
Update on Health and Productivity Programs

Presented to:

EFCOG Occupational Medicine Group

James P. Seward MD MPP MMM

April 20, 2007

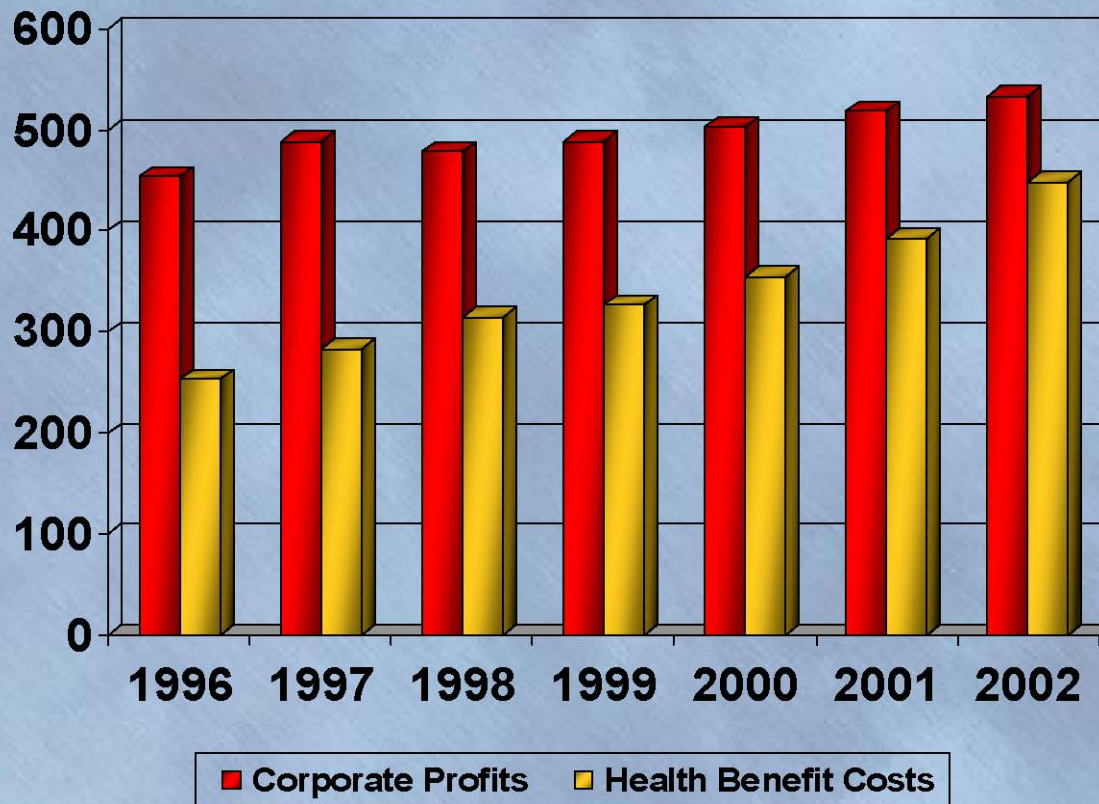


The work performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48. UCRL-PRES-230001



The Problem: Rising Medical Costs/Eroding Profits

All U.S. Corporations



Health and Productivity Toolkit





Transition to Corporate Health



Health and Productivity Toolkit

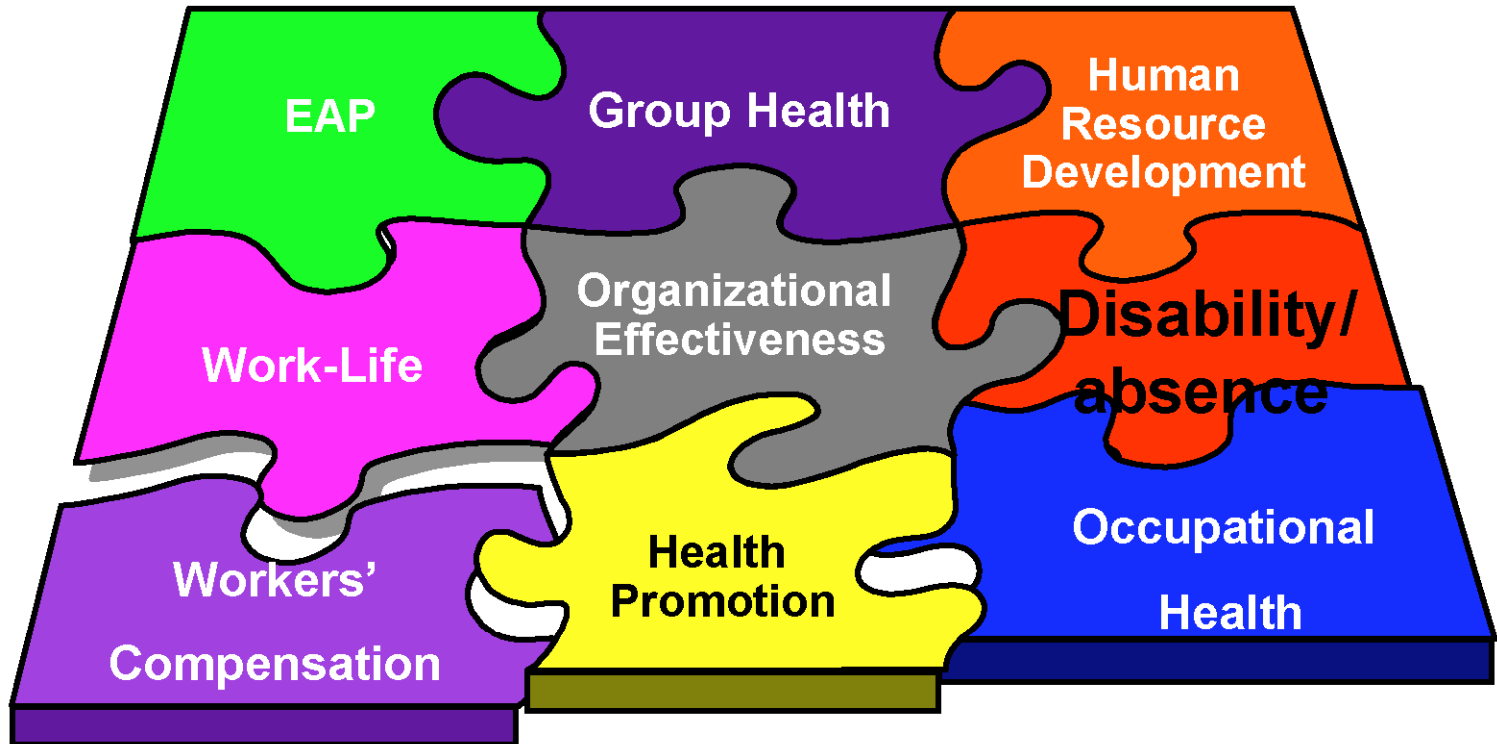




The Healthy Heart Program

An Informational Presentation

Health and Productivity Management—Putting the

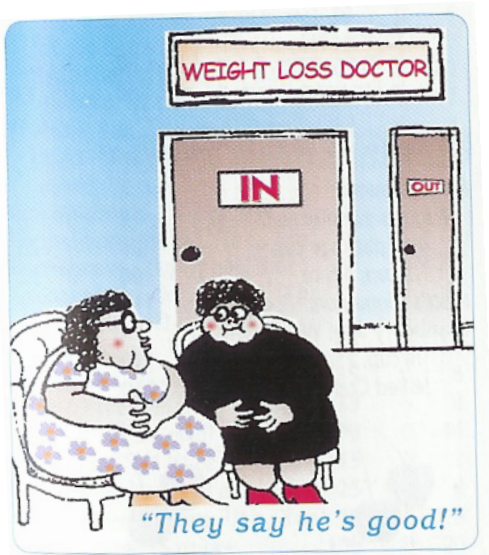


Pieces Together



A Strategic Direction for Health Services Department

Improving employee health, on & off the job --- focusing on issues that will improve safety, well-being, and productivity.



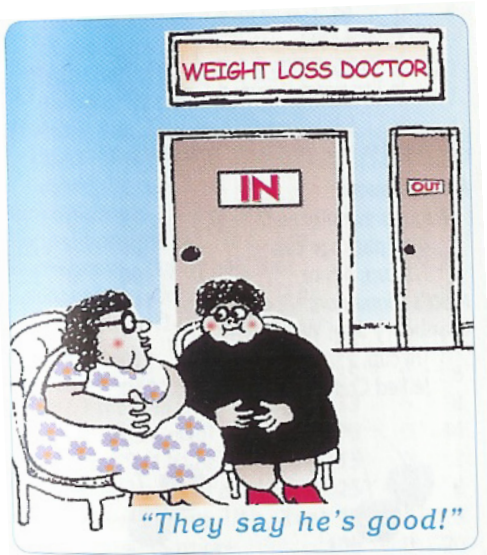
"Nothing is more important to me than your safety and well-being."

LLNL Director George Miller July 20, 2006



A Population-Based Approach for Improving Health

Bringing awareness, screening, intervention, and a positive health culture to specific work areas and work groups.



