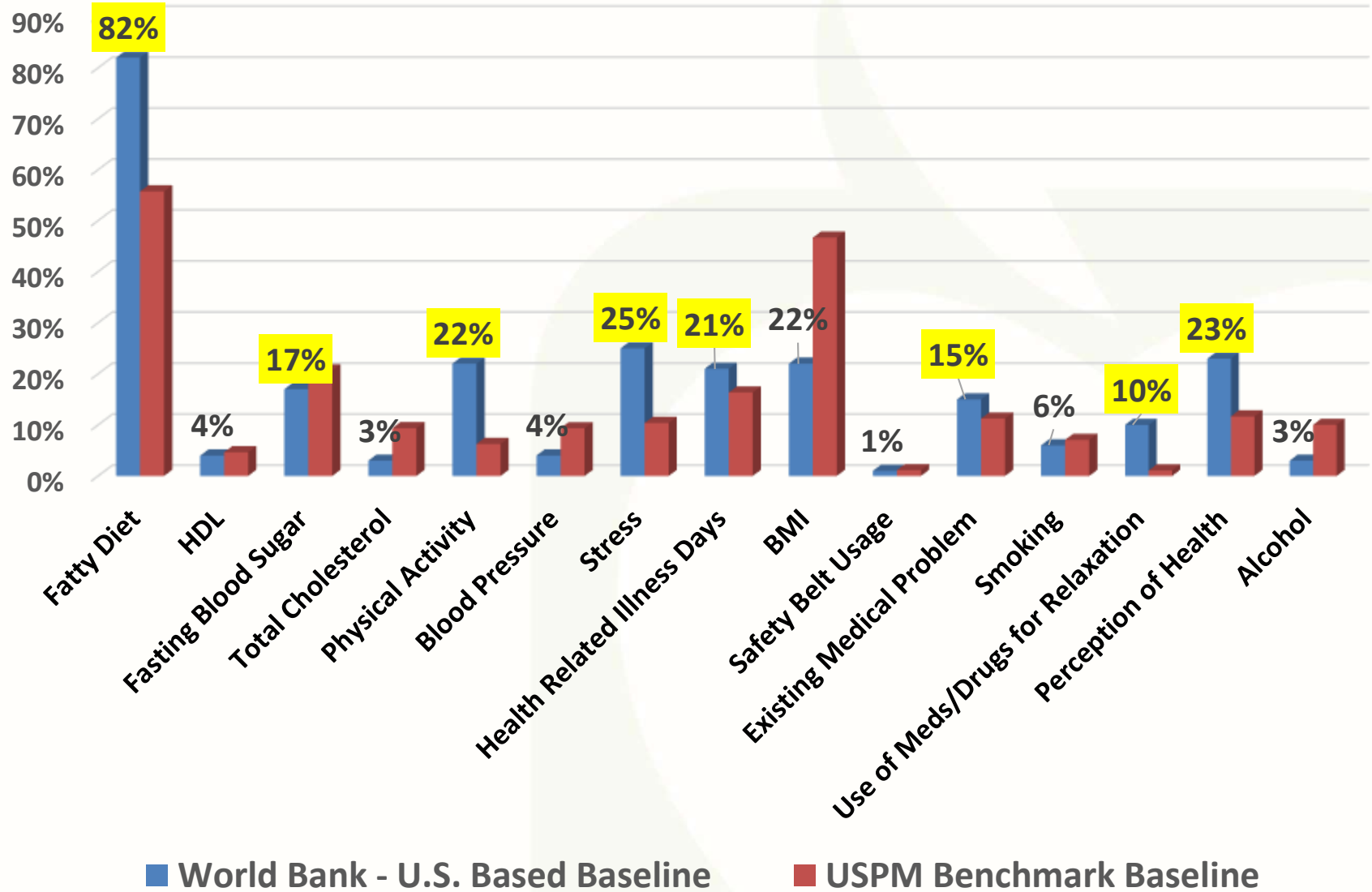
World Bank U.S. Employees Extrapolated Medical Cost Savings from Potential Health Risk Reductions as a result of Participation in the Preventive Plan for two years

