



Primary Prevention: Real Savings & Productivity Gains Measured & Documented

Synthesis of data from:

Morton Leeds (HUD & Library of Congress, 1965-1985),

Ron Goetzel (Emory U & ThomsonReuters, 1985-),

James Fries & Kenneth Pelletier (Stanford U & Kaiser Permanente, 1970-),

C Everett Koop, Richard Carmona, Jocelyn Elders & Louis Sullivan

(prior US Surgeons General),

Michael McGuinness, Office Disease Prevention and Health information, HHS

Russell Jaffe (Health Studies Collegium, 1970-)

Return on Investment (ROI) Workplace Primary Prevention

Enterprise

- Dow Chemical
- CitiCorp
- Johnson & Johnson
- Proctor & Gamble
- Highmark
- Literature review
- Chapman review

ROI (years to achieve)

- \$3.21 (from 3rd year on)
- \$4.70 (from 3rd year on)
- \$225/employee/year since 1995
- 29% lower costs in 3 years
- \$200/employee/year after 3 years
- \$3.48 (7 studies average)
- \$5.80 (22 studies average)

U.S. Concerns About Healthcare

- U S spends most, \$2.4 trillion in 2008, ~\$8,000 for every citizen.
- Employers pay *over* one-third of these costs making America *less* competitive in global marketplace.
- National health expenditure growth trends likely to continue to *average* 2-3 times CPI, ~ 7% per year through 2015.
- Health expenditures as % of GDP: **Unsustainable growth**
 - 15.3 % in 2003
 - 16.0 % in 2006
 - 17.4 % in 2008
 - 19.6 % in 2016 (2007 est; **2009 est in 2013!**)
 - 25.0 % by 2030 (2007 est; **2009 est in 2022!**)



Source: Poisal et al., *Health Affairs*, 21 February 2007; updated by Jaffe 2009

Important to employers: Outcomes from Primary Prevention

- Financial Results:
 - Cost savings, return on investment (ROI) & net present value (NPV)
 - Where to find savings:
 - Medical costs
 - Absenteeism
 - Short term disability (STD)
 - Workers' Compensation (safety)
 - Presenteeism
- Health Achieved:
 - Adherence to evidence based care
 - Behavior change, risk reduction, health improvement
- Quality of life (humanistic) and productivity:
 - Improvement in quality of life
 - Improved “functioning” & productivity

Convince me...

Why business gains investing in workers health

It seems logical...

...if you improve health & well being of employees...

...quality of life improves

...health care utilization & costs are reduced

...disability is controlled

...productivity is enhanced



Logic Flow from disease prevention to primary prevention:

**70-90+% diseases & disorders preventable;
Life-style health habits shape risk factors:**

- Habits produce health & vitality or diseases & premature death,
- Reduced health care costs & enhance productivity link in 3-4 years,
- Well-designed & well-implemented programs are cost/beneficial – producing a *positive* return on investment (ROI).

Improvements in health risks lead to *reductions* in health costs, *improvements* in productivity & primary prevention shows best ROI.

Poor Health Costs All Involved

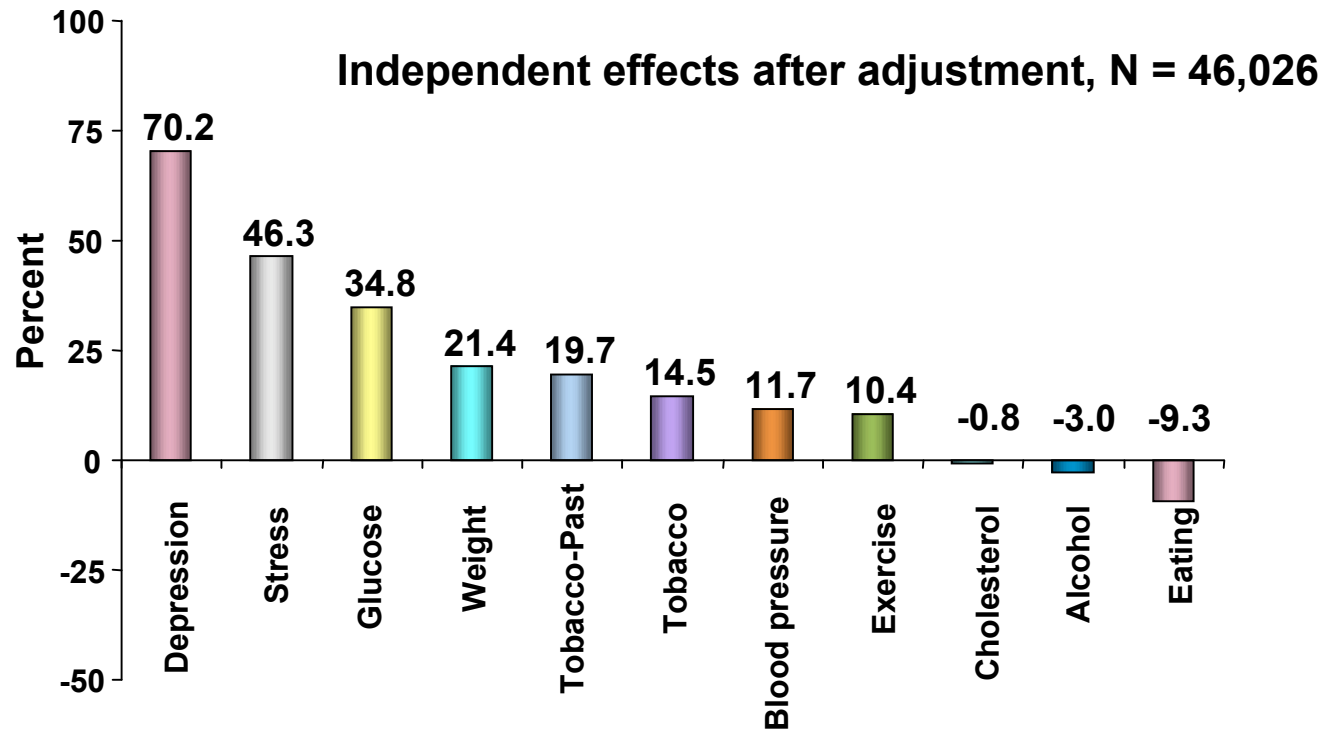
Costs accrue from:

- Medical expenses
- Absenteeism/work loss
- Risk factors:
Illness or injury
- Accidents
- Employee turnover
- Mood disorders
- Morale
- Job satisfaction



10 Modifiable Risk Factors on Medical Expenditures

% Difference in Medical Expenditures: High-Risk versus Lower-Risk Employees



Goetzel RZ, Anderson DR, Whitmer RW, Ozminkowski RJ, *et al.*,
J Occupational & Environmental Medicine, 1998; 40 (10): 843–854.

