



BP wellness program

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Name of Program: BP Wellness Program

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becoming
a healthier **you**

We would like to thank a long list of vendor-partners that help make the BP Wellness Program a success, including: Aetna, APS, Aon Hewitt, Dossia, Express Scripts, Fitbit, FitLogix, InfoTech, Mercer, Optum, Payflex, PriceWatehouseCoopers, Quest, StayWell, Take Care Health, and Towers Watson.

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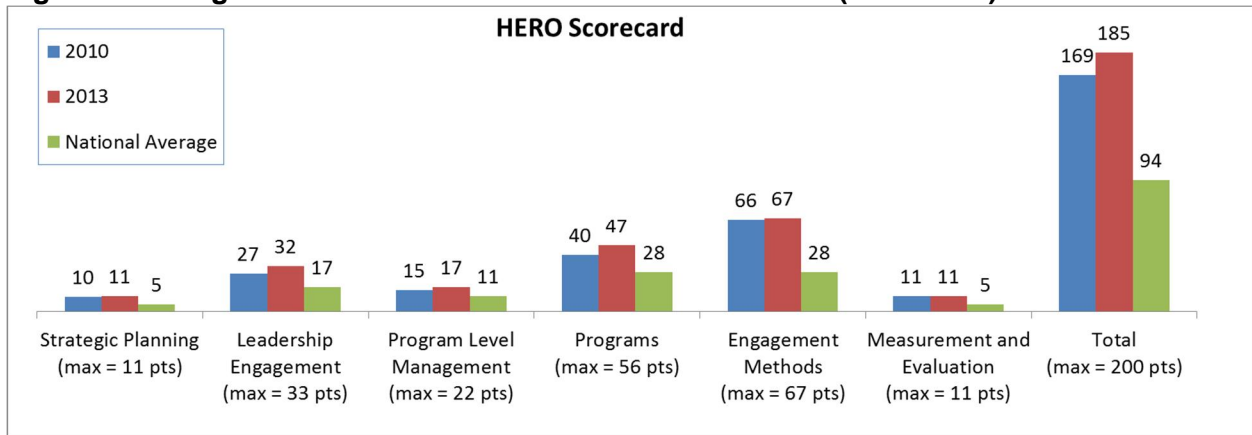
Executive Summary of Program Evaluation Highlights

Now in its fifth year, the goals of the *BP Wellness Program* are to help our employees and their families become actively engaged in their health, provide tools to maintain and improve their health, and educate them on how to be more informed health care consumers. These goals align with the Program’s primary focus on prevention, productivity and safety.

In December of 2009, we initiated our national strategy by consolidating existing local wellness programs into one integrated approach with a broad framework and the ability to tailor locally and by business segment. In 2010, we introduced two unique self-insured medical plan options, with a higher-value option tied to our incentive design and worth an estimated \$1,200 due to lower deductibles, copays, and coinsurance. Last year we introduced a high deductible health plan with outcome-based incentives with an additional \$1,000 health savings account contribution for the employee and another \$1,000 for the spouse/domestic partner.

As one indicator of the comprehensiveness of BP’s initial health management strategy, the HERO Best Practices Scorecard placed BP’s program well above the National Average (i.e., 169 points out of max score of 200) in 2010 (see Figure 1). Since that time the program has continued to expand and innovate, as indicated by a 10% increase in the HERO Scorecard best practice score in 2013 (185 points). The increase was driven by expanded programs and increased leadership engagement.

Figure 1. Change in HERO Best Practice Scorecard Results (2010-2013)



Based on pre-established goals, BP has exceeded program targets for engagement, health improvement and savings every year. Highlights include:

Engagement

The *BP Wellness Program* has maintained outstanding participation in all areas since it was launched. In every year since its inception, over 91% of incentive-eligible employees and spouses have participated in some aspect of the *BP Wellness Program*.

Health Improvement

At the population level, BP achieved a net reduction of 10% in average number of health risks, across the entire population of health assessment (HA) repeat participants between their baseline HA in 2010-2012 and their current HA in 2013, which was greater than the industry research best-in-class level of 4.7% risk reduction¹.

Savings

To measure the financial impact of the program, a third-party research group conducted a claims-based return-on-investment (ROI) analysis using a **quasi-experimental study design**. Program participants were compared to a comparison group from a pre-program baseline period to annual follow-up periods. Time-over-time change in health care costs was compared between participants and a comparison group in a **difference-in-differences (DID) design** to derive cost savings estimates. **Propensity score weighting** was used to adjust for case-mix differences between program participants and the comparison group. **GLM regression models** were conducted to estimate the impact of program participation on the magnitude of health care costs. The regression results were used to determine the costs using difference-in-differences calculations. Year over year annual ROI results based on this method varied over time (see Table 1 below). Comparing program savings to all program costs,² the cumulative return-on-investment (ROI) through the first three years of the program was \$2.10:\$1.

Table 1. BP Wellness Program Annual Integrated Return-on-Investment (ROI)

Year	2010 ³	2011 ⁴	2012 ⁴	Cumulative (2010-2012)
ROI	\$0.63:\$1	\$3.00:\$1	\$2.10:\$1	\$2.10:\$1

¹ Terry PE, Seaverson EL, Grossmeier J, Anderson DR. 2008. Association between nine quality components and superior worksite health management program results. JOEM: 50(6):633-641

² Program costs included direct costs for delivery of support services, health assessment, health advisor, telephonic LM, mail LM, Web-based health education programs, campaigns and wellness classes, telephonic DM (2011 and 2012), as well as all incentives, incentive administration, postage, and other pass-through costs.

³ Evaluation based on wellness components only; program open to employees.

⁴ Program expanded to spouses/domestic partners; added disease management coaching to wellness components.