(*Potential risk and cost reductions based on USPM 2 year impact published study and applying Edington *Zero Trends* model)

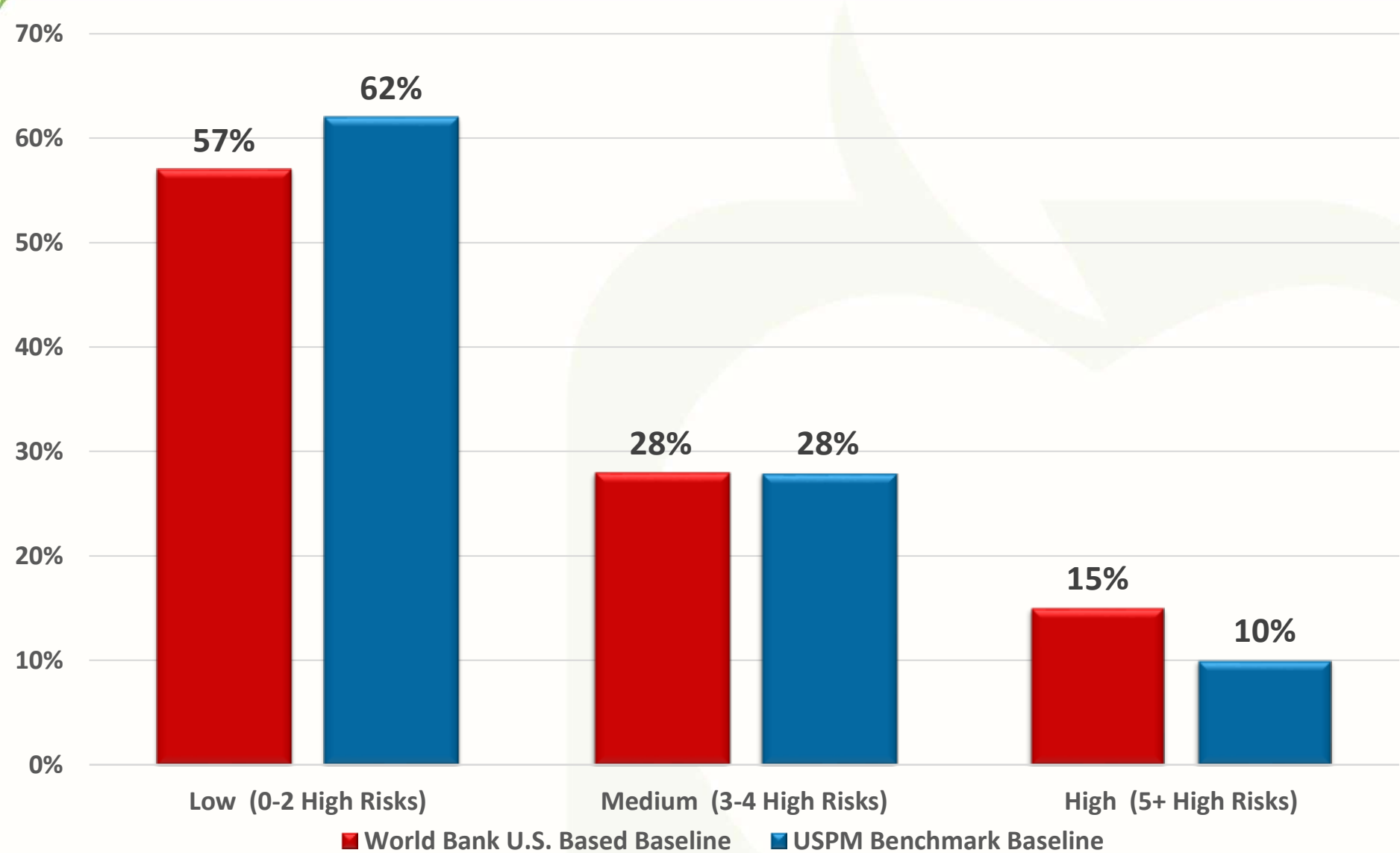
***Loeppke, R; Edington, D; Bender, J; Reynolds, A. "The Association of Technology in a Workplace Wellness Program with Health Risk Factor Reduction" Journal of Occupational and Environmental Medicine: March, 2013; Volume 55, Number 3: pp 259–264.**

