

Abstract

1. Context: Many published articles question the cost-benefit attributes of wellness and prevention activities, leading many to doubt the economic value of those activities. This paper illustrates the financial impact of a well designed and executed corporate wellness program.
2. Objective: To evaluate the financial impact of the Citibank, N. A. health management program. Program components included an initial screening of the population, computerized triage of employees into higher- and lower-risk intervention programs, extensive follow up with the high-risk populations, and general health education and awareness building.
3. Design: Non-randomized, quasi-experimental, cost-benefit analysis of the impact of the Citibank Health Management Program, using a before-after, intervention group vs. comparison group design. Multiple regression models were used to estimate the savings in medical and absenteeism expenditures associated with program participation, controlling for confounding variables that may also influence these expenditures. Dollar savings were compared to program cost data to estimate the company's return on investment in the program.
4. Setting: Citibank, N.A.
5. Participants: Citibank employees and early retirees who were eligible for the company's wellness and benefits programs. 11,219 participants in the medical study and 8,447 participants in the absenteeism study were compared to roughly equal numbers of non-participants. Subjects were followed for an average of 32 months before and after administration of a Health Risk Appraisal instrument which triggered the start of the program.
6. Intervention: The Citibank Health Management Program
7. Main Outcome Measures: Medical expenditures, expenditures for illness absenteeism
8. Results: A strong economic return on investment was observed, with savings estimated at \$6.47 to \$8.81 per dollar spent on the program, depending upon the discount rate applied and whether analyses were extrapolated to cover HMO members, whose medical expenditure data were not available.*
9. Conclusions: A well-designed health management program which focuses intervention programs on high risk populations can result in significant monetary savings to an organization.

Keywords: worksite health promotion, wellness, prevention, health education, economics, return on investment

* Medical Study - Unadjusted Mean Net Payments Post vs. Pre HRA Medical Costs

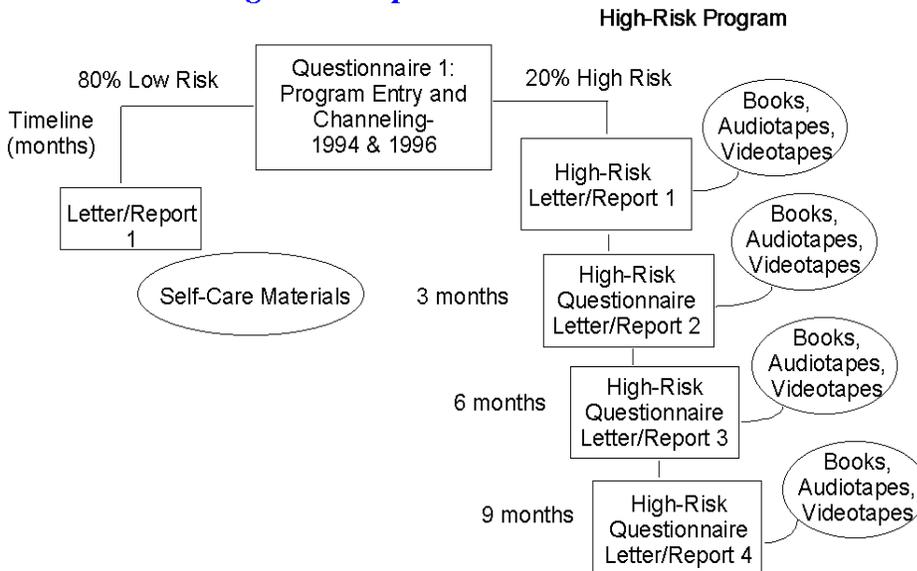
Pre-HRA vs. Post-HRA differences for participants versus non-participants are statistically significant (t-test, $p=0.006$)

Absenteeism Study - Unadjusted Mean Sick Hours

Pre-HRA vs. Post-HRA differences are significantly different (t-test, $p=0.048$) comparing participants and non-participants

