

# Overview of PBG's Healthy Living Program



## Programs

- Wellness and prevention includes on-site screenings and health fairs, flu shots and our Executive Health Program. PBG also waives preventive co-pays and offers a safety program targeting safety at “work and play”.
- Programs include free telephonic, paper and web-based programs for weight, nutrition, exercise, stress, blood pressure, cholesterol, back pain, smoking. We also offer EAP, fitness club and equipment discounts and Weight Watchers discounts.
- For our chronic and catastrophic populations we provide disease management, case management, care coordination (for catastrophic cases), centers of excellence and a 24 Hour Nurse Line.

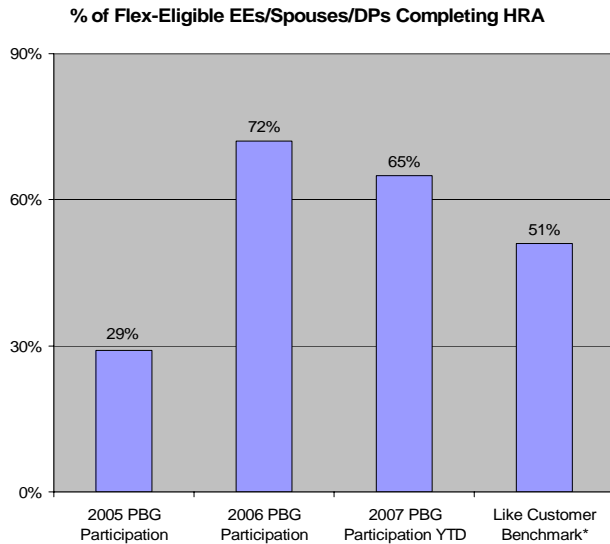
## Communications and Incentives

- The Healthy Living program has a recognizable trademark and branding and uses a wide variety of print and online media, as well as meetings, DVDs, and workplace events with posters, banners, and giveaways to boost awareness and engage employees. Our communications strategy reaches all PBG employees and covered dependants and focuses on stakeholder engagement across all levels of the organization. (See addendum for montage of materials)
- We introduced an aggressive communications/.incentive strategy in 2005 based on the following core principles of incenting behavior change:
  - Focus on the participant / consumer experience
  - Encourage and reinforce behaviors from enrollment to engagement to achievement and through maintenance
  - Utilize mix of cash, token gifts, raffles, benefit credits and point systems
  - Incent employees and spouses, as well as managers and supervisors

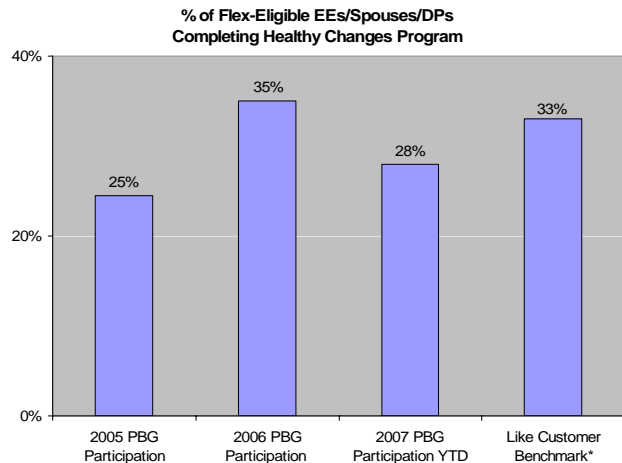
# Program Participation

## PBG's HRA and Lifestyle Management Participation Exceeds Benchmarks

### Health Risk Assessment (Figure 1)



### Lifestyle Management (Figure 2)



#### Health Risk Assessment

- PBG has achieved significant increases in HRA participation since we initiated them in 2005 when 29% of employees and covered spouses/domestic partners completed an HRA. Since then, PBG increased incentives from \$25 to \$100 in 2006 and launched an aggressive communications campaign and achieved 72% participation. In 2007 PBG implemented a \$75 incentive and has reached 66% participation YTD. (See Figure 1)

#### Lifestyle Management

- We have successfully engaged our at-risk populations to take action to improve their health status through award-winning multi-media campaigns, aggressive incentives and targeted outreach. Our interventions include free telephonic, paper and web-based programs with coaching for fitness, nutrition, weight management, blood pressure, cholesterol, smoking, stress and back care.
- In 2007 PBG increased program incentives from \$75 to \$100 and has achieved 28% participation YTD which compares favorably to 21% for the same period in 2006. (See Figure 2)
- We have exceeded the like customer benchmarks for HRA and LM and are piloting methods to achieve best in class participation (please refer to the 2007 Healthy Challenge in Innovations section).