***Edington DW. *Zero Trends: Health As a Serious Economic Strategy*. Health Management Research Center, University of Michigan. 2009.**

World Bank U.S. based Employees: % Population with High Individual Health Risks Compared to USPM's National Benchmark Data



Baseline Overall Health Risk Categories of World Bank Employees U.S. Based Only Compared to USPM's National Benchmark



Published Study of Impact after 2 Years on Preventive Plan

Full Text
OVID

March 2013 • Volume 55 • Number 3

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JOEM

Journal of Occupational and Environmental Medicine



AMERICAN COLLEGE OF
OCCUPATIONAL AND
ENVIRONMENTAL MEDICINE

- New-onset Asthma and Occupational Exposures
- Rheumatoid Arthritis Impact on Annual Incremental Health Benefit Costs and Absenteeism
- Modifiable Health Risks and Illness Absence from Work
- Patient-reported Depression Severity Measured by the PHQ-9 and Impact on Work Productivity

Fast Track Article

- Association of Technology in a Workplace Wellness Program with Health Risk Factor Reduction

Wolters Kluwer
Health

Lippincott
Williams & Wilkins

FAST TRACK ARTICLE

The Association of Technology in a Workplace Wellness Program With Health Risk Factor Reduction

Ron Loepke, MD, MPH, Dee Edington, PhD, Joel Bender, MD, PhD, MSPH, and Ashley Reynolds, MSN, RN

Objective: Determine whether there is a relationship between level of engagement in workplace wellness programs and population/individual health risk reductions. **Methods:** A total of 7804 employees from 15 employers completed health risk appraisal and laboratory testing at baseline and again after 2 years of participating in their personalized prevention plan. Population and individual health risk transitions were analyzed across the population, as well as by stage of engagement. **Results:** Of those individuals who started in a high risk category at baseline, 68% moved down to medium risk and 19% moved down to low risk category after 2 years on their prevention plan. In the group that only engaged through the Web-based technology, 24% reduced their health risks ($P < 0.0001$). **Conclusion:** Engaging technology and interactive Web-based tools can empower individuals to be more proactive about their health and reduce their health risks.

Chronic illness and health care costs are advancing at a staggering rate worldwide. The World Economic Forum, in its *Global Risk 2010* report, indicated that the impact on developing countries as well as advanced economies from the “silent pandemic” of chronic illnesses (like diabetes, heart disease, and cancer) is a critical global risk that is destructive and debilitating to individuals as well as nations and that the only sustainable solution is a greater emphasis on prevention. These dramatic increases are largely attributable to lifestyle- or behavior-related causes such as unhealthy eating habits, smoking, or sedentary lifestyles. Given the converging epidemiological, political, cultural, and financial trends, driving accountable care organizations and patient-centered medical home initiatives is the need for better health at lower cost. This requires a sustainable prevention strategy in concert with effective population health management interventions to reduce the growing burden of health risks leading to the expanding burden of chronic illness as not only a fiscal imperative but also a clinical and moral imperative.¹⁻³

The current sick care model in the United States is not designed to meet the real health and wellness needs of people. Therefore, employers fund the majority of the economic burden of this broken system, because they pay for the ever increasing costs of medical care while our system spends less than \$0.05 of every health care \$1.00 on prevention to help promote a healthier, safer, more productive workforce. A large percentage of 137 million employees in the United States receive health benefits at work; therefore, employers have a unique opportunity to play a stronger role because lifestyle risks and medical conditions directly influence productivity. Workplace health and wellness initiatives now reach millions of workers, with occupational health professionals designing and delivering wellness and prevention services typically impacting em-

ployees many hours per month compared with the minutes spent in a primary care physician's office each year. Occupational health providers are a critical medical resource for the nation's workers and their dependents. With its emphasis on prevention, the relevance of occupational health and its sphere of influence on population health management are a great resource of medical support for patient-centered medical homes and accountable care organizations. By embracing a prevention and health promotion strategy, employers have the capability and expertise to meet the challenges of creating a more resilient, healthier workforce and improving their bottom line.