Narrative Description of Program and Evaluation Results

Our Organization

BP is one of the world's largest energy companies with over 85,000 employees worldwide, more than 20,000 in the U.S., and employees in all 50 states. We provide services in:

- Exploration and production
- Refining and shipping
- Renewable and alternative energy

Job responsibilities are primarily engineering oriented, and the average tenure is over 14 years. Many worksite locations are offshore or remotely located, which poses a difficult environment to provide wellness services. Each location has vastly different cultures and environments, so our program must be adaptable. In addition, more than 70% of employees cover their dependents on BP's plans (families account for 60% of BP's health care spending). As it is part of the BP Medical plan, the entire U.S. population is eligible for the *BP Wellness Program*, including active employees, pre-65 retirees, union and non-union populations, spouses/domestic partners, and inpatriates and expatriates (more than 59,000 members in 2013). While it is important to keep our approach consistent, it is critical that we keep it applicable to the diverse needs of our population.

Health Management Strategy/Programs

The *BP Wellness Program* has achieved outstanding participation in all areas since it was launched. For incentive-eligible employees and spouses/domestic partners, over 91% have participated in some aspect of the program each and every year. Achievements in participation and health improvement are attributed to creating a supportive culture of health through involvement of stakeholders from senior management to grass-roots wellness champions, integrating incentives into the health plan design, providing comprehensive communications, and offering a full continuum of program resources for employees and their families.

To ensure support throughout the entire organization, we involve all stakeholders, from operations to grass roots in the strategic planning phase. Human Resource Leadership holds regular calls with HR leaders to review their specific, aggregate wellness data by location. We created a **Wellness Council** including Medical Directors, Occupational Health, Health & Safety, and various other wellness leaders throughout the organization. The Wellness Council is led by an **onsite wellness program manager** and meets monthly to review upcoming wellness programs and to collect feedback, promote various national wellness programs throughout the year, coordinate integrated health fair/wellness events, and coordinate "live" wellness classes. We have also had great support from senior managers, who participate in the wellness programs and help promote the wellness initiatives by allowing classes during work time.



We use an ongoing multi-modal approach to reach our diverse range of benefit-eligible individuals. The company makes a significant investment in communications with a designated, internal BP Communications Team. With this Team's help, we tailor communications to participants and the wellness program brand is prominently displayed on all materials. We take a unique approach to reaching spouses and domestic partners. Like employees, spouses and domestic partners have a personalized web portal that is tailored to individual health status and that recommends targeted wellness activities and resources. Additionally, we provide text messages for wellness program reminders and health education. Altogether, the *BP Wellness Program* communication materials include: email, postcards, quarterly newsletters mailed to the home, text messaging, mobile apps, email newsletters, an online wellness calendar, a BP LifeBenefits website, intranet sites at each location, videos,

personalized incentive points reminders, online and in-person wellness tutorials, and in-person employee presentations.

Each year, we execute a robust communication strategy. The *BP Wellness Program* is introduced in December prior to annual enrollment in February. In the introductory mailing, employees receive custom calendars filled with wellness information and a brochure focused on the current year's wellness theme. The 2014 theme 'GO For an Awesome Life' was strategically promoted in a brochure prior to the beginning of the plan year, that highlighted new calendar year wellness program activities, such as new classes and incentives for exceeding more than a million steps for the Million Step Challenge. Employees also receive information during annual enrollment, in face-to-face presentations at each work location and via live and recorded webinars. Once participants are enrolled, the BP Benefits Group promotes the wellness program throughout the year by creating small, program-specific campaigns highlighting the various wellness services and activities available. Every communication effort includes measuring participant engagement and satisfaction to assess the effectiveness of the communication approach. Toward the end of the year, the Benefits Group sends out multiple modes of communications – including personalized incentive points reminders – encouraging participants to complete the necessary activities in order to get their wellness points before the deadline.



Altogether in annual communications efforts, over 100 different types of communications, in ten different modalities, are sent out. BP has been nominated for and received several awards for

its wellness program communication strategy, including an International Association of Business Communicators (IABC) Silver Quill Award in 2011⁵.

We designed the *BP Wellness Program* to meet the needs of all segments of our population. BP partnered with best-in-class vendors to deliver services for all levels of risk/health status (see Table 2).

Table 2. BP Wellness Program Overview

Program component	Description
Health assessment	Survey that assesses health risks and invites to programs
Health portal	Hub for health related information, tools and resources and integrated with overall benefits program
Health advisor	Call to health professional to review health assessment results and discuss program relevant to the participant's needs and interests
Lifestyle management	Targeted telephonic & mail based coaching for back care, blood pressure, cholesterol, nutrition, exercise, stress, tobacco and weight
Disease management	Targeted telephonic & onsite (corporate campus) programs for asthma, congestive heart failure, coronary artery disease, chronic obstructive pulmonary disease and diabetes and hypertension
Wellness classes	Library of live or pre-recorded, online interactive seminars on health related topics such as stress, nutrition, weight, healthcare consumerism and back care. Three to 4 news classes are added each year.
Physical activity campaigns	<i>Get Fit on Route 66</i> , <i>Run Amuck</i> year round global event, <i>Time Out for Health</i> , <i>Million Step "FitBit" Challenge</i> , and <i>Step It Up</i>
Healthy living programs	Online 6 week programs with content, tools and online sessions based on stages of change model
Biometric screening	Free to employees with option of on-site screenings at all locations or via Quest patient service centers
Metabolic screening	Focused evaluation to identify at-risk population and early intervention via physician certification form and outcome-based clinical requirements
Nurseline	24/7 service
Case management	Integrated into incentive design
Nicotine replacement therapy	Provides all telephonic lifestyle management participants medication support including NRT or prescription medications
Local activities	Local events hosted at all key locations ranging from various group physical activity events to group weight loss programs, as determined by Wellness Council
EAP	Telephonic, online, and face-to-face support for a range of areas including family and care giving, emotional well-being, health and wellness, daily living, adoption, parenting, child or elder care, education, grief and loss, etc. There are two-way referrals between our coaching program and EAP.