#### Other Targeted Clinical Programs

- Nurseline participation now exceeds the like customer benchmark and has increased steadily from 2% in 2004 to 10.7% in 2005 and 10.8% for 2006.
- Disease management consent rates also rose from 41% in 2004 to 72% in 2005, then dipped to 61% in 2006. Currently the 2007 DSM consent rate is 65%.
- Case Management consent rates for 2004 and 2005 were 67% and 68% respectively. A decrease to 42% was noted in 2006 and with recent outreach process improvements the Case Management consent rate for 2007 is at 62%.

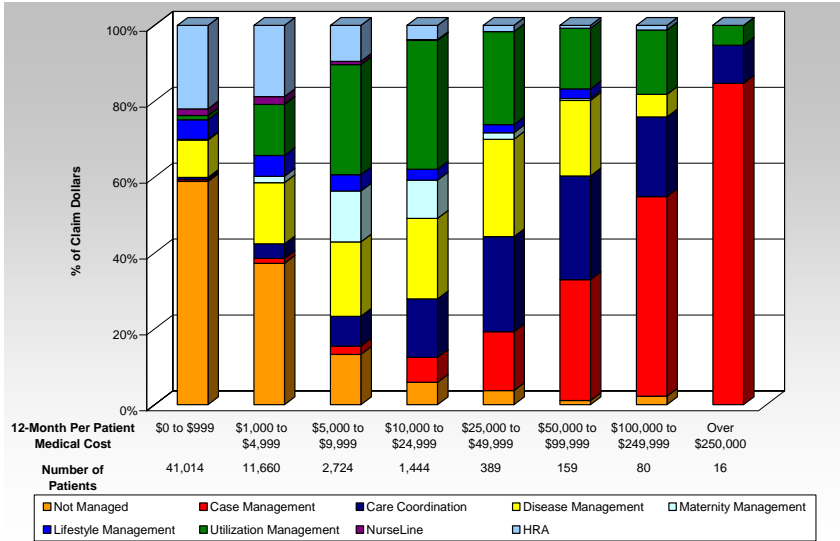
# Program Participation

Healthy Living Programs touch 82% of Claims Dollars

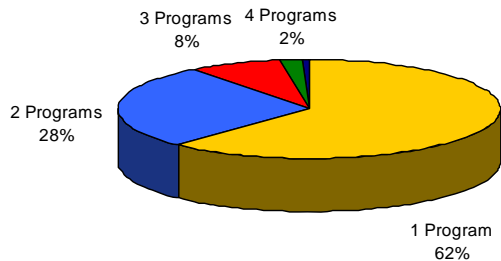
## Study Purpose

This study examined the types of programs that participants engage in based on their medical claim cost to gauge the overall reach of Healthy Living programs and the extent that programs are reaching their targeted population (e.g. low, moderate and high acuity). It also examines the average number of programs per participant to measure the extent that participants use programs to address multiple health risks and conditions.

**Program Distribution by Member Claim Costs (Figure 3)**



**# of Programs per Participant (Figure 4)**



## Methodology

- Figure 3: Members are allocated into dollar ranges based upon most recent 12 months of incurred claims. Each person can only be counted in one program and there is a prioritization hierarchy with case management at the top.
- Figure 4: Denominator is the number of members participating in any program.
- Figure 5: Satisfaction scores reflect the percentage of survey participants who rated their experience with the program as satisfactory or higher on a scale of 1 to 5.