Healthy lifestyles mean

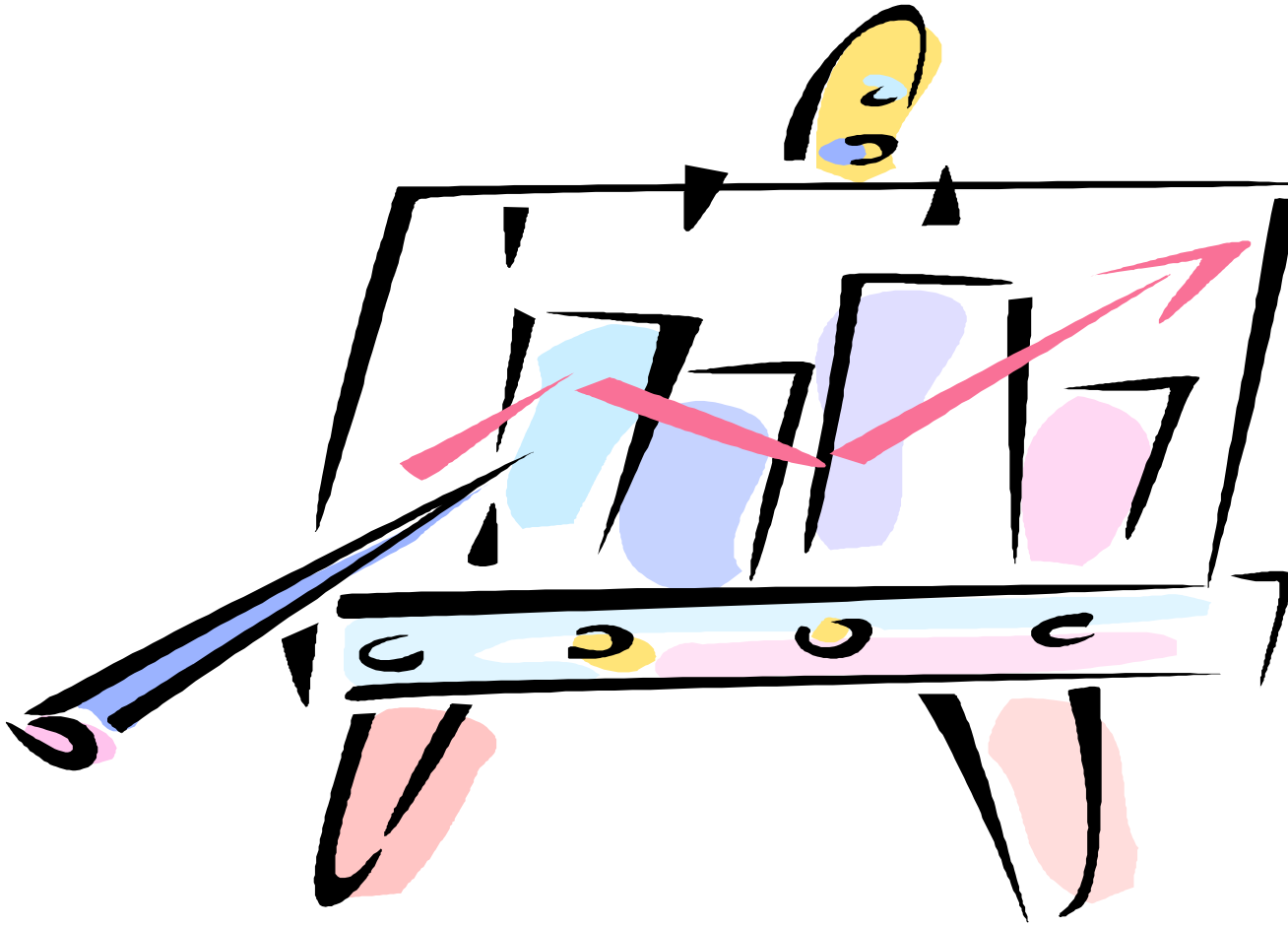
1. Tobacco independence
2. Healthy weight (BMI of 18.5-25.0)
3. 5+ fruits/vegetable juices/servings daily
4. Exercise regularly (30 min – 5 days/week)
5. Participate in community and/or family

Health practiced across all 5 categories

Evidence that workplace primary prevention work\$

- **70+% diseases is preventable.** *Modifiable* health risk factors are precursors to most diseases & premature death.
(Healthy People 2000, 2010, Amler & Dull, 1987, Breslow, 1993, McGinnis & Foege, 1993, Mokdad et al., 2004).
- **Modifiable health risks link to change in health care costs in 3-4 years.**
(Milliman & Robinson, 1987, Yen et al., 1992, Goetzel, et al., 1998, Anderson et al., 2000, Bertera, 1991, Pronk, 1999).
- **Modifiable health behaviors can be changed through workplace sponsored health promotion & primary prevention programs.**
(Wilson et al., 1996, Heaney & Goetzel, 1997, Pelletier, 1999).
- **Improved population health profile leads to *reductions* in health costs**
(Edington et al., 2001, Goetzel et al., 1999).
- **Worksite health promotion programs save companies money & produce a positive ROI of \$3-\$4 within three to four years**
(Johnson & Johnson 2002, Citibank 1999-2000, Procter and Gamble 1998, Chevron 1998, California Public Retirement System 1994, Bank of America 1993, Dupont 1990).