*"Nothing is more important to me than
your safety and well-being."*

LLNL Director George Miller July 20, 2006



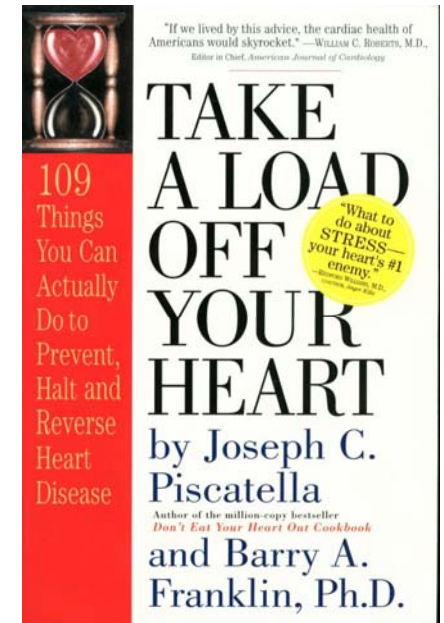
Key Objectives

- Prevent/mitigate chronic disease conditions
- Help LLNL workforce to adopt healthy lifestyles
- Achieve long term positive return on investment (ROI) through reduced short term sick leave, reduced health care costs, increased productivity and morale, and improved workforce retention over time.



Key Steps to the Healthy Heart Program

- Physiological, behavioral, and stress management risk **assessment**
- Risk stratification; medical management and lifestyle **coaching** for individuals, particularly high risk
- Regular **follow-up** to high risk individuals and annual reassessment of individuals and program
- Provide tools for effective **change**





Healthy Heart

Risk Factor Assessments

Medical History

- Family Hx
- Personal Hx
- Existing Disease
- Signs & Symptoms

Behavioral Risks

- Exercise
- Diet
- Smoking
- Stress and Change Management
(Occupational Stress Inventory)



Healthy Heart Assessment Program

Physiological Measures for Risk

- **Serum panel:** glucose, cholesterol, HDL, LDL, VLDL, triglycerides, C-reactive protein
- **Anthropometrics:** height, weight, body fat, body mass index (BMI)
- **Blood Pressure**
- **Cardiovascular fitness:** submax treadmill or one mile walk test



Healthy Heart

Intervention Program

Step #1

Interpretation of Results & Feedback

- Small group de-briefings
- Identification of elevated risk
- Medical management counseling
- Behavioral management counseling



Healthy Heart

Intervention Program

Step #2

Keeping the Focus - Continuing Awareness

- **Topical presentations** (e.g., Making Sense of the Low Carb vs Low Fat Controversy, How to Exercise When There's No Time to Do So, etc.)
- **Near-weekly health messages distributed by managers**
- **Healthy Heart Website**



Healthy Heart Intervention Program

Step #3

Environmental Change Initiatives

- Top Management Participation
- Healthy Heart activity stations (e.g., BP cuffs, scale, thematic poster presentations, etc.)
- Healthy food choices in work areas
- Walk and talk meetings



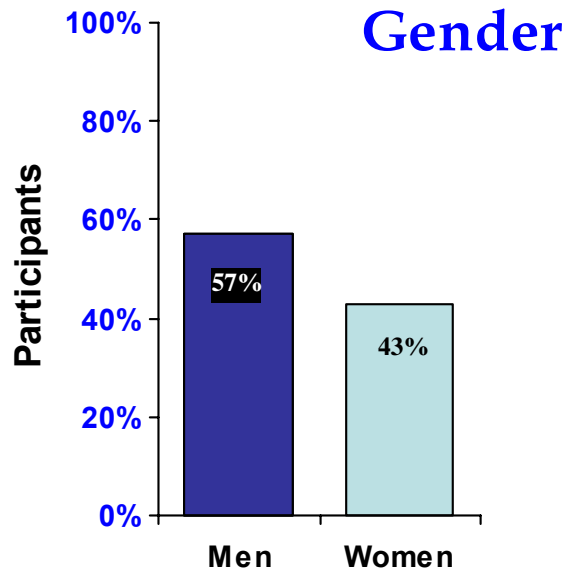
Partnering is Key to a Successful Program

- **Encourage all employees** - including managers - to participate in each phase of the program
- **Provide a partnering support team** - A "Champion" to address program direction and support; Logistical support for coordinating assessments, web development, marketing, etc.
- **Partner with your safety team** - to expand safety culture to health and safety culture
- **Communicate with us** - good and bad

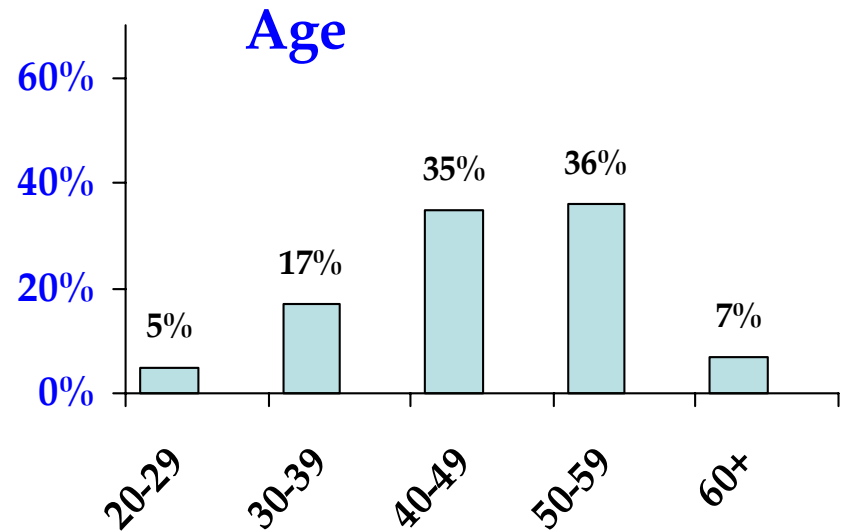


Health Risk Assessment: Baseline

Demographics (n=1,640) March 2007



Most of our Population are Baby Boomers, aged 40-60 yrs





Baseline Data at LLNL (n=1,640)

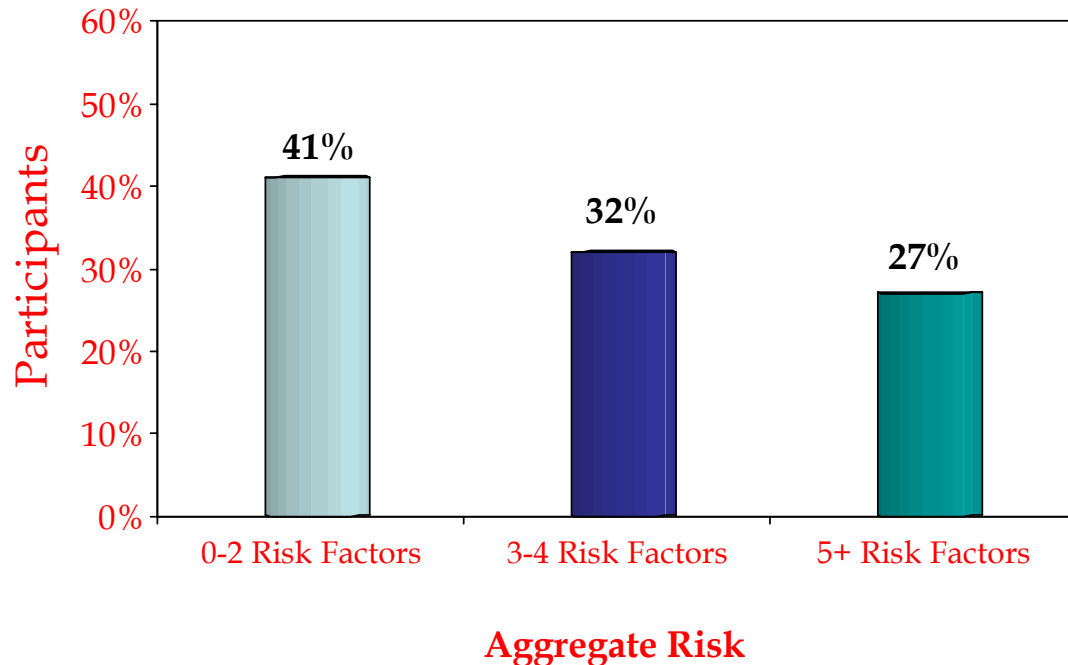
Multiple Modifiable Risk Factors for CHD

More than 1/4 of Participants are High Risk

Risk Factors:

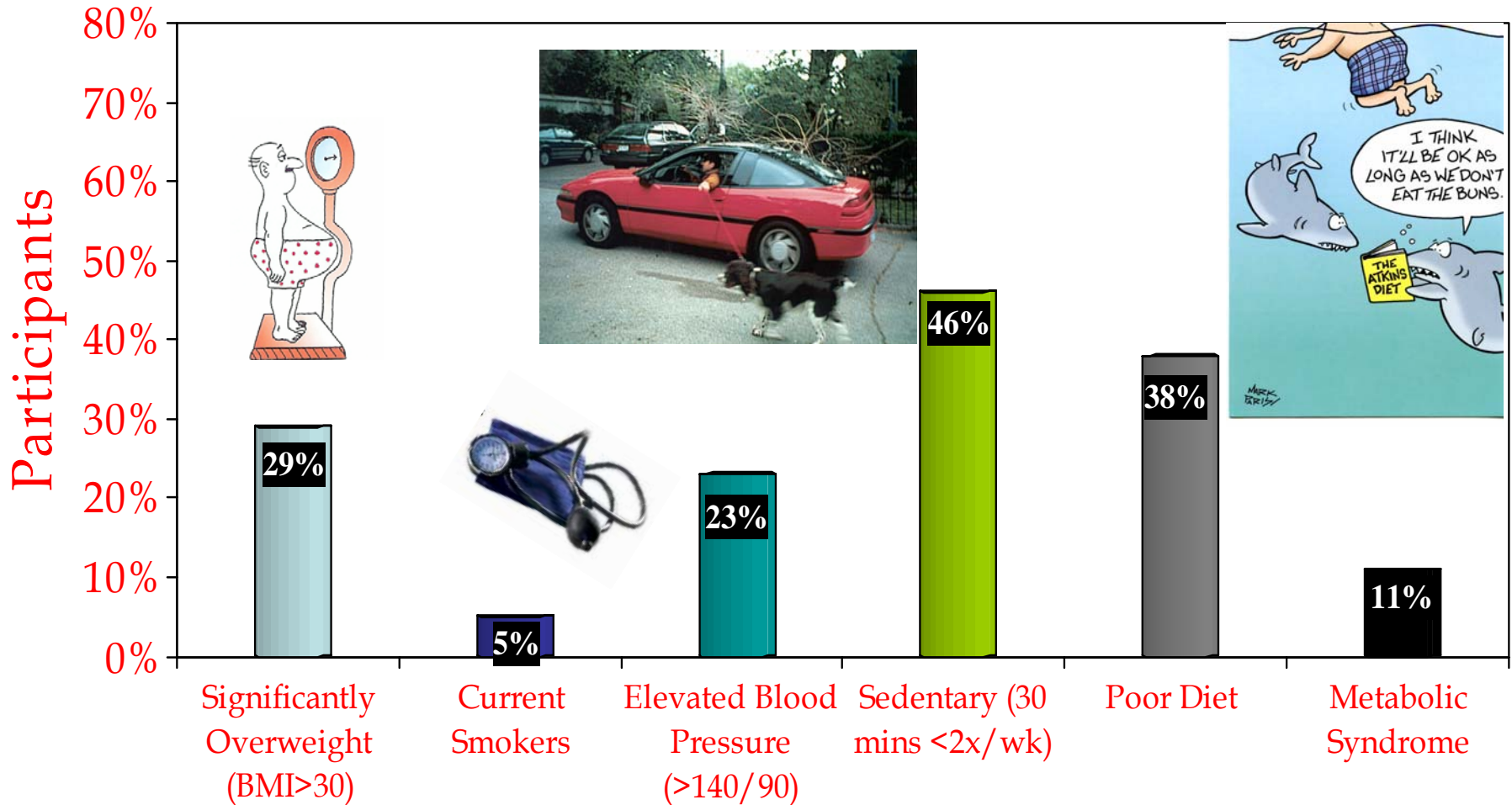
- Family History of CVD
- Personal History of CVD
- Diabetes
- Diagnosed Hypertension or Blood Pressure: SBP ≥ 140 or DBP ≥ 90
- Diagnosed Hyperlipidemia or High cholesterol (≥ 200 or HDLC ≤ 35 or LDL ≥ 130)
- Current tobacco user
- Insufficient exercise (less $\leq 2x$ /week)
- Significant stress
- Poor diet (saturated or trans fats, added sugars several x/day or fruits, vegetables or whole grains a few x/week or less)
- High triglycerides (≥ 200)
- Arterial inflammation (C-Reactive Protein ≥ 3.0)
- Obesity: BMI ≥ 30

March 2007





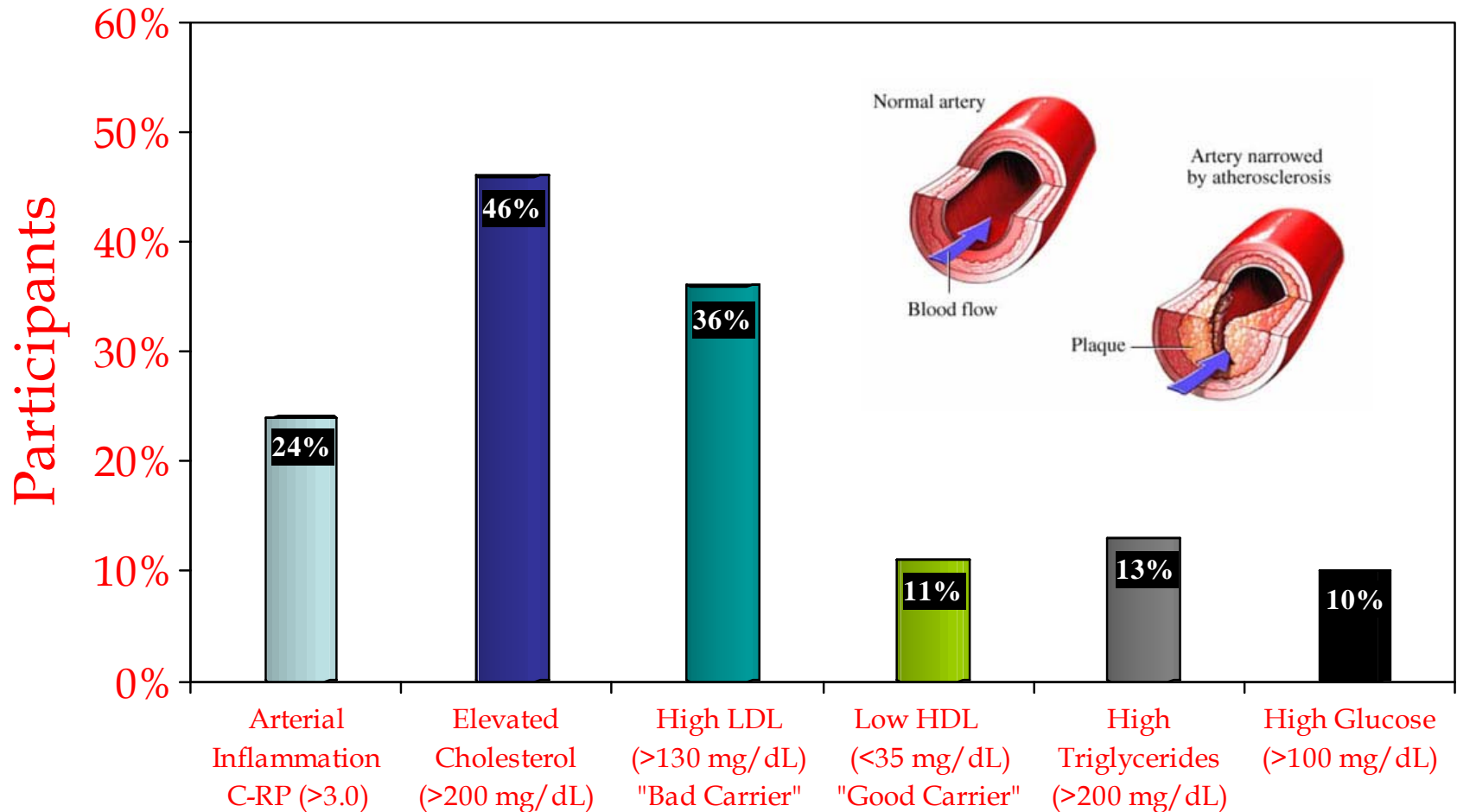
Baseline Data at LLNL (n=1,640) Individuals "At Risk" March 2007





