Wellness at the Workplace Conference
1982 to 2006

THE UNIVERSITY OF MICHIGAN
HEALTH MANAGEMENT RESEARCH CENTER

WW I to WW XXV

Themes

WW I to WW XXV

Speakers

WW I to WW XXV

Learnings from WW Conferences

and

From the UM-HMRC

Key Research Learnings from HMRC

1980 Implement and disseminate HRA from CDC/Carter Center

to Move from Mortality outcomes to medical, pharmacy and time away from work as our primary outcome measures

1990 Consult and implement Wellness Programs in 20+ companies

1991 High risk persons are high cost (prospective data)
- a.) Individual risks
- b.) Cumulative risks (0-2, 3-4, 5 or more)

1993 Absenteeism shows the same relationships to risks as medical costs

1993 Excess costs are related to excess risks

1994 Changes in costs follow changes in risks (medical and pharmacy)

1995 Risk combinations are the most dangerous predictors of cost

1996 Low risk maintenance is an important program strategy

Key Research Learnings (Continued)

1996	Changes in risk drive changes in cost when targeted according to specific risk combinations: resource optimization
1997	Benchmarking by wellness score and company health score
1998	Risk and cost moderation is related to participation
1998	Program opportunities are in preventive services, low-risk maintenance high-risk intervention and disease management
1999	Presenteeism introduced as a measure of productivity and influenced by risks and disease
2000	Define the total value of health to an organization
2001	Establish the natural flow of risks and Costs
2002	Focus on the person and not the risk or the disease

Key Research Learnings (Continued)

2002 Changes in costs follow changes in risks (time away from work)

2003 Employer sponsored programs can result in improved population health status

2004 Proof of Concept requires bending the cost trends

2004 Percent participation and percent low-risk proposed as the important elements or a Health Management scorecard

2005 Pre-retirement participation can influence post-retirement participation

2006 Interventions are susceptible to severe "step down" participation

2006 Changes in costs follow changes in risks (presenteeism)

2007 and beyond

Wellness at the Workplace XXV

Theme: Beyond Individual Risks and Behaviors

Speakers: Garry Lindsay
Tom Golaszewski
Judd Allen

Learnings: To obtain the total value of a healthy and productive workplace requires a combination of leadership, environmental, individual and population interventions.

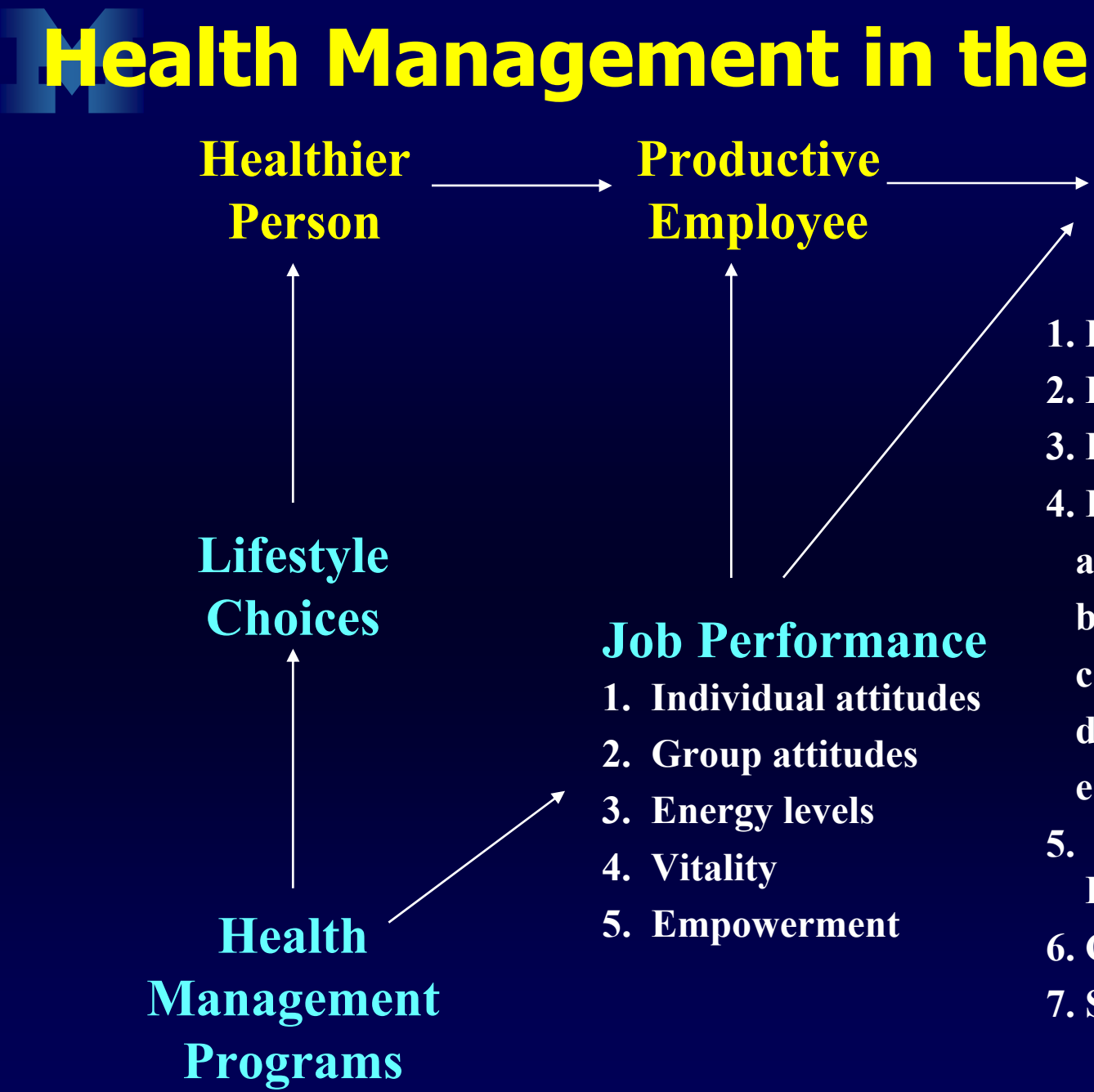
UM-HMRC Corporate Consortium

- ✓Steelcase
- ✓Bank One
- ✓Progressive
- ✓We Energies
- ✓General Motors
- ✓Crown Equipment
- ✓Foote Health System
- ✓Medical Mutual of Ohio
- ✓St Luke's Health System
- ✓Cuyahoga Community College
- ✓Blue Cross Blue Shield Rhode Island
- ✓United Auto Workers-General Motors
- ✓Wisconsin Education Association Trust
- ✓Southwest Michigan Healthcare Coalition
- ✓Australian Health Management Corporation
- ✓Kellogg
- ✓Gulf Power
- ✓Weyerhaeuser
- ✓Delphi Automotive
- ✓Network Health Plan
- ✓Florida Power & Light

*The consortium members provide health care insurance for over two million Americans. Data are available from eight to 18 years.

Meet on First Wednesday of each December in Ann Arbor

Health Management in the Workplace



Health Management

March 15, 2006

1. Introduction: Societal Need
2. Level 1: Basic Risk-Cost Relationship: Excess Costs
3. Level 2: Business Case: Costs follow Risks
4. Level 3: Health Management: Proof of Concept
5. Level 4: Serious Business Strategy: Implementation
6. Level 5: What Works: Integrated/Sustainable Solution
7. Level 6: Next Generation: Individual, Company, Community, State, Nation

Slides available via e-mail attachment

Level 2

Basic Risk-Cost Relationship

Excess Costs related to

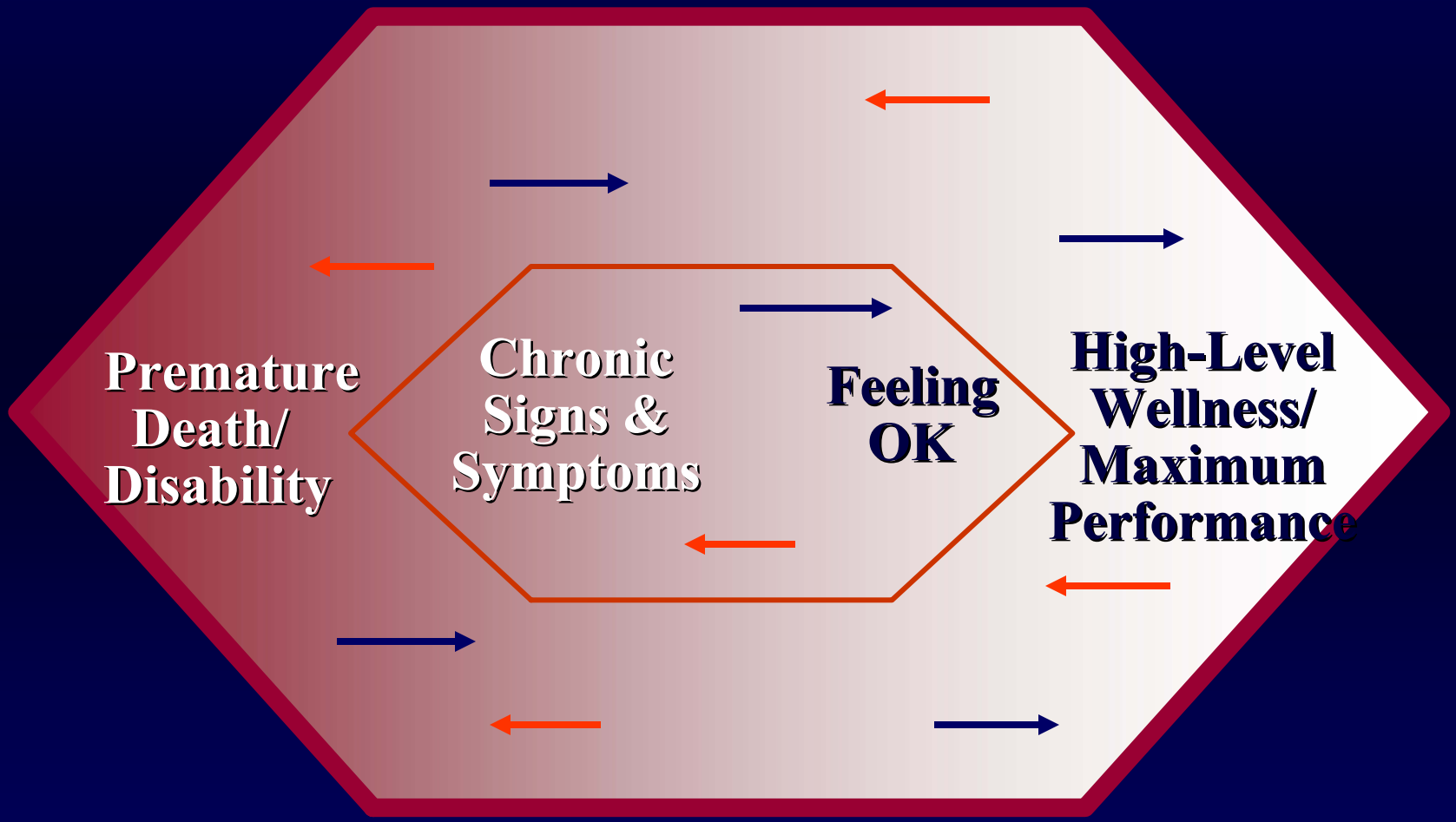
Excess Risks

Health Risks and Behaviors

Health Risk Measure	High Risk Criteria
Alcohol	More than 14 drinks/week
Blood Pressure	Systolic >139 mmHg or Diastolic >89 mmHg
Body Weight	BMI≥ 27.5
Cholesterol	Greater than 239 mg/dl
Existing Medical Problem	Heart, Cancer, Diabetes, Stroke
HDL	Less than 35 mg/dl
Illness Days	>5 days last year
Life Satisfaction	Partly or not satisfied
Perception of Health	Fair or poor
Physical Activity	Less than one time/week
Safety Belt Usage	Using safety belt less than 100% of time
Smoking	Current smoker
Stress	High

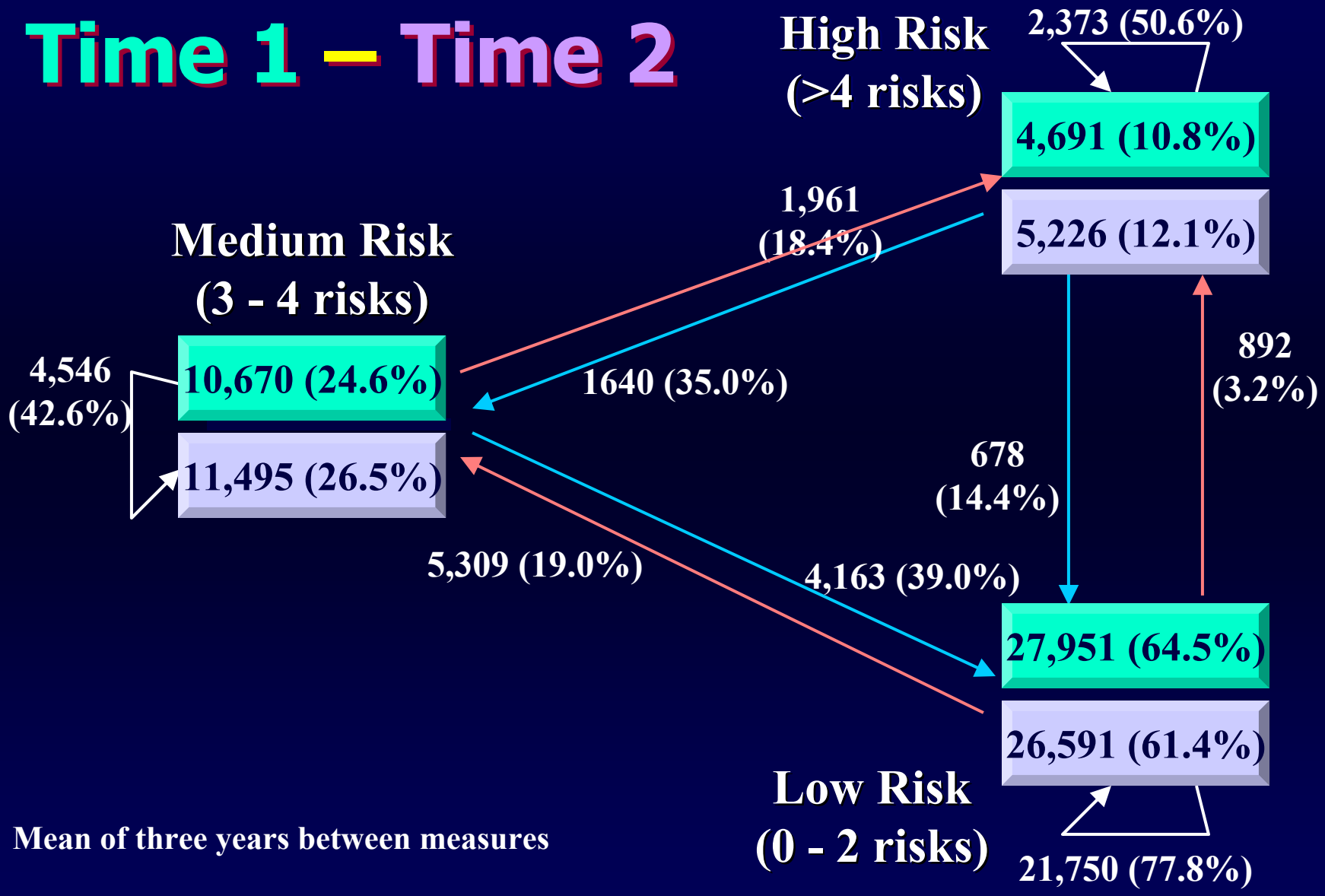
OVERALL RISK LEVELS	
Low Risk	0 to 2 high risks
Medium Risk	3 to 4 high risks
High Risk	5 or more high risks