Prospective ROI: Dow Chemical Company



Source: Goetzel, Ozminkowski, Baase, Billotti. J Occupational & Environmental Medicine, 2005; 47(6); 547-557

Dow Risk Reduction / Employee Forecasting Model:

Three options:

1. No program in place; history drives risk profile
2. Minimal effort:
Lower risk .1% per year (1% in 10 years)
3. Company led effort:
Lowers risk 1% per year (10% in 10 years)

Methods

Step 1: Dow's Demographic Profile: 2001 - 2011

- **Base is Dow's demographics for 2001:**
 - ⇒ **Population: 25,828 employees***
 - ⇒ **Mean Age: 43**
 - ⇒ **Male: 75%**
 - ⇒ **White: 82%**
 - ⇒ **Professional/Managerial: 44%**
- **Project 2002 – 2011 on internal projections**

Return on Investment for Dow Chemical

Year	Scenario 1: Reference Case: Total \$\$ with demographics & risk shifting as forecasted (i.e., pre-existing trends remain)	Scenario 2: Total Expenditures 10% decrease in risk over 10 years (1% / year) & demographics change as forecasted	Scenario 3: Total Expenditures with 1% decrease in risk over 10 years (0.1% per year) & demographic s change as forecasted	Scenario 4: Break-Even (Reduce Risks by 0.17% per Year)
Increase in Expenditures From 2001 - 2011	\$17,094,174	\$6,608,877	\$14,324,879	\$13,434,028
% change between first and last years	35.48	13.72	29.73	27.88
Sum of Total Expend.	\$617,074,003	\$556,469,544	\$602,640,734	\$598,059,428
Potential Benefits of Risk Management (with a 3% discount rate)	Not applicable -- base case	\$49,512,590	\$11,705,745	\$15,426,727
Dow investment (same 3% discount rate)		\$15,426,671	\$15,426,671	\$15,426,671
Return on Investment		\$3.21	\$0.76	\$1.00

Return on Investment calculated relative to scenario in which demographics and risk shift as according to pre-existing trends.

Dow investment based on \$70.02 per person per year for 10 years, all in 2001 Year Dollar Equivalent, then discounted by 3% per year to adjust for changing value of money over time

Results from corporate health promotion programs

CitiCorp

Johnson & Johnson

Proctor&Gamble

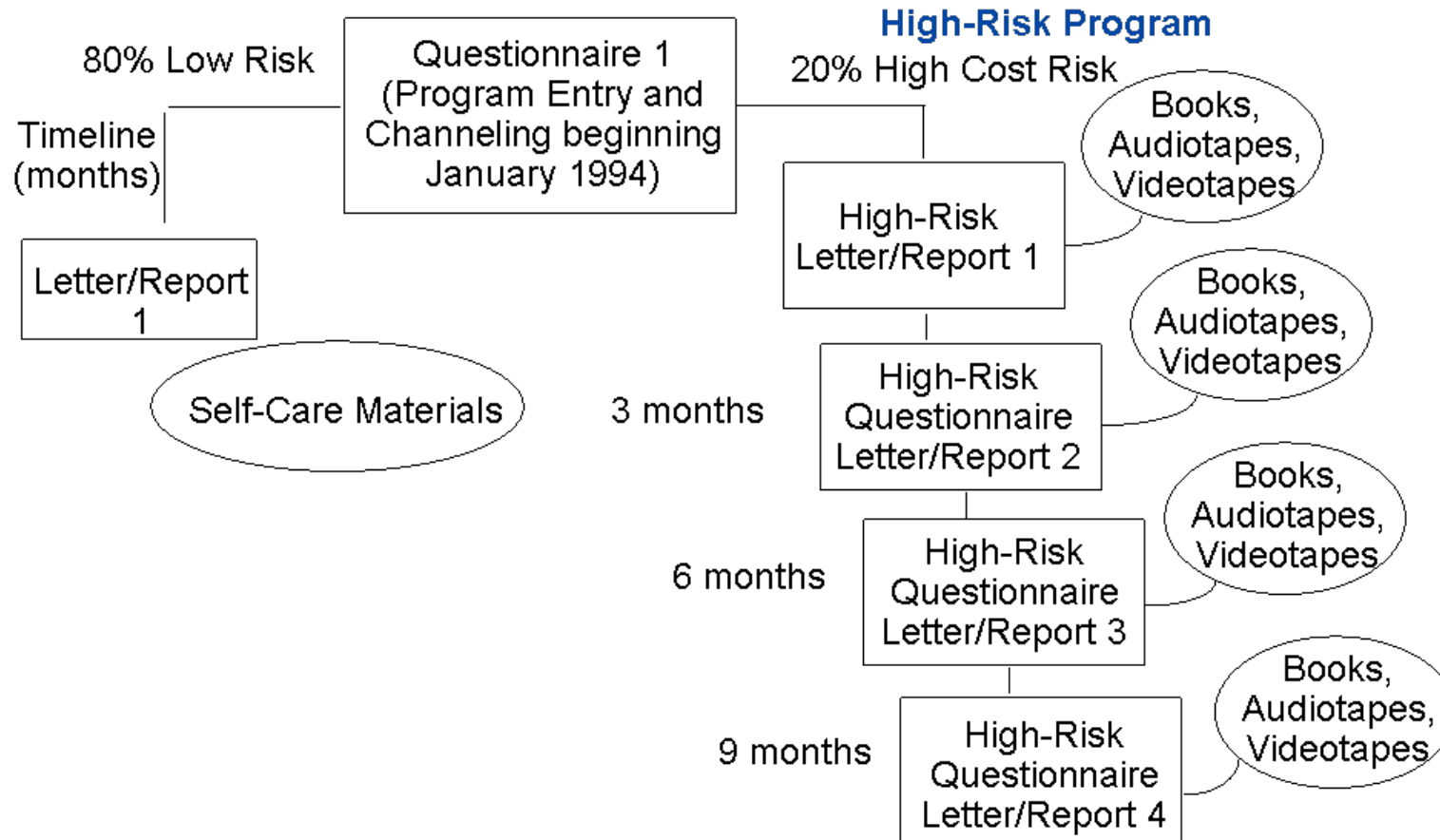
Highmark

CitiCorp, N.A.