⁵ <http://2011.iabcsoreg.com/wp/wp-content/uploads/2011-Silver-Quill-Winners1.pdf>

Onsite health & wellness center	State-of-the art, 13,000 sq. foot facility at the Westlake corporate campus in Houston providing comprehensive services including: primary and urgent care, lab, x-ray, pharmacy, occupational health, dental, vision, onsite health coaching & disease management coaching
Onsite fitness facilities	Multiple sites with group exercise classes, personal training, fitness equipment and community events
Access to healthy food choices at work	Nutritional education, Point of Sale nutrition labeling, and healthy vending machines and live, healthy cooking demo classes with local chef
Environment that embraces exercise	Creation of safe, easy walking places, subsidies for membership at fitness facilities, sponsorships for walking programs, fitness breaks/stretches during meetings, bike racks and locker rooms, sponsoring of community events (e.g., BPMS150, community-based 5k walks, etc.) to involve families, and flexible work time for employees to engage in physical activity at work
Weight management	Intensive intervention with wireless scales and actipeds
Financial classes	Integration of wellness & finances (financial assessments, one on one financial coaching, and a variety of 10 different classes offered to help with financial stress).
Safety	BP starts every meeting with a "safety education moment"



Rather than offering cash incentives, we initially created two medical plan options for our self-insured populations (HealthPlus and Standard PPO), and used the plan design to drive participation while encouraging employees to be more informed health care consumers. Both PPO options have the same monthly premium and have an 80/20 PPO design; however, the HealthPlus option has an average estimated savings in annual out-of-pocket expenses per family of \$1,200. To be eligible for the subsequent year's HealthPlus PPO, the employee and their eligible spouse must first complete the health assessment (gateway into the program) and, then, must each earn at least 1,000 points during the year by participating in a menu of wellness activities.

To encourage continuous engagement beyond the 1,000 points required to access the HealthPlus PPO plan, employees and spouses/domestic partners can earn a \$100 gift card for health/sports related purchases when they earn 2,000 points; at 2,500 points they are entered into a raffle for premium-free medical coverage the following year.

In 2013 we added a high deductible medical option with a Health Savings Account (HSA) that was available to employees who met the wellness requirement and, for the first time, introduced an outcome-based element to our program. Employees could earn up to \$3,000 in HSA contributions if the employee and/or spouse had their primary care physician complete a certification form⁶ for metabolic syndrome screening. The employee was required to meet at least 3 out of 5 clinical values in the normal range based on NIH recommendations for the HSA contribution while the spouse was only required to verify that a metabolic test was completed without any clinical values due to legal restrictions. Metabolic measures collected included waist measurement, blood pressure, HDL cholesterol, glucose & triglycerides.

In addition to the metabolic focus, we targeted physical activity as we expanded our program offerings. The Million Step Challenge was created in 2013 as a yearlong activity. We have provided over 40,000 FitBit Zip devices to individuals who registered for the program since its inception in 2013. Initially, the goal was to reach one million (1M) steps, and by doing so, earn as much as 500 points. In 2014 we upped the target to 3M steps and 1,000 points, to encourage employees to wear their FitBit year round. The FitBit syncs with the web-based Challenge platform to make it easy for participants to track their steps; after they are connected, their steps automatically upload to the platform for a participant view and for points into the Points Bank incentive tracking system. At the end of the first year, 15,000 participants reached 1M steps (over 25% of employees and spouses/domestic partners)!

The Million Steps Challenge had a positive effect on other wellness components for individuals in the incented health plans. Lifestyle management registrations and other physical activity campaigns increased, as did participation in other wellness components, such as the annual physical and wellness classes. Sixty-three percent of those completing the Million Steps Challenge post survey indicated that their overall health improved, while 78% indicated that their daily steps increased. Qualitative comments were very encouraging, such as "*Best point-earning idea yet. It provided instant feedback on my daily progress, AND instant behavioral changes*", and "*This is the best health program benefit I have participated in the last 7 years.*"

⁶ Physician certification documents 3 of 5 metabolic measures fall within normal range as determined by NIH, or that the employee is medically exempt, pregnant, or has an alternative action plan.

Because of its ease of use and fit with my lifestyle, my activity level greatly improved and I was very excited to reach my goal”.

Evaluation Methodology & Results

Evaluation Overview

As part of our overall health strategy, we developed a comprehensive program evaluation plan that encompasses process, impact, and outcome measures. The financial impact analysis is supported by an integrated data warehouse that is maintained by StayWell. Analyses are conducted annually by Mangan Research Associates with oversight by Mercer, on behalf of BP. Health outcomes are reported by the program supplier, StayWell, with report review conducted by Mercer. Health impact measures rely on a variety of data collection strategies including web-based, phone-based, and mail-based participant program surveys, health assessment data, and biometric screening data. Health care claims data are used to provide clinical outcome measures for the disease management coaching programs. Quarterly Performance Reviews are conducted on each program component to inform our data-driven strategy and ongoing program enhancements.

Participation

Participation metrics serve as leading process measures of program performance, with metrics tracked for the overall population across all programs, by program component, and by various population sub-groups (e.g., employees, spouses, early retirees, union workers, health plan enrollee groups, major locations). Participation rates in all program components consistently exceed industry and vendor norms. As demonstrated in Table 3, our eligible population has very high health assessment participation rates every year. Such high participation rates are attributed to our incentive strategy, which requires participation for both employees and their spouses as part of the requirements to enroll in the preferred Health Plus benefit plan. In addition to completing the health assessment, individuals must also participate in health-related activities to earn up to 1,000 points. Points are associated with a very comprehensive menu of web, print, phone, and onsite activities appropriate for individuals across the entire continuum of health. New offerings are added to the menu each year based on participant feedback and outcomes data, and the points associated with components change based on our data-driven strategy. Because program offerings change annually, participation rates in any given component can also vary from year to year. As seen in Table 3, for example, coaching registration rates have decreased as we have expanded the list of other available programs and the population’s health needs have evolved.