## Findings

- Members with low claims costs are participating at increasing levels in appropriate Healthy Living programs to prevent migration to high cost conditions.
- 97% of patients with claims over \$25,000, accounting for 98% of the dollars in that group, have been touched by Healthy Living programs.
- Of those members involved in a program, 38% participated in more than one program.
- Over 96% of survey respondents were satisfied with programs

**Participant Satisfaction (Figure 5)**

|                         | % of Participants Satisfied with Program |      |            |      |
|-------------------------|--|------|------------|------|
|                         | Best in Class                            | 2004 | 2005       | 2006 |
| Health Risk Assessment  | 90%                                      | 96%  | <b>97%</b> | 99%  |
| Behavior Modification   | 90%                                      | N/A  | <b>97%</b> | 99%  |
| Nurseline (Annual Only) | 97%                                      | N/A  | <b>96%</b> | 97%  |
| Disease Management      | 97%                                      | 94%  | <b>96%</b> | 97%  |

# Health Impact

## Impact of Lifestyle Management on Health Risk Status

### Study Purpose

This study evaluated the impact of lifestyle management program participation on the targeted health risk behavior and the migration of risk level acuity among the population of employees and spouses/DPs who were at high risk in one or more health behaviors targeted by the program.

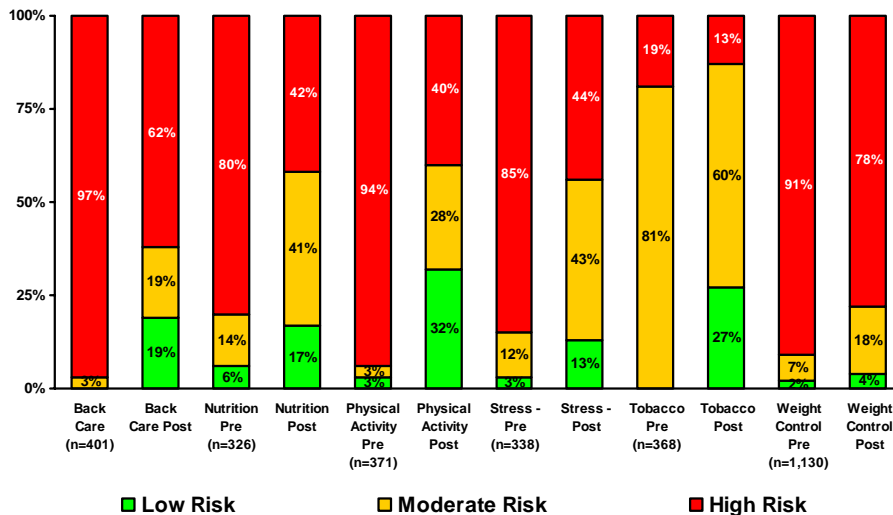
**Number of Participants Included in Pre-Post Risk Analysis (Figure 6)**

|                     | Back Care  | Nutrition  | Physical Activity | Stress     | Tobacco    | Weight Control |
|---------------------|------------|------------|-------------------|------------|------------|----------------|
| Phone Coaching      | 107        | 111        | 169               | 111        | 125        | 511            |
| Mail-Based          | 294        | 215        | 202               | 227        | 243        | 619            |
| <b>Total Number</b> | <b>401</b> | <b>326</b> | <b>371</b>        | <b>338</b> | <b>368</b> | <b>1,130</b>   |

### Methodology

- A pre-post design measured health risks before and after completion of a lifestyle management program. The analysis included 2,934 participants who completed a baseline HRA in the first quarter of 2006, were targeted for and completed a lifestyle management intervention in 2006, and completed a follow-up HRA an average of 1.0 years later in the first quarter of 2007.
- Participants targeted for intervention were at high risk (high or moderate risk for tobacco use) on the baseline HRA in one or more of six areas – back care, nutrition, physical activity, stress, tobacco cessation and weight. Of the 2,934 participants, 39% completed a 28-week telephonic coaching program featuring five or more coaching calls and participant-specific mailings; 61% completed a six-month mail-based program featuring six monthly mailings. (Figure 6)