Lifestyle Scale for Individuals or for any Population



Edington. Corporate Fitness and Recreation. 2:44, 1983

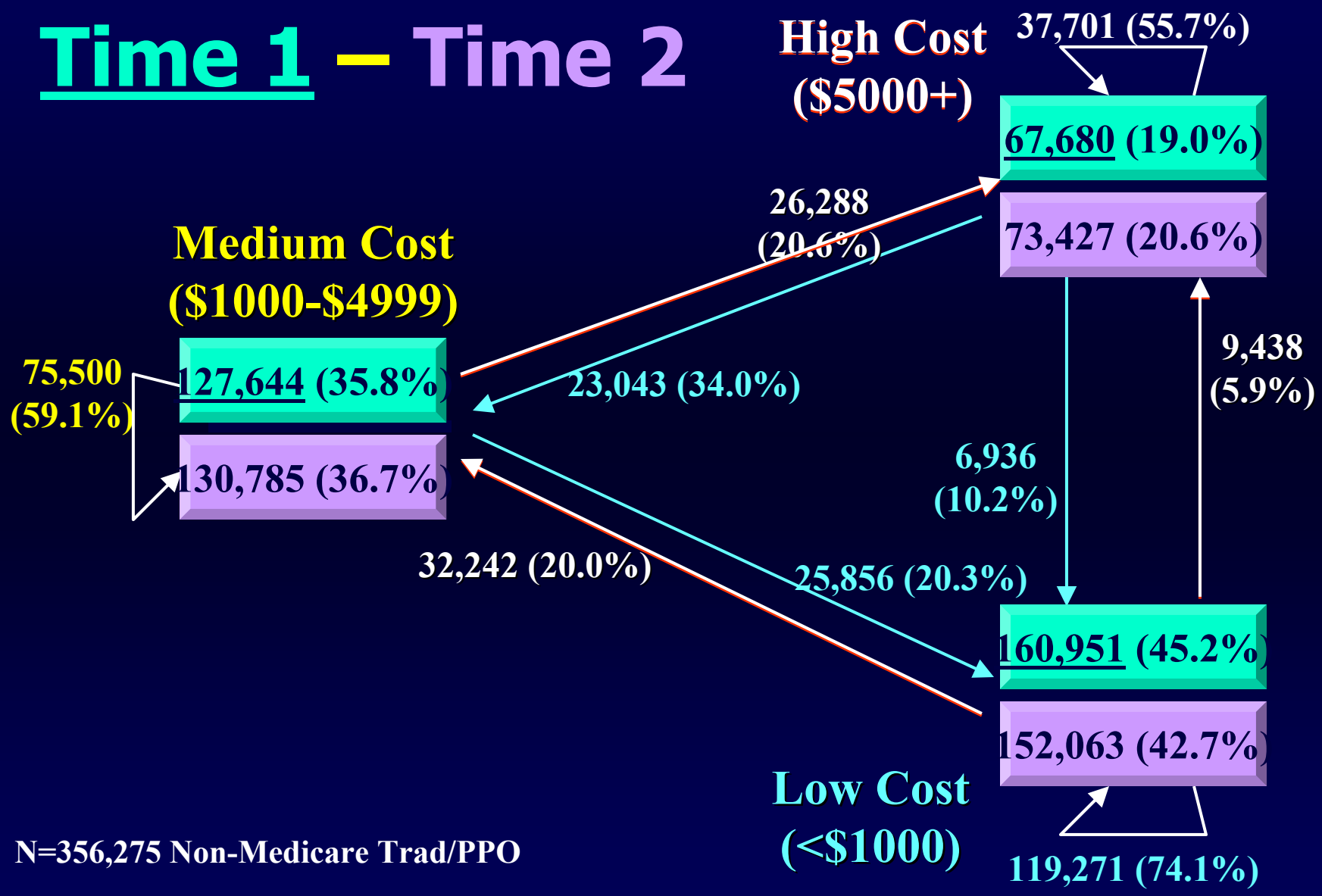
Risk Transitions
Time 1 – Time 2



Mean of three years between measures

Modified from Edington, AJHP. 15(5):341-349, 2001

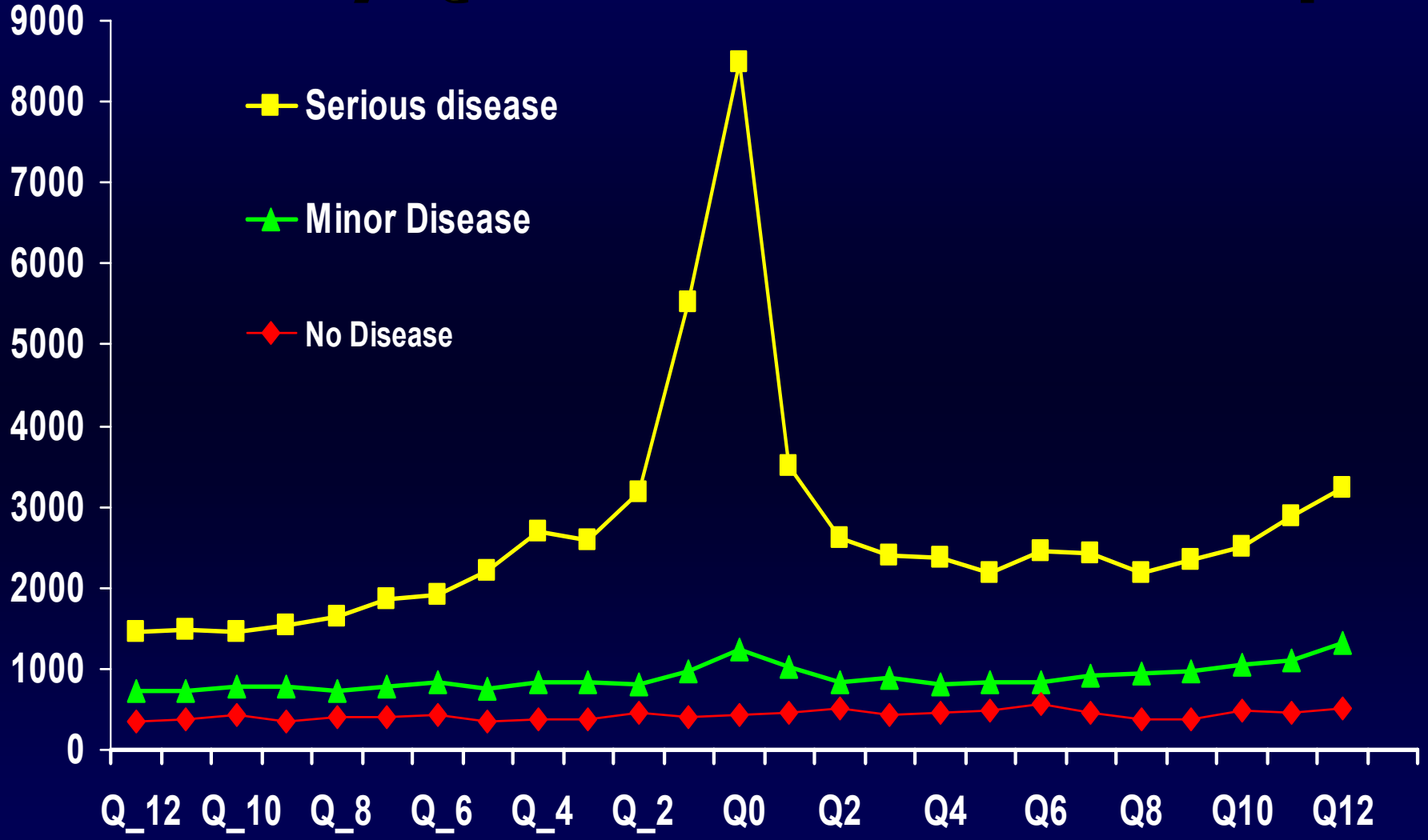
Cost Transitions
Time 1 – Time 2



N=356,275 Non-Medicare Trad/PPO

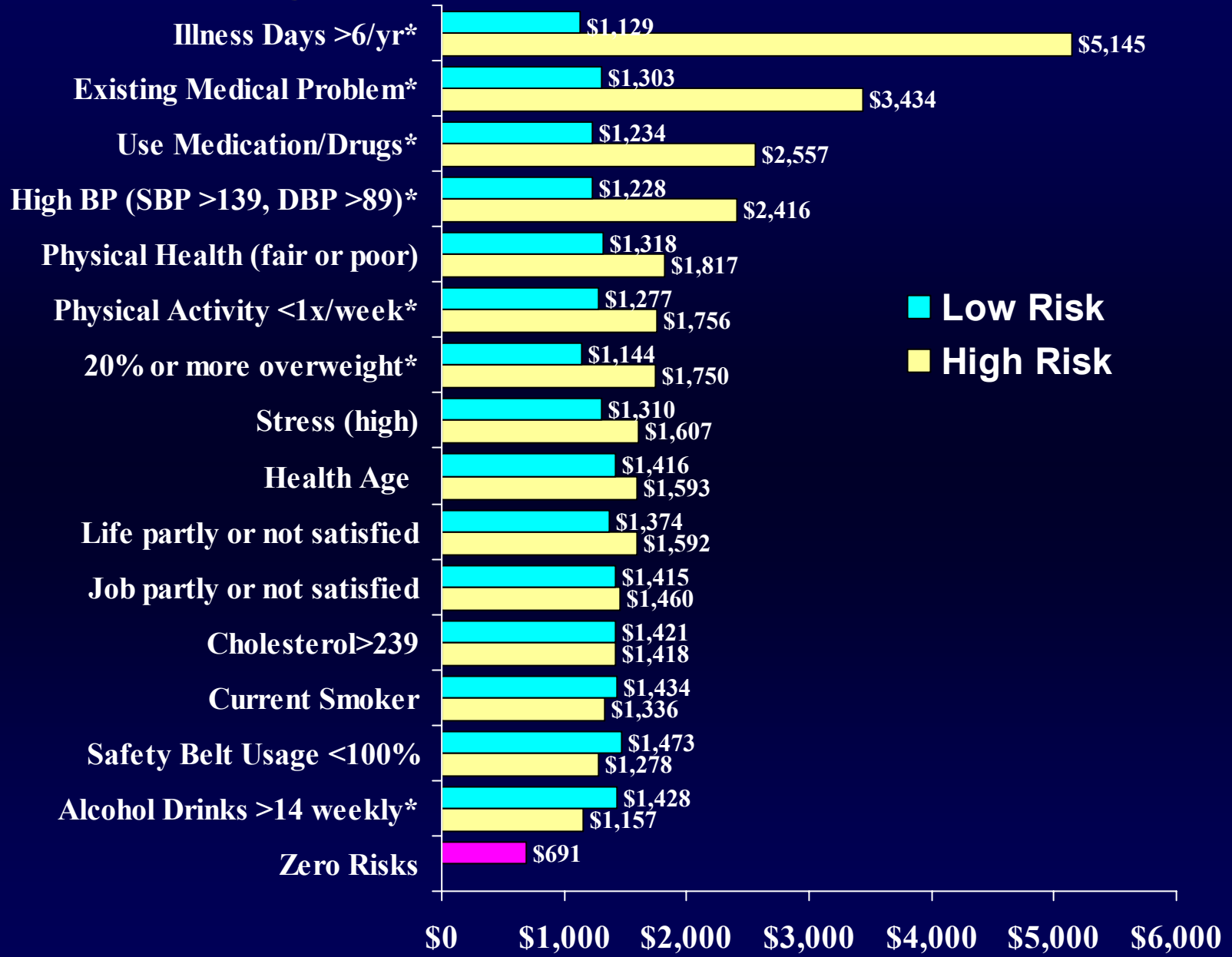
Modified from Edington, AJHP. 15(5):341-349, 2001

Total Medical and Pharmacy Costs Paid by Quarter for Three Groups



Musich,Schultz,Burton,Edington. DM&HO. 12(5):299-326, 2004

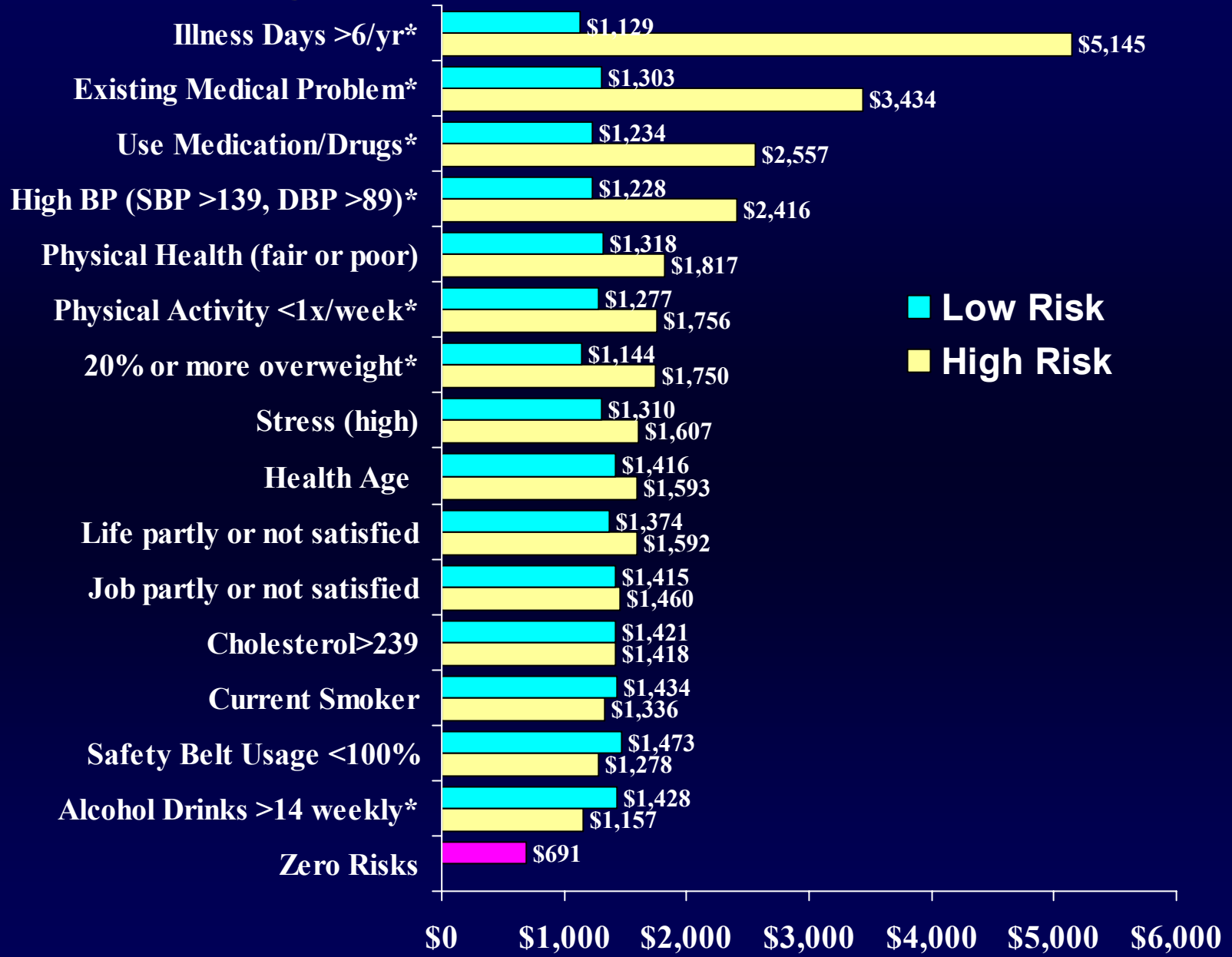
Medical/Drug Cost Comparison by Risk Status



*p<.05.

Yen, Witting, Edington. AJHP. 6:46-54, 1991

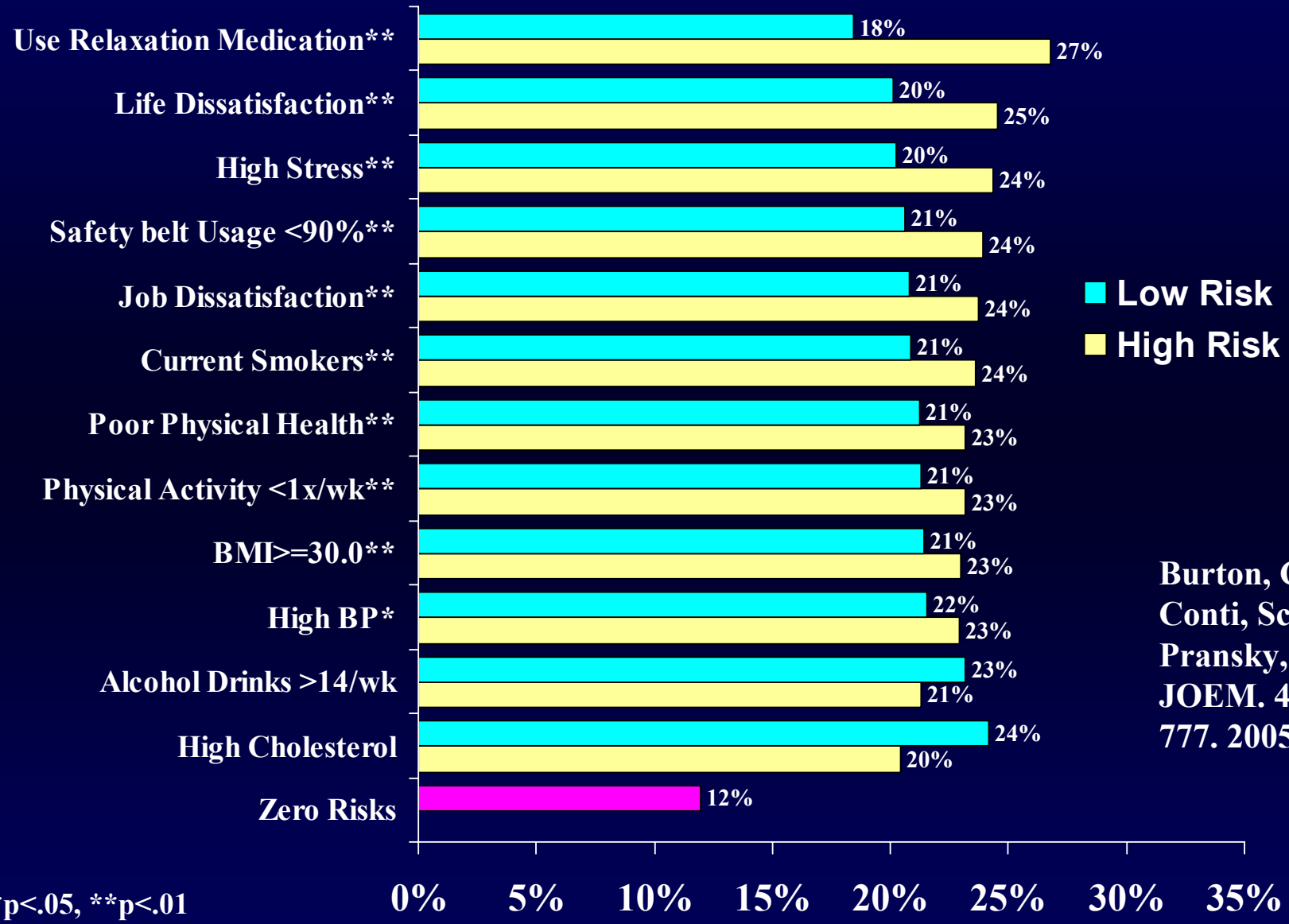
Medical/Drug Cost Comparison by Risk Status



*p<.05.

Yen, Witting, Edington. AJHP. 6:46-54, 1991

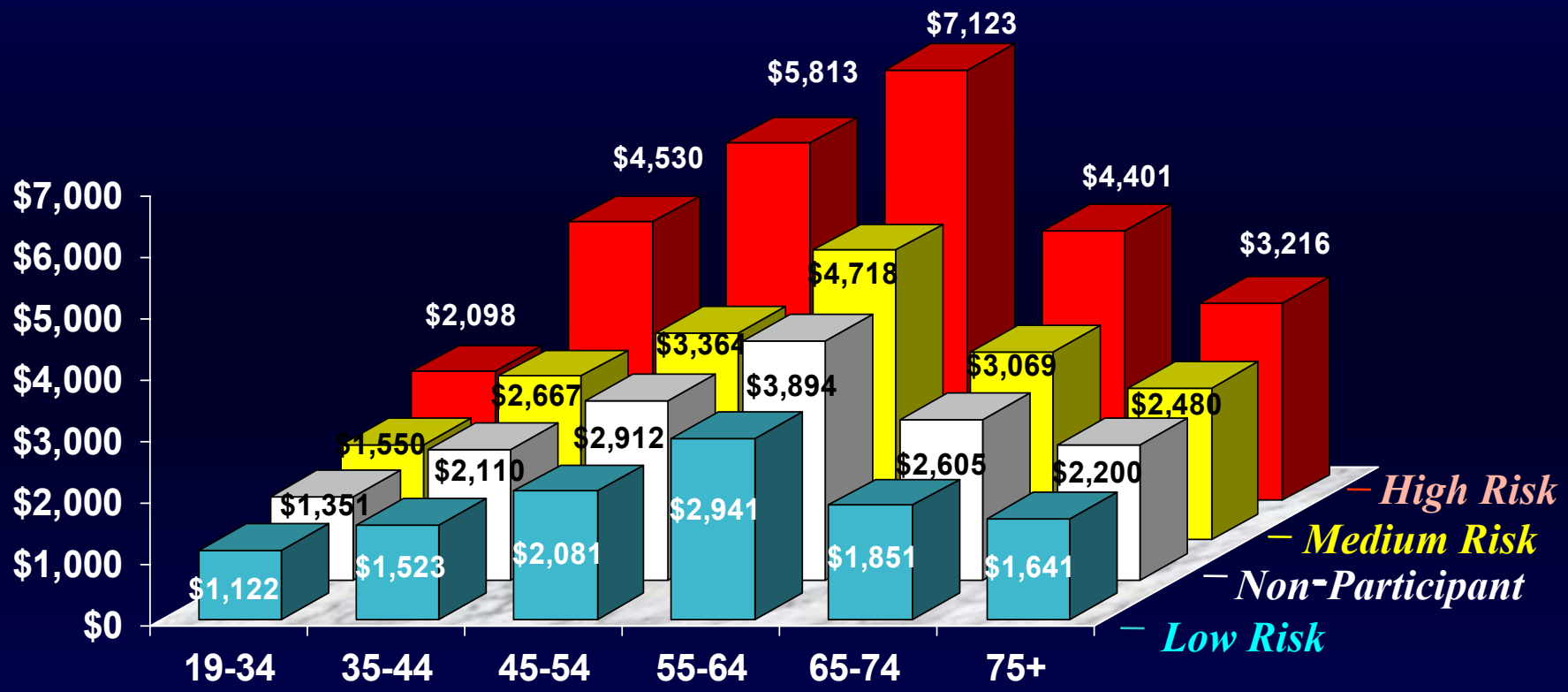
Estimated Loss of Productivity by Risk Status



Burton, Chen, Conti, Schultz, Pransky, Edington. JOEM. 47(8):769-777. 2005

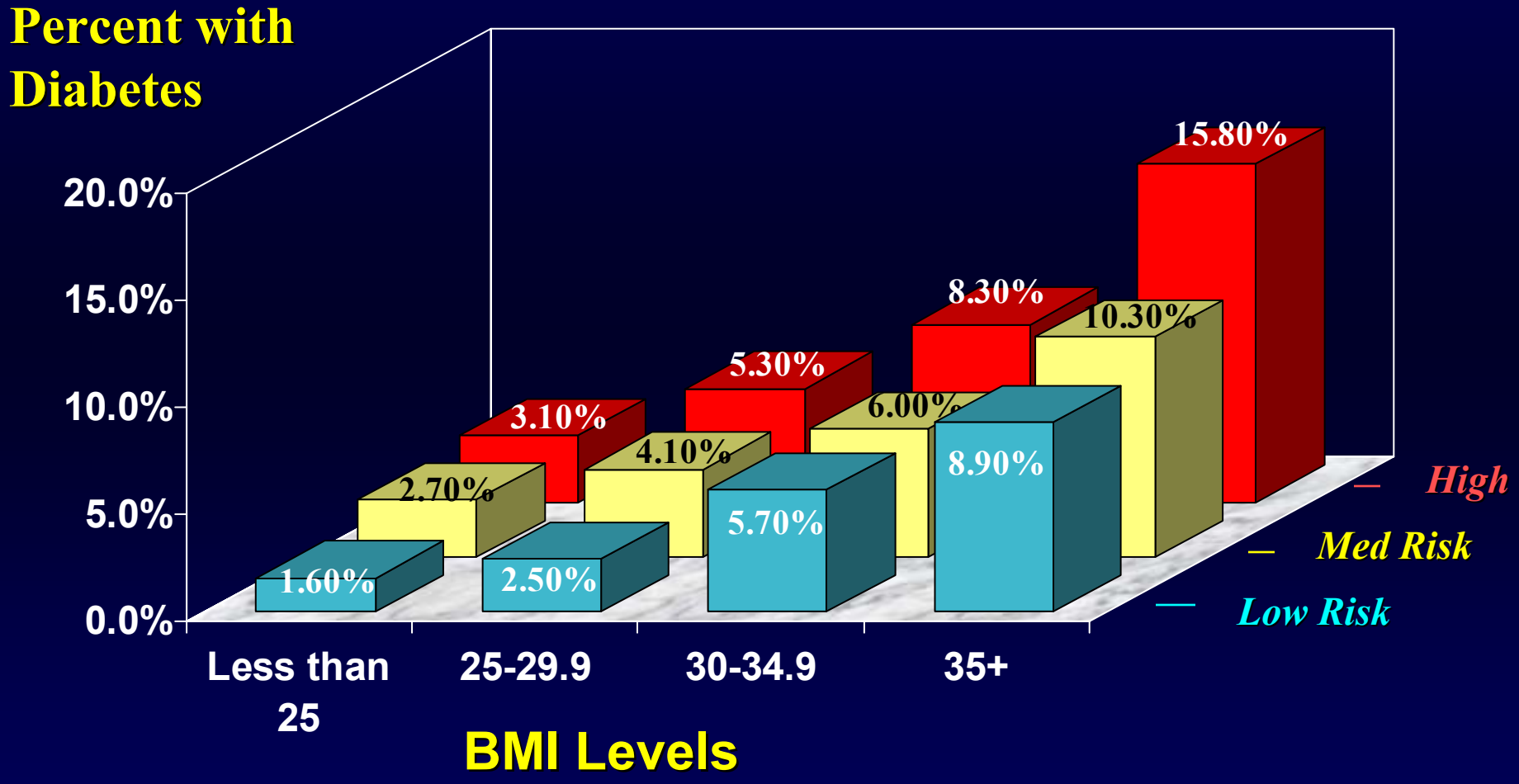
*p<.05, **p<.01

Costs Associated with Risks
Medical Paid Amount x Age x Risk



Edington. AJHP. 15(5):341-349, 2001

Self-Reported Diabetes Associated with Levels of Body Mass Index

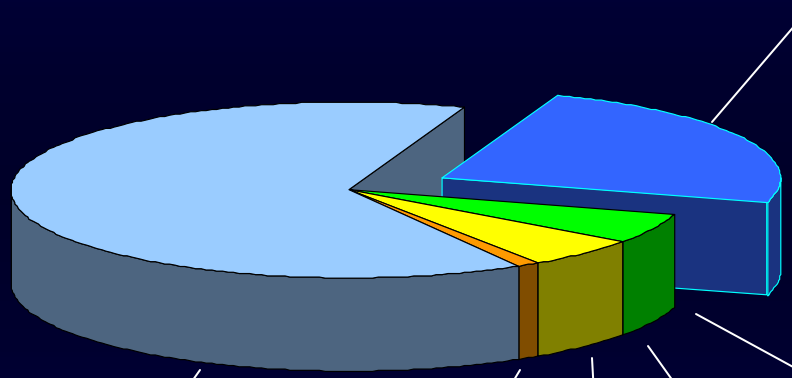


Musich, Lu, McDonald, Champagne, Edington. AJHP. 18(3): 264-268, 2004

Annual medical/pharmacy costs by weight groups

Wang, Schultz, Musich, McDonald, Hisrchland, Edington. AJHP. 17(3): 183-189, 2003.