Table 3. BP Wellness Program participation rates among U.S.-based employees and spouses/domestic partners, 2010-2013

Program component	Industry or vendor norm	2010	2011		2012		2013	
		Employees only	Employee	Spouse	Employee	Spouse	Employee	Spouse
Health Assessment	43%	81% (26,929)	67% (24,637)	60% (15,474)	66% (24,124)	58% (14,565)	66% (23,331)	58% (14,012)
Health Advisor ^a	NA	78% (21,084)	75% (29,854)		62% (22,822)		47% (15,984)	
Annual Physical ^b	NA	Not offered	58% (36,330)		65% (36,896)		71% (35,800)	
Lifestyle management health coaching registration	36%	68% (12,794)	49% (8,284)	57% (5,975)	50% (8,121)	54% (5,080)	50% (6,954)	52% (4,006)
Disease management health coaching registration ^c	21%	Not offered	48% (210)	55% (169)	46% (347)	49% (239)	39% (356)	39% (262)
Healthy Living Program completions (topics vary)	NA	29% (2,490)	63% (3,710)	44% (1,615)	61% (3,535)	51% (2,080)	73% (5,392)	67% (3,792)
Onsite clinic utilization ^d	NA	Not offered	15.6% (966)	3% (286)	60.4% (4,329)	10.5% (1,301)	65.2% (4,785)	14.9% (1,886)
Incentive completion ^e	NA	65% (21,967)	56% (18,942)	55% (12,630)	54% (18,317)	53% (12,051)	58% (17,575)	56% (11,518)
Wellness classes ^f	NA	Not offered	35,485		55,055		69,968	
Million Step Challenge registration	NA		Not offered				(36%) 12,670	(29%) 6,974

^a 2013 numbers decreased due to change in points

^b Percentages determined by total number of eligibles that are enrolled in the plan with incentives

^c Integrated disease management health coaching was first offered in 2011

^d Utilization reflects total number of primary care appointments. Offered to employees at Westlake (n=7,300).

^e Reflects percent of individuals that earned at least 1,000 points

^f Maximum of 4 classes per person per year

Health Risk Reduction

Health impact is measured annually using repeat health assessment and biometric screening data. Data analysis is based on all individuals with two or more health assessments, comparing each individual's earliest baseline health assessment with the health assessment in the current reporting period. Since health assessment participation rates are so high, we achieve nearly census-level tracking of our population. Health impact is assessed at many levels, with sub-analyses on many sub-groups of the broader population enabling us to identify needs for targeted programs.

For the 24,893 employees, spouses, or adult dependents with at least two health assessments, the average number of health risks decreased 10.3%, from 2.8 to 2.5 health risks out of a total of eight health risks (see Table 4). Average time between health assessments was 2.3 years based on comparing 2010-2012 baseline health assessment to the 2013 health assessment. Table 5 provides risk-specific impacts for the health areas that have been the most significant areas of emphasis for our programs through 2013. Blood pressure and cholesterol outcomes have improved significantly for the sub-set of the population that voluntarily reported their biometric results on the health assessment, but these results are not featured because many individuals do not report biometric screening values. Individuals who completed a targeted phone- or mail-based health coaching program in 2013 (n=6,492) experienced 6% risk reduction, with health risks shifting from 2.9 to 2.7 total risks from 2012 to 2013. See Table 6 for impact on specific health risks across health coaching topic areas.

Table 4. Population-level Overall Risk Change

Key Variable Measured	Change in average number of health risks for any individual with 2 health assessments
Study Design Structure	Pre-experimental design – pre and post only
Sample Size for Treatment and Comparison Groups	24,893 employees, spouses, adult dependents
Sample Selection Method (if applicable)	24,893 voluntary repeat participants in at least 2 health assessments comparing earliest health assessment in 2010-2012 to most recent 2013 health assessment
Data Source(s)	Health assessment surveys comparing repeat participants from 2010-2012 baseline to 2013
Outcome Result	Substantial risk reduction demonstrated (based on 8 health risks including alcohol, driving, nutrition, physical activity, stress, tobacco, weight, well-being). <ul style="list-style-type: none"> • 10.3% risk reduction from 2.8 to 2.5 risks after 2.3 years • Low risk (0-2 risks) group increased from 43% to 51% • Moderate risk (3-5 risks) group decreased from 54% to 47% • High risk (6+ risks) decreased from 4% to 2%
Analysis (statistical procedures)	Paired T-test
Relevant Statistics	P<.05

Table 5. Population-level Specific Risk Change

Key Variable Measured	Physical Activity	Nutrition	Preventive Exams	Stress	Weight
Study Design Structure	Pre-experimental design – pre and post only				
Sample Size for Treatment and Comparison Groups	24,884 employees, spouses, adult dependents	24,821 employees, spouses, adult dependents	24,878 employees, spouses, adult dependents	23,180 employees, spouses, adult dependents	24,893 employees, spouses, adult dependents
Sample Selection Method (if applicable)	Up to 24,893 voluntary repeat participants in at least 2 health questionnaires comparing earliest health assessment in 2010-2012 to most recent 2013 health assessment				
Data Source(s)	Health assessment surveys comparing repeat participants from 2010-2012 baseline to 2013				
Outcome Result	Improved <ul style="list-style-type: none"> • Low risk group increased from 50% to 56% • Moderate risk group maintained at 24% • High risk decreased from 26% to 19% 	Improved <ul style="list-style-type: none"> • Low risk group increased from 39% to 49% • Moderate risk group decreased from 38% to 30% • High risk decreased from 24% to 20% 	Improved <ul style="list-style-type: none"> • Low risk group increased from 45% to 69% • Moderate risk group decreased from 53% to 30% • High risk decreased from 3% to 1% 	Improved <ul style="list-style-type: none"> • Low risk group increased from 49% to 51% • Moderate risk group increased from 44% to 42% • High risk maintained at 7% 	Maintained <ul style="list-style-type: none"> • Low risk group decreased from 35% to 34% • Moderate risk group increased from 37% to 38% • High risk maintained at 28%
Analysis (statistical procedures)	Paired T-test				
Relevant Statistics	P<.05	P<.05	P<.05	P<.05	P<.05