**Change in Target Risks From Baseline to 1-year Follow-up. (Figure 7)**



### Findings

- Significant risk reduction occurred from baseline to one-year follow-up in all six areas targeted by interventions. Back care program participants at high risk decreased from 97% pre-intervention to 62% one year later; nutrition participants at high risk decreased from 80% to 42%; physical activity participants at high risk decreased from 94% to 40% and the percent at low risk increased from 3% to 32%; stress management participants at high risk decreased from 85% to 44%; 27% of tobacco cessation participants were non-tobacco users one year later and an additional 6% improved from high risk to a lower level. Weight management participants at high risk (i.e., classified as obese based on BMI  $\geq 30$ ) decreased from 91% to 78% one year later, an encouraging result in this challenging health-behavior area. (Figure 7)
- The percentage of participants reducing the health risk targeted by the intervention (e.g., percent of back care participants reducing back care risk level) ranged from 56% in physical activity to 14% in weight, averaging 32% across the six programs evaluated.

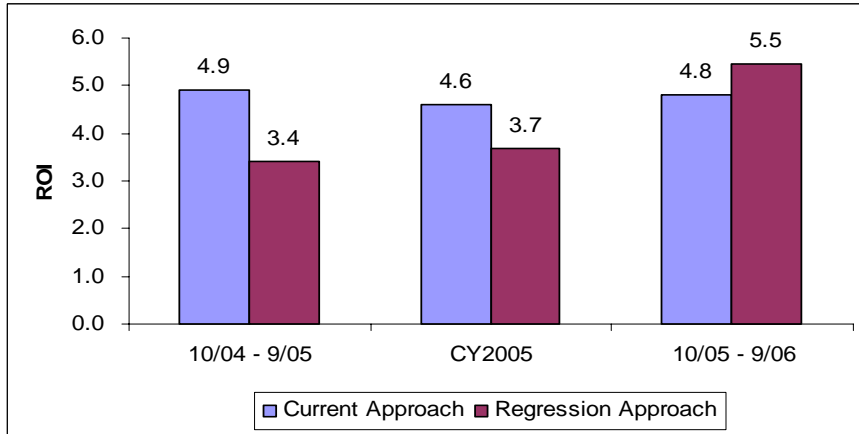
# Financial Outcomes

## Impact of Care Management Participation on Medical Costs and ROI

### Study Purpose

This study applied multivariable analysis to estimate the return on investment (ROI) of PBG's clinical and lifestyle management programs and program groupings including nurse line, disease management, lifestyle management, utilization management, case management, and maternity management services.

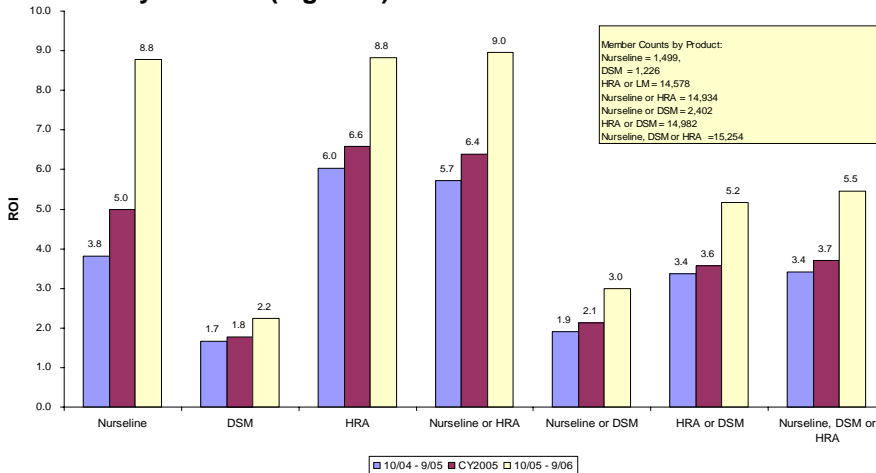
### Current Approach vs. Regression Approach Results (Figure 8)



### Methodology

■PBG took two distinct and proven approaches to develop valid, reliable, and parsimonious cost-savings models. The first approach involved a “custom fitted” ordinary least squares (OLS) regression model. The second approach used a cross sectional time series which represents a combination of OLS regression techniques. Development of the OLS model included the use of Cook’s-D measure of influence, leverage plots, analysis of actual vs. predicted costs, analysis of residual vs. predicted costs, studentized deleted residual analysis, and residual plots to evaluate the significance of the dependent variable in predicting future costs. OLS regression was used to adjust for differences on age, gender, age and gender interactions, Symmetry ERG risk score and the length of time enrolled in intervention programs. The Symmetry ERG Risk Score was used as a proxy for severity of illness and is based on the frequency, intensity, and duration of an episode of care. All statistical models were performed using SAS 9.1.3.