US Preventive Medicine, Inc (Brentwood, TN), has created an innovative information technology solution for a personalized prevention solution, the Prevention Plan. The Prevention Plan leverages social cognitive concepts such as efficacy building and self-regulatory mechanisms like goal setting and self-monitoring, which facilitate health behavior change.⁴ This Web-based prevention plan allows individual users to complete a health risk appraisal (HRA), biometric reporting, and laboratory testing to develop a customized prevention plan. The plan provides users with knowledge of their health risks as well as suggestions to reduce those risks. In addition, each user is provided a suite of support tools, recommended risk-reduction activities, and information that allows them to translate knowledge into action.

Users were able to complete an HRA, virtual coaching, live coaching, or social challenges to reduce their risks and were able to determine for themselves what level of engagement they preferred. All coaching programs were structured using risk-based educational modules. Live coaches completed these modules telephonically, while virtual coaching was completed using the same content, through self-directed online programs. Both coaching interventions used recommended action programs related to the risks identified from the risk appraisal, laboratory testing, and biometric screening. They were focused on identification of barriers, goal setting, and self-monitoring activities aimed at increasing self-efficacy. Live coaches used motivational interviewing as a method for engaging members in the coaching process, which was the only significant difference from the virtual coaching intervention.

NATURAL FLOW OF HEALTH RISK

The tool used to initiate awareness of health, determine health risk status of populations, and raise consciousness about health is the HRA. The health risks and cutoff points used in the HRA have been described previously.⁵ The most commonly used risk stratification is low-risk status (zero to two risk factors), medium-risk status (three to four risk factors), and high-risk status (five or more risk factors). The first HRA provides baseline information to individuals, with future HRAs indicating the direction individuals are moving on a continuum of health.⁶ The transition of individuals or percentage of individuals moving from one risk status to another when individuals are not engaged in wellness programs has been described by Dr Dee Edington as the natural flow of health risks. The transitions are measured using Markov chain analyses, a mathematical technique used to examine longitudinal data from the same individuals, which is described in our previous work.⁷ The risk transitions for the population studied in this article were also analyzed using this same type of Markov chain analyses. It becomes obvious from the diagrams used to display the risk transitions that slowing upward migration into

From US Preventive Medicine, Inc (Dr Loepke and Bender and Mr Reynolds), Brentwood, Tenn; and Health Management Research Center (Dr Edington), University of Michigan, Ann Arbor.

The authors declare no conflict of interest. No funding was received. Dr Ron Loepke, Dr Joel Bender, and Mr Ashley Reynolds are employees of US Preventive Medicine, Inc, and Dr Dee Edington is a consultant and member of the US Preventive Medicine International Advisory Board.