This study has been submitted for publication. Principal authors include:
 MEDSTAT: Ozminkowski, Dunn, Goetzel; and
 Citibank: Cantor, M.D., and Murnane

Healthtrac Program Components



Citibank's Health Management Program Features

- A one-page HRA asked for self-reported information on lifestyle behaviors, risk factors, chronic health conditions, use of medical services and perception of health status and overall sense of well-being.
- Based on this information, individuals were classified as "low risk" or "high risk" for poor health outcomes or high medical expenditures.
- All low risk participants received a confidential letter and report identifying health/lifestyle risks, as well as educational materials corresponding to the lifestyle behavior in most need of improvement
- All first-time participants also received a copy of *Take Care of Yourself*, or a companion self-care resource guide—either *Taking Care of Your Child* or *Living Well* (for those over age 50)

Health Management Program Features (Cont'd.)

- Confidential invitations were sent to high risk (HR) individuals to participate in more intensive health education programs, called *Accent* modules. *Accent* participants received three risk or disease-specific HRAs, follow-up reports, and educational materials.
- *Accent* participants from 1994 & 1996 program cycles then entered a HR "maintenance" program, which provided periodic HRA's and reports to track progress.
- In 1996, Citibank added a telephone information/counseling line for all high risk participants. A random sample of 1996 *Accent* participants also received one outbound telephone counseling call to check on progress and answer any questions.

High Risk Channeling Results

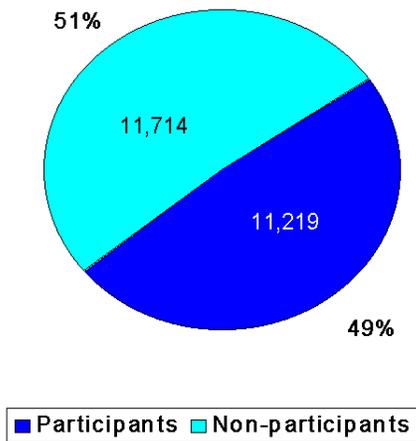
1994

- N = 3,009
- Combined Risk: 867
- Back Pain: 535
- Weight Loss: 443
- Smoking: 430
- Blood Pressure: 386
- Arthritis: 147
- Diabetes: 126
- Heart Disease: 61

1996

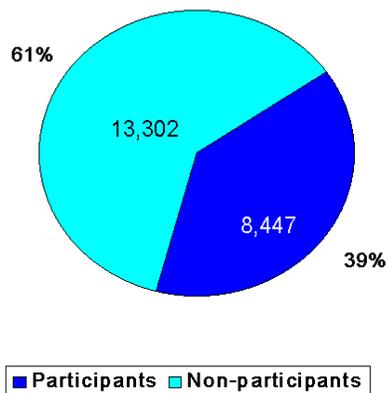
- N = 2,968
- Combined Risk: 915
- Weight Loss: 592
- Back Pain: 456
- Smoking: 435
- Blood Pressure: 308
- Arthritis: 111
- Diabetes: 102
- Heart Disease: 46

Sample Size and Study Period -- Medical



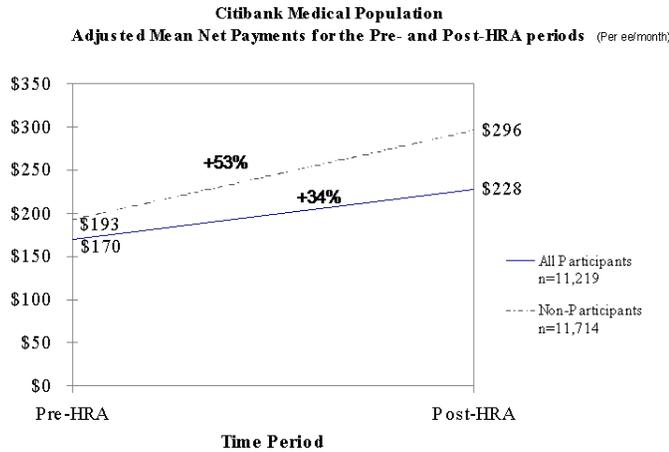
- Total N = 22,933
- Months in study ranged from 12 to 45 with mean = 38
 - Pre-HRA months = 6 to 39, mean = 17
 - Post HRA months = 6 to 34, mean = 21
- HMO enrollees are not included in medical study population