Table 6. Program-level Specific Risk Change

Key Variable Measured	Physical Activity	Weight	Nutrition	Stress	Tobacco
Study Design Structure	Pre-experimental design – pre and post only				
Sample Size for Treatment and Comparison Groups	6,492 employees, spouses, adult dependents				
Sample Selection Method (if applicable)	Voluntary coaching completers with a health assessment at 2012 baseline prior to coaching, to 2013 health assessment after coaching				
Data Source(s)	Health assessment surveys comparing repeat health assessments from 2012 baseline prior to coaching to 2013 health assessment after coaching				
Outcome Result (change in “At Risk” status – those at moderate and high risk are “At Risk”)	Physical activity risk decreased from 48% to 46% for coaching completers in any topic area	Weight risk maintained at 73% for coaching completers in any topic area	Nutrition risk decreased from 70% to 62% for coaching completers in any topic area	Stress risk decreased from 49% to 47% for coaching completers in any topic area	Tobacco risk decreased from 8% to 7% for coaching completers in any topic area
Analysis (statistical procedures)	Paired T-test				
Relevant Statistics	P<.05	P<.05	P<.05	P<.05	P<.05

Financial Impact

Design: A **quasi-experimental study design** with statistical controls for confounders was used to measure the program’s impact on medical and pharmacy costs. Evaluation inclusion and exclusion criteria detailed in Table 7 resulted in an evaluation population of 25,819 employees, spouses, and pre-65 early retirees. Our first financial impact evaluation after program launch in 2010 was based on wellness components only. When the DM coaching program was added in 2011, we wanted to maintain a separate financial impact evaluation for the DM program. Therefore, the 2011 and 2012 financial impact evaluations started by separating the sub-set of the evaluation population that was eligible for DM coaching programs from the rest of the evaluation group. All individuals in the DM eligible group were divided into DM participant or DM non-participant groups. The remaining individuals in the evaluation population were included in the wellness evaluation and also separated into participant and non-participant groups.

Due to high program participation rates, a stringent definition of participation needed to be used in order to divide the population into participants and non-participants. Individuals who did nothing at all were combined with individuals who only completed the health assessment the health assessment and Health Advisor call. According to this design, an individual could only be considered a participant if they actively engaged in one or more behavior change program components. For the DM evaluation, coaching participants were compared with eligible DM non-participants but the non-participants may have completed a health assessment or health assessment and Health Advisor call. Any DM-eligible individual who did not participate in DM

coaching but did participate in a wellness program component was moved to the wellness program evaluation.

For the most recently completed ROI evaluation, this grouping method yielded a wellness evaluation study group with 18,539 behavior change program participants and 6,484 comparison non-participants; and a DM evaluation study group with 505 DM coaching participants and 291 comparison non-participants. See Table 7 for details on evaluation group sample sizes for all three ROI evaluations conducted to date.

Methods: The **quasi-experimental study design** compared behavior change program participants with a comparison group between a pre-program baseline period and annual follow-up periods. Cost savings were determined by comparing time-over-time change in health care costs for participants to change for the comparison group in a **difference-in-differences (DID) design**. A series of descriptive statistics and regression models were used to control for selection bias and group differences at baseline, in an attempt to isolate the influence of program participation on total health care costs combining medical and pharmacy claims. First, descriptive statistics (t-test and chi square tests) were used to detect statistically significant baseline demographic and health care utilization differences. Variables identified to be statistically significant were entered into multivariate logistic regression models to identify predictors of program participation. The statistical model was reduced until only statistically significant variables remained. From this model, a propensity score was generated that indicated the extent to which each individual in the evaluation population was likely to participate in future programs. **Propensity score weighting** was used to adjust for case-mix differences between program participants and the comparison group. **GLM regression models** were developed to estimate the impact of program participation on the magnitude of health care costs. The regression results were used to determine the costs using difference-in-differences (DID) calculations. For the models that were developed in each year of the analysis, the weighted marginal means were substituted into the results of the regression equation to estimate predicted log costs. Log cost estimates were transformed back to dollars by using Duan's smearing estimate.

While propensity score weighting could not account for all possible (i.e., unmeasured) differences between groups, this adjustment method minimized the observed differences between groups for all of the available comparison variables. In addition to propensity score weighting, cost impact analyses relied on multivariate regression procedures to **statistically control** for age, gender, plan type, health status, and baseline costs. The evaluation controlled for outlier claims costs by **truncating the highest cost claimants rather than removing individuals** from the analysis. Costs were also **adjusted for inflation** each year using medical CPI rates from the Department of Labor website.

Per member per month (PMPM) cost savings were calculated for the wellness program evaluation and DM coaching program evaluation separately using the difference-in-differences approach. Since there was no overlap between the evaluation populations (study population individuals were in one evaluation or the other), researchers were able to combine the wellness program and DM program evaluations into estimate total savings. Total savings in each evaluation year were divided by program investment costs in that same evaluation year to yield an annual benefit-cost ratio or ROI. Program investment costs included direct costs for delivery of support services, health assessment, health advisor, telephonic LM, mail LM, Web-based

health education programs, campaigns and wellness classes, telephonic DM (2011 and 2012), as well as all incentives, incentive administration, postage, and other pass-through costs.

Results: As detailed in Table 7, annual ROI results varied over time. The first program evaluation period was based only on wellness program components, which yielded a return of \$0.63:\$1. In the second program year the program was expanded to include spouses and DM coaching programs with an ROI of \$3.00:\$1 across both the wellness and DM program evaluations. In the third program year the program ROI was \$2.10:\$1. Coincidentally, the cumulative ROI across all three program years was also \$2.10:\$1.