Health Management Program Evaluation

- **Title:** CitiCorp Health Management Program (HMP)
- **Industry:** Banking/Finance
- **Target Population:** 47,838 active employees eligible for medical benefits
- **Description:**
 - Comprehensive multi-component health management program
 - Aims: Employees improve health behaviors, better manage health, & reduce demand for unnecessary & inappropriate health services,
 - Reduce prevalence of preventable diseases: Significant cost savings; + ROI.
- **Citations:**
 - Ozminkowski, R.J., Goetzel, R.Z., Smith, M.W., Cantor, R.I., Shaunghnessy, A., & Harrison, M. (2000). The Impact of the Citibank, N.A., Health Management Program on Changes in Employee Health Risks Over Time. *JOEM*, 42(5), 502-511.
 - Ozminkowski, R.J., Dunn, R.L., Goetzel, R.Z., Cantor, R.I., Murnane, J., & Harrison, M. A Return on Investment Evaluation of the Citibank, N.A., Health Management Program. *AJHP*, 1999; 44(1), 31-43.

Program Components



CitiCorp Program Participation

- All 47,838 active employees were eligible to participate.
- Participation rate: 54.3%.
- Participants received \$10 credit in Citibank's Choices benefit plan enrollment for *following* year.
- ~ 3,000 employees annually participated in high risk program.
- High risk modules: Arthritis, back pain, smoking, diabetes, obesity, high blood pressure, heart conditions & other chronic conditions, combinations of risky behaviors.

CitiCorp Results: Medical Expenditures Reduction / Month

	Unadjusted Impact**	Adjusted Impact**
Net improvement*, 1 category v. others (N = 1,706)	-\$1.86†	-\$1.91
Net improvement*, 2 categories v. others (N = 391)	-\$5.34	-\$3.06
Net improvement*, 3 categories v. others (N = 62)	-\$146.87†	-\$145.77 ‡

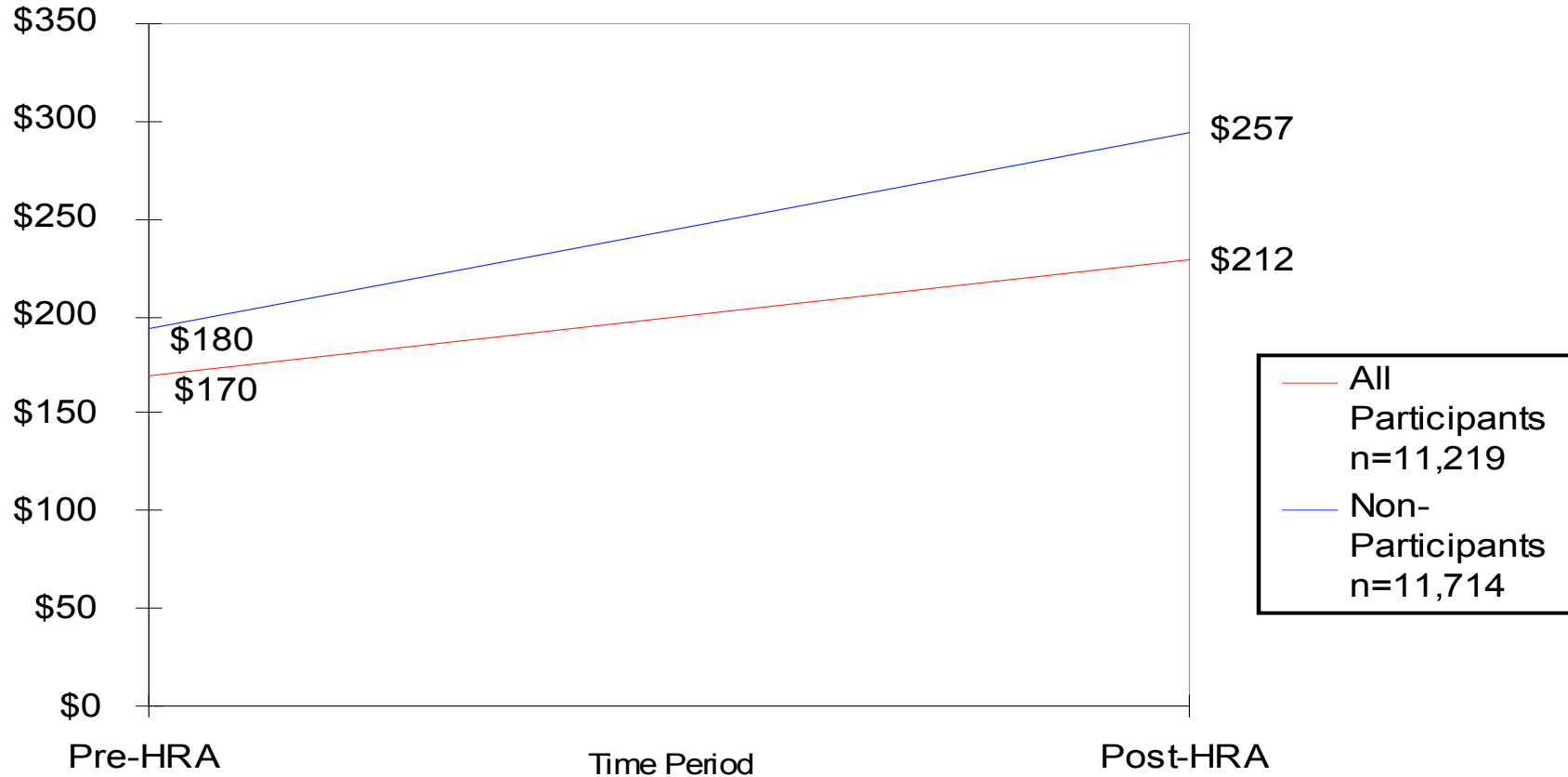
*Net Improvement = the # of categories risk improved - # of categories risk stayed same or worsened.