Relative Costs of Poor Health: Total Value of Health



Edington, Burton. A Practical Approach to Occupational and Environmental Medicine (McCunney). 140-152. 2003

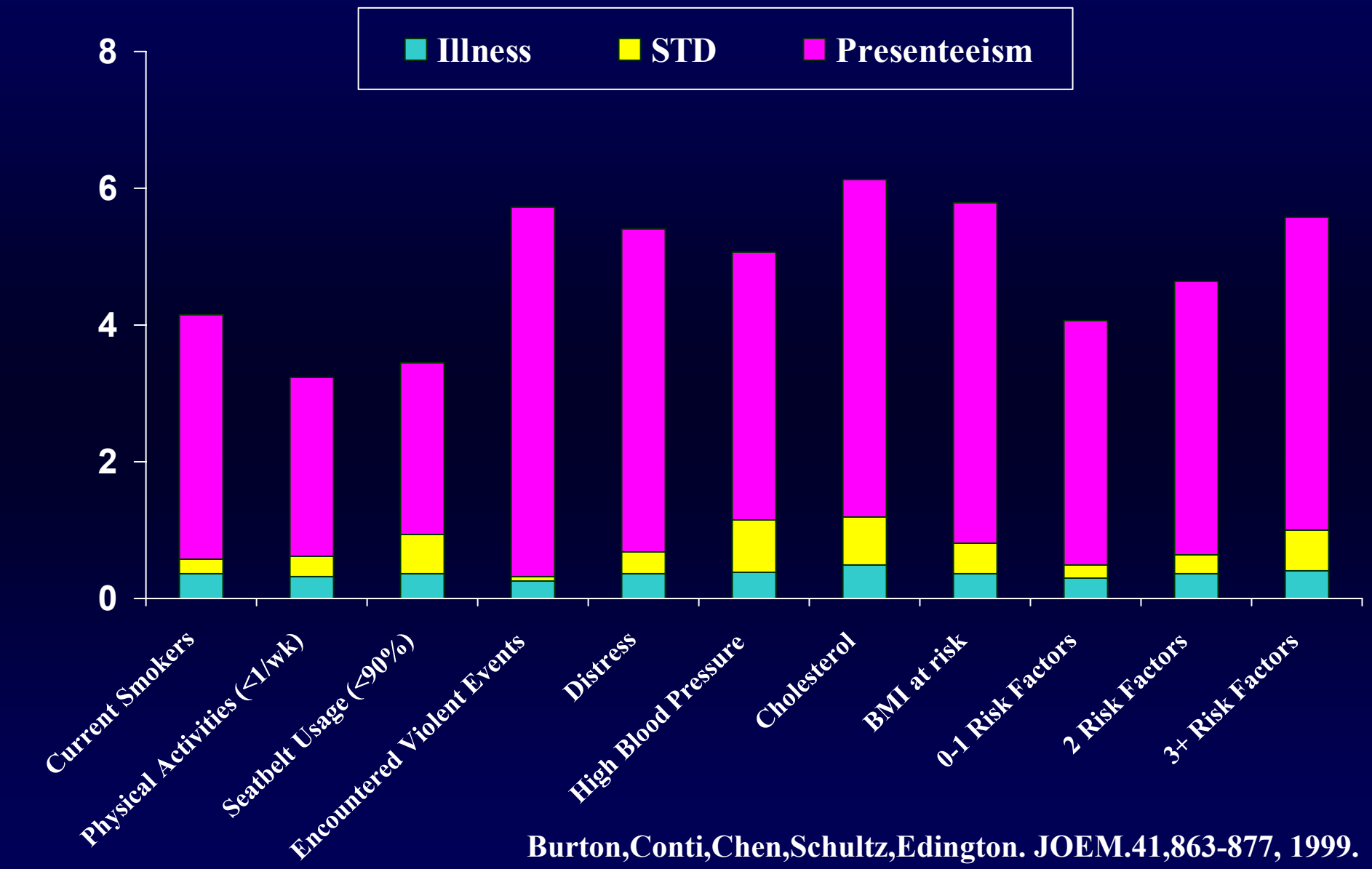
Percentage of Employees with a Disability Claim by Risk Status*

HRA Participants 1998-2000 HRA	Low Risk 0-2 Risks (N=685)	Medium Risk 3-4 Risks (N=520)	Non-Participants (N=4,649)	High Risk 5+ Risks (N=366)
WC Claims	25.4%	30.2%	30.2%	38.0%
STD Claims	23.4%	30.8%	29.6%	46.7%
Absence Record	49.9%	63.1%	41.0%	69.7%
Disability Claim	61.3%	72.5%	64.4%	81.7%

*Over three years 1998-2000

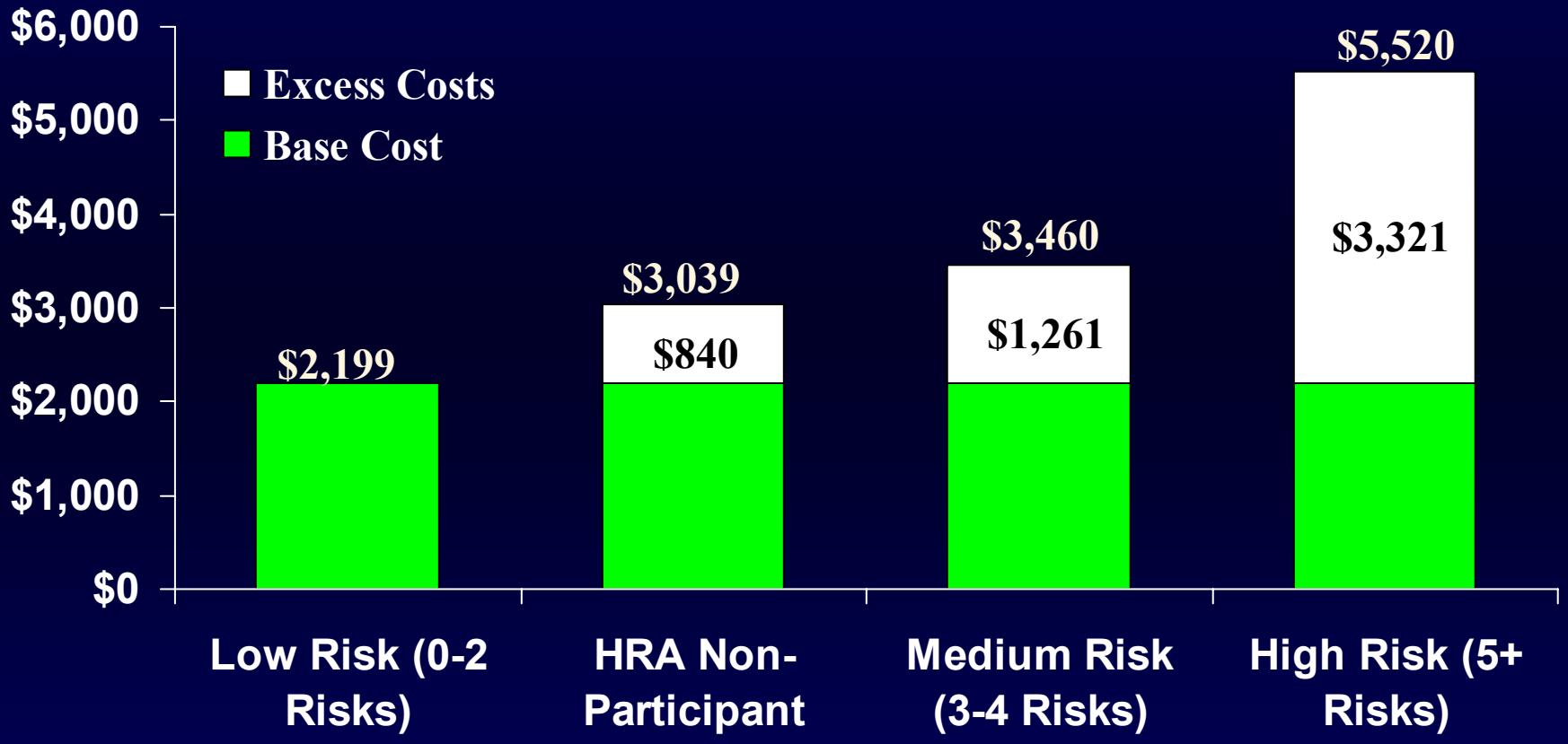
Wright, Beard, Edington. JOEM. 44(12):1126-1134, 2002

Health Risks and Behaviors X hours Lost



Burton,Conti,Chen,Schultz,Edington. JOEM.41,863-877, 1999.

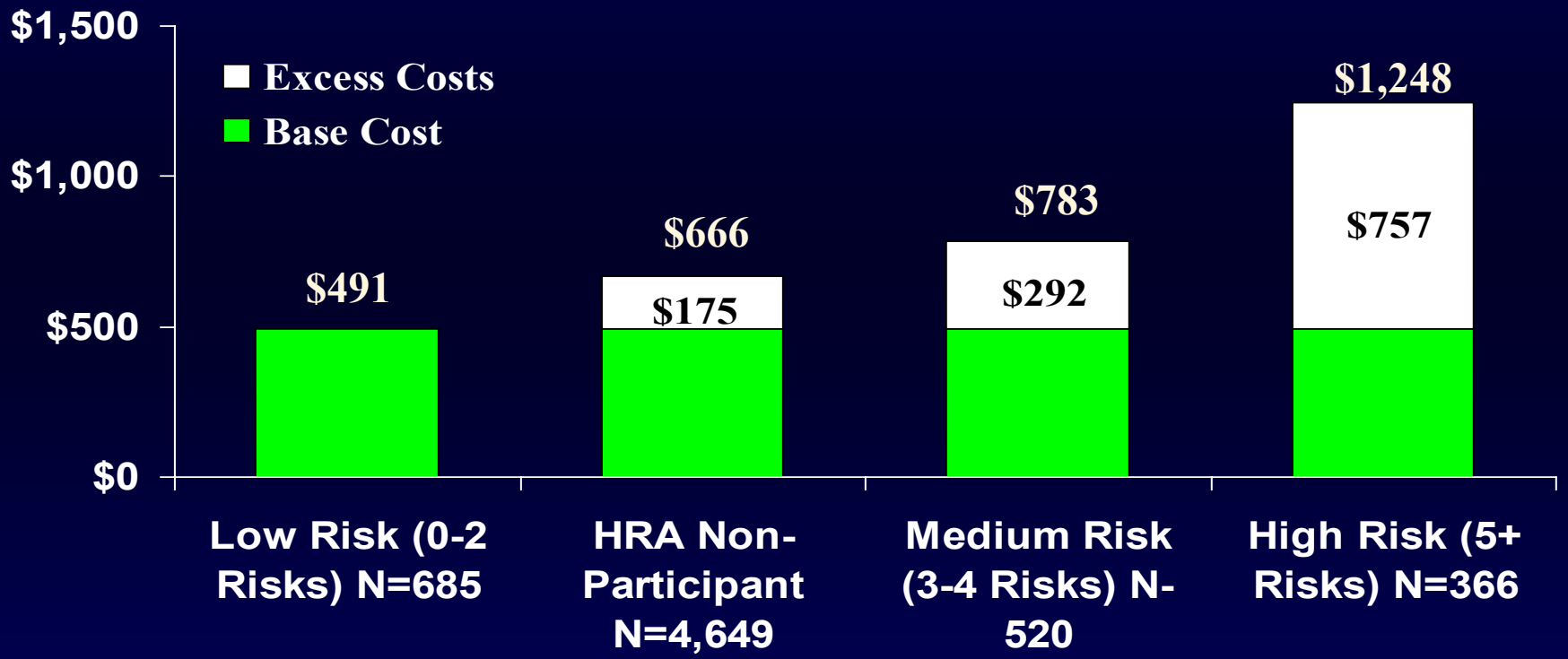
Excess Medical Costs due to Excess Risks



Edington, AJHP. 15(5):341-349, 2001

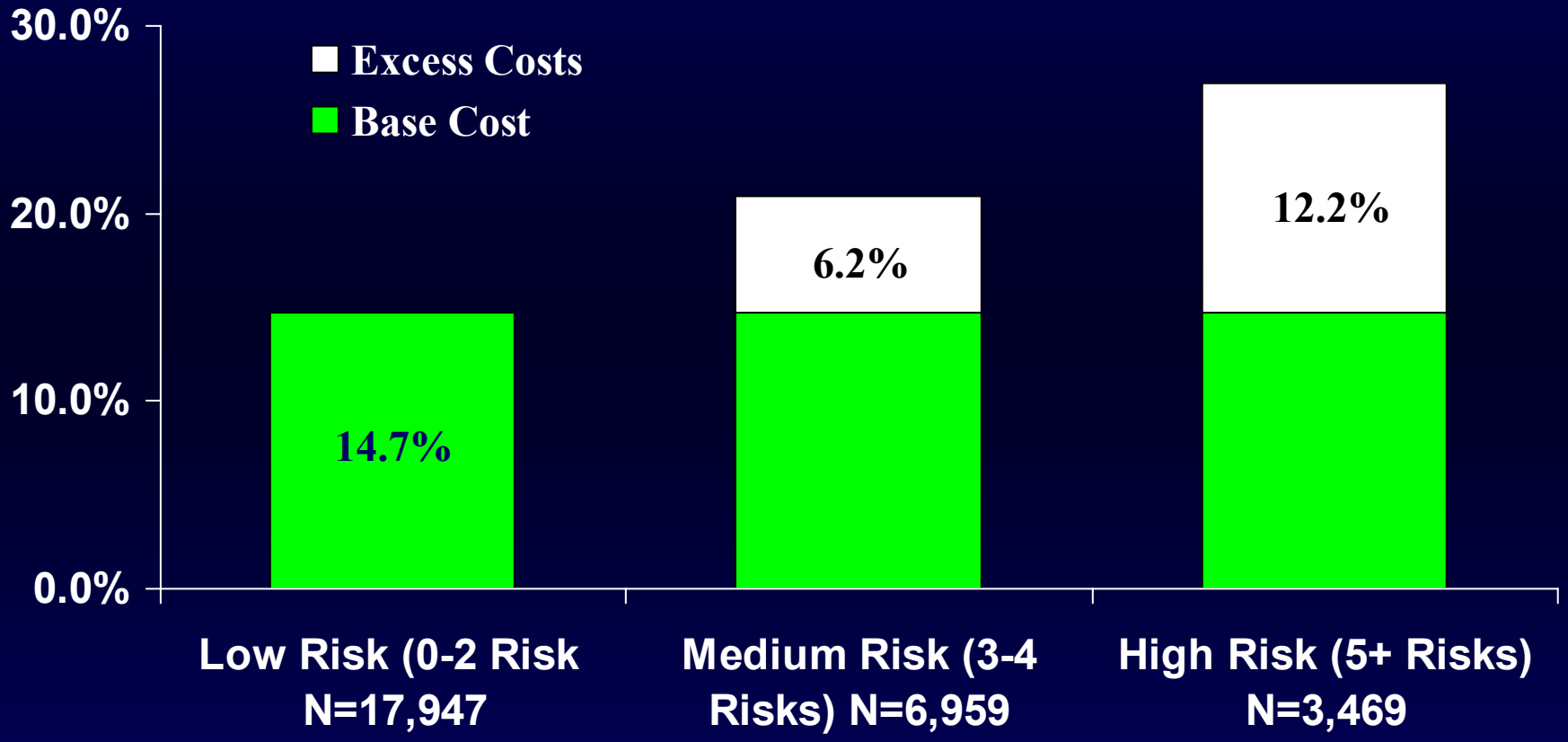
Excess Disability Costs due to Excess Risks

36% of Absence, STD, Worker's Comp



Wright, Beard, Edington. JOEM. 44(12):1126-1134, 2002

Excess On-The-Job Loss due to Excess Risks



Burton, Chen, Conti, Schultz, Pransky, Edington. JOEM. 47(8):769-777. 2005

Association of Risk Levels with Several Corporate Cost Measures

Outcome Measure	Low-Risk (N=671)	Medium-Risk (N=504)	High-Risk (N=396)	Excess Cost Percentage
Short-term Disability	$120	$216	$333	41%
Worker's Compensation	$228	$244	$496	24%
Absence	$245	$341	$527	29%
Medical & Pharmacy	$1,158	$1,487	$3,696	38%
Total	$1,751	$2,288	$5,052	36%

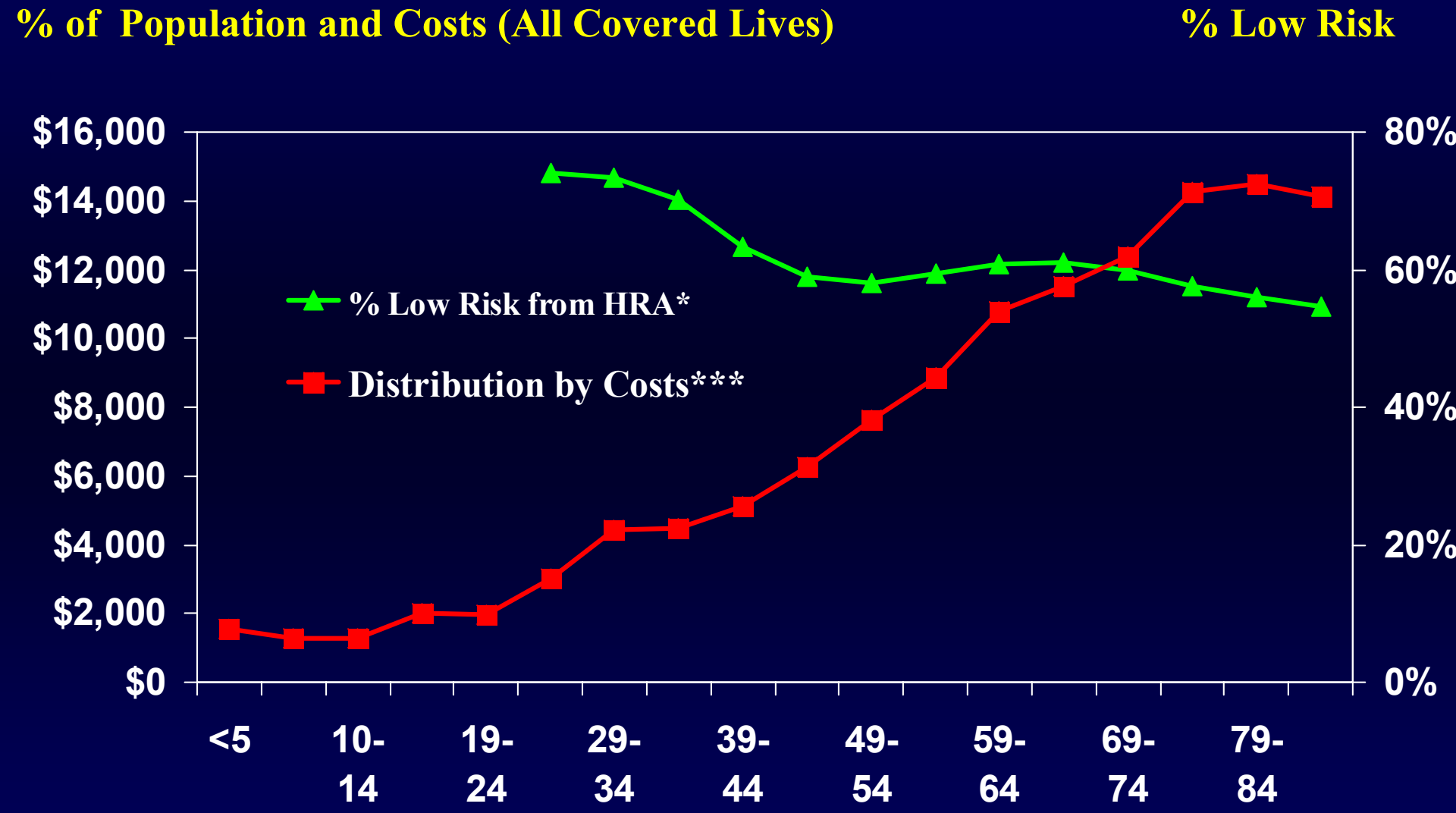
Wright, Beard, Edington. JOEM. 44(12):1126-1134, 2002