Table 7. Return-on-Investment based on Health Care Costs Only

Key Variable Measured	Annual Integrated Return-on-Investment (ROI)		
	2010 (EEs only)	2011 (EEs and Spouses)	2012 (EEs and Spouses)
Study Design Structure	Quasi-Experimental Design with Controls for Confounders		
Important Analysis Notes	<ul style="list-style-type: none"> - Programs were offered to employees (EEs) only in 2010 and then expanded to include spouses/adult dependents thereafter. - Lifestyle Management (LM) programs were offered in 2010 and Disease Management (DM) coaching programs were added in 2011. - 2010 analysis was for LM program components only because DM was not offered until 2011. - Cost impact and savings were calculated separately for LM and DM in 2011 and 2012 components and then results were combined for overall integrated ROI. - Due to extremely high participation rates in all study periods, participants in health assessment and/or health advisor call only were grouped with non-participants. The participant group required participation in at least one behavior change program component. Most DM program participants were also exposed to LM program components so not an isolated DM only analysis. - Analysis was conducted by a third party researcher (Mangen Research Associates), hired by the wellness program vendor (StayWell). All analyses were reviewed in detail by Mercer, who was retained by BP to provide such oversight. 		
Sample Size for Treatment and Comparison Groups	LM evaluation: 9,051 participants in behavior change components; 6,088 in comparison group	LM evaluation: 19,700 participants in behavior change components; 9,022 in comparison group DM evaluation: 643 participants in DM coaching; 277 in eligible non-participant DM group	LM evaluation: 18,539 participants in behavior change components; 6,484 in comparison group DM evaluation: 505 participants in DM coaching; 291 in eligible non-participant DM group

Sample Selection Method			
<i>Analysis Inclusion Criteria</i>	<p>The 2010 program ROI was calculated based on employees only and spouses were added to subsequent analyses.</p> <p>The ROI analysis included all active and deactive eligible individuals; pre-65 early retirees; aged 18-65 at the end of each measurement period; enrolled in benefit plan at least 6 months of each calendar year from 2009 – 2012.</p>		
<i>Analysis Exclusion Criteria</i>	<p>No maternity claims during the measurement period were included. Maternity-related claims were removed but the claimants (individuals) remained in the analysis with all non-maternity claims.</p> <p>Individuals on disability were excluded from analysis because descriptive analyses indicated significant cost differences from employees on leave and these costs may not have been influenced by the wellness program. The number of individuals on leave was not large and removal of employees on leave tightened up the propensity models.</p> <p>Programmatic exclusions were also applied because such individuals were not eligible to receive some of the services but rather were referred to other services for more intense clinical treatment. Exclusions included members diagnosed with AIDS, end stage renal disease, hemophilia, non skin cancer; member who had undergone transplant procedures and members who resided in a skilled nursing facility or hospice.</p>		
Data Source(s)	<p>Medical and pharmacy claims incurred January 1, 2009-December 31, 2010 and paid through March 31, 2011</p> <p>Employer provided health benefit plan eligibility January 1, 2009-December 31, 2010</p> <p>Program participation data from January 1, 2010 – December 31, 2010 for employees only. Includes HA, Health Advisor, Online Healthy Living Programs, health education campaigns and classes, LM coaching</p>	<p>Medical and pharmacy claims incurred January 1, 2009-December 31, 2011 and paid through March 31, 2012</p> <p>Employer provided health benefit plan eligibility January 1, 2009-December 31, 2011</p> <p>Program participation data from January 1, 2010 – December 31, 2011 for employees; from January 1, 2011 – December 31, 2011 for spouses. Includes HA, Health Advisor, Online Healthy Living Programs, health education campaigns and classes, LM coaching, DM coaching</p>	<p>Medical and pharmacy claims incurred January 1, 2009-December 31, 2012 and paid through March 31, 2013</p> <p>Employer provided health benefit plan eligibility January 1, 2009-December 31, 2012</p> <p>Program participation data from January 1, 2010 – December 31, 2012 for employees; from January 1, 2011 – December 31, 2012 for spouses. Includes HA, Health Advisor, Online Healthy Living Programs, health education campaigns and classes, LM coaching, DM coaching</p>
Outcome Results	\$0.63:\$1	\$3.00:\$1	\$2.10:\$1

Analysis (statistical procedures)	<ul style="list-style-type: none"> - T-tests and Chi Square tests were used to identify statistically significant baseline differences between participants and non-participants. - Variables identified to be statistically significant were entered into multivariate logistic regression models to identify predictors of program participation. The statistical model was reduced until only statistically significant variables remained. From this model a propensity score (probability of participation) was generated for each individual in the study. - Propensity score weighting was used to adjust for case-mix differences between program participants and non-participants. Evaluating the effectiveness of the propensity score analysis and the application of the weighting process was accomplished by testing (t-tests) the significance of the group differences after application of the weights. Virtually all between group differences were eliminated by applying the propensity-score based weights. - GLM regression models were conducted to estimate the impact of program participation on the magnitude of health care costs. The regression results were used to determine the costs using difference-in-differences (DID) calculations. For the models that were developed for each year of the analysis, the weighted marginal means were substituted into the results of the regression equation to estimate predicted log costs. Log cost estimates were transformed back to dollars by using Duan's smearing estimate.
Relevant Statistics	All tests of statistical significance relied on p-values < .05
Publications	Grossmeier J, Seaverson ELD, Mangen DJ, Wright S, Dalal K, Phalen C, Gold DB. Impact of a comprehensive population health management (PHM) program on health care costs. <i>Journal of Occupational and Environmental Medicine</i> . 2013; 55(6): 634-643.

Health Care Trend Analysis

In addition to measuring program impact using a rigorous study approach, impact on BP's overall health care trend was assessed by Towers Watson using standard actuarial methods. Traditionally, BP health care costs had been increasing at a rate greater than the national average. In the five years prior to program launch, BP's health care costs increased an average of 9% per year. In the three years following launch, health care costs increased an average of 7%, with the increase between 2012 and 2013 shrinking to 2%.

Conclusion

No one measure of success fully represents the *BP Wellness Program's* strong performance. Rather, it is the combination of high participation rates, effective program components, strong population health risk reduction, and demonstrated cost impact based on both a rigorous study design and observed changes in trend that provides convincing compelling evidence of success and captures the full profile of a program that exceeds expectations and best-practice benchmarks.



Supplemental Documentation

Supplement A. Impact of a comprehensive PHM program on health care costs

Abstract

Objective: Assess the influence of participation in a population health management (PHM) program on health care costs.

Methods: A quasi-experimental study relied on logistic and OLS regression models to compare the costs of program participants to non-participants while controlling for differences in health care costs and utilization, demographics, and health status. Propensity score models were developed and analyses were weighted by inverse propensity scores to control for selection bias. Cost savings were calculated using a difference-in-differences (DID) approach.