### ROI by Product (Figure 9)



■48 months of experience were available for this case study with two baseline years (10/1/02 through 9/30/04) and two intervention years (10/1/04 through 9/30/06). Individual participation records were created to compare and contrast utilization and cost outcomes between two discrete cohorts: Case Group – members who voluntarily elected to participate in a PBG intervention program; and the Control Group – members who did not participate in any PBG program and who received status quo management of their health.

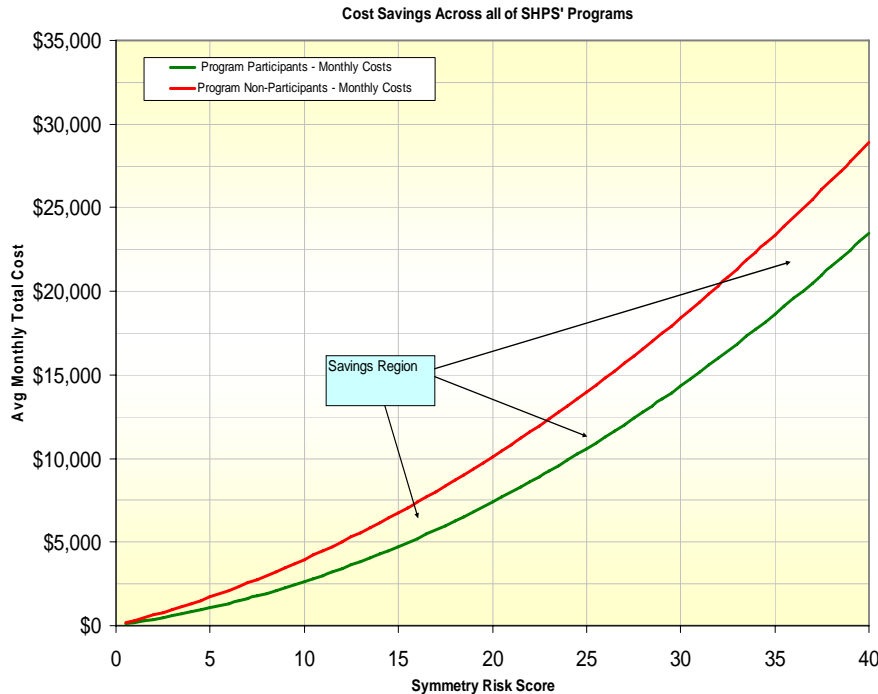
■Gross savings is defined as the difference in projected total health care expenditures of the case group and the projected expenditures if participating members were not part of the Case Group; ROI is defined as the gross savings divided by the cost of the program associated with the product or product groupings across the entire member population.

Unless otherwise noted, all differences are statistically significant at  $p < 0.05$

# Financial Outcomes

The regression model indicates SHPS' per participant per month savings are greatest for those individuals with the highest risk scores. This validates SHPS' proactive approach to targeting the right people, at the right time, and at the right stage of their disease progression to drive meaningful improvements in health outcomes, lower financial risks, and reduce healthcare expenditures.