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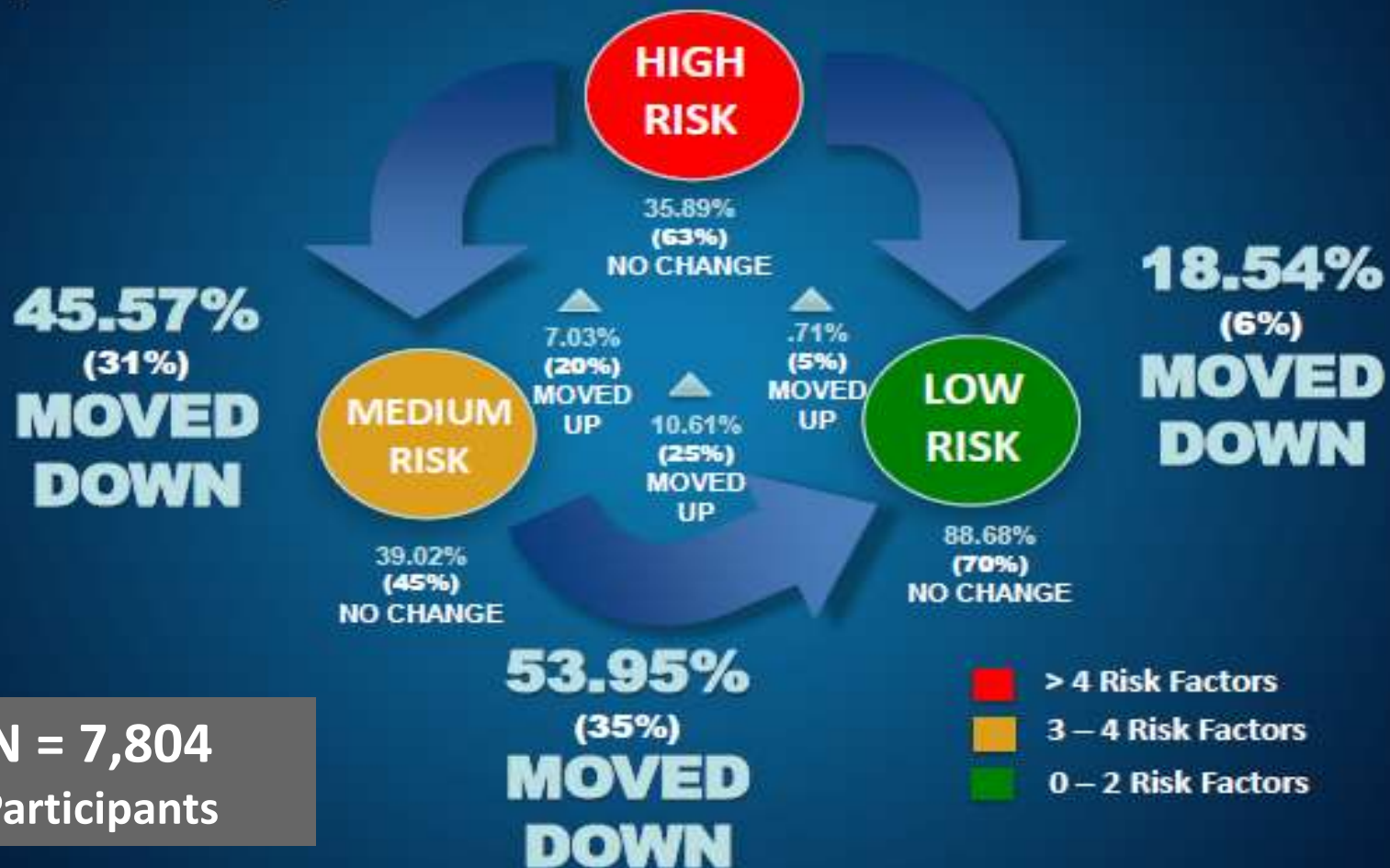
DOI: 10.1097/JOM.0b013e3182808e39