**Impact = change in expenditures for net improvers - change for others. Negative values imply program savings, since expenditures did *not* increase as much over time for those who improved, compared to all others

† p < 0.05, ‡ p < 0.01

CitiCorp: Medical Savings-Adjusted Mean Net Payments

CitiCorp Population Pre- & Post-HRA periods



Total savings associated w/ program participation N=11,219 over average of 2 years is \$8,901,413*
 * Based on \$34.03 savings & 23.31 months post-HRA for 11,219 participants

CitiCorp Health Management Program ROI

- Program costs = \$1.9 million*
- Program benefits = \$8.9 million*
- Program savings = \$7.0 million* **net savings**

ROI = \$4.7 in benefits for each \$1 in costs

Notes:

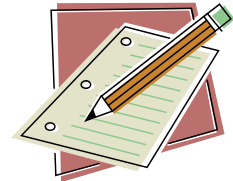
- 1996 dollars @ 0 percent discount
- Slightly lower ROI estimates after discounting by either 3% or 5% per year.
- Results ~ = to RCT ROI of same **Healthtrac** program, by Fries, *et al.*

Johnson & Johnson

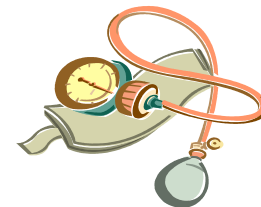
Health & Wellness Program Evaluation

- **Title:** J & J Health and Wellness Program (H & W)
- **Industry:** Healthcare
- **Target Population:** 43,000 U.S. based employees
- **Description:**
 - Comprehensive, multi-component worksite health promotion program
 - Evolved from LIVE FOR LIFE in 1979
- **Citations:**
 - Goetzel, R.Z., Ozminkowski, R.J., Bruno, J.A., Rutter, K.R., Isaac, F., & Wang, S. The Long-term Impact of Johnson & Johnson's Health & Wellness Program on Employee Health Risks. JOEM, 2002; 44(5): 417-424.
 - Ozminkowski, R.J., Ling, D., Goetzel, R.Z., Bruno, J.A., Rutter, K.R., Isaac, F., & Wang, S. Long-term Impact of Johnson & Johnson's Health & Wellness Program on Health Care Utilization and Expenditures. JOEM, 2002; 44(1), 21-29.

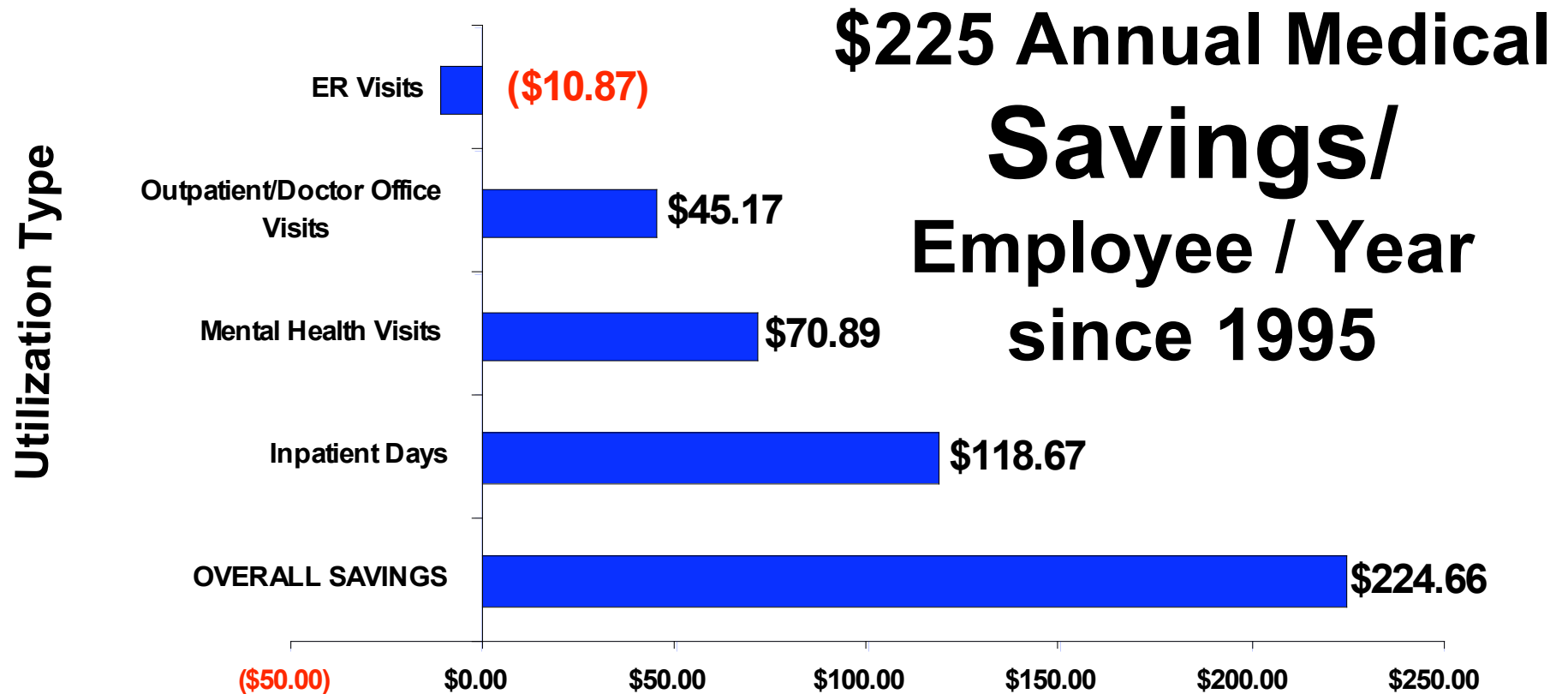
Lifestyle Benefit Incentive



- All employees offered Health Profile
- Employees at risk due to smoking, blood pressure or cholesterol *invited* to participate in health management program
- Health care prices discounted by \$500
- Employees not participating in Health Profile or follow-up health improvement program *lose* \$500 discount
- Result: **94% Participation Rate**