Results: Study models yielded an estimated a savings of \$60.65 per wellness participant per month (see Figure 2) and \$214.66 per DM participant per month (see Figure 3). Program savings were combined to yield an integrated ROI of \$3 in savings for every dollar invested.

Conclusions: A PHM program yielded a positive return on investment after 2 years of wellness program and 1 year of integrated disease management program launch.

Figure 2. Impact of wellness program participation on health care costs after 3 years

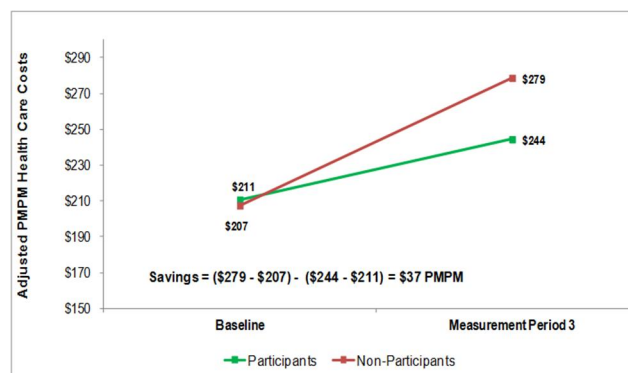
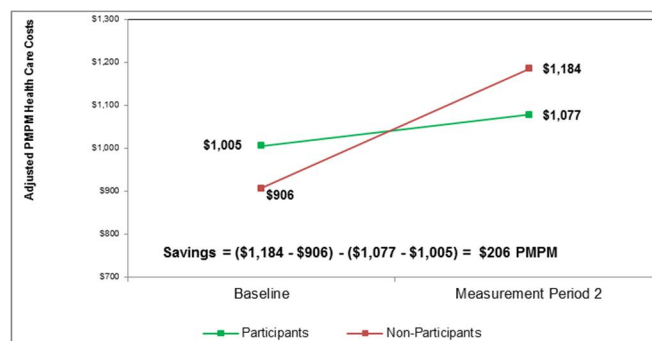


Figure 3. Impact of disease management program participation on health care costs after 2 years



Citation: Grossmeier J, Seaverson ELD, Mangen DJ, Wright S, Dalal K, Phalen C, Gold DB. Impact of a comprehensive population health management (PHM) program on health care costs. *Journal of Occupational and Environmental Medicine*. 2013; 55(6): 634-643.

Supplement B. Demonstration of concurrent changes in health risks and health care costs

Abstract

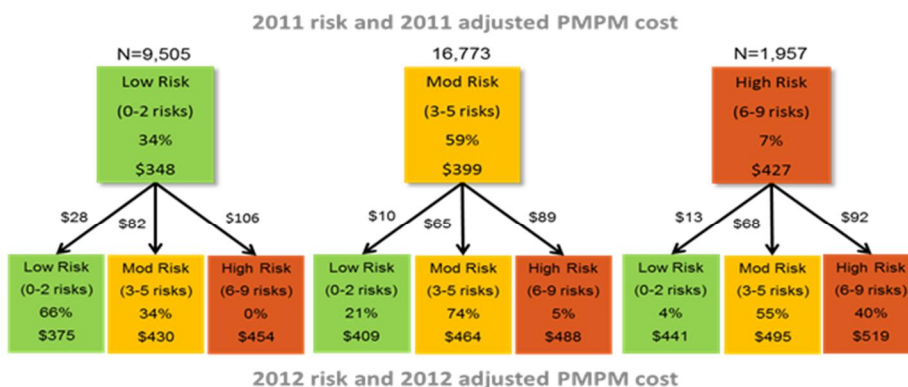
Purpose: This study was conducted to provide support for the financial impact analysis, which demonstrated wellness program participants had better health care cost trends than the comparison group. The aim was to determine if changes in individual health care costs moved in the same direction as health risk change. More specifically, if individuals reduced health risks over a one-year period, did health care costs go down or flatten compared to individuals that maintained or increased health risks.

Methods: The analysis was based on health assessment and health care claims data over a two-year period, January 1, 2011 – December 31, 2012. The study was limited to individuals with a health assessment in 2011 and in 2012, and included 28,235 employees, spouses/domestic partners, adult dependents, and early retirees aged 18-65 during the study period. Health care costs were adjusted for inflation and were based on claims incurred during the study period and paid through March 31, 2013. The highest cost outlier claims were truncated to minimize the influence of a few cases on study results. Analyses were controlled for age and gender since demographics may influence both health risks and health care utilization. Nine health risks were included in a total number of health risks variable: alcohol, back, driving, nutrition, physical activity, tobacco, stress, weight, and well-being.

Results: In 2011 there was a linear direct relationship between health risks and health care costs. Individuals with a higher number of health risks cost more than individuals with fewer health risks (see Figure 4 below). There was also a direct relationship between health risk change and health care cost change. Individuals increasing their number of health risks from 2011 to 2012 increased costs to a greater degree than individuals reducing or maintaining their number of health risks. Conversely, individuals that decreased their number of health risks had more favorable changes in health care costs than individuals that maintained or increased risk.

Figure 4. Relationship between change in health risks and health care costs

Cost/risk migration



- Individuals with a greater number of health risks in 2011 were higher cost
- After adjusting for age and gender, costs increased the least for individuals migrating to low risk in 2012.

Supplement C. Impact of participation in a tracking device-supported physical activity campaign

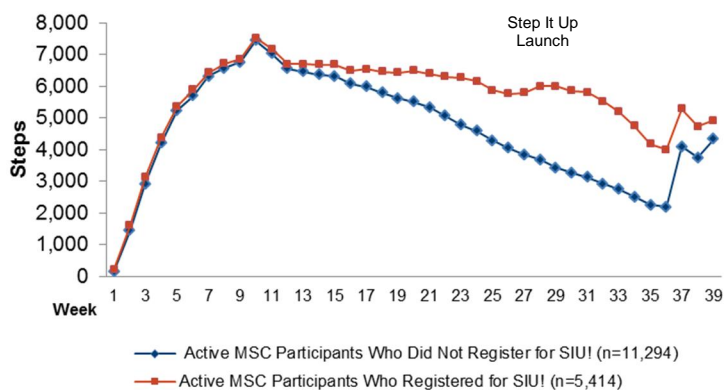
Abstract

Purpose: This study was conducted to evaluate the effectiveness of a physical activity challenge called the Million Step Challenge (MSC). BP provided approximately 51,000 employees, retirees, and spouses/domestic partners of employees and retirees with the opportunity to receive a free Fitbit® wireless physical activity tracking device and participate in a company-wide 9-month physical activity challenge. The goal was for each individual to accrue at least one million steps during the challenge. Those achieving the goal were awarded 500 points towards the wellness program target of 1,000 points during the program year. Individuals accruing at least 500,000 steps during the challenge were awarded 250 points.