Sample Size and Study Period -- Absenteeism



- Study population includes non-exempt employees only
- Total N = 21,749
- Months in study ranged from 6 to 33 with mean = 26
 - Pre-HRA months = 0 to 27, mean = 7
 - Post HRA months = 6 to 33, mean = 19

Medical - Adjusted Mean Net Payments



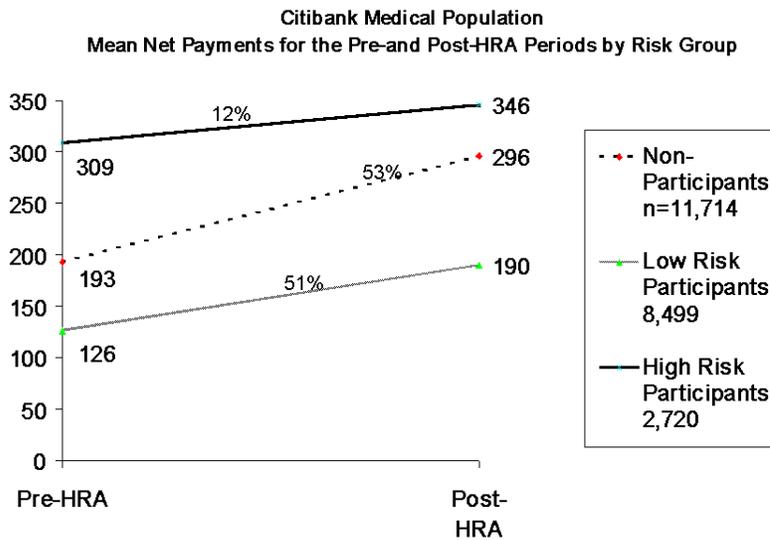
- Total savings associated with participation in Healthtrac for 11,219 participants over an average of 23 months post-HRA is \$11,898,915*

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* Figure is based on \$45,4989 savings and 23,31054 months post-HRA for 11,219 participants.

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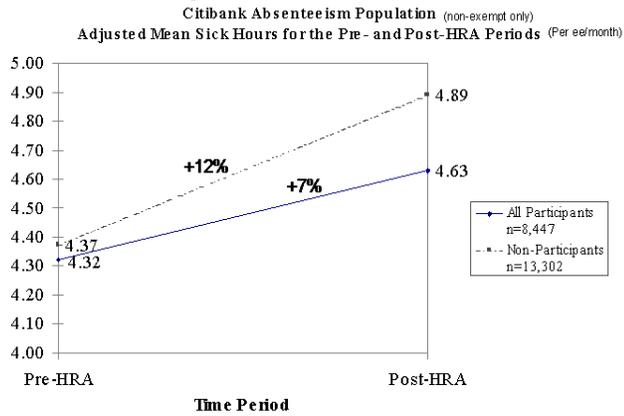
Adjusted Medical Mean Net Payments per Month



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Absenteeism - Adjusted Mean Sick Hours