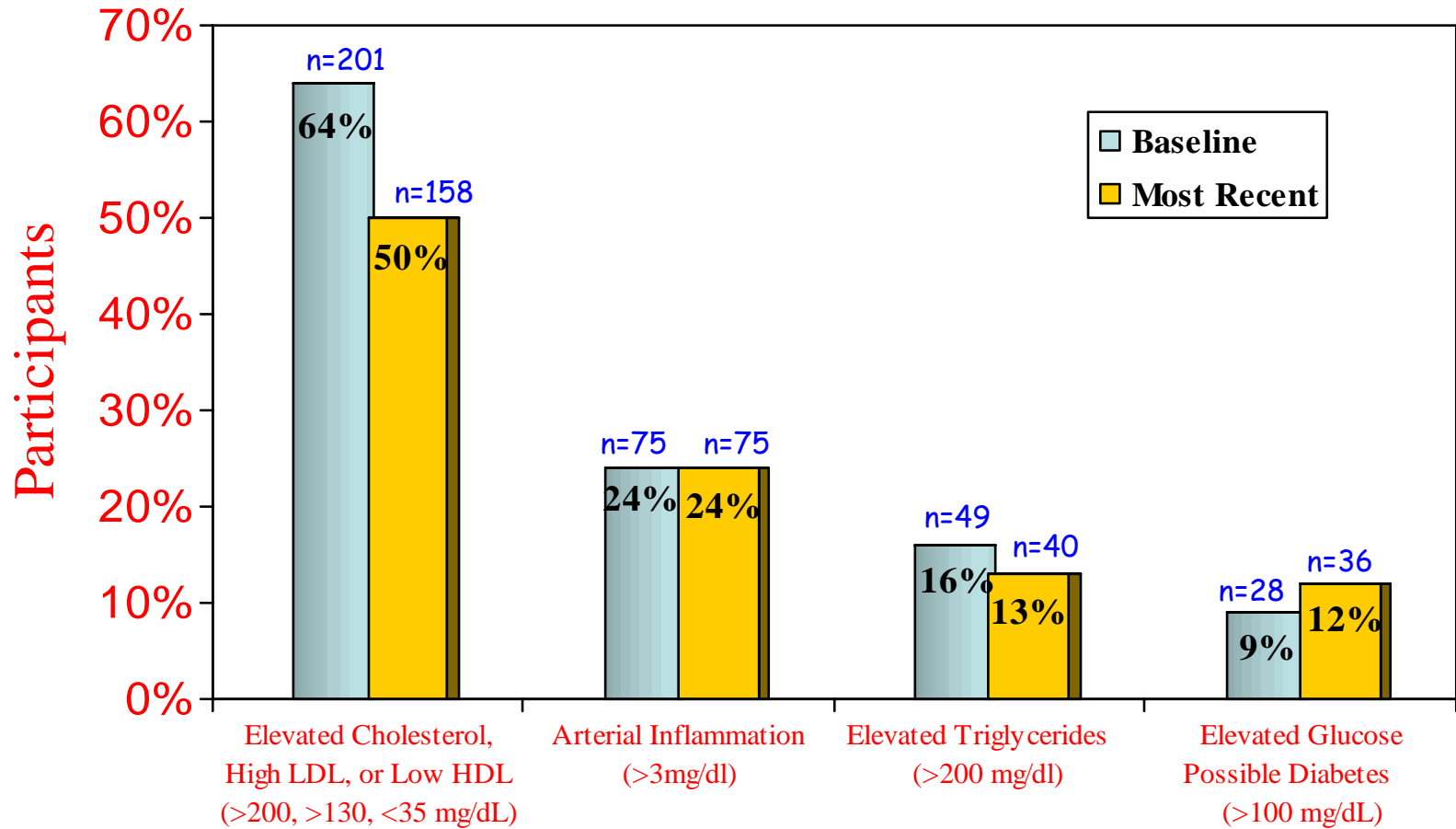
Baseline Data at LLNL (n=1,640) Individuals "At Risk"