**Relationship of PMPM cost to Symmetry ERG Risk Score (Figure 10)**



**Relative Savings at Percentiles of Symmetry Risk Score (Figure 11)**

|            |                     | Per Month Costs                 |                                 |                  |                      |                      |          |
|------------|---------------------|---------------------------------|---------------------------------|------------------|----------------------|----------------------|----------|
| Percentile | Symmetry Risk Score | Per Participant Per Month Costs | Non-Participant Per Month Costs | Percentile Range | Count of Members (n) | Monthly Cost Savings | % Change |
| max        | 31.7                | \$ 15,741.95                    | \$ 20,038.04                    |                  |                      | \$ 4,296.08          | -21%     |
| 99.5       | 12.07               | \$ 3,434.94                     | \$ 5,051.74                     | 100-99.5         | 108                  | \$ 1,616.80          | -32%     |
| 97.5       | 6.358               | \$ 1,433.38                     | \$ 2,270.55                     | 99.5-97.5        | 433                  | \$ 837.17            | -37%     |
| 90         | 3.126               | \$ 616.28                       | \$ 1,012.32                     | 97.5-90          | 1,623                | \$ 396.04            | -39%     |
| 75         | 1.553               | \$ 301.08                       | \$ 482.42                       | 90-75            | 3,247                | \$ 181.34            | -38%     |
| 50         | 0.716               | \$ 155.37                       | \$ 222.47                       | 75-50            | 5,412                | \$ 67.10             | -30%     |

## Findings

- For participation in any care management program, we found the ROI results from the multivariable regression to be comparable to the current approach used to calculate ROI for PBG's vendor's book of business. (Figure 8). ROI has improved for all products and product groupings from the first to the second intervention period. The spike in ROI for the second intervention period may be attributed to PBG's aggressive communication and incentive campaign launched in the 4th quarter of 2005. (Figure 9)

- PBG's care management programs demonstrated an estimated savings of \$118.55 per participant per month (PPPM) in healthcare costs across all products during the two-year intervention period (n = 15,254 continuously enrolled). Annual projected savings were \$21.7M across all clinical intervention programs. (Figure 11) ROI is most likely understated, as we excluded savings from individuals with fewer than 48 months participation, attributing savings only to those continuously enrolled, whereas we calculated cost for the entire population.

- Figures 10 and 11 illustrate the relationship of the cost PPPM to the Symmetry ERG risk score. The regression model validates that savings per participant per month are greatest for those with the highest risk scores. This reflects PBG's approach to target the highest risk patients for clinical intervention. For example, at the 90th percentile of average Symmetry risk score of 3.126 there was an average per participant per month savings of \$396 across all products. At the 97.5th percentile of average risk score of 6.358 the PPPM savings jumped to \$837.

- Factors that may not be statistically measured (e.g., communication, incentives) appear to greatly influence the number of participants and resulting savings. During the 4<sup>th</sup> quarter of 2005, PBG implemented an aggressive communications and incentives campaign including on-site health fairs, screenings and incentives to increase participation in care management programs.

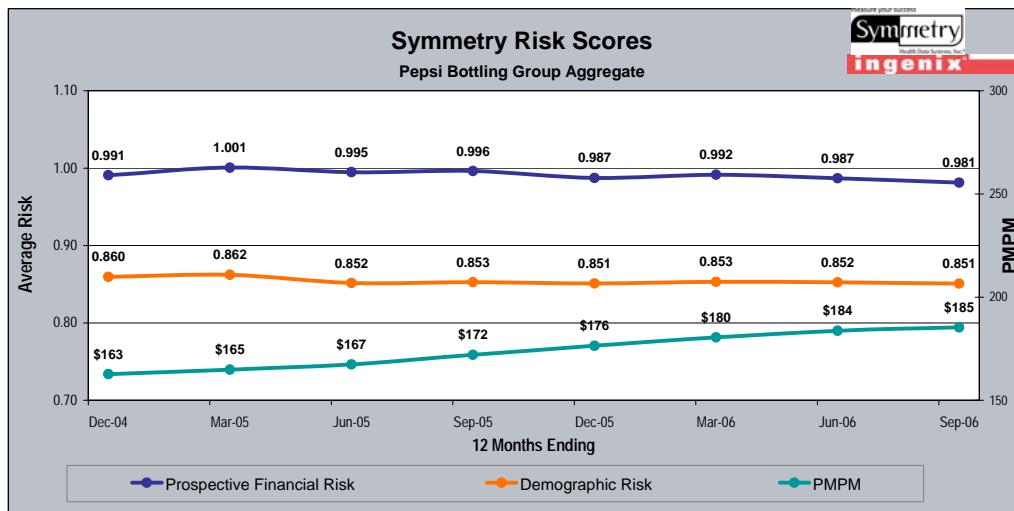
# Financial Outcomes

## Impact of Care Management on Expected Financial Risk and Medical Costs

### Study Purpose

This study examines the correlation of the overall health risk of the PBG population (as measured by the Symmetry Prospective Financial Risk Score for members with claims and the Demographic Score for non-claimants), the PMPM cost trend and the implementation of PBG's lifestyle and clinical programs during the same time period