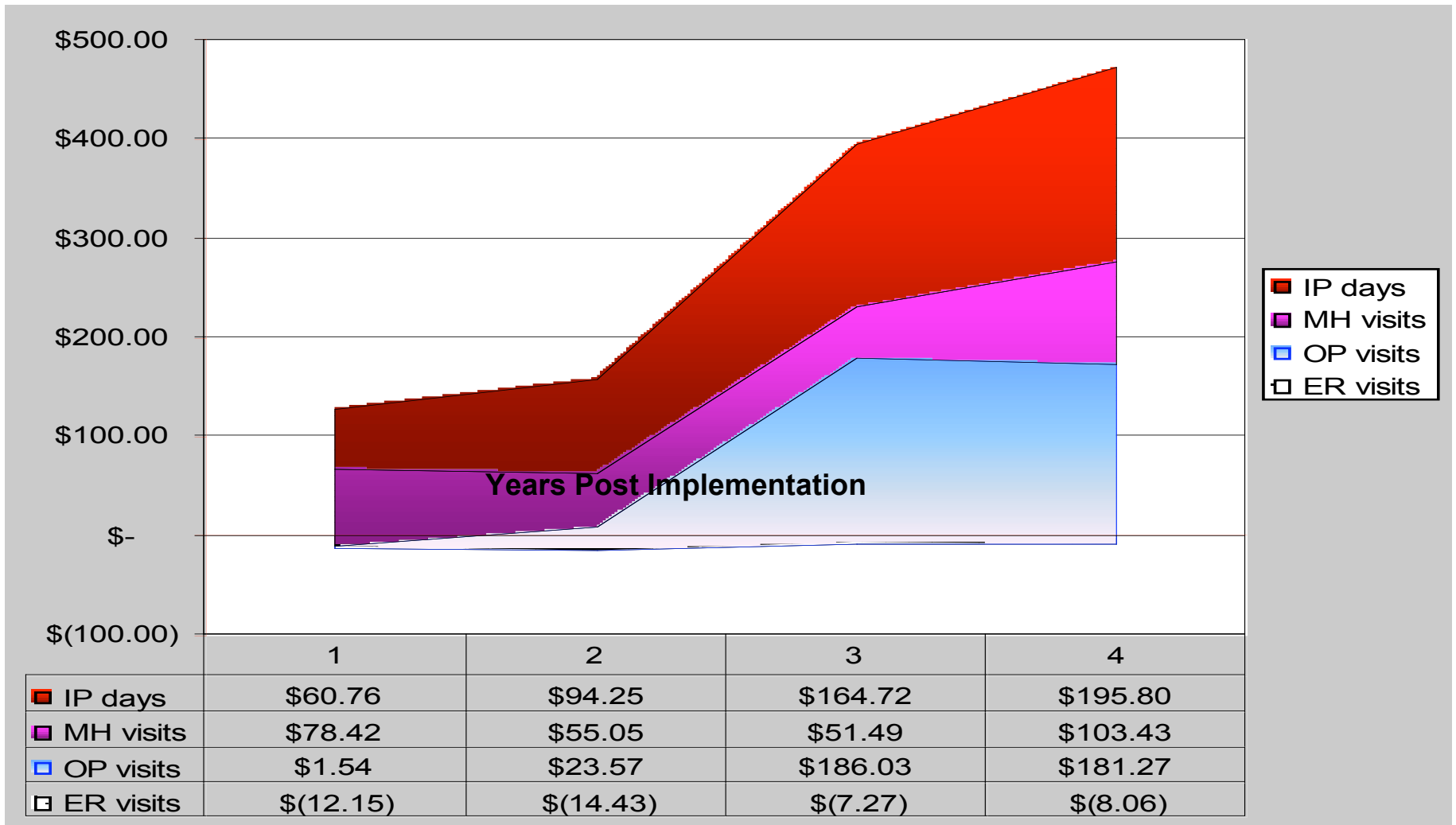


Johnson & Johnson (N=18,331, Ozminkowski et al, 2002)
Health & Wellness Program Impact on Medical Costs



Inflation-Adjusted, Discounted Health & Wellness Program Cumulative Savings / Employee Per Year, 1995 – 1999

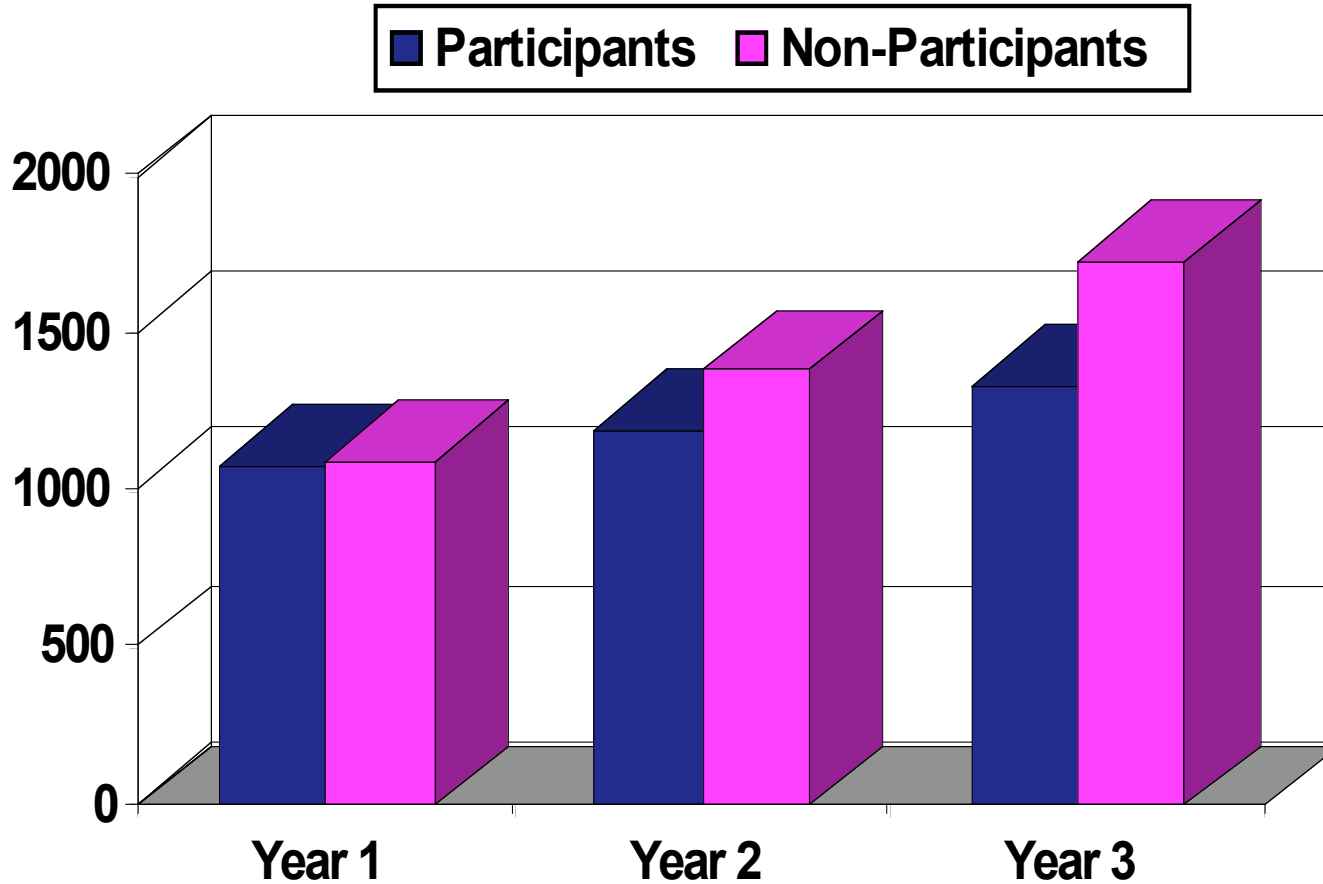
Weighted by sample sizes from N = 8,927 – 18,331, depending upon years analyzed