March 2007





Most Recent Follow-up (n=313) Mar-07 Improving Modifiable Risk Factors



Significance by
Chi Square

$P = .001^*$

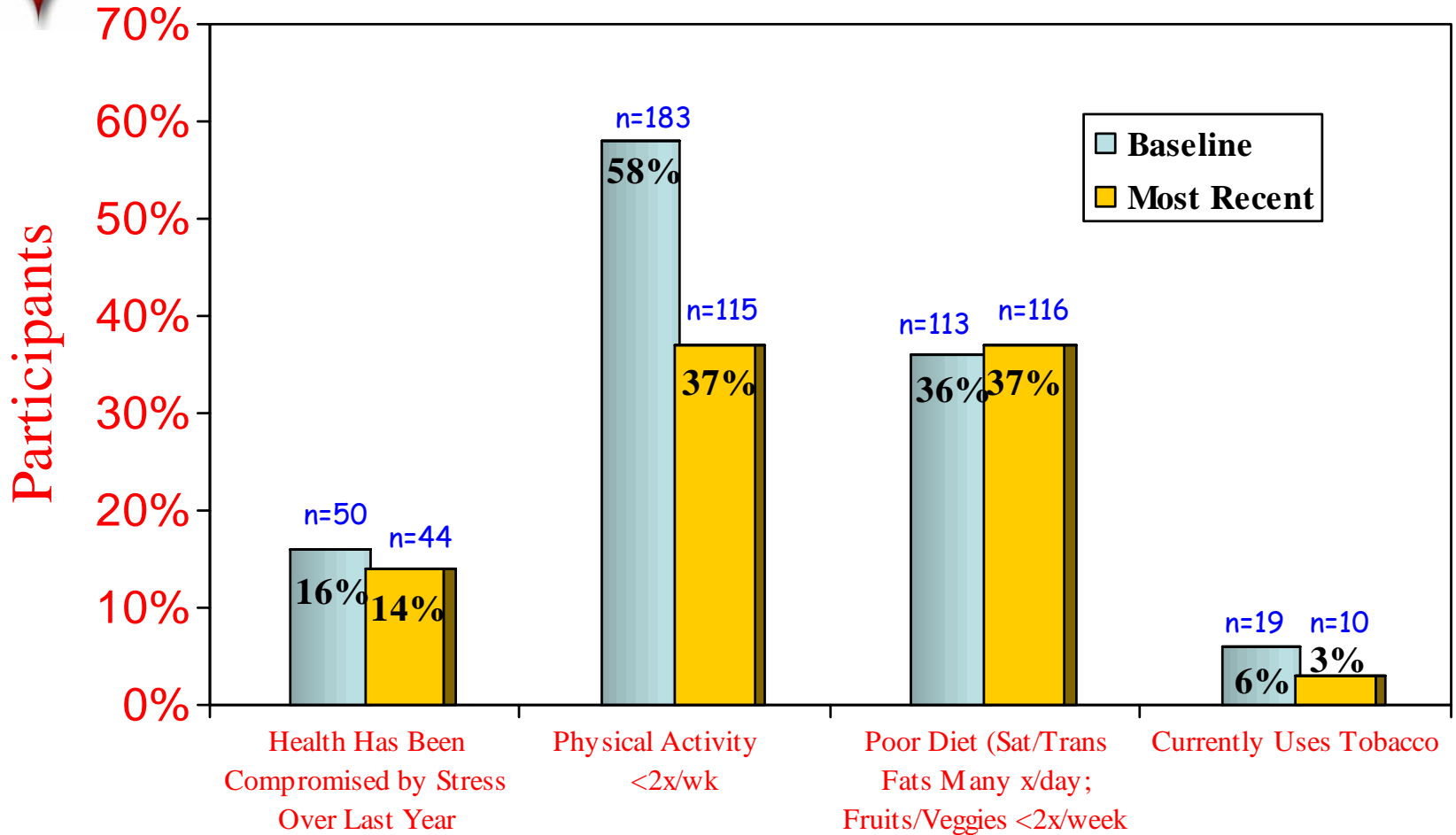
$P = 1.000$

$P = .303$

$P = .291$



Most Recent Follow-up (n=313) Mar-07 Improving Modifiable Risk Factors



Significance by
Chi Square

$P = .502$

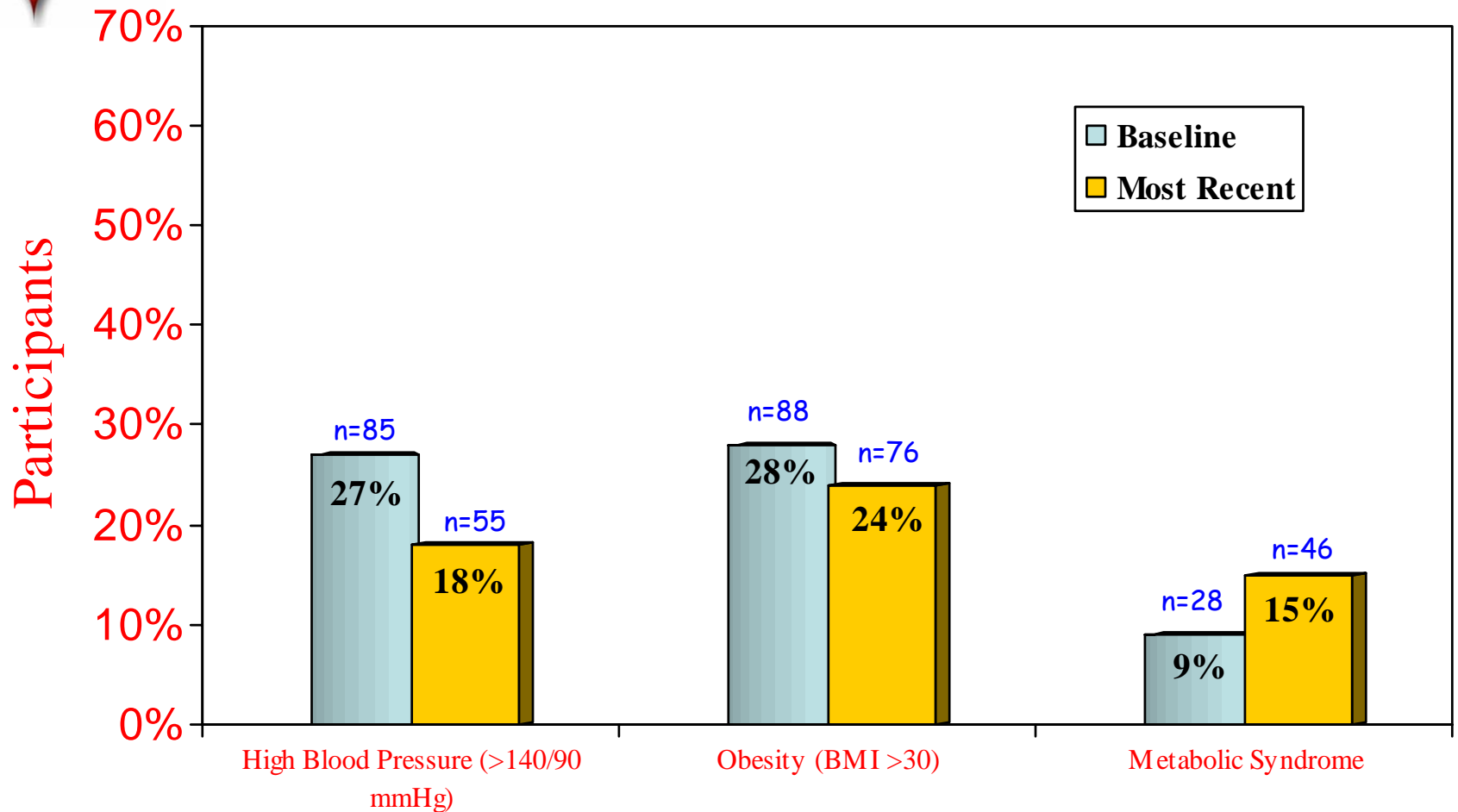
$P = .00000005^*$

$P = .803$

$P = .087$



Most Recent Follow-up (n=313) Mar-07 Improving Modifiable Risk Factors



Significance by
Chi Square

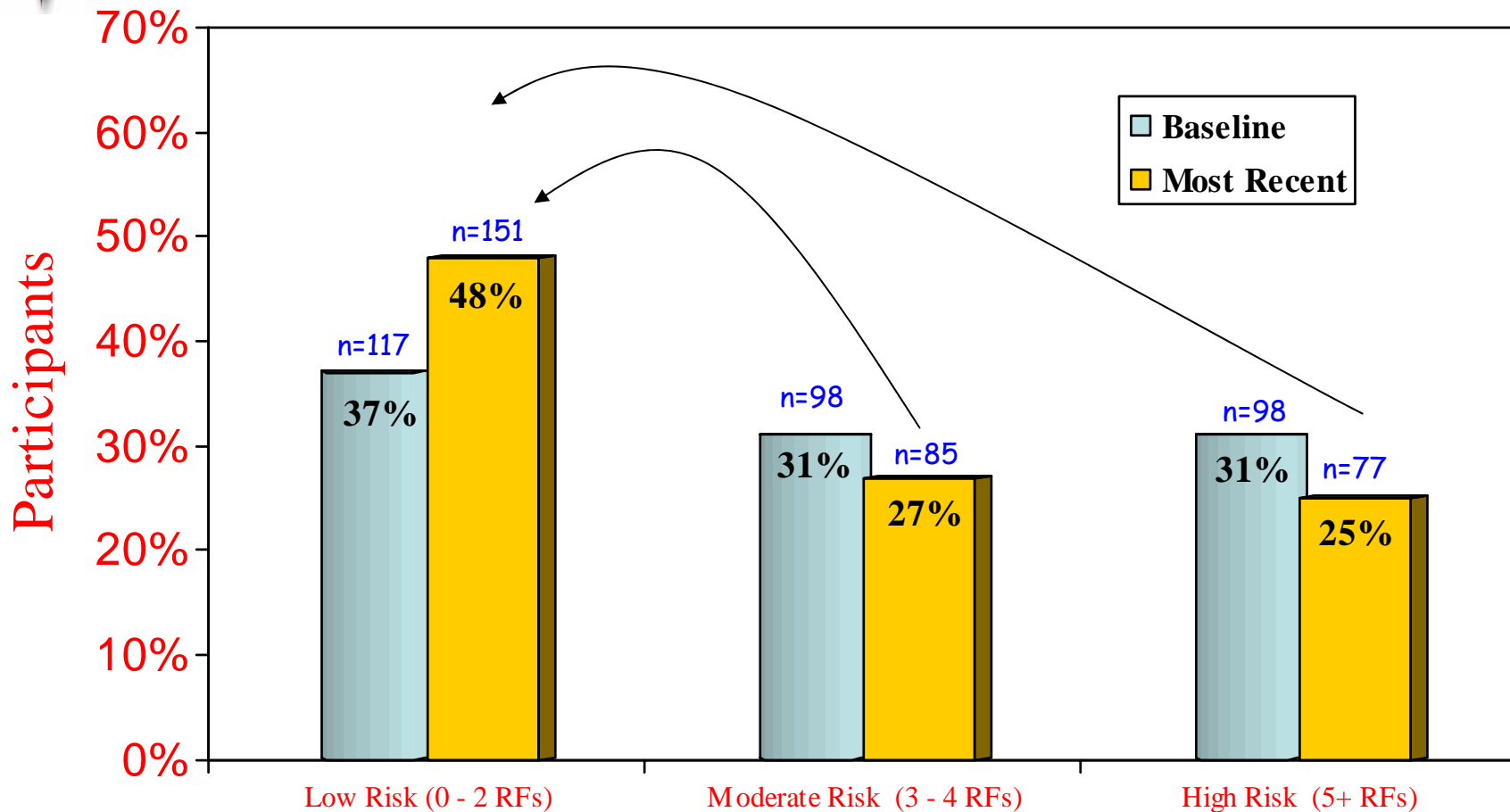
$P = .004^*$

$P = .275$

$P = .026^*$



Most Recent Follow-up (n=313) Mar-07 Improving Aggregate Risk



Significance by
Chi Square

$P = .006^*$

$P = .253$

$P = .061$



Most Recent Follow-up (n=313) Mar-07 Change in Mean Risk

| Risk Factor | Baseline Average | Follow-up Average | Significance Paired T |
|---------------------------|-------------------------|--------------------------|------------------------------|
| Systolic BP | 126.9 | 125.8 | .22 |
| Diastolic BP | 77.33 | 76.22 | .07 |
| BMI | 27.99 | 27.62 | .03* |
| Weight | 184.58 | 182.10 | .01* |
| Cholesterol | 200.8 | 193.3 | .0001* |
| Triglycerides | 133.46 | 119.81 | .01* |
| Glucose | 86.33 | 87.57 | .05* |
| C-RP | 2.64 | 2.30 | .37 |
| Total Risk Factors | 3.56 | 3.14 | .0001* |



Population Specific Findings

National Ignition Facility

Function: Integrity of Nuclear Stockpile

Characteristics: Long Hours

Key Findings: High Lipids

Intervention: Healthy Eating Programs



Population Specific Findings

Director's Office

Function: Management of LLNL

Characteristics: High level professionals, fast-paced, high stress, big decisions

Key Findings: Hypertension

Intervention: Walk & Talks, Topical Stress



Population Specific Findings

Site 300

Function: Explosives Testing

Characteristics: Isolated, older, male

Key Findings: Diabetes, obesity, metabolic syndrome

Intervention: Weight loss, open gym



Population Specific Findings

Plant Engineering

Function: Crafts and Trades

Characteristics: High blue collar

Key Findings: Diabetes, smoking

Intervention: Eating on the run, smoking cessation



Summary of Experience

1. The Healthy Heart program is an effective worksite health risk reduction strategy
2. Delivering the program at the worksite facilitates environmental and cultural change to support individual health improvements
3. Improvements in risk factors are achievable and sustainable



Knowledge ≠ Change

Improve employee health behavior,
on and off the job



**Assessment of Chronic Health Conditions
On Work Performance , Absence,
and Total Economic Impact for Employers**

Collins J, Baase C, Sharda C et al.

**Journal of Occupational and Environmental Medicine 47(6)
June 2005 (547-557)**

**Dow Chemical
Wharton School of Economics
Medstat Group
Personnel Research Associates**

“Presenteeism”

“The decrement in job performance associated with impairment due to health problems while working.”

or

People who do not appear to be absent.

Presenteeism includes:

Time on task-- In the workplace but not working

Quality of work--mistakes, omissions, etc.