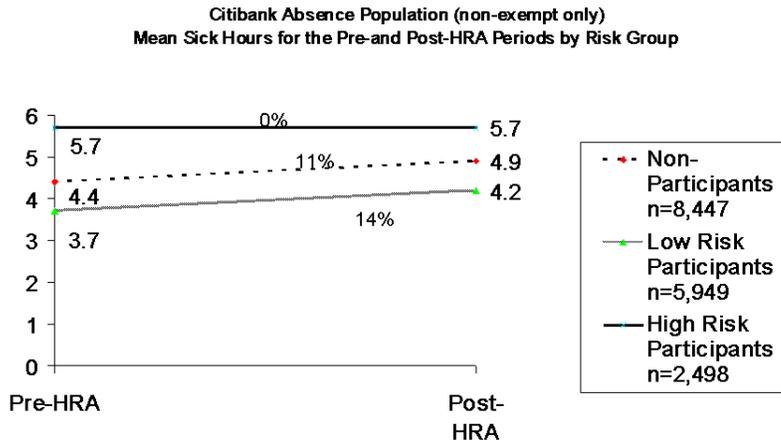


- Total savings associated with participation for 8,447 participants over an average of 21 months post-HRA is \$406,178*

9 * Figure is based on \$2,28164 savings and 21.07498 months post-HRA for 8,447 participants

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Adjusted Mean Sick Hours Per Month



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Highlights of Additional Health Promotion Programs

Consumer Health Education: Taking Care Newsletter

- Home distribution since 1992 to extend reach to family members as well as employees.

- Taking Care was selected over many competing newsletters because of its emphasis on demand-reduction.
- DataPac surveys (1993 & 1995) to obtain customer feedback about newsletter- selected results from 1995:
- 39% participation to random sample of employees: data analysis significant to $p=.05$ level.
- 80% of employees reported an increased understanding of health information and 65% reported an increase in the practice of healthy behaviors
- 56% reported improved personal health and/or health of their family
- 23% reported a decrease in doctor and/or emergency room visits
- 78% rated the program as a valuable employee health care benefit and 64% reported that the program improved their opinion of the company regarding its concern for the well-being of employees.
- Corporate Health Services has a home page on "CitiWeb," Citibank's intranet, which provides Taking Care on-line, and also includes travel medicine information (e.g., immunization requirements for global travel, handling health conditions common to business travelers, such as jet lag, intestinal problems, etc.)

Preventive Care: screenings and immunization programs

- Worked with Benefits department to re-design medical plans in 1990 to provide coverage for preventive screenings according to established standards and guidelines.
- Have expanded partnering with Citibank's 60 HMO's around the U.S. to deliver on-site screenings at no cost or discounted fees to entire site population, regardless of enrollment status
- Most common screenings have included blood pressure, cholesterol, mammography and skin cancer, as well as flu immunization programs
- Mammography screening results for NY-metro area employees:
- Through Memorial Sloane Kettering Cancer Institute's "Be Smart" program
- During past 9 years, 6,102 women have been screened, with 12 breast cancers and 35 benign lumps detected, and 10% referred for follow-up.
- Costs are less than half the average local market rates (\$80 vs. \$190 in 1997 dollars).
- Estimated cost savings: 6,102 screenings X \$110 difference in cost = \$671,220 saved.

Large Site Health Promotion Initiatives: Wellness Coordinator Network

- Network of 40 Wellness Coordinators (WC's) at the largest U.S. sites (>100 employees) deliver site-specific health promotion programming; 14 WC's are health/fitness professionals who manage on-site fitness centers.
- Total eligible population at WC sites = 37,824 (76% of US population)
- CHS provides quarterly program plans and educational materials for conducting awareness, screening and behavior change programs. Program themes to date have included: weight management, skin cancer, stress management, and exercise. Future programs will focus on pre-natal care, mental health/depression awareness and computer ergonomics.

- Environmental/organizational support initiatives are also strongly encouraged, such as healthy food choices in the cafeterias, no smoking policies, ergonomics, work-life balance programs, etc.

On-site fitness centers

- 14 centers in US with 19,678 eligible employees (41% of total US population); 6,886 members = 30% penetration
- Fitness testing re-test data at two sites (NYC and New Mexico) has shown improvements in both fitness parameters (aerobic capacity, body composition, muscular endurance and flexibility) and clinical measures (blood pressure, body fat, and weight reduction).
- Have established standardized "best practice" guidelines for all fitness/wellness centers, which includes safety, quality assurance, enrollment procedures, MIS, customer satisfaction, and vendor management.