Procter & Gamble: Total Annual Medical Costs, Participants & Non-Participants In Health Check (1990 - 1992) (N=8,334)

Adjusted for age & gender; Significant at $p < .05$

***In year 3 participant costs were 29% lower producing an ROI of 1.49 to 1.00**



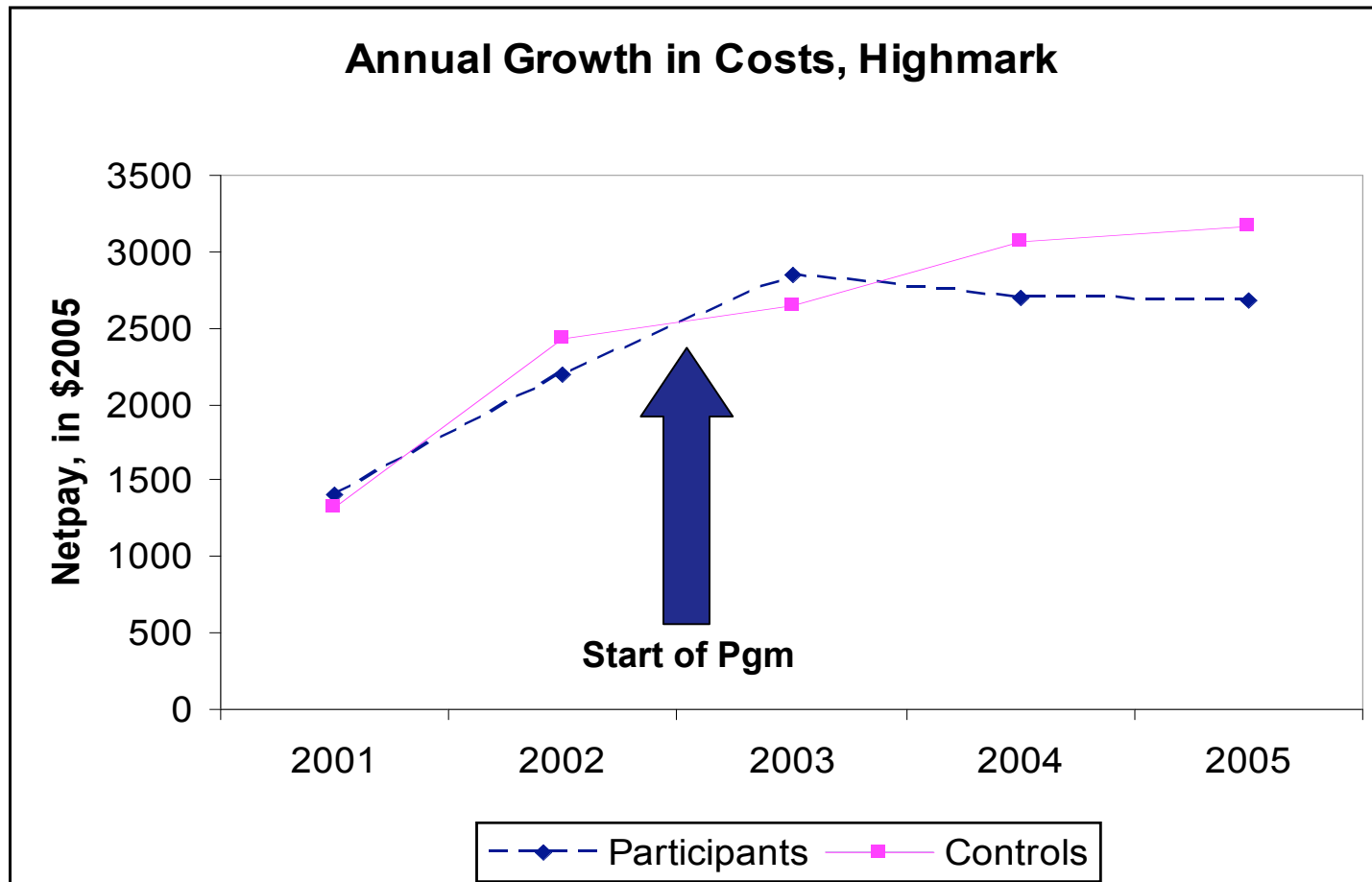
Ref: Goetzel, R.Z., Jacobson, B.H., Aldana, S.G., Vardell, K., & Yee, L.
J Occupational & Environmental Medicine, 1998; 40:4.