Creativity

Initiative

Quantity of work output

Capacity for Peak performance

Interpersonal functioning

- Team interaction

- Mood disorder

- Behaviors

Motivational (or de-motivational) effect on others

Figure 1. Stanford Presenteeism Scale (SPS)

1. Do you have any of the following health conditions? Please check all that apply, and also check which one you consider your primary condition (the condition that has affected you most in the past 4 weeks). If you have none of these conditions, please mark this box and do not complete the survey. Choices: Allergies, Arthritis or joint pain/stiffness, Asthma, Back or neck disorder, Breathing disorder-bronchitis or emphysema, Depression anxiety or emotional disorder, Diabetes, Heart or circulatory-artery disease high blood pressure angina, Migraines/chronic headaches, Stomach or bowel disorder, and Other _____)

For 2-11: In thinking about how your primary condition affected your ability to do your job, how often in the past 4 weeks: Always / Frequently / About half the time / Occasionally / Never / No answer

2. Were you able to finish hard tasks?
3. Did you find your attention wandering?
4. Were you able to focus on achieving work goals?
5. Did you feel energetic enough to work?
6. Were the stresses of your job hard to handle?
7. Did you feel hopeless about finishing your work?
8. Were you able to focus on finding a solution when unexpected problems arose in your work?
9. Did you need to take breaks from your work?
10. Were you able to work with other people on shared tasks?
11. Were you tired because you lost sleep?

= Work
Impairment
Score

12. Given your primary health condition, what percentage of your usual productivity level were you able to achieve while working over the last 4 weeks?
(place X on continuous scale 1-100)

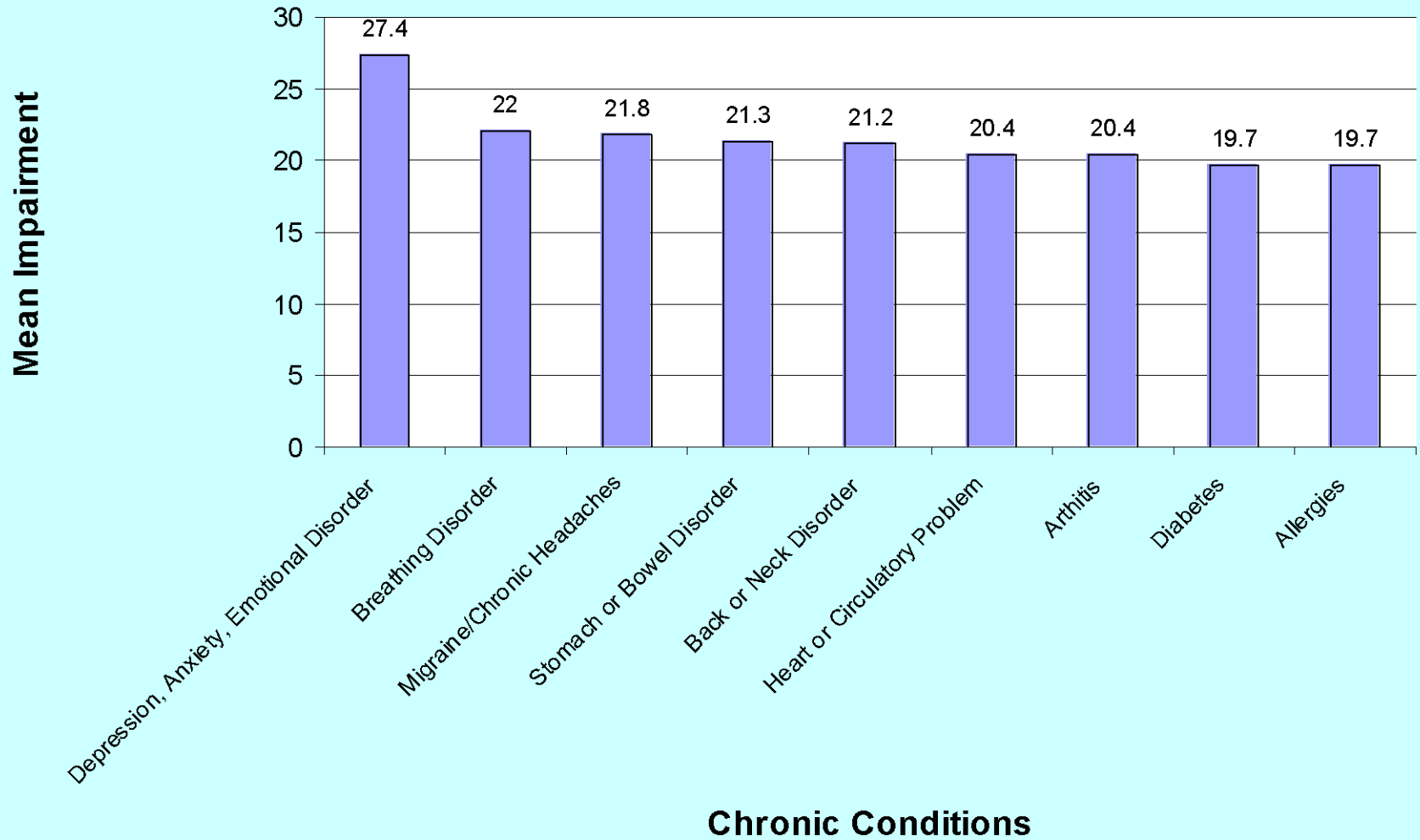
= Work Output Score

13. Because of your primary condition as you identified in question 1, how many work hours did you miss in the past 4 weeks? (place X on continuous scale 0-40+)

CMBaase

Stanford Presenteeism Scale (SPS) is owned by Merck & Co., Inc., 2003.

Mean Impairment by Specific Chronic Conditions



What did we Learn?

(Economic Impact)

- For every chronic condition surveyed in our study, **hours lost from work impairment** exceeded hours lost from absenteeism.
- The cost per year per employee for chronic conditions ranges from \$6000 to nearly \$30,000
- The value of “presenteeism” work impairment was 6.8% of total labor costs

Available Survey Based Tools

| Tool | Full Name | Comment |
|-------|---|--|
| EHC | Employer Health Coalition | |
| WLQ | Work Limitations Questionnaire | |
| HPQ | Health and Performance Questionnaire | Previously known as the MacArther Health and Performance Questionnaire (MHPQ) |
| SPS | Stanford Presenteeism Scale | Previously known as the Stanford/ American Health Association Presenteeism Scale, (SAHAPS) |
| WPAI | Work Productivity and Activity Impairment Questionnaire | |
| EWPS | Endicott Work Productivity Scale | |
| HLQ | Health and Labor Questionnaire | |
| SF-36 | Short Form - 36 | Also has forms SF-12 and SF-8 |

Key Characteristics: Health-Related Productivity Instruments

| |
|---|
| Science-based |
| <ul style="list-style-type: none">• Reliable |
| <ul style="list-style-type: none">• Valid |
| Applicability |
| <ul style="list-style-type: none">• Across industries and occupations |
| <ul style="list-style-type: none">• Across disease states and conditions |
| Supports effective business decision-making |
| <ul style="list-style-type: none">• Metrics can be translated into dollars |
| Practical |
| <ul style="list-style-type: none">• Easy administration• Low costs of administration• Reading level• Available in multiple languages |

Loeppke R, Hymel PA, Lofland JH, Pizzi LT, Konicki DL, Anstadt GW, Baase C, Fortuna J, Scharf T. Health-related workplace productivity measurement: General and migraine-specific recommendations from the ACOEM Expert Panel. *J Occup Environ Med.* 2003; 45: 349-359.

Conclusions: JOEM May 2003

- Each tool has strengths and weaknesses
- There is no perfect solution for measuring productivity
- Health and Productivity measurement is a dynamic and rapidly developing arena

Loeppke R, Hymel PA, Lofland JH, Pizzi LT, Konicki DL, Anstadt GW, Baase C, Fortuna J, Scharf T. Health-related workplace productivity measurement: General and migraine-specific recommendations from the ACOEM Expert Panel. *J Occup Environ Med.* 2003; 45: 349-359.

Limitation of Survey Instruments for Presenteeism

- No Gold standard for Productivity
- Some surveys are disease specific (e.g. migraines)
- Surveys considered apt for monetary translation if they capture a quantifiable unit of work time lost
- Self-reporting for percentage of work effectiveness lost due to health issues
- Cost calculated as:
(percentage effectiveness lost) X (salary)
- 8 of 12 Presenteeism questionnaires can be “monetized”

Only one Survey assessed against “objective”
measures of productivity--correlations poor

Seward's conclusions regarding survey measurement of presenteeism

- Interpret Financial Data with Caution
- Potential use as indicator of relative importance of different chronic diseases at a worksite
- More research needed to validate financial costs

Identifying “Best Practices” in Health and Productivity Management: What Works?

Ron Z. Goetzel, Ph.D.

Cornell University and Thomson Medstat

ron.goetzel@thomson.com



Cornell University

But, here's what's interesting...

Cost Variation Across Companies: Top Third vs. Bottom Third

| | High-Cost Companies | Low-Cost Companies |
|----------------------------|---------------------|--------------------|
| Cost per employee per year | \$10,428 | \$7,224 |
| Increase in employer cost | 8% | 4% |
| Increase in employee cost | 10% | 6% |

Source: National Business Group on Health – 9/29/2006

What makes the difference?

- Low cost companies:
 - Have a **clear focus and strategic framework** for their benefit program
 - **Identify problems and opportunities** by understanding the current state of their benefit program and the health care system overall
 - *Pursue more extensive solutions, including those that address the **underlying causes of health care cost increases.***
- For example:
 - They **invest in health** by providing programs and resources that encourage employees to understand and manage their health risks
 - They offer a variety of **health management** programs such as those focused on health improvement (83% versus 58%) and disease management (84% versus 61%).