Level 2

Business Case for Health Management

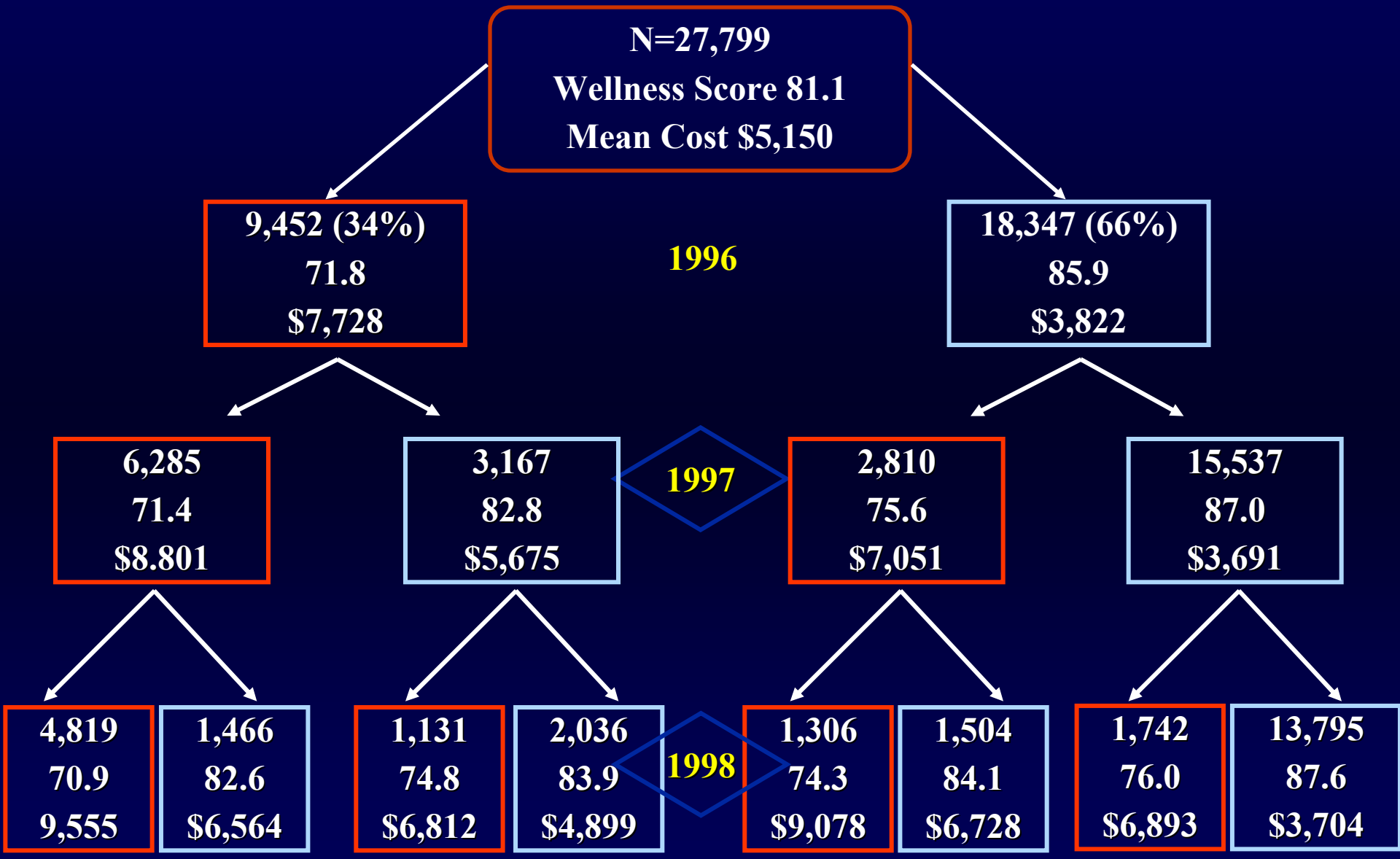
Costs follow Risks

Distribution: Age, Costs, & Risk Status

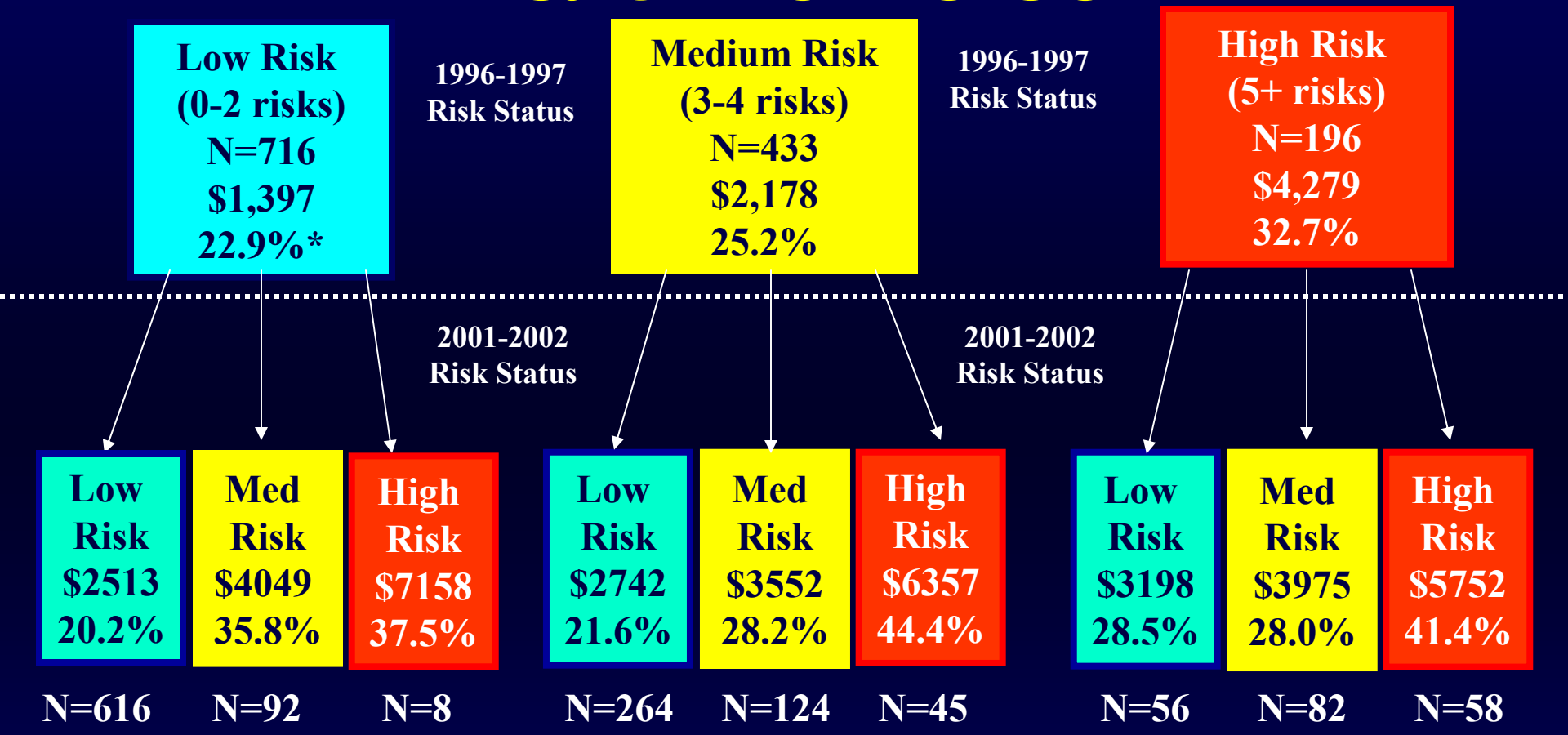


N=1.2M individuals in total population.
N=300K in risk population

Wellness Score and Costs over 3 Years



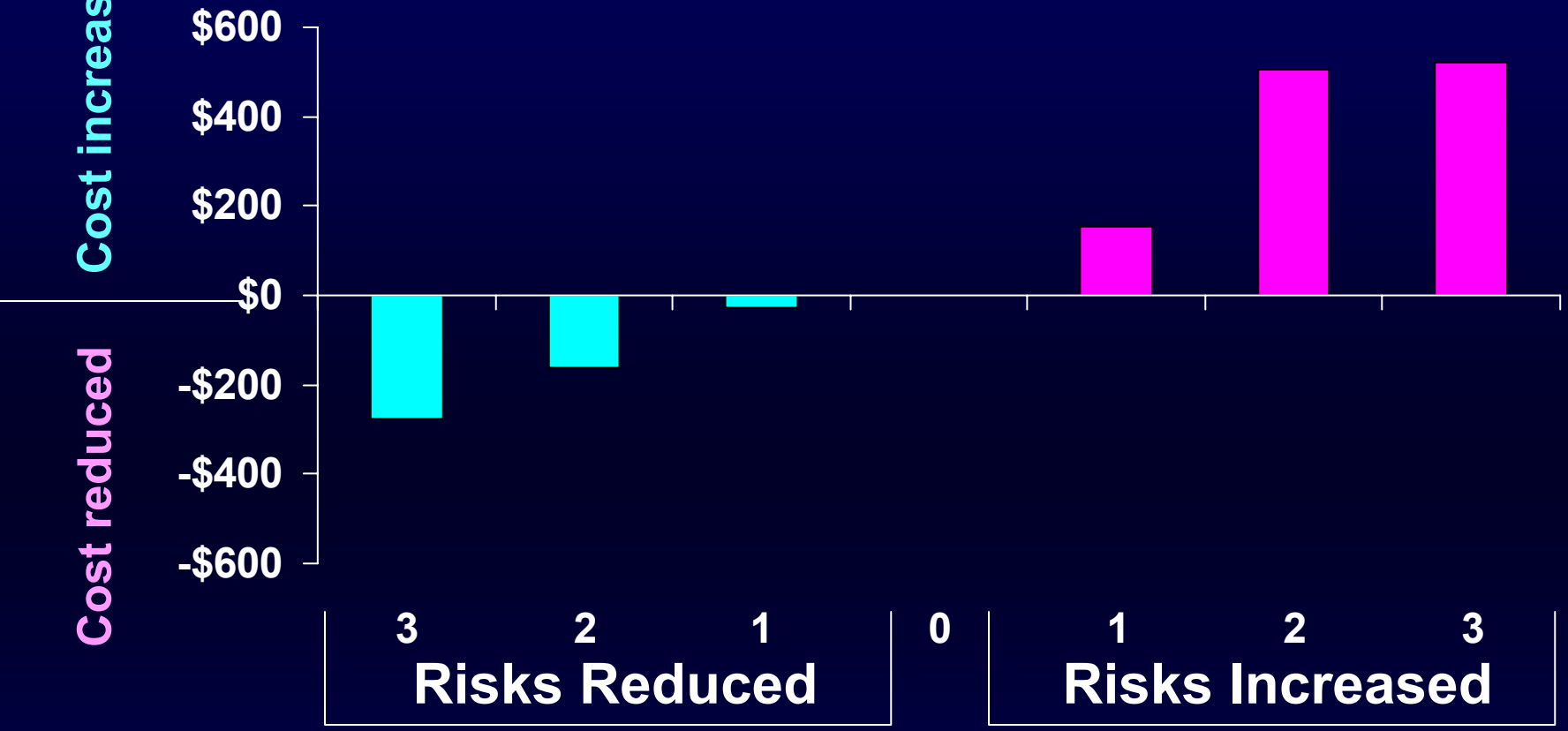
Change in Medical Claims to Change in Health Risk Levels



*Percent with cost at or above top 25% claims costs

N=1,345; Male Hourly Active Employees; Costs in 98 & 02.

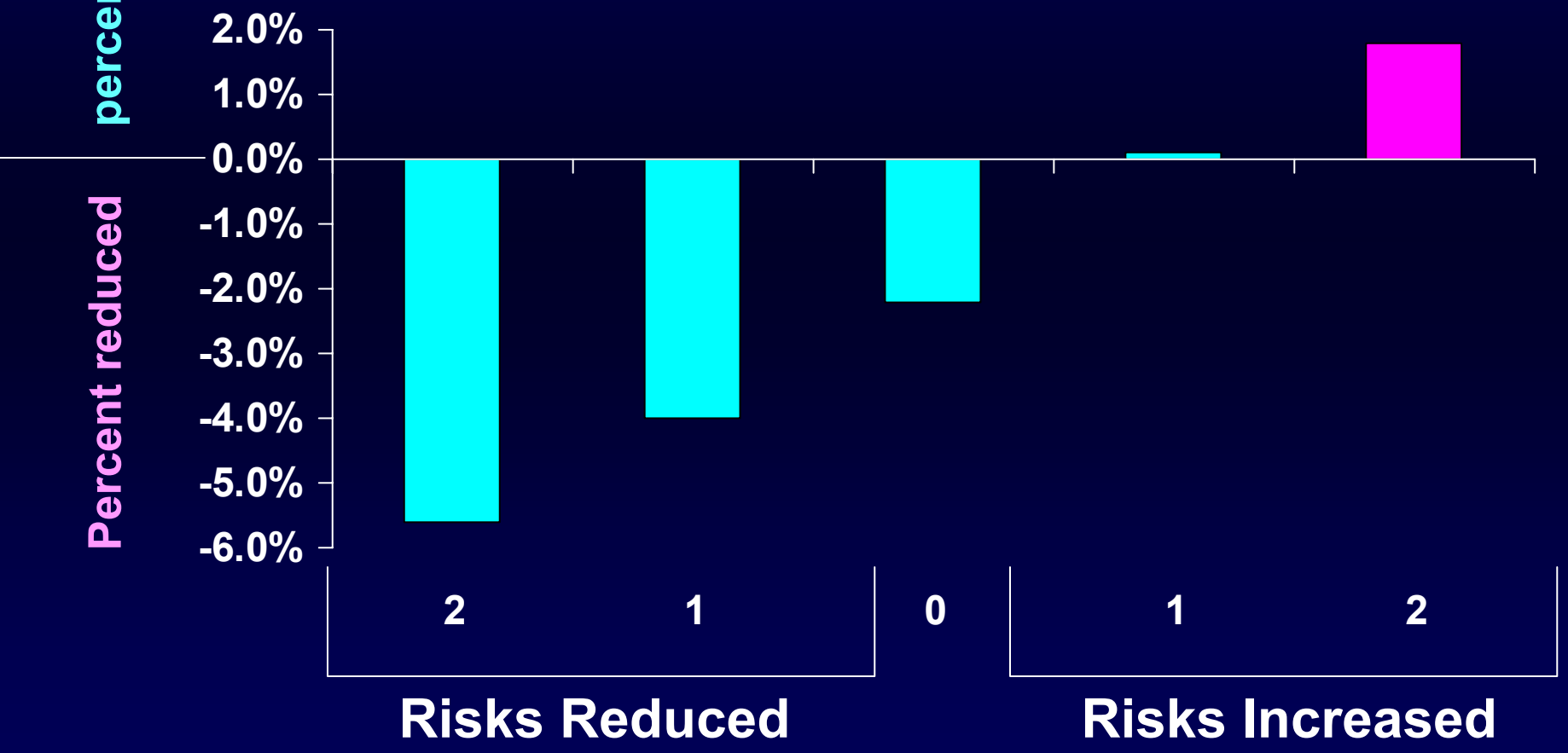
Change in Costs follow Change in Risks



Overall: Cost per risk reduced: $215; Cost per risk avoided: $304
Actives: Cost per risk reduced: $231; Cost per risk avoided: $320
Retirees<65: Cost per risk reduced: $192; Cost per risk avoided: $621
Retirees>65: Cost per risk reduced: $214; Cost per risk avoided: $264

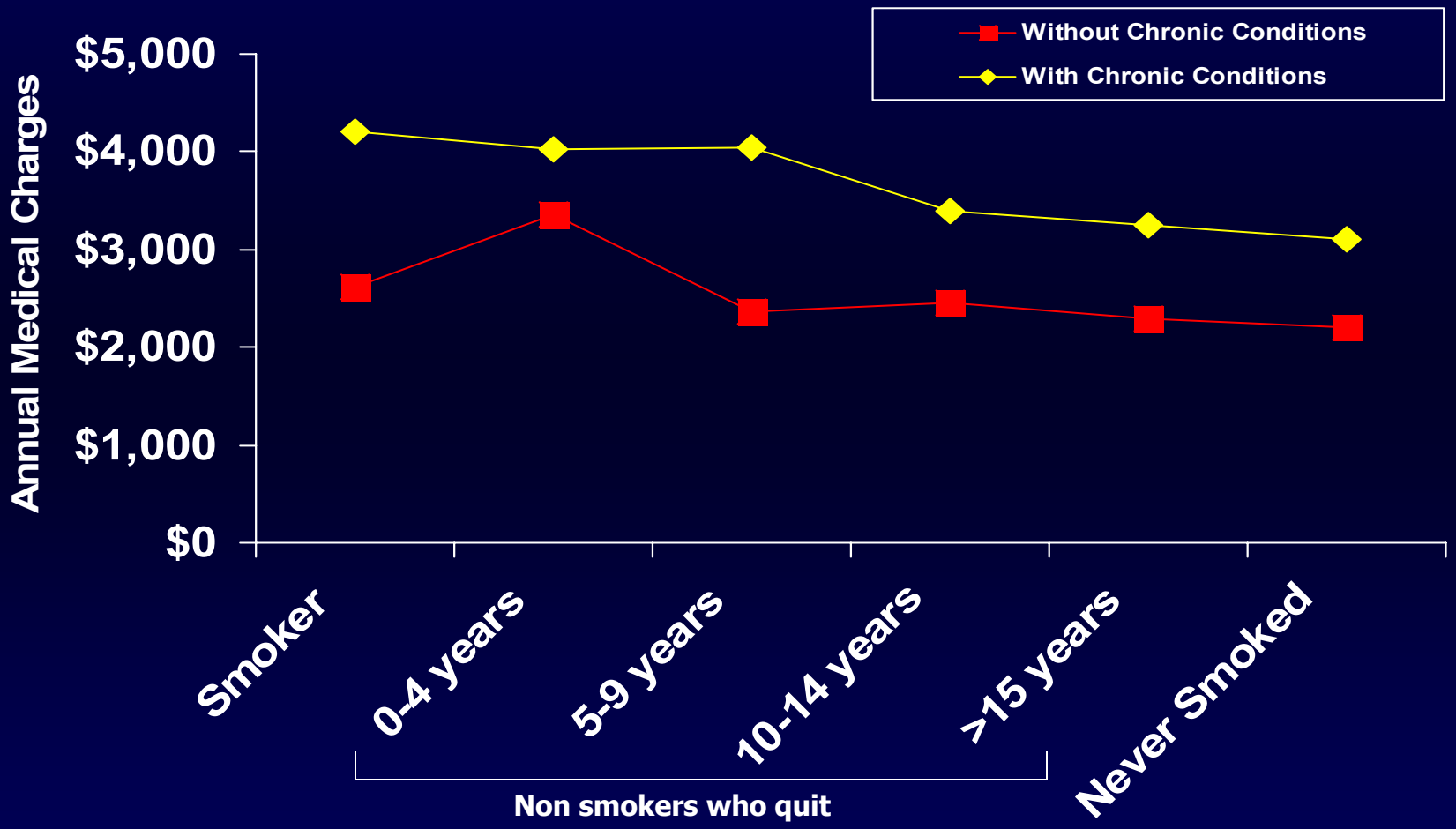
Updated from Edington, AJHP. 15(5):341-349, 2001.