Highmark Employee Health Promotion ROI Study

- **Regional health plan (N= 12,000 workers in Pennsylvania)**
- **Worksite Health Promotion Program (2002-)**
 - Health risk assessments (HRAs)**
 - Online programs nutrition, weight management & stress management**
 - Tobacco cessation programs**
 - On-site nutrition and stress classes**
 - Individual nutrition and tobacco cessation coaching**
 - Biometric screenings**
 - 6 to 12 campaigns to increase fitness & disease prevention awareness**
 - State-of-the-art fitness centers on site**

Source: Naydeck, Pearson, Ozminkowski, Day, Goetzel. The Impact of the Highmark Employee Wellness Programs on Four-Year Healthcare Costs. *JOEM*, 2008; 50:2.

Annual growth in net payments: Participants & non-participants over 4 years result in savings of ~\$200/employee/year



Literature Reviews

Health Promotion Program Studies

- ROI studies of health management programs at:
 - Canada & North American Life
 - Chevron Corporation
 - City of Mesa, Arizona
 - General Mills
 - General Motors
 - Johnson & Johnson
 - Pacific Bell
 - Procter and Gamble
 - Tenneco
 - Pitney Bowes
 - Highmark
 - Kaiser Permanente
- ROI in 9 studies ranged from \$1.40 - \$4.90 in savings / \$ spent on programs.
- Median ROI was \$3 in benefits / program \$ spent.
- N ranged from 500 - 50,000 subjects in these studies.

Source: Goetzel, Juday, Ozminkowski. *AWHP's Worksite Health*, Summer 1999, pp. 12-21

Financial Impact – Literature Review – Steven G. Aldana, Ph.D.

American Journal of Health Promotion, 2001; 15:5.

Focus: Peer reviewed journals (Eng) 72 of 196 met inclusion criteria

Scoring Criteria:

A (experimental design)

B (quasi-experimental – well controlled)

C (pre-experimental, well-designed, cohort, case-controlled)

D (trend, correlational, regression designs)

E (expert opinion, descriptive studies, case studies)

Health promotion program impact on health care costs:

32 evaluation studies examined – Grades: A (4), B (11), other (17)

Average duration of intervention: 3.25 years

Positive impact: 28 studies

No impact: 4 studies (none w/ randomized designs)

Average ROI: \$3.48 to \$1.00 (7 studies)

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

- Review 56 peer reviewed studies, 1994±5 years, scored on 10 criteria
- Number of subjects in all studies: N = 483,232
- Average duration: 3.66 years
- Primary outcomes examined:
Health care utilization/cost (28 studies) & absenteeism (25 studies)

• Results: Average

Reduction in health care costs = 26%

Reduction in absenteeism = 27%

ROI: Save \$5.81 : \$1.00 (22 studies)



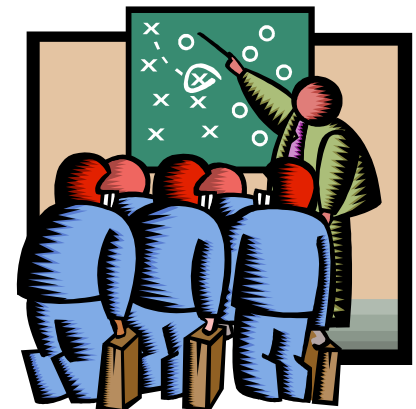
What Works in Health & Productivity Management

Goetzel RZ, Shechter D, Ozminkowski RJ, Reyes M, Marmet PF, Tabrizi M, Chung Roemer E. Critical success factors to employer health and productivity management efforts: Findings from a benchmarking study. *J of Occupational and Environmental Medicine*. 2007; 49 (2): 111-130.

Summary: What Works Health Promotion Programs

Leadership Commitment

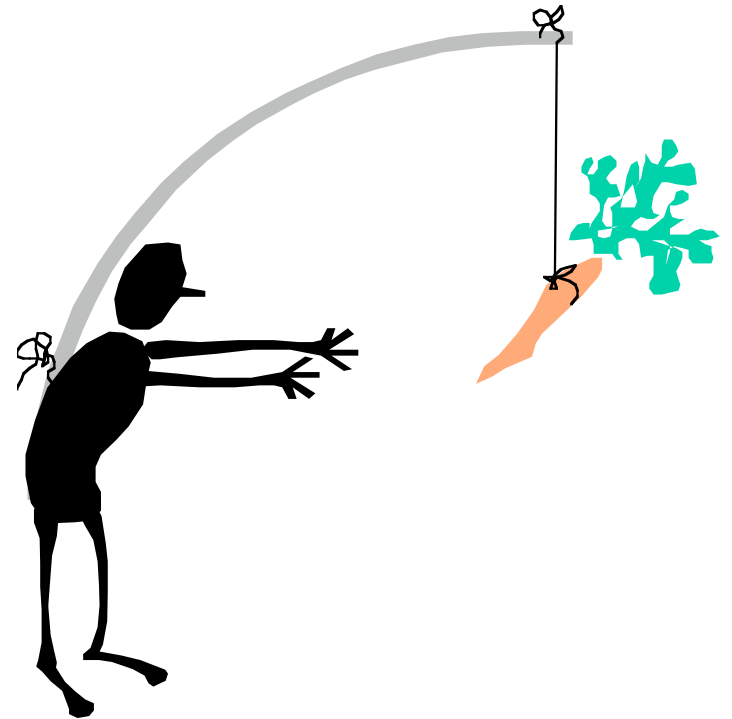
- Lead by example with buy-in by middle managers
- “Healthy company” norm/culture
- Explicit connection to core principles of organization
- Employee-driven advisory board
- Specific program goals and objectives with realistic expectations
- Align organizational, HR & health promotion policies/practices
- Sustainability



Health Promotion Programs: What Works

Incentives

- Incentives to participate (not change biometrics)
- Accountability at all levels linked to rewards
- Effective marketing & multi-channel communication



Summary

Focus on improving health & quality of people's lives improves productivity & competitiveness of workers & citizens. Growing scientific literature suggests well-designed, evidence-based Health & Productivity Management Programs :

- **Improve health of workers;**
- **Lower risk for disease;**
- **Save businesses \$\$: Reduce health-related losses, limiting absence & disability;**
- **Heighten worker morale & work relations;**
- **Improve worker productivity, and,**
- **Improve financial performance of organizations instituting programs.**