Meta Evaluation of Worksite Health Promotion Economic Return Studies: 2005 Update – Larry Chapman (Art of Health Promotion, July/August, 2005)

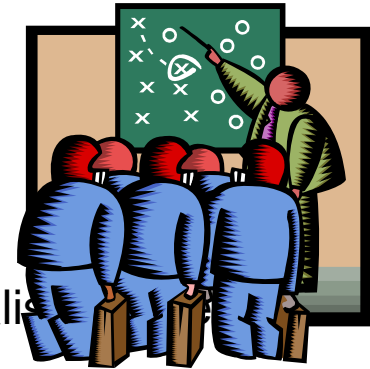
- Analysis includes a review of 56 peer reviewed studies
- Study methods are scored using 10 criteria
- Median year of publication – 1994
- Number of combined subjects in all studies – 483,232
- Average study duration- 3.66 years
- Primary outcomes examined: health care utilization/cost (28 studies) and absenteeism (25 studies)
- Results:
 - Average reduction in health care costs – 26%
 - Average reduction in absenteeism – 27%
 - Average ROI – 5.81 : 1.00 (22 studies)

Goetzel

Health Promotion Programs – What Works?

Organizational Commitment

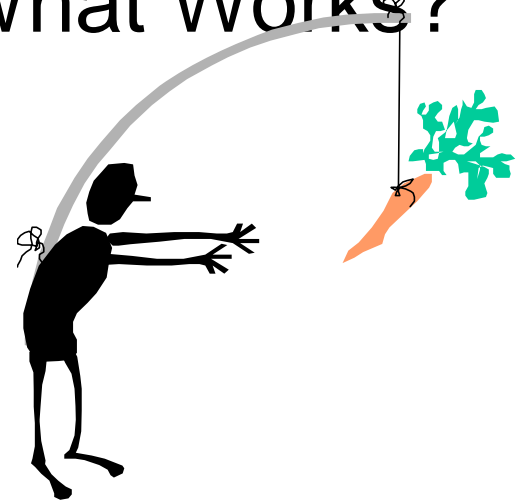
- Senior management commitment -- with buy-in by middle managers
- “Healthy company” norm/culture
- Visible leader or champion
- Employee-driven advisory board
- Specific program goals and objectives -- setting realistic
- Alignment of organizational, HR and health promotion policies/practices
- Organizational stability and resiliency



Health Promotion Programs – What Works?

Incentives

- Incentives to participate
- Incentives for achieving “change” are hard to implement
- Effective marketing and communication



Health Promotion Programs – What Works?

Effective Screening and Triage

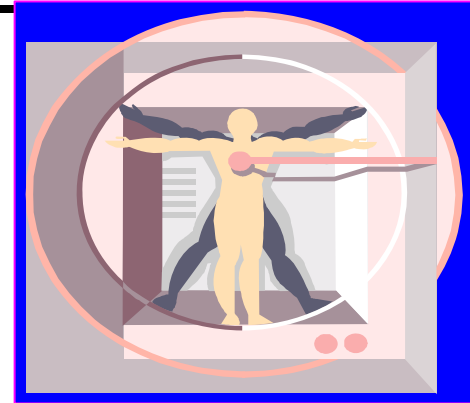
- Casting a wide net to identify the highest risk individuals
- Providing “public health” interventions to keep people at low risk
- Triageing individuals into programs that produce greatest impact/payoff
- Protecting confidentiality
- Coordinating with providers and community resources



Health Promotion Programs – What Works?

State-of-the-Art Intervention Programs

- Science-based
- Tailored and individualized interventions
- Balancing high touch with high tech
- Programs based on behavioral theory
- Long-term commitment



Health Promotion Programs – What Works?

Effective Implementation

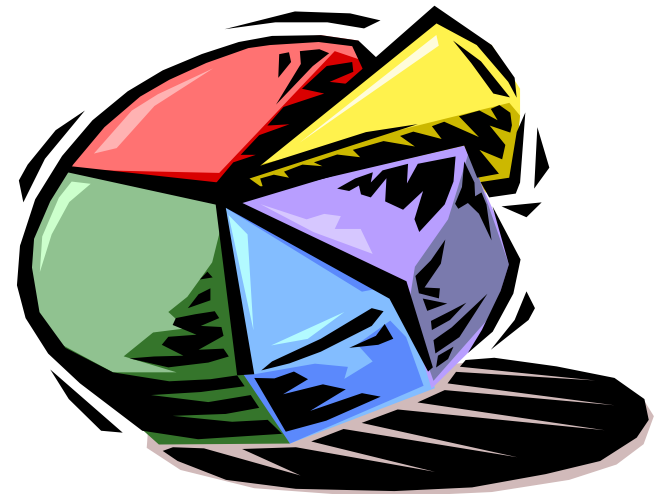


- A variety of topics and engagement modalities to catch/sustain interest
- Hiring the right staff -- individuals who are talented, enthusiastic and organized -- integrate them into the fabric of the organization
- Spending the right amount of money to achieve a desired ROI

Health Promotion Programs – What Works?

Excellent Evaluation

- Use of rigorous methods that stand up to peer review
- Measure, manage, and measure again
- Regular communication of results



Success Factors for HPM (1)

| <i>HPM Best Practice</i> | <i>Goetzel et al, 1997</i> | <i>APQC O'Donnell et al, 1996</i> | <i>IHPM Goetzel et al, 1998</i> | <i>WELCOA</i> | <i>Koop Health Project, Goetzel et al, 2001</i> |
|---|--------------------------------|---|---|---------------|---|
| Organizational Commitment | √ | √ | √ | √ | √ |
| Program Linked to Business Objectives | | √ | √ | | √ |
| Effective Communication | | √ | √ | | √ |
| Effective Operation Plan | | √ | | √ | |
| Supportive Environment | | | | √ | |
| Program Goals Include Productivity and Morale | | | √ | | √ |
| Employee Input When Developing Goals and Objectives | | √ | | | |
| Management Leads by Example | | | √ | | |
| Interdisciplinary Team Focus | | | √ | √ | |
| Identification of Wellness Champions | | | √ | √ | √ |

Success Factors for HPM (2)

| <i>HPM Best Practice</i> | <i>Goetzel et al, 1997</i> | <i>APQC O'Donne ll et al, 1996</i> | <i>IHPM Goetzel et al, 1998</i> | <i>WELCOA</i> | <i>Koop Health Project, Goetzel et al, 2001</i> |
|---|----------------------------|--|---|---------------|---|
| Incentives to Participate | √ | √ | | | |
| Program Accessibility | | √ | | | |
| Effective Screening and Triage | √ | √ | | | |
| State-of-the-art Interventions | √ | √ | | | |
| Effective Implementation | √ | | | | |
| Ongoing Program Evaluation: Data Collection, Measurement, Reporting, and Evaluation (including ROI) | √ | √ | √ | √ | √ |

Best Practice Criteria for HPM Programs – Developed by the CDC Benchmarking Project

1. Employ features and incentives that are consistent with the organization's core mission, goals, operations, and administrative structures;
2. Operate at multiple levels, simultaneously addressing individual, environmental, policy, and cultural factors in the organization;
3. Target the most important health care issues among the employee population;
4. Engage and tailor diverse components to the unique needs and concerns of individuals;
5. Achieve high rates of engagement and participation, both in the short and long term;
6. Achieve successful health outcomes, cost savings, and additional organizational objectives; and
7. Are evaluated based upon clear definitions of success, as reflected in scorecards and metrics agreed upon by all relevant constituencies.

IV. Site Visits

- DaimlerChrysler
- Dell Computer
- Fairview Health Services
- GE Energy
- IBM
- Johnson and Johnson
- Pioneer Hi-Bred
- Union Pacific Railroad
- Washoe County School District

Key Success Factors

- **Integration into organizational operations**
- **Addressing individual, environmental, policy, and cultural factors**
- **Targeting the continuum of health care issues**
- **Tailoring to population needs**
- **Attaining high participation**
- **Evaluating programs based on clear definitions of success**
- **Communicating successful outcomes to key stakeholders**