Change in Productivity Loss follows Change in Risks



Burton, Chen, Schultz, Edington Submitted JOEM

Changes in Costs Following Smoking Cessation



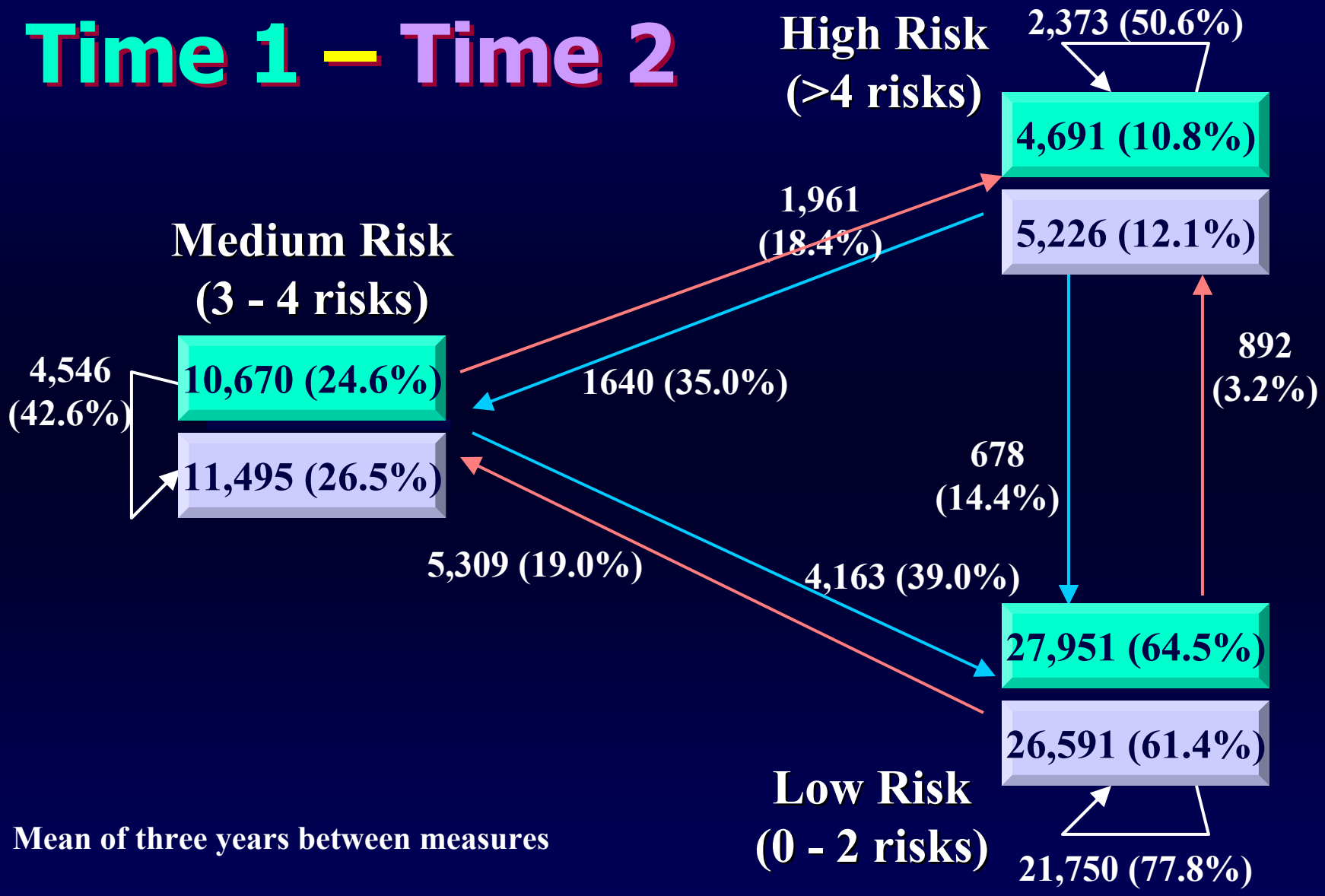
Musich, Faruzzi, Lu, McDonald, Hirschland, Edington. AJHP 18(2): 133-142, 2003

Level 3

Health Management as a Serious Business Strategy

Proof of Concept

Risk Transitions
Time 1 – Time 2



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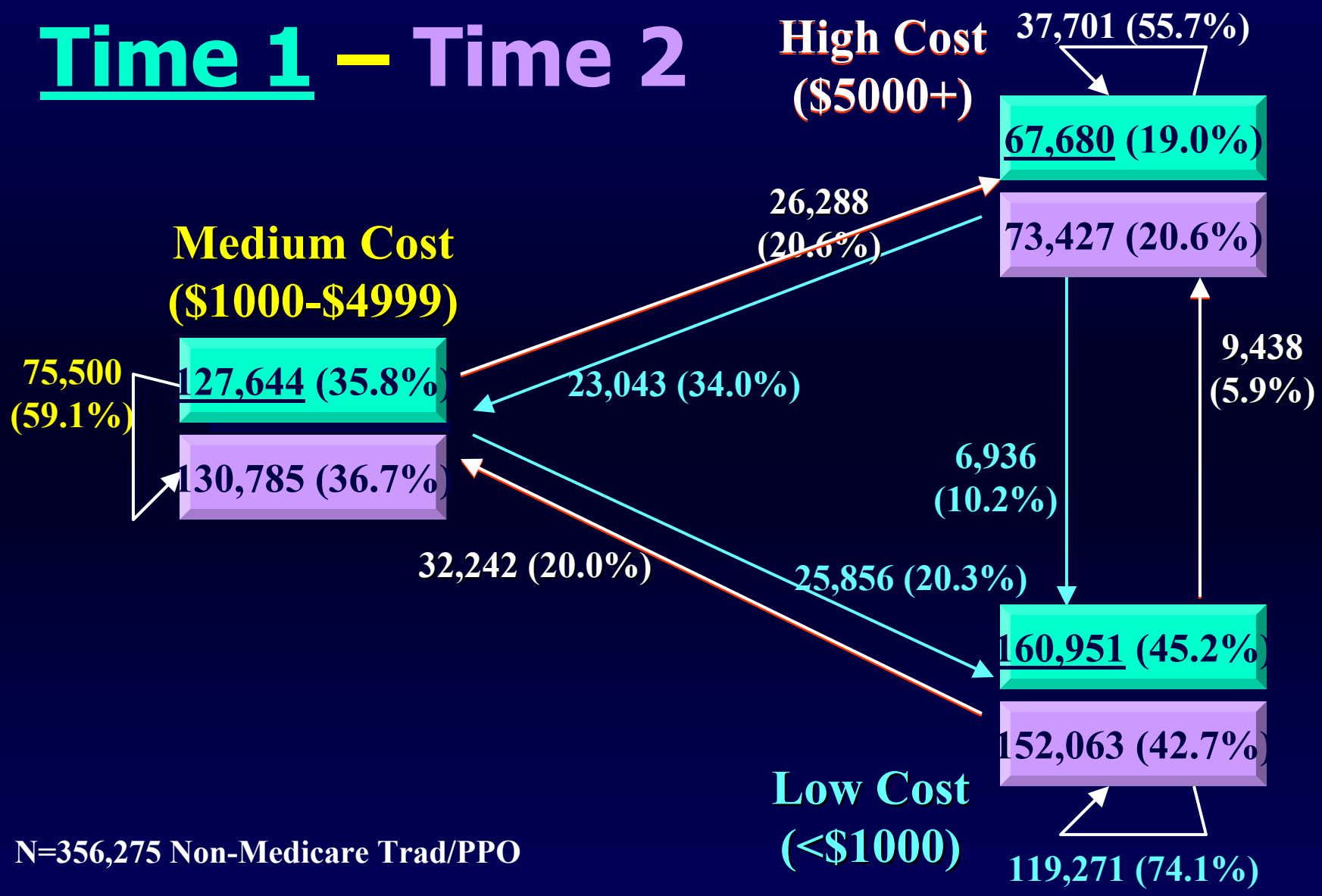


N=356,275 Non-Medicare Trad/PPO

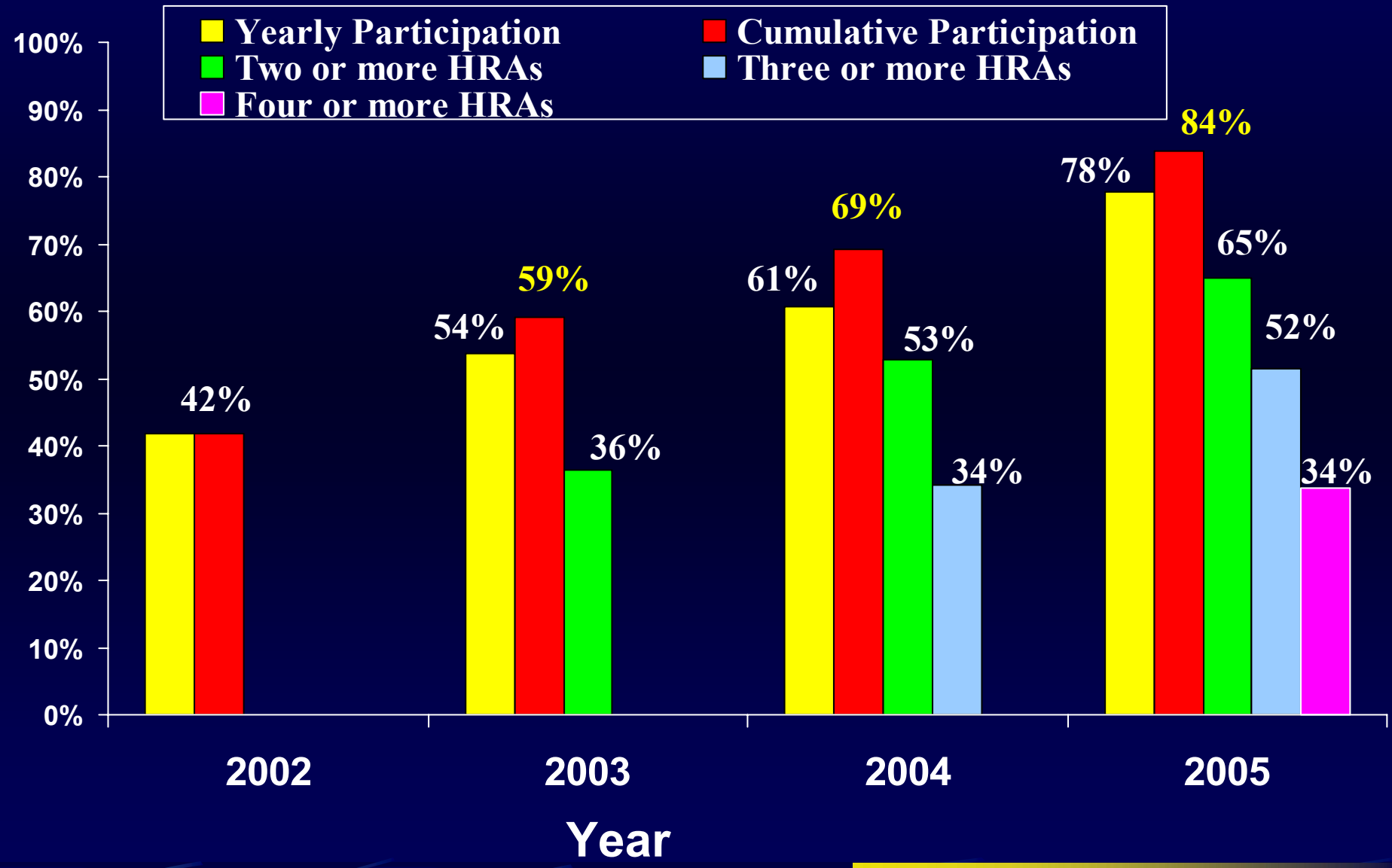
Modified from Edington, AJHP. 15(5):341-349, 2001

Proof of Concept
(Necessary and Sufficient)

1. Improve Health Status
2. Reduce Healthcare Cost
3. Reduce Productivity Loss
4. Improve Overall Trends for all Outcomes

Business Case is pretty good but not yet perfect.
We need Champion Companies!!!!

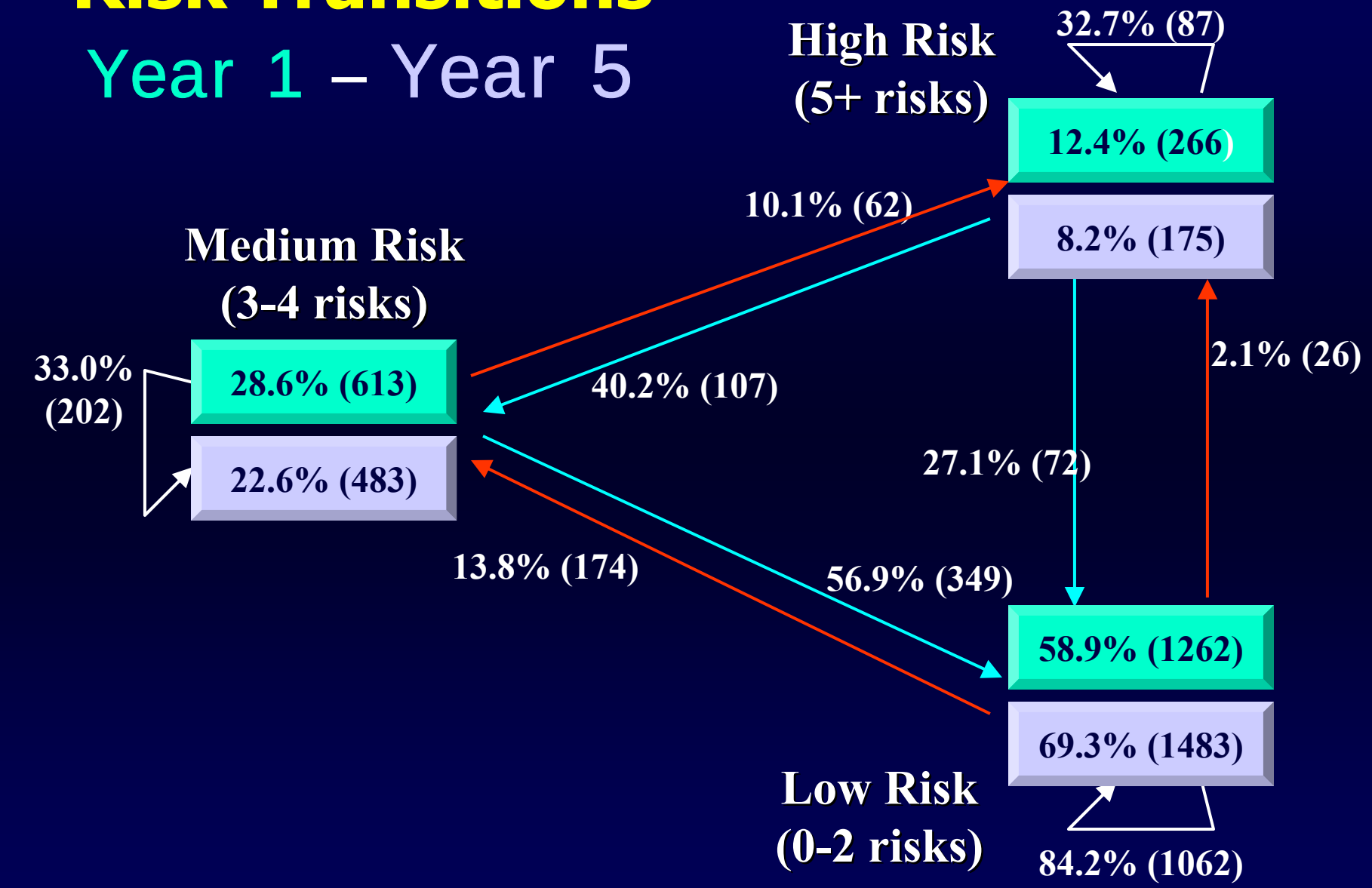
Yearly, Cumulative, Multiple HRA Participation: Foote Hospital Employees*



*Employed 2002-2005 N=1,992

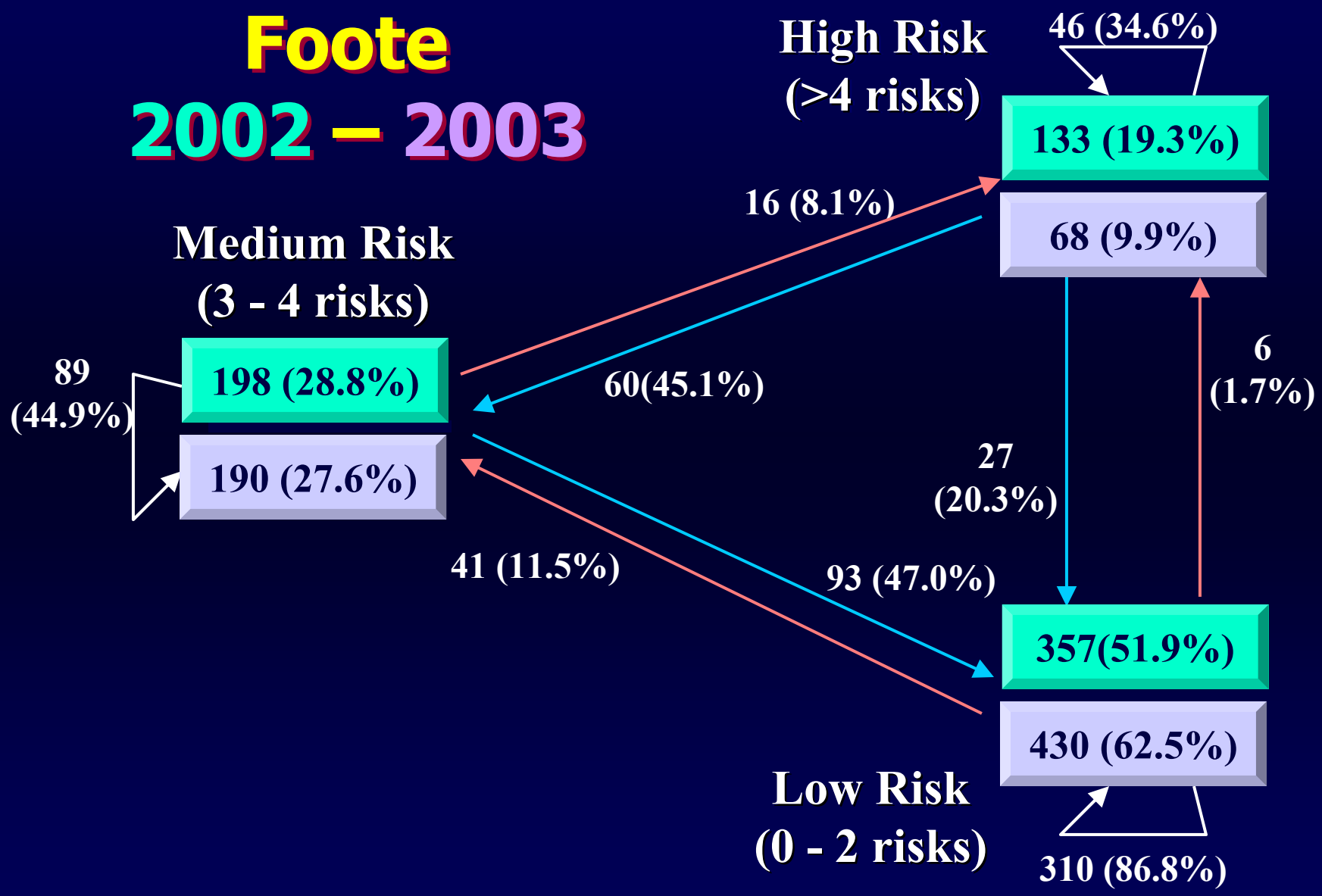
Risk Transitions

Year 1 – Year 5

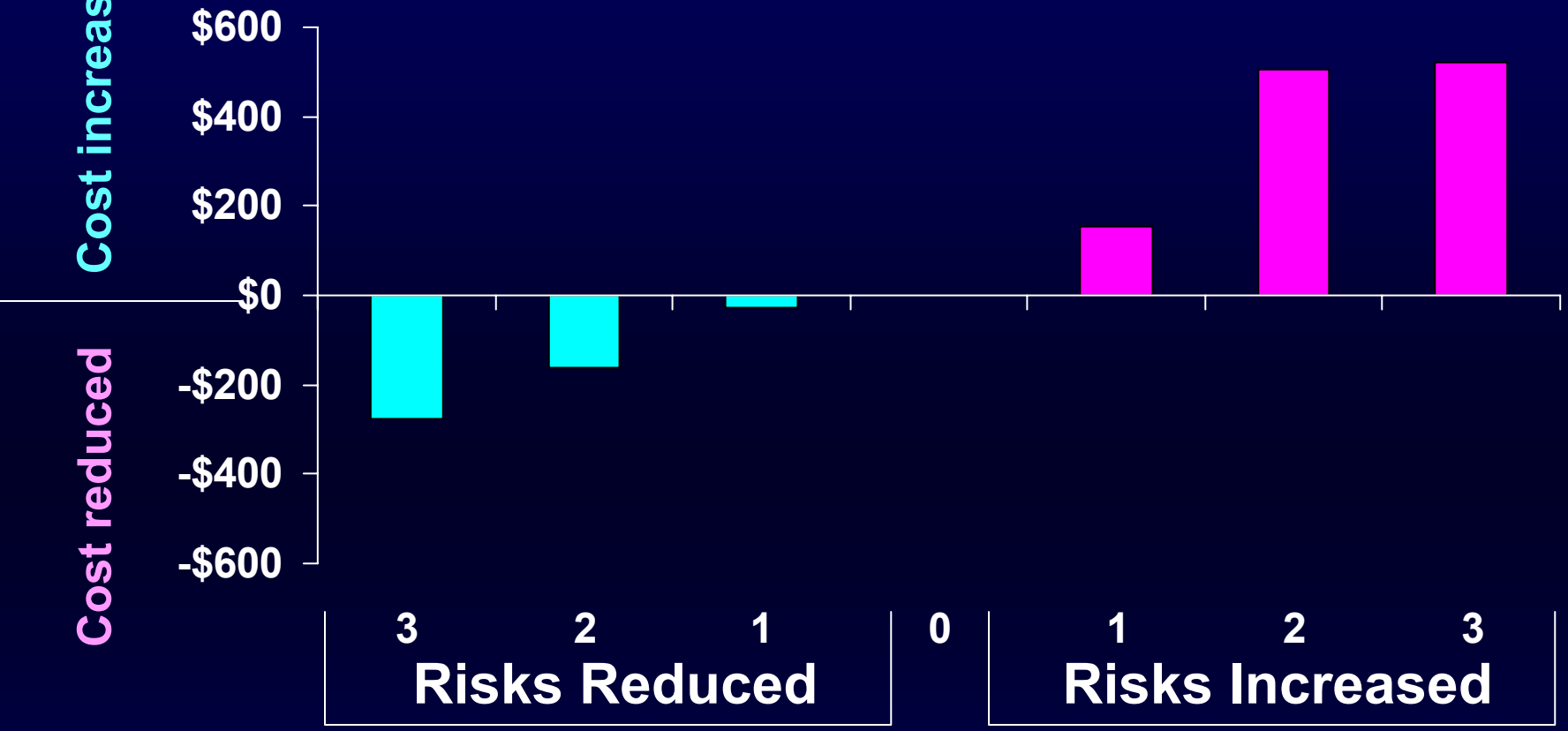


Musich, Faruzzi, Lu, Chen, McDonald, Hirschland, Edington. JOEM. 45(6): 393-399. 2003