JOEM • Volume 55, Number 3, March 2013

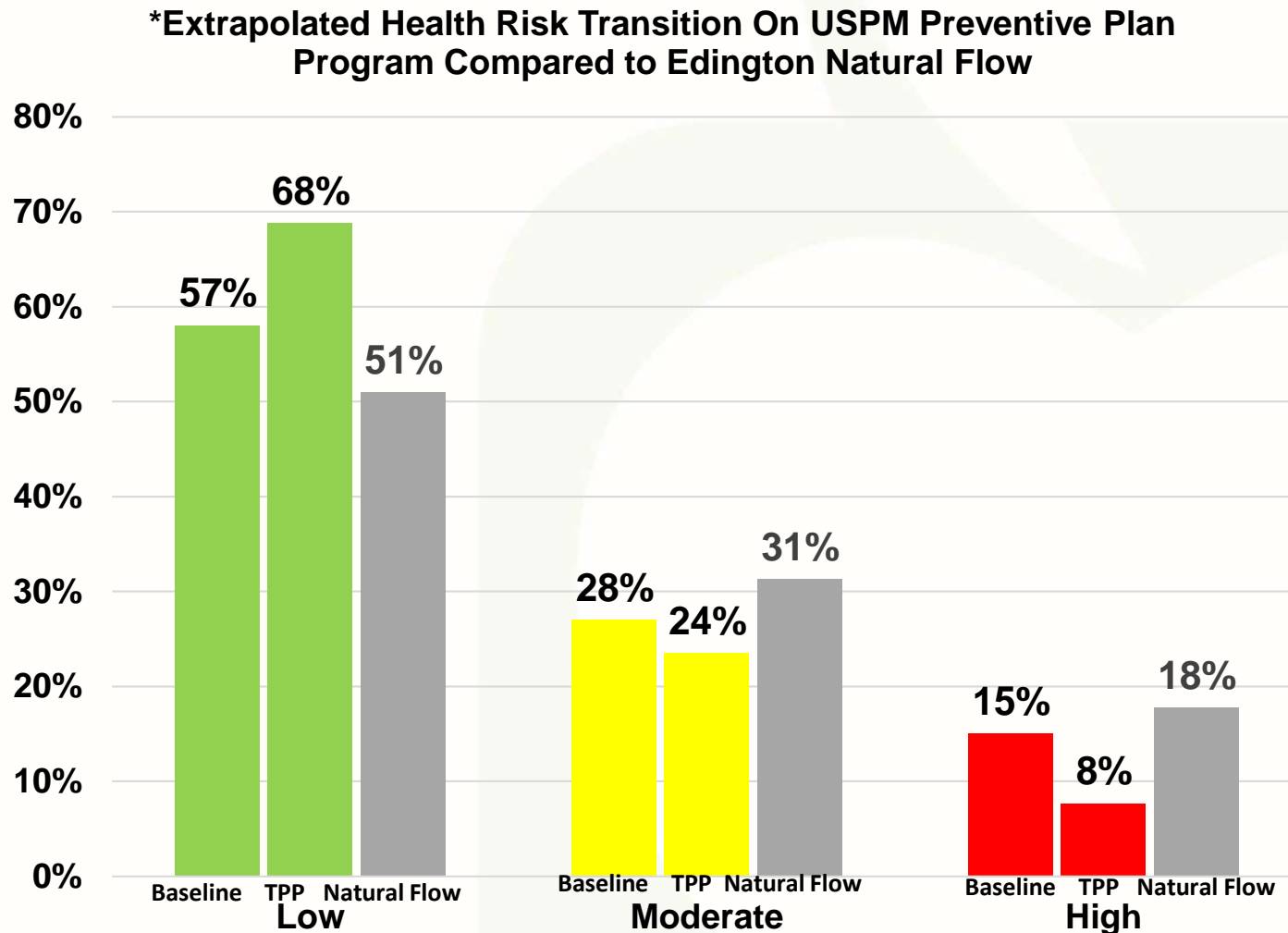
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Population Health Risk Transitions after 2 Years on Preventive Plan compared to Natural Flow (USPM study published in JOEM)

Preventive Plan Impact %
(Natural Flow %)



***World Bank Extrapolated Potential Health Risk Reduction after 2 Years on Preventive Plan vs Edington Natural Flow (based on published study in JOEM)**



*Extrapolated from: Loeppke, R; Edington, D; Bender, J; Reynolds, A. "The Association of Technology in a Workplace Wellness Program with Health Risk Factor Reduction" Journal of Occupational and Environmental Medicine. 55: 259-264. March, 2013;