Backups

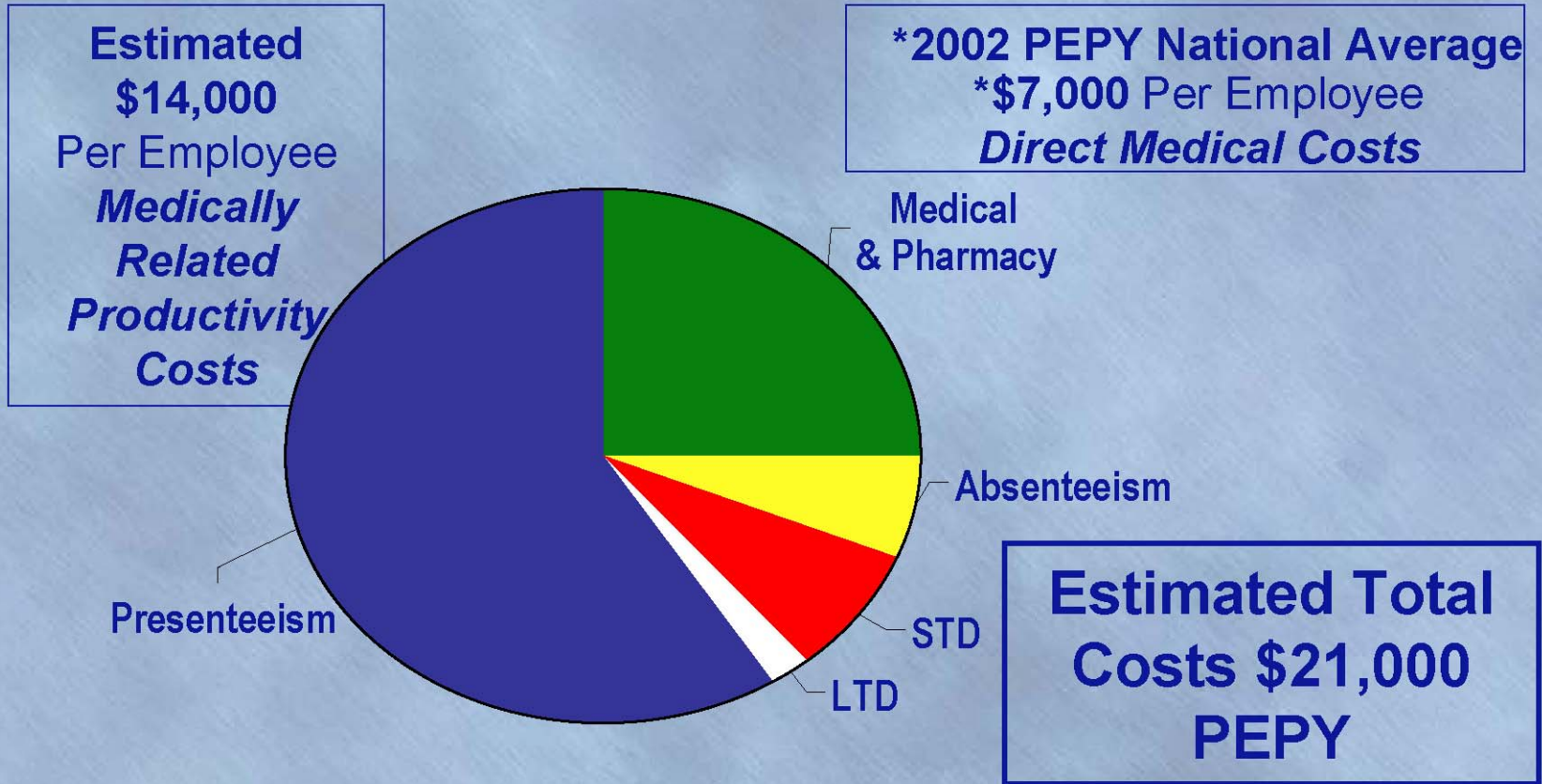
Health and Human Performance

“Most companies have operated on the belief that high performance is exclusively linked with cognitive and intellectual capacity. Data and research have proven that for companies to achieve breakthrough growth and success, they must also focus on all of the elements of human performance –the body, the emotions, the spirit - consider the person as a whole.”

Harvard Business Review: January 2001
Jim Loehr and Tony Schwartz



The Real Problem: Total Costs



Health and Productivity Toolkit





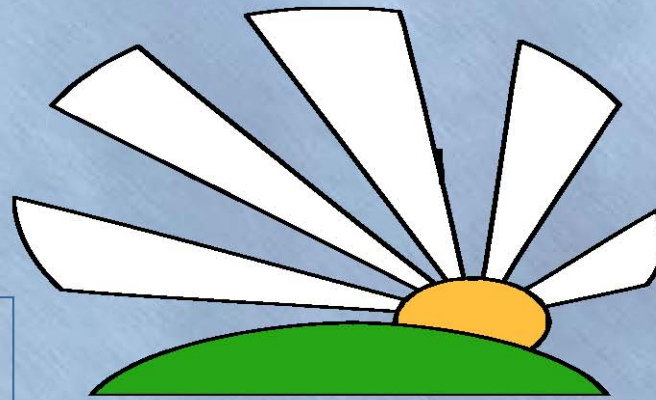
AMERICAN COLLEGE OF
OCCUPATIONAL AND
ENVIRONMENTAL MEDICINE

Pursue the Bigger Picture, Broader Solution! Occupational Medicine & Integrated Benefit Programs

The New Horizon - Pursuing opportunities across plans that affect change in health-related productivity - The resource of Occupational Medicine can be the key to activate your integrated benefits programs.

**Short Term
Disability**

**Workers'
Compensation**

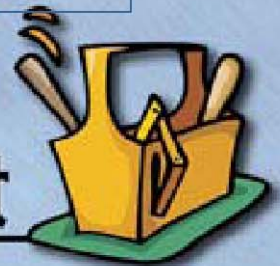


Human Resources

**Health
Benefits**

**Long Term
Disability**

Health and Productivity Toolkit



II. Expert Panel Convened for Promising Practice HPM Benchmarking Project

Panelists

- Steve Aldana, PhD-Brigham Young University
- David Anderson, PhD – StayWell Health Management
- Larry Chapman, MBA – Summex Corporation
- David DeJoy , PhD – University of Georgia
- Ken Holtyn, PhD – Independent Consultant
- David Hunnicutt, PhD -- WELCOA
- Joe Leutzinger, PhD – Academy for Health and Productivity Management
- Garry Lindsay, MPH – Partnership for Prevention
- Wendy Lynch, PhD – Independent Consultant
- Paula Marmet, MS, RD – Chronic Disease Directors Association and Kansas Department of Health and Environment
- Michael O'Donnell, PhD – American Journal of Health Promotion
- Stephanie Pronk, PhD – Watson Wyatt Worldwide Consulting
- Chuck Reynolds, MBA – The Benfield Group
- Sue Willette, MPH – Mercer Health Care Consulting

CDC Representatives

- William H. Dietz, M.D.
- Diane Dunet, Ph.D.
- Michele Reyes, Ph.D.
- Phillip K. Sparling, Ph.D

III. On-line Inventory

- Contained questions assessing how well organizational programs embody project's working list of best practice indicators
- Invitation to complete Inventory issued by Principal Investigator to 99 organizations (identified through literature review, expert panel recommendations, and lists of industry award winners)
- 39 organizations responded
- Responses scored based upon point and weighting system
- Nine (9) organizations identified as potential promising practices, contacted, and agreed to site visit

On-Line Survey



Cornell University



Centers for Disease Control and Prevention Inventory of Workforce Health Promotion and Disease Prevention Practices

Health and Productivity Management (HPM) Inventory

Thank you for taking the time to complete this Inventory. You will be asked for the following types of organizational information:

Section A: Basic organizational characteristics

Section B: Corporate Health and Productivity Management programs

Section C: Program evaluation

Section D: Degree of organizational support for Health and Productivity Management

The Inventory should take about 15 minutes to complete. Please answer all questions as thoughtfully as possible. Your responses will help this initiative to better understand how HPM programs across the nation operate.

Summary of Results

HPM Inventory of Promising Practices

| | |
|---|-------------------------|
| Number of Organizations Completing the Inventory | 39 |
| Eligible Employees | |
| Avg. no. of employees eligible to participate in HPM programs | 68,587 |
| Range | 225 - 1,100,000 |
| Employee Participation | |
| Avg. participation rate | 59.6% |
| Percent tracking frequency, duration, and type of program participation | 70% |
| Percent offering premium reduction for participating in HPM programs | 36.7% |
| Staffing | |
| Avg. no. of full time employees allocated per 1,000 eligible employees | 1.1 |
| Length of Program | |
| | <i>No. of employers</i> |
| < 1 year | 0 |
| 1-2 years | 2 |
| 3-5 years | 6 |
| 6-9 years | 4 |
| ≥10 years | 20 |
| Program Operation | |
| | <i>No. of employers</i> |
| Both a vendor and internal operation present | 25 |
| Program operated internally | 5 |
| Vendor operates program | 2 |

Organizational Commitment Inventory

Please indicate the extent to which you agree or disagree with the following statements as they apply to your organization (1=Strongly Disagree; 2=Disagree; 3=Undecided; 4=Agree; 5=Strongly Agree):

- Our senior management is committed to health promotion as an important investment in human capital.
- Our health and productivity strategies are aligned with our business goals.
- All levels of management are educated regarding the link between employee health and productivity, and total economic value.
- Our employees are educated about the true cost and total value of personal health and its impact on business success.
- We have identified the leading physical and mental conditions among our employees and know their related direct and indirect costs.
- We have integrated our data management system to capture and evaluate our direct and indirect health- and productivity-related measures in order to assess the impact on work impairment (e.g., presenteeism).
- Our health benefits support prevention, risk reduction, and disease management, and are free of barriers to evidence-based interventions.
- Our incentives support consumer accountability and motivate employees to stay healthy, reduce high-risk behaviors/clinical measures, and/or adhere to disease management regimens.

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