Risk Transitions Foote 2002 – 2003



Change in Costs follow Change in Risks



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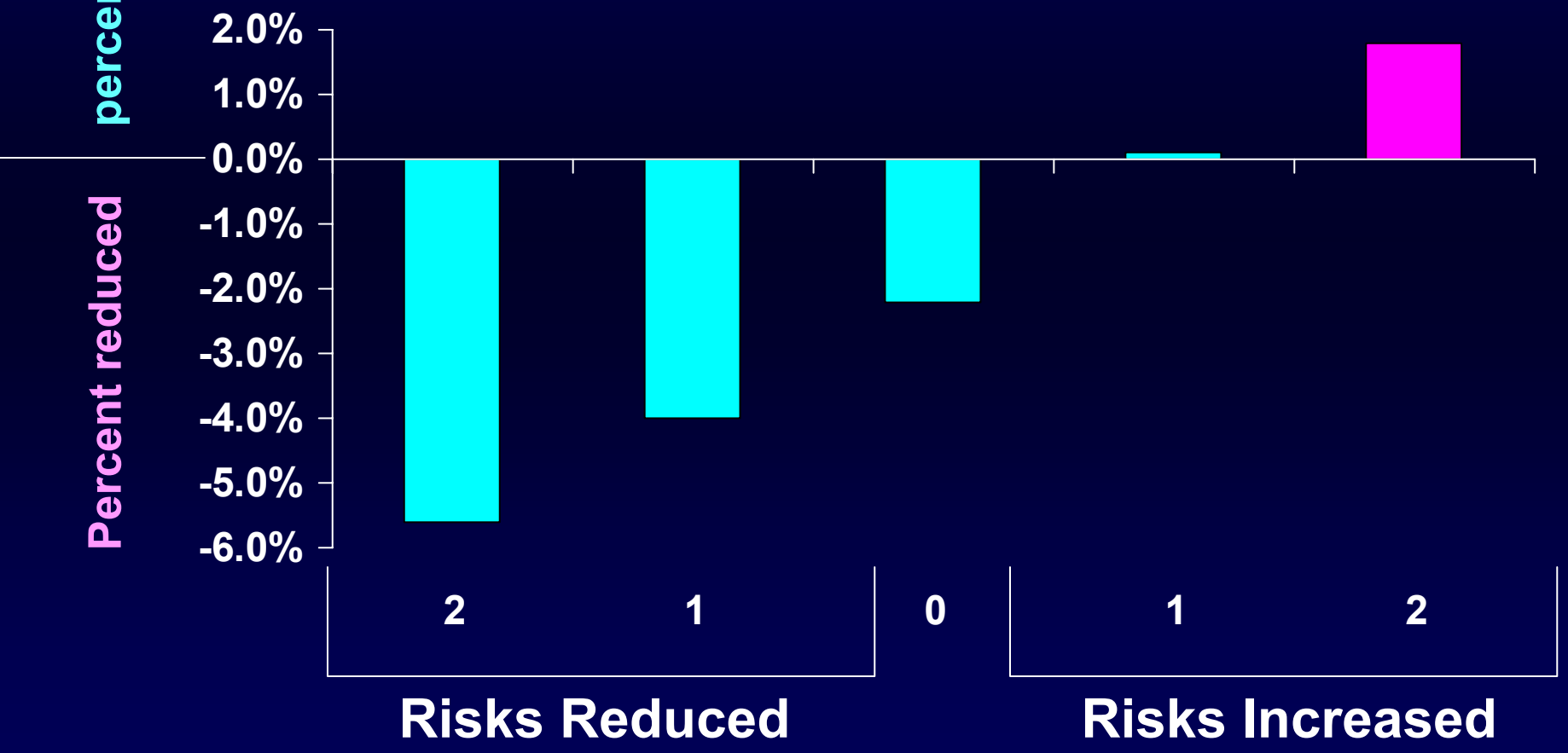
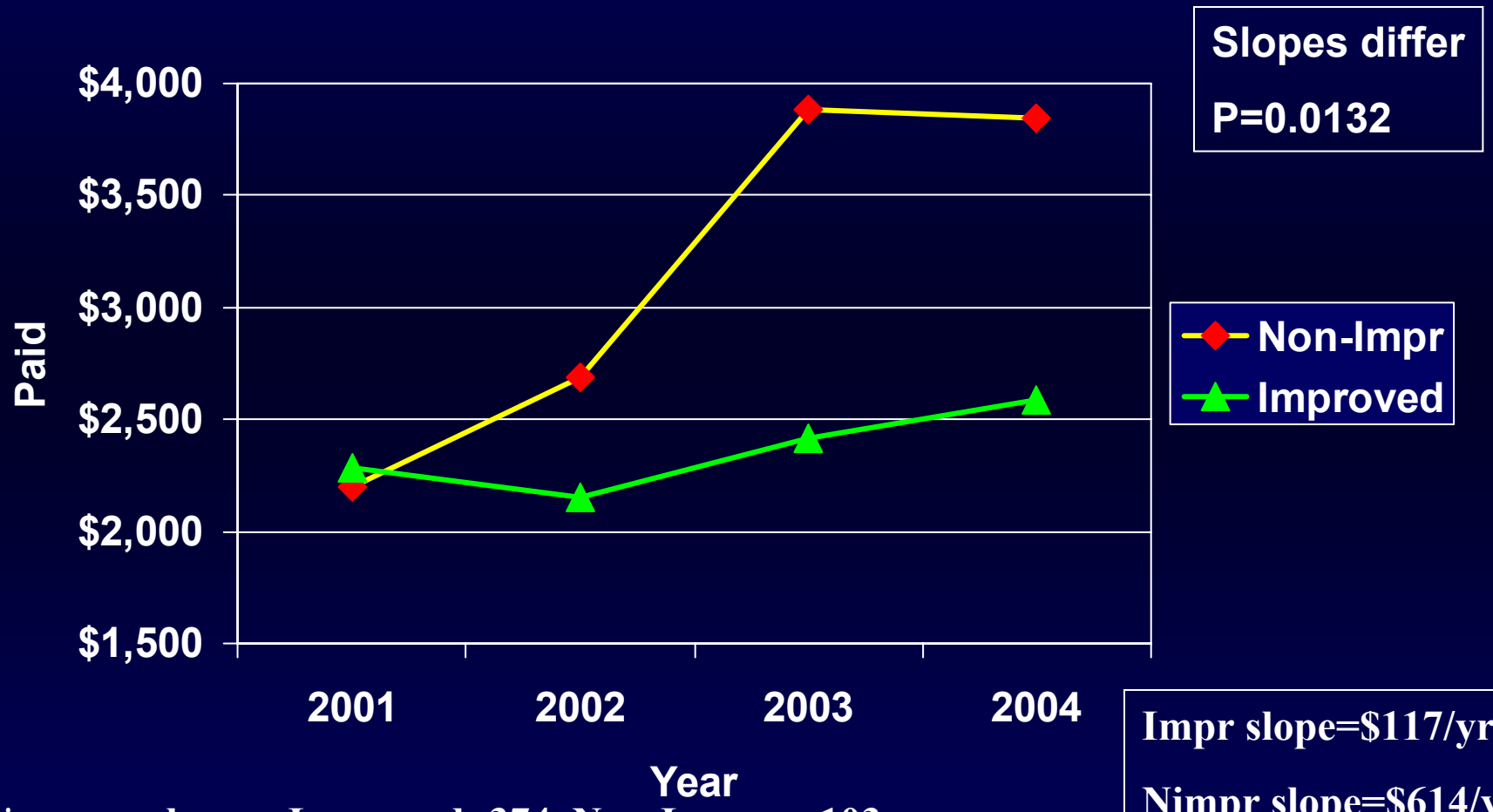
Updated from Edington, AJHP. 15(5):341-349, 2001.

Change in Presenteeism follows Change in Risks



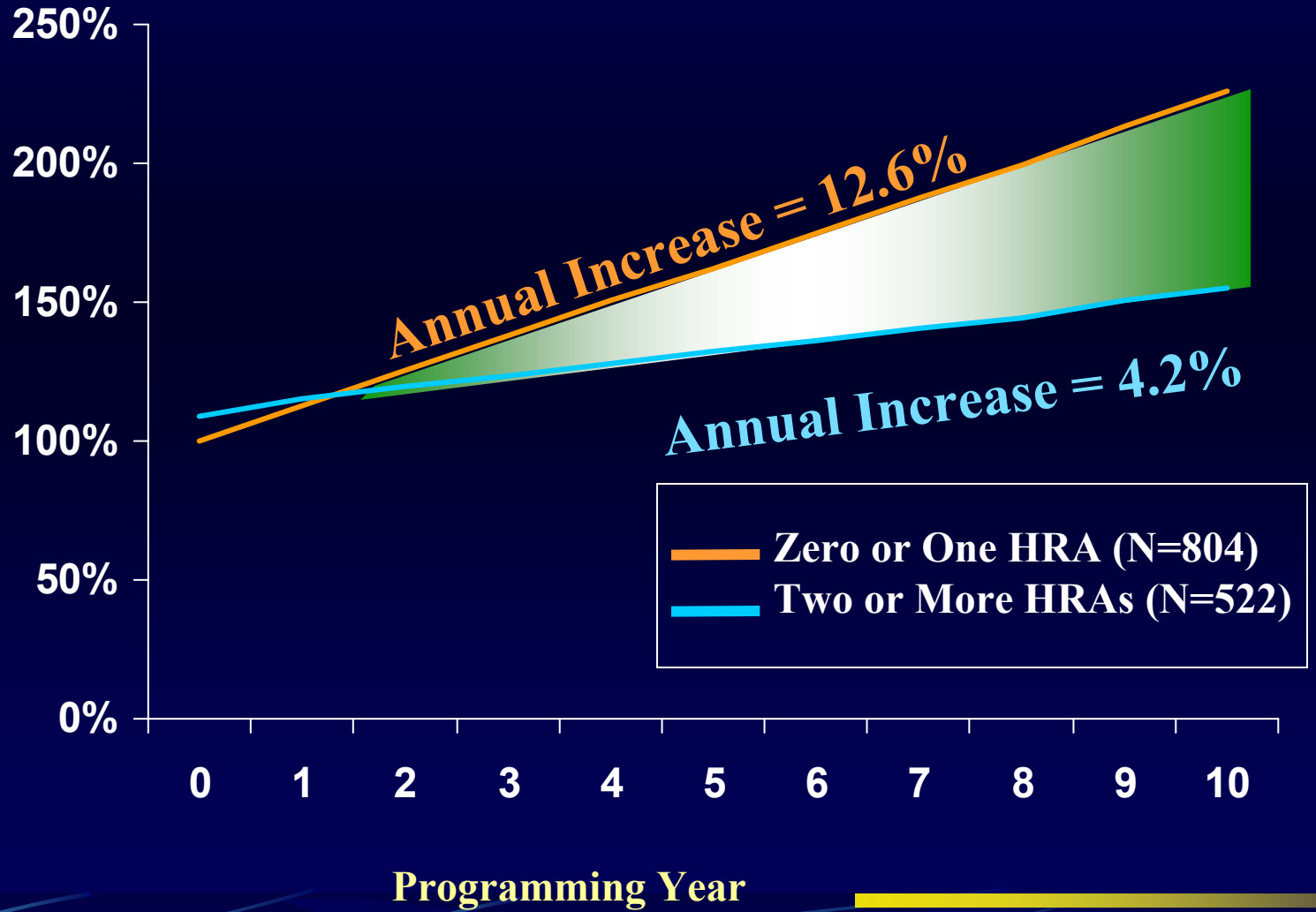
Burton, Chen, Schultz, Edington JOEM. In-Press 2006

Medical and Drug Cost (Paid)*

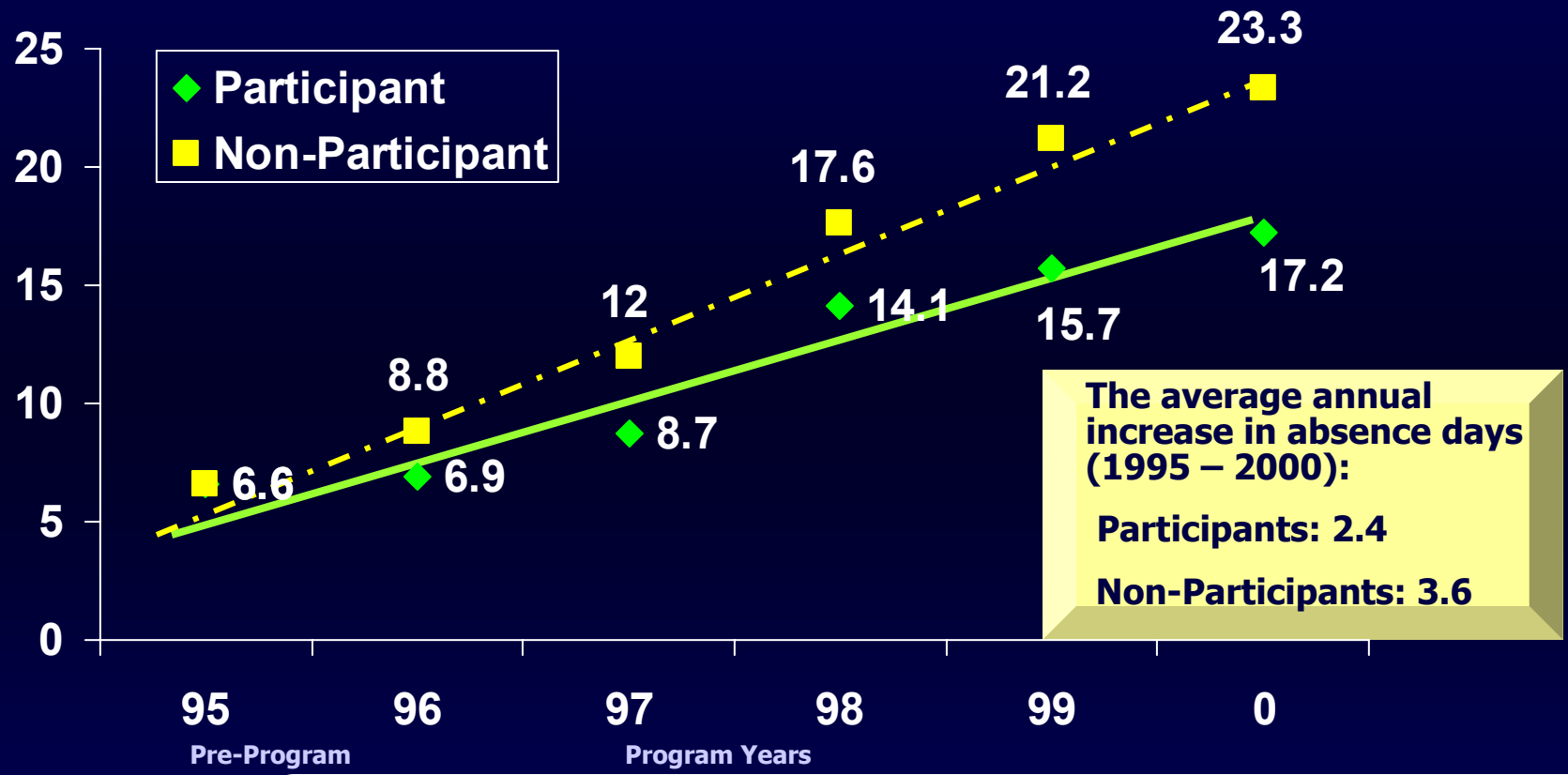


*per employee , Improved=374, Non-Improv=103
HRA in 2002 and 2004
Improved=Same or lowered risks
*Medical and Drug, not adjusted for inflation

Cost Savings Associated with Program Involvement from 1985 to 1995



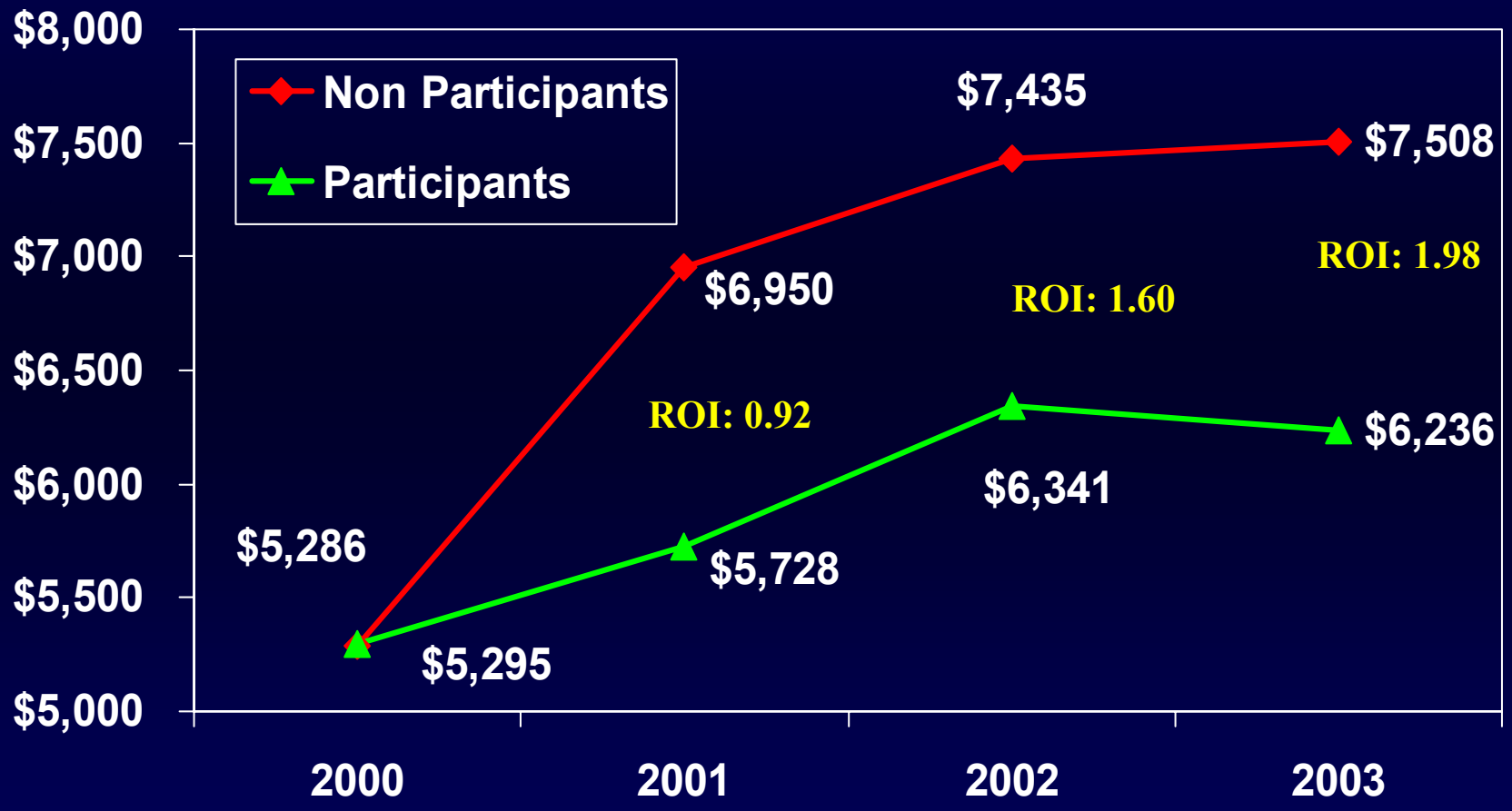
Yearly Average Disability Absence Days by Participation