Methods: The analysis was based on incentives administration and Fitbit device data as well as program participation data and pre/post-challenge participant surveys. Individual step data for active employees and their spouses/dependents was linked to track levels of physical activity during the MSC. Out of 19,644 registered individuals in the MSC, 16,806 actively participated, which meant they received a Fitbit device, activated it, and allowed their data to be tracked in BP's wellness program portal, which is provided by StayWell. During the MSC, participants were offered additional opportunities to participate in programs that supported physical activity behavior change including a 6-week challenge called Step It Up!® (SIU!). This portion of the evaluation is based on change in steps data for individuals in the MSC alone compared to individuals in the MSC plus SIU!.

Results: More than 77% of active MSC participants achieved the one million-step goal, while 11.6% achieved the 500,000-step goal. On average, active participants logged 4,686 steps/day for a total of 1,279,367 steps. Nearly a third (32%) of active MSC participants also registered for SIU!, participating in both challenges. Individuals who participated in both challenges logged 25% more steps on average (5,429 steps/day) than MSC participants who did not register for SIU! (4,330 steps/day). In addition, 95% of the participants in both the MSC and SIU! reached the one million-step goal compared to less than 75% of MSC-only participants (see Figure 5 below). Offering health education programs in conjunction with physical activity tracking devices may support higher physical activity levels over a longer period of time than a device-based program alone.

Figure 5. Average Individual Daily Step Activity (n=16,708)



Supplement D. *BP Wellness Program Incentive Design*

Wellness Activity	Point value
Annual Physical/Wellness Exam	500
Biometric Screening	125
Health Advisor Call	125
Comprehensive Health Assessment	250
BP Million Step Challenge (1 M milestone)	500
BP Million Step Challenge (each additional million steps, up to 3)	250
Physical Activity Challenges (2 offered)	125
Wellness Classes	125
Local Wellness Activity	75-125
Financial Health Assessment	125
Financial health Classes	125
FitLogix Weight Management Program	up to 500
Online Healthy Living Programs	125
Telephonic Lifestyle Management	250
Mail-based Lifestyle Management	125
Telephonic/Onsite Condition Management	250
Complex Case Management	250
HSA Incentive Funding	\$1,000 for Employee \$1,000 for Spouse
Super Users	2,000 Point Earners = \$100 Gift Card 2,500 Point Earners = Name is entered into a drawing to win free medical premiums for 2015
Million Step Challenge Achievement Award	Magnets for 1 Million, 2 Million, 3 Million Step Achievements

To qualify for the HealthPlus medical plan, and an average estimated savings in annual out-of-pocket expenses per family of \$1,200, employees and their spouses need to each earn at least 1,000 points during the year. A menu of wellness activities is provided to encourage broad engagement in the *BP Wellness Program*.

Supplement E. BP Health and Wellness Center Case Study

Situation	Challenges
<ul style="list-style-type: none"> • Over 7,300 employees on Westlake Campus at US Headquarters in Houston, Texas with 4,500 contractors on-site • Majority of employees live within 15 miles of Westlake Campus • No previous on-site clinics; however, existing and well-subscribed on-site child care and fitness centers existed at this location • Appointments for medical services take half the day or more away from work due to travel and wait times at physician offices. 	<ul style="list-style-type: none"> • Perceived need and desire to introduce a convenient on-site option for high quality primary care and ancillary medical care services • Improve employee access and exceed customer / patient experience compared to that available in the marketplace; create a “WOW” factor • On-site interventions to be integrated with other benefit programs as well as company-sponsored behavioral health, wellness and disease management programs • Drive proactive screening, prevention and wellness services, which had been under-utilized despite generous first dollar coverage
Action	Indicators of Success
<ul style="list-style-type: none"> • In 2011, remodeled a 13,500 square foot Health and Wellness Center in an existing facility previously used for on-site day care • Included comprehensive services: primary and urgent care including lab, x-ray, pharmacy, physical therapy, occupational health, behavioral health counseling, dental and vision as well as on-site health coaching and disease management • Introduced state-of-the-art design and equipment throughout the center • Opened center to all employees, dependents, retirees and contractors in October 2011 on schedule at a \$10 co-pay compared to \$20 off-site for medical services* • Structured center hours to allow convenient access: Monday through Friday 7 am to 6 pm (7:30 am to 6:30 pm for the pharmacy); Saturday 8 am to 12 pm (8:30 am to 12:30 pm for the pharmacy) <p>*\$20 copay is for those in BP's HealthPlus PPO plan; its standard PPO plan has an 80% coinsurance</p>	<ul style="list-style-type: none"> • Over 65% of employees on the Westlake Campus used the Wellness Center in 2013 -Including 6,655 total unique patients • Over 34,000 prescriptions were filled in 2013, with on-site generic dispensing rate 3% higher than community providers (74% GDR in the center versus 71% off-site) • 9,330 dental exams were performed in 2013 – currently at 100% capacity • 2,320 vision exams were performed in 2013 - currently at 100% capacity • Clinic users report lower emergency room use (154.9 vs. 178.8) than non-users. • Based on an independent analysis by Towers Watson, ROI for the most recent plan year was nearly break-even at \$0.95:\$1, with users being less likely to be admitted to the hospital (14.8 to 25.3) than non-users. -It's important to note this savings is for medical costs only, and does not take into account additional value derived from the Health Center including increased satisfaction in employee benefits, decreased absence, and improved performance.