The Full Value of the Investment (VOI) in Health

ROI



VOI

Return on Investment

Financial Indicators/Net Savings

Value of Investment

Financial Indicators/Net Savings

Productivity/Performance Indicators

Engagement/Retention Indicators

Preventive Screening Indicators

Health Risk Indicators

EBM Clinical Indicators

Utilization Indicators

Resiliency/Stress Indicators

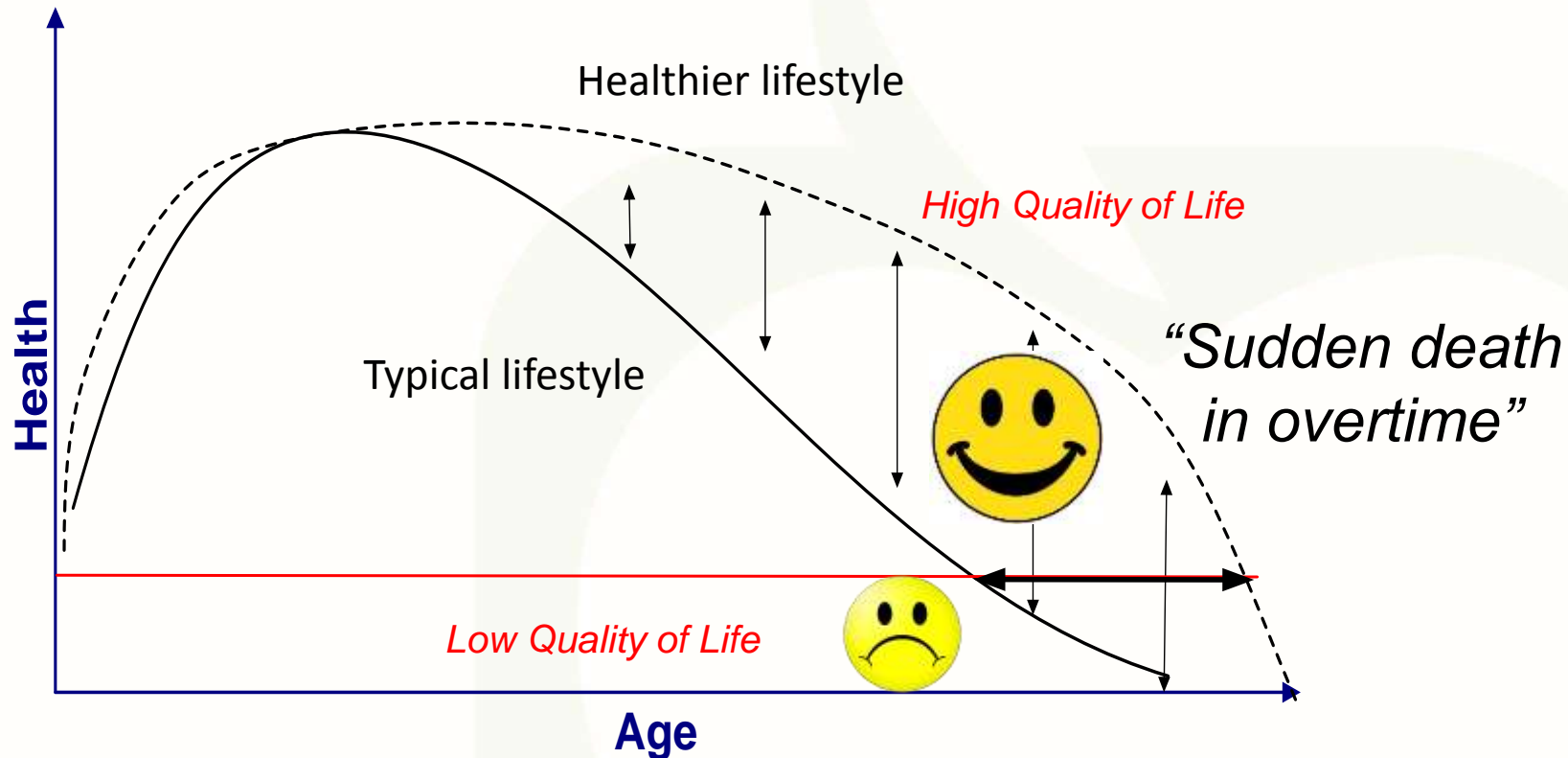
Safety Indicators

Shareholder Value

Personal Value

The Personal Value of Better Health

Adding years to your life, and life to your years



The **compression of morbidity** relates to postponing the age of onset of morbidity, disability and cumulative health costs--even though life expectancy is increased--**by living a healthier lifestyle**

Hubert, Bloch, Oehlert and Fries. Lifestyle Habits and Compression of Morbidity. J Gerontol A Biol Sci Med. June, 2002; 57 (6) M347-51

Adding Life to Years and Years to Life... One Person at a Time.



WITH
PERFORMANCE REPORTING