Schultz, Musich, McDonald, Hirschland,Edington. JOEM 44(8):776-780, 2002

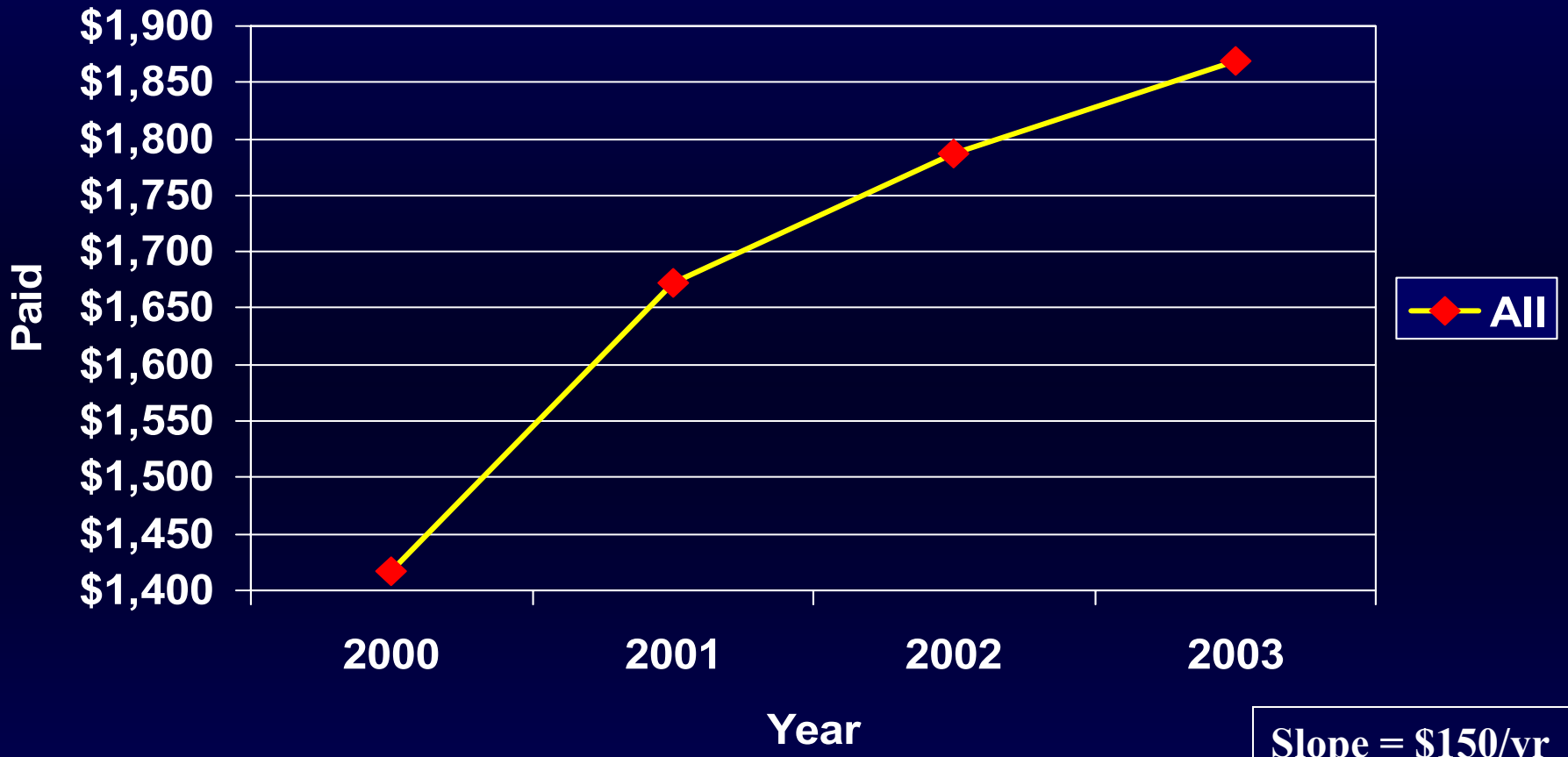
$$\frac{\$200}{\text{Work Day}} \times \frac{1.2 \text{ Work Days}}{\text{Participant}} \times 2{,}596 \text{ participants} = \frac{\$623{,}040}{\text{Year}}$$

Overall Costs by Participation: Total Employees Covered for Any Year*



*Paid amounts. Absent and Workers' Comp hours were converted into dollars according to employees' status and hour rates for the respective year. The analysis excludes the outliers (annual costs over $200,000 in any given year.)

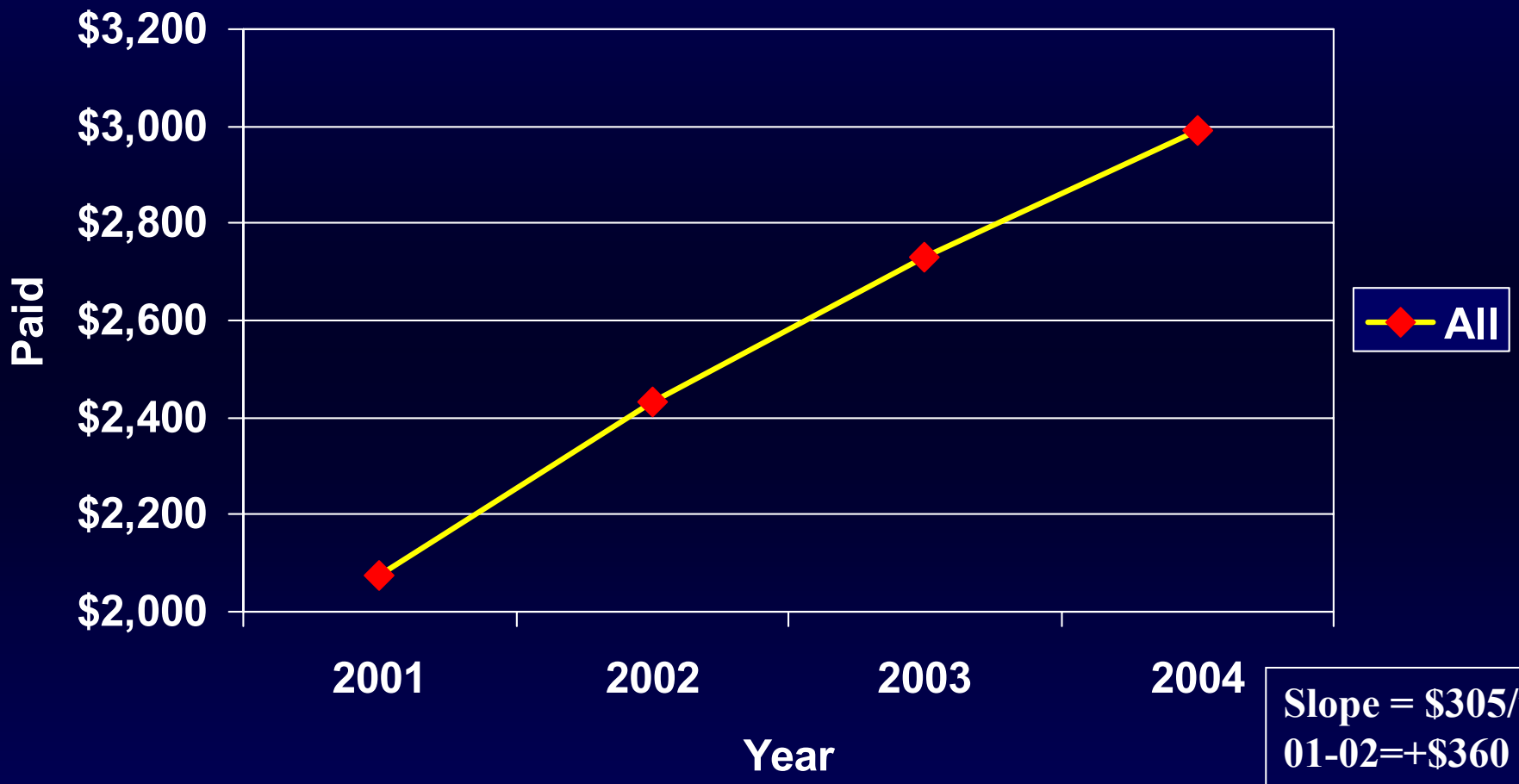
Financial Services: Medical Costs



Slope = $150/yr
00-01= $255
01-02= $118
02-03= $82

*per employee

Health System Medical and Drug Cost (Paid)*



Slope = $305/yr
01-02=+$360
02-03=+$300
03-04=+$260

*per employee, N=1053 claim eligible 2001-2004

*Medical and drug not adjusted for inflation

Level 4

Implementation of a Serious Business Strategy

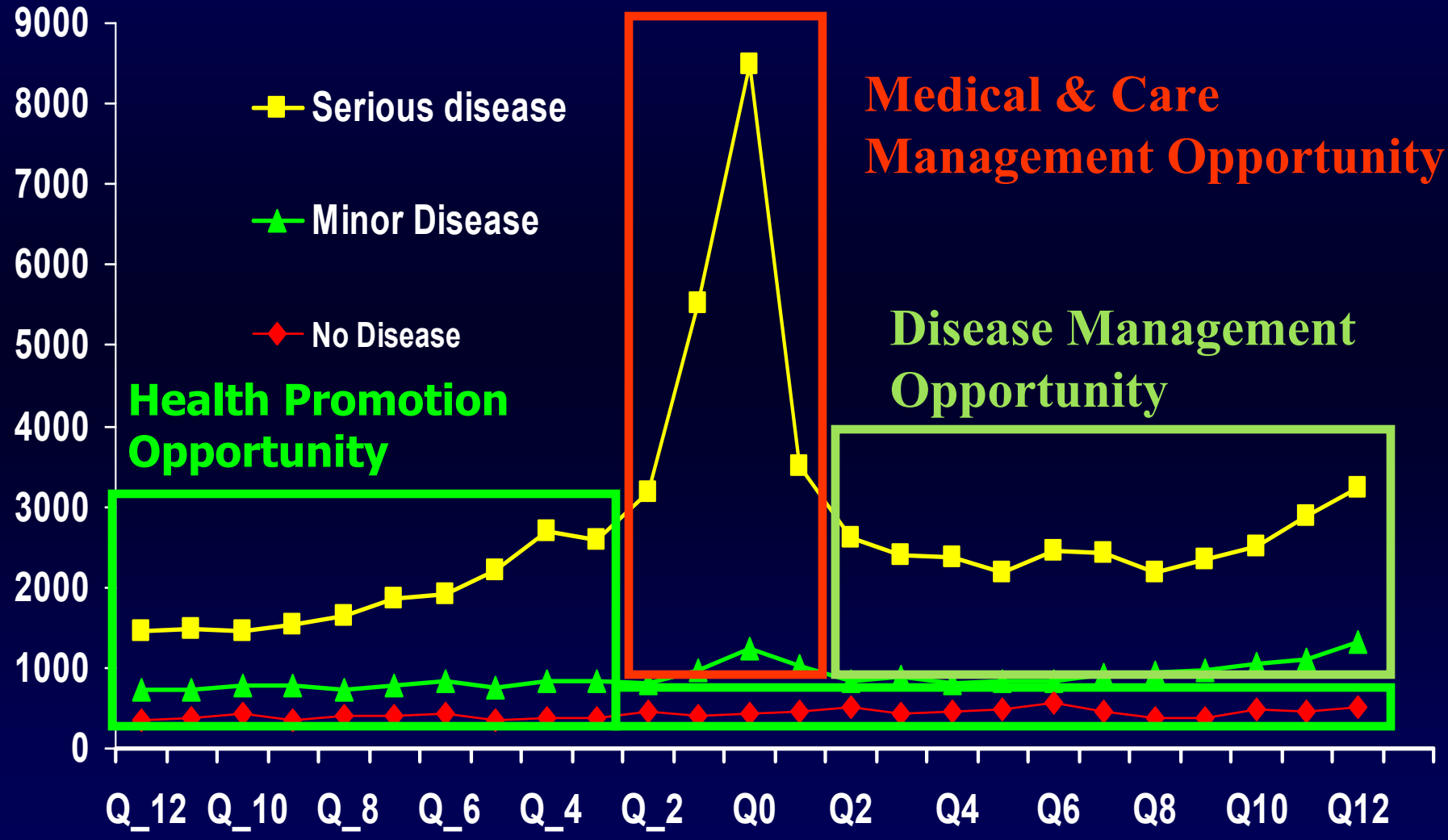
Three Key Business Beliefs

1. Individuals Can Maintain Low-Risk Health Status even as they Age

2. A Health Plan and an Employer can Help its Members Maintain Low-Risk Health Status

3. The Major Economic Benefit is in Paying Attention to Individuals with Low-Risk Health Status

Where are the Opportunities for Population Health Management?



Medical and Drug Costs only

Implementation: Health Management as a Serious Corporate Strategy

A. Driven from the top through leadership performance objectives and healthy work environment objectives

B. Driven by employee participation in health risk assessments to identify areas that are critical to decreasing vitality in the family and at work. Resources made available in low-risk maintenance and risk reduction opportunities, with incentives

C. Measurement of key indicators

   A. 80% participation over any three-year period

   B. 70% low-risk

Health Management as a Serious Business Strategy: Four Levels of Interventions

Create an Integrated and Sustainable Approach

Long Term Strategy— Short Term Solutions

Likelihood of Association with Other Risks

Health Measure (among those at high risk)	% in Overall High Risk Category (N-16,879)
Perceived health	68%
Life Satisfaction	52%
Stress	50%
Diastolic blood pressure	48%
Alcohol	45%
Systolic blood pressure	43%
Physical activity	41%
Safety belt	40%
Smoking	38%
Cholesterol	36%
HDL	34%
BMI	30%

Percentages show those at high risk for a particular health measure who have at least four other health risks.

Population = 16,879 LifeSteps active screened participants

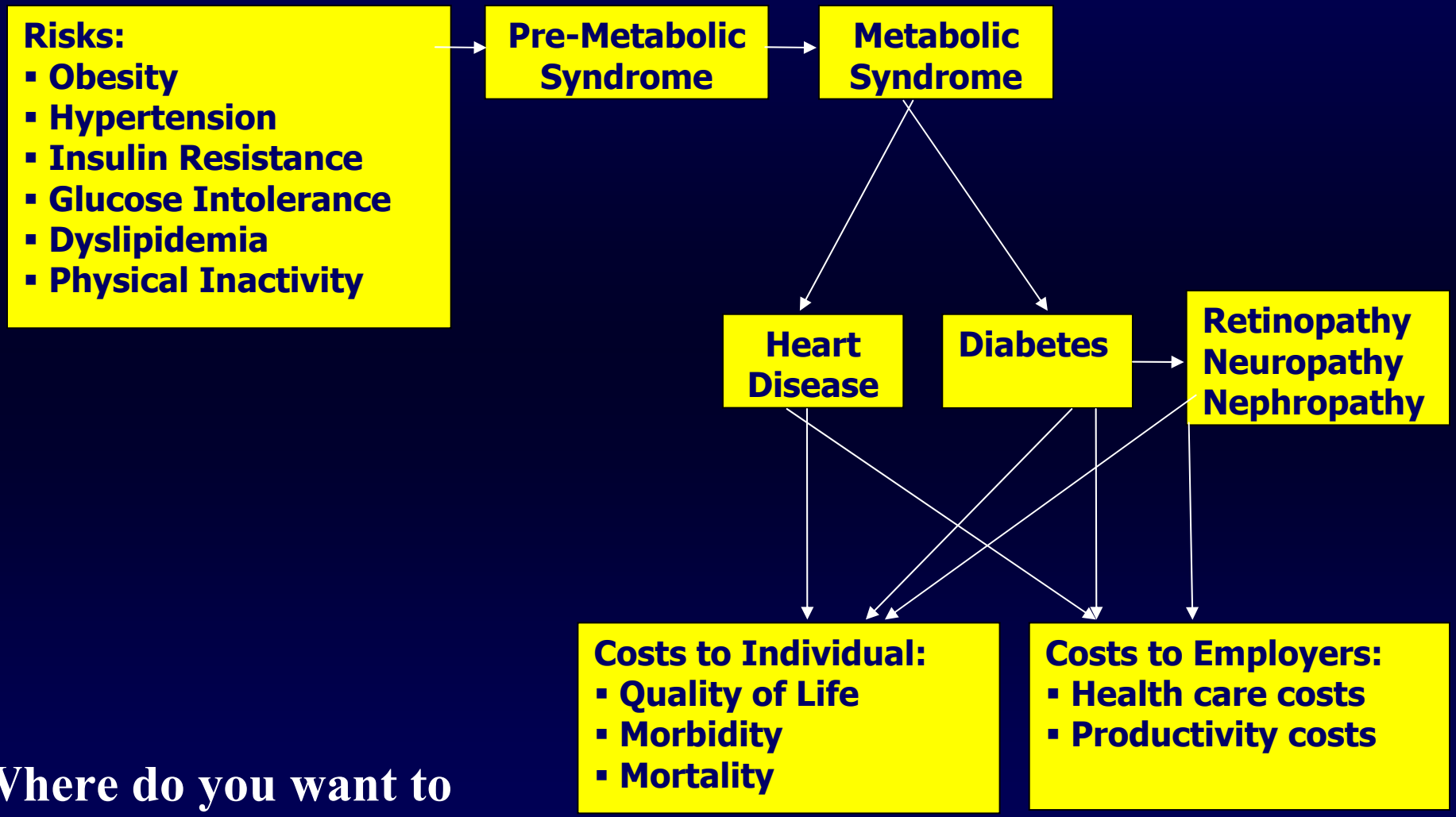
Baunstein, Yi, Hirschland, McDonald, Edington. Am. J. Health Behavior.25(4):407-417. 2001

Cluster Analysis

Health Measure	Cluster 1: Risk taking (N=6688)	Cluster 2: Low Risk (N=3164)	Cluster 3: Biometrics (N=3100)	Cluster 4: Psychological (N=3927)
Smoking	31%	0%	16%	27%
Alcohol	10%	0%	3%	5%
Physical activity	28%	0 %	19%	26%
Safety belt usage	36%	0 %	22%	31%
Body mass index	27%	25 %	38%	27%
Systolic blood pressure	9%	0 %	81%	23%
Diastolic blood pressure	5%	0 %	61%	20%
Cholesterol	19%	19 %	27%	22%
HDL cholesterol	34%	10 %	33%	24%
Self-perceived health	13%	0 %	9%	28%
Life satisfaction	4%	0 %	2%	73%
Stress	9%	0 %	2%	76%
Illness days	21%	0 %	12%	26%
Overall Risks				
Low risk (0-2 risks)	50.2%	97.6%	26.5%	18.9%
Medium risk (3-4 risks)	35.7%	2.4%	48.9%	35.9%
High risk (5+ risks)	14.1%	0	24.7%	45.2%
Average Number of risks	2.8	0.6	3.6	4.4

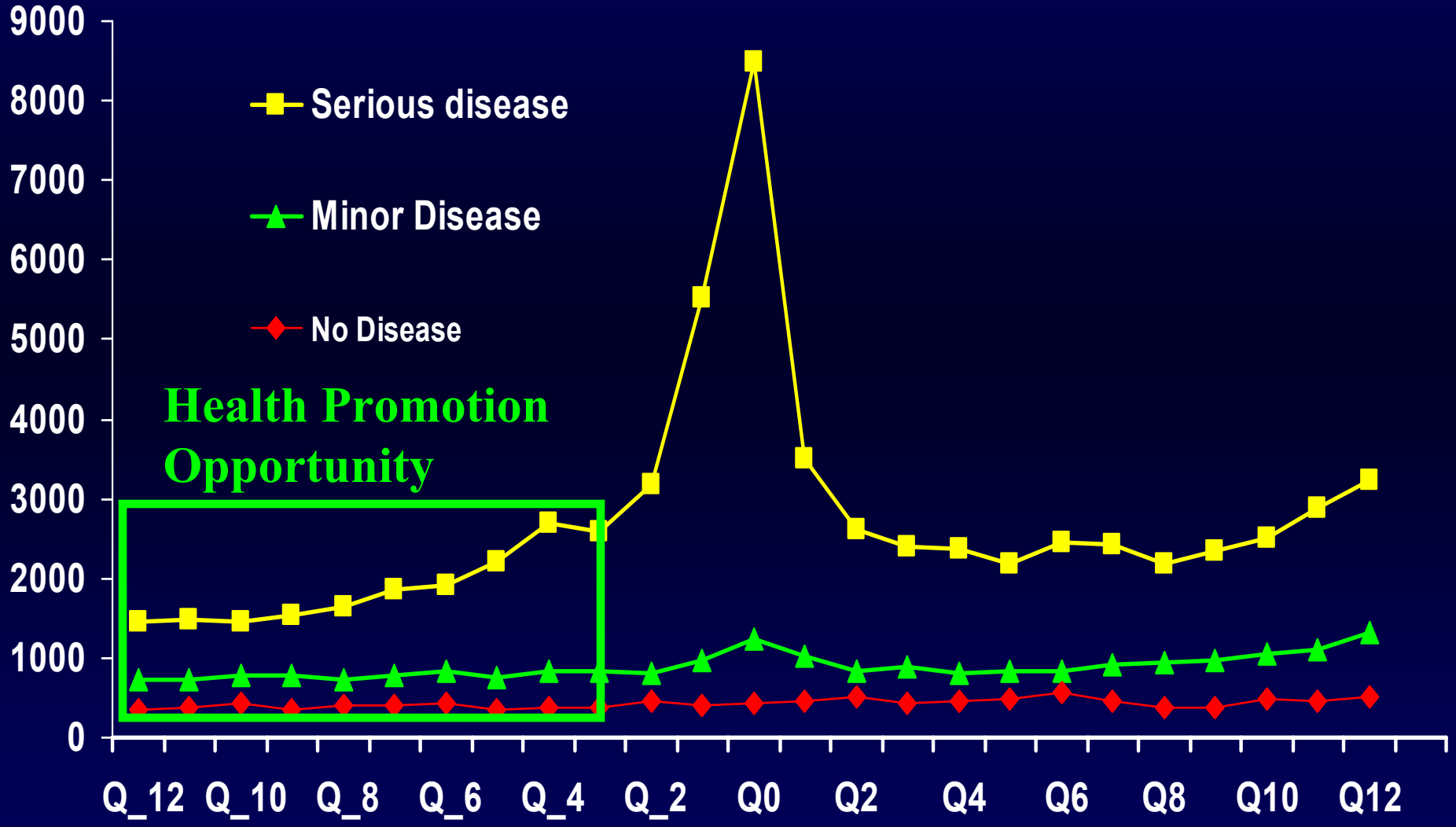
Baunstein, Yi, Hirschland, McDonald, Edington. Am. J. Health Behavior. 25(4):407-417, 2001

Development and Consequences of Metabolic Syndrome

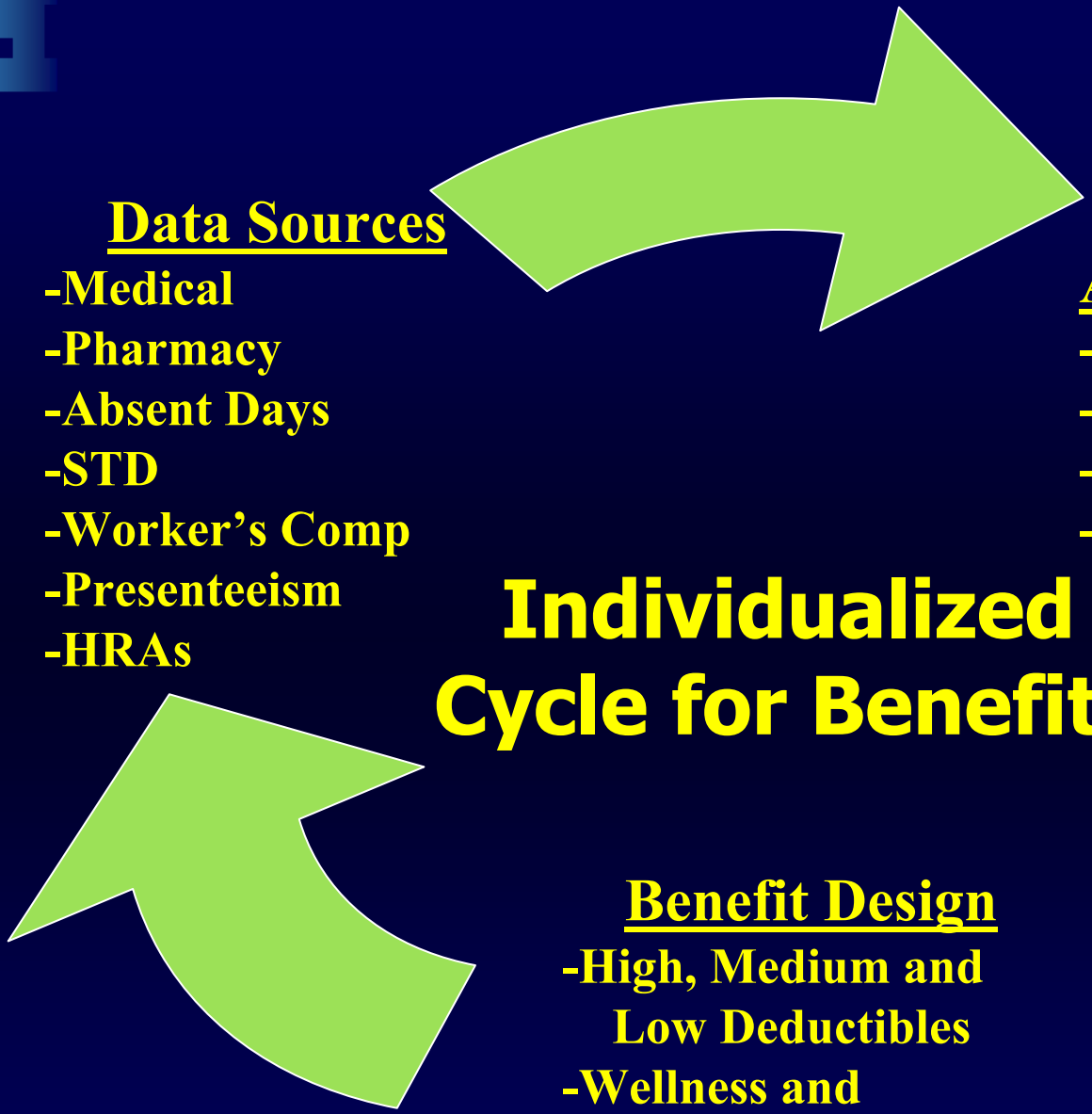


Where do you want to intervene in the process?

Stratification In the Health Promotion Opportunity



Individualized Cycle for Benefits

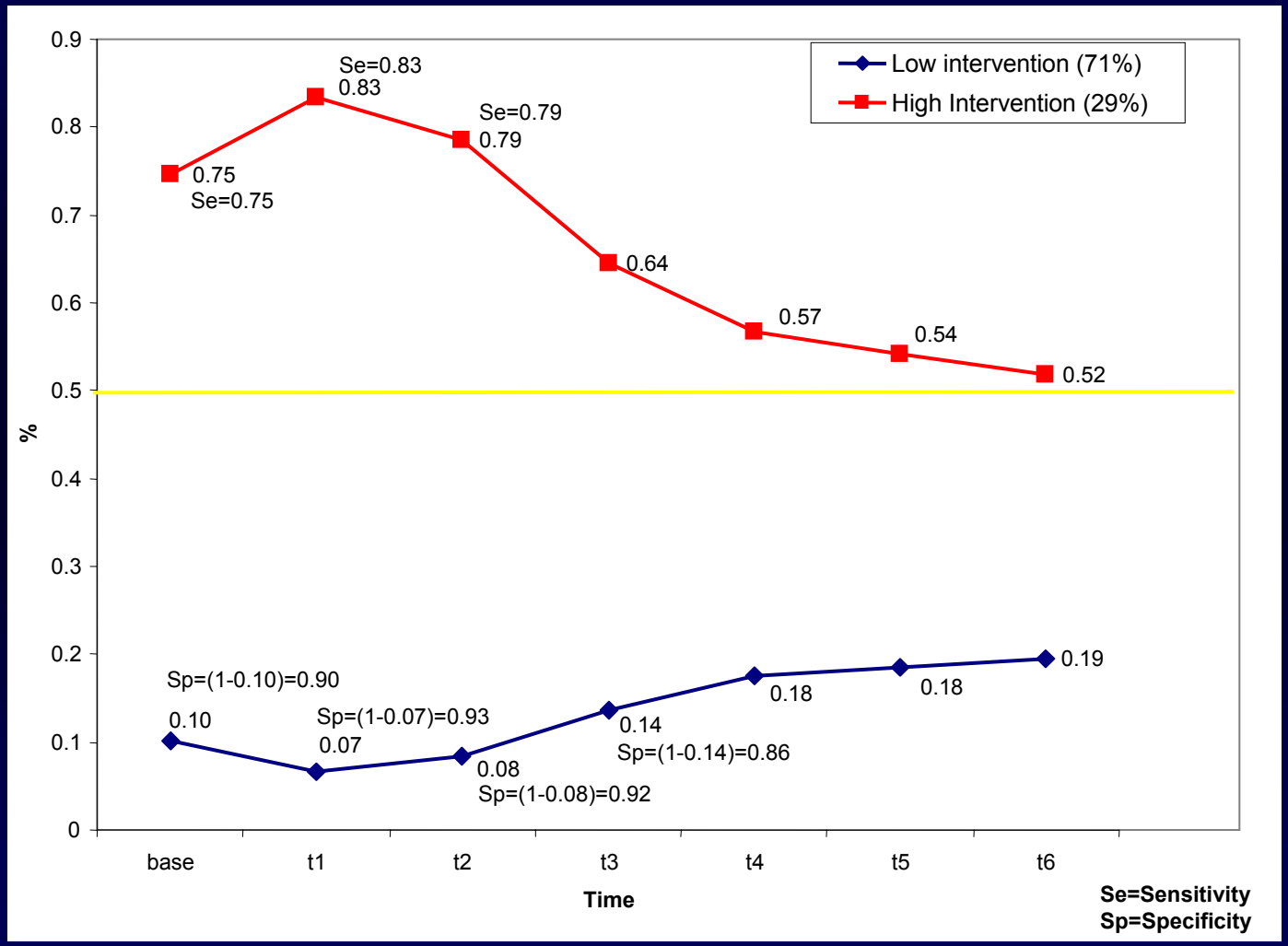


Data Sources
- -Medical
- -Pharmacy
- -Absent Days
- -STD
- -Worker's Comp
- -Presenteeism
- -HRAs

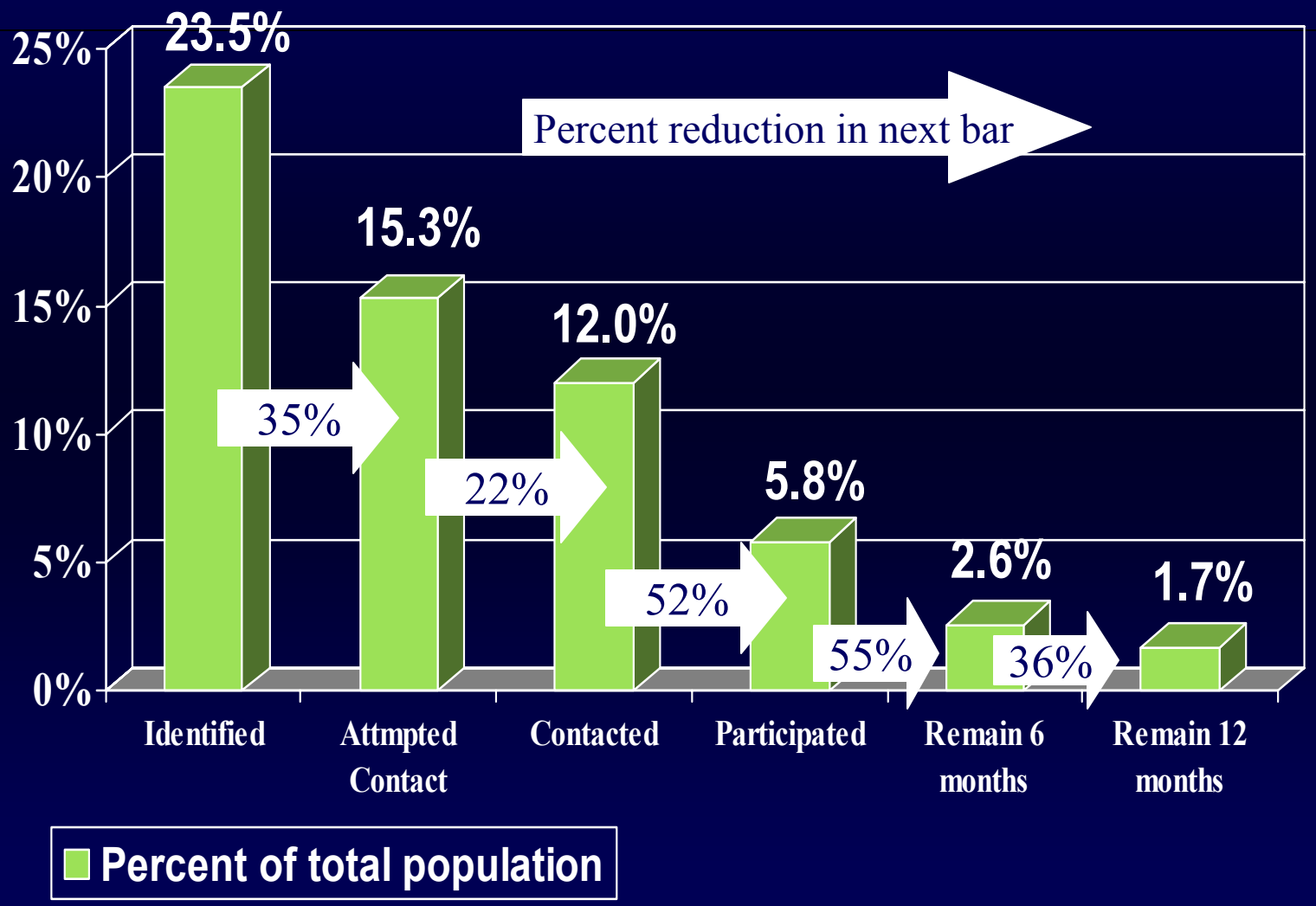
Assignments by
- -Cluster Analysis
- -Trend Management
- -Investment
- -Rank Order

Benefit Design
- -High, Medium and Low Deductibles
- -Wellness and Illness Resources

Predictability to be at High Cost

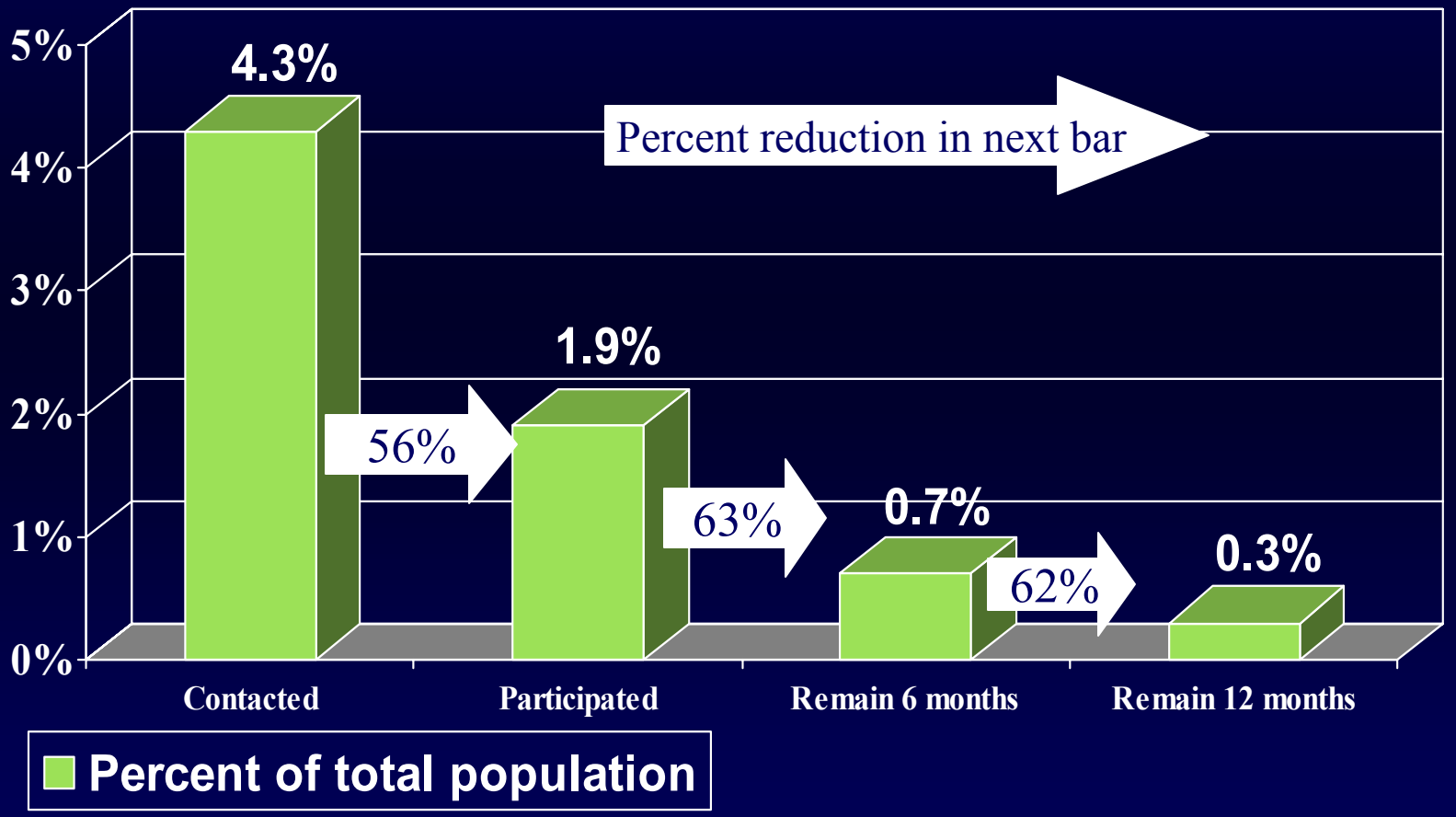


Observed Program Attrition Rates



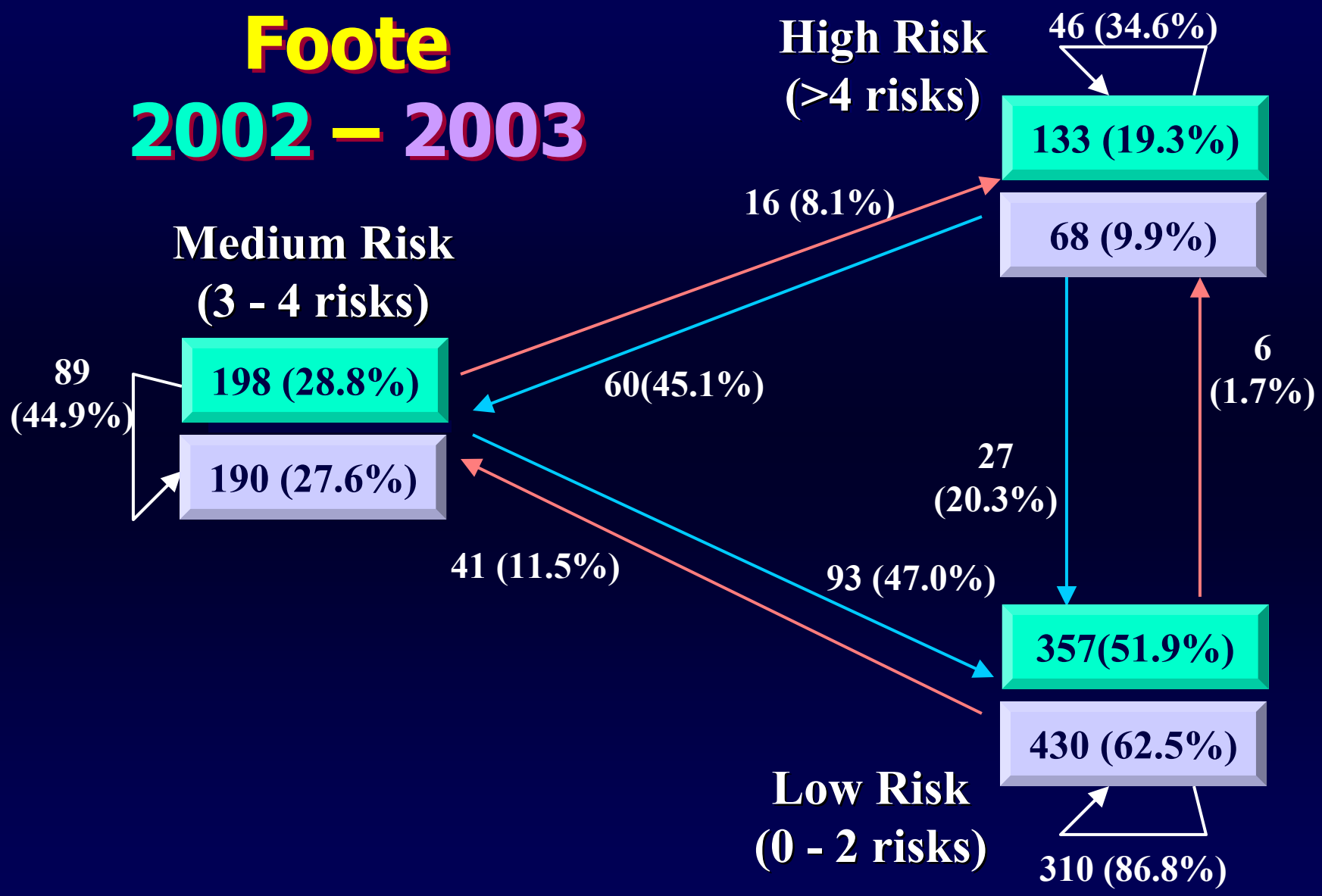
Lynch, Chen, Edington. JOEM. In-press. Summer 2006

Observed Program Attrition Rates - Patients with Acute Episodes



Lynch, Chen, Edington. JOEM. In-press. Summer 2006

Risk Transitions Foote 2002 – 2003



Health Management as a Serious Human Resource and Economic Strategy

1. **Risk and Disease Identification:** Know your target population
2. **Success Scorecard:**
   a. **Participation:** 80%
   b. **Population at Low Risk:** 70+%
3. **Effective strategies:** Total Population Management
   a. **Environmental:** Policies, Procedures, Benefits Aligned
   b. **Individual:** Low-Risk Maintenance, Risk Reduction, Triage
   c. **Population:** Engagement
   d. **Other:** Incentives and Measurement
4. **General concept for outcome measures:** Benefits follow #3
5. **Outcome measures:** Effective Programs Equal Benefits

Overall Strategy: Manage the Person, not the risk or the disease.

Level 5

What Works

Integrated/Sustainable Solution

Level 6

Next Generation

Environment, Leadership, Individual, Population Interventions

Thank you for your attention.

Please contact us if you have any questions.

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