Lifestyle and Clinical Interventions Reduced Health Risk and Contributed to a 1.3% Net Decrease in Medical Cost Trend (Figure 12)



### Findings

- Prospective financial risk decreased 1.5% during the 12- month period ending September 2006, while the demographic score decreased only 0.2%. (Figure 12)
- This net 1.3% decrease correlates with the PMPM increasing at a rate of only 7.5% during the same time period, and slowing to an annual rate of only 5.6% on an annual basis over the most recent 6 months which is well below national trend of 8%
- These observations lend support to the premise that the lifestyle and clinical interventions PBG implemented during 2005 and 2006 may improve the health status of the population over time

### Methodology

- Symmetry Prospective Financial Risk Score is an average of the Symmetry score calculated for each member. This score represents the expected cost of medical services for an individual over the next 12 months. The relative change in the statistic over time is a proof point as to the combined impact of all Healthy Living programs. The percentage change in the Symmetry score on an annual basis should correlate closely to a direct change in trend versus expected trend. Thus if an employer were projecting an 8% annual trend and the most recent Symmetry score decreased by 1%, an actual trend of 7% is likely to emerge.
- PMPM Costs: Each data point represents the 12 month rolling average of incurred claims per member per month through December 31, 2006, three months run-off on the most recent claims data, with no actuarial adjustments.
- Demographic Score: Each data point represents the average demographic only Symmetry risk score for the population during the 12 month period.
- Symmetry Prospective Financial Risk Score: Each data point represents the average Symmetry Prospective Financial Risk Score, or the appropriate demographic score if the member did not have claims, for the population during the 12 month period.

# Financial Outcomes (continued)

## Impact of Lifestyle Management on STD Workdays

### Study Purpose

This study took a preliminary look at the impact of lifestyle management program participation on the incidence and duration of short term disability (STD) among the population of employees with high or moderate health risk acuity.

### Methodology

•A pre-post model was applied to compare the aggregate incidence and duration of STD claims in 2005 vs. 2006 among claimants who completed a LM program in 2005. LM participants were those HRA respondents who self-identified at high or moderate acuity for one or more of six programs including back care, nutrition, physical activity, stress, tobacco and weight. Three cohorts were established: 1) Employees who completed a LM program 2) Employees who registered but did not complete a program and 3) Employees who were eligible (high or moderate acuity) but did not register for a program.

### Findings

•Observation are preliminary and will require more time, larger sample sizes and similar cohorts to determine validity of the initial observations and examine trending over time. Future studies will also examine the self-reported risk acuity of the cohorts and the relationship between the specific LM programs and disability. Motivation alone is not enough to change behavior and we believe return to work programs and LM programs such as back care, stress and weight management should impact musculoskeletal conditions which are the most costly disabling conditions for all three cohorts. (Figure 13)

STD Incidence, Duration and Lost Workdays of LM Participants (Figure 13)

|                              | Members |       | Incidence<br>(New STD Cases per<br>100 Employees) |      | Duration per Case (Days) |       | Duration per 100<br>Employees |        |
|------------------------------|---------|-------|---|------|--------------------------|-------|-------------------------------|--------|
|                              | 2005    | 2006  | 2005  | 2006 | 2005                     | 2006  | 2005                          | 2006   |
|                              | Cohort1 | 3,545 | 3,849   | 8.01 | 5.32                     | 30.83 | 34.64                         | 273.54 |
| Cohort1 Completed 2005       | 931     | 938   | 8.63  | 5.98 | 25.02                    | 30.97 | 212.51                        | 254.13 |
| Cohort1 Completed 2006       | 2,548   | 2,828 | 7.54  | 4.96 | 32.99                    | 36.62 | 296.31                        | 263.48 |
| Cohort2                      | 2,203   | 2,505 | 5.60  | 6.17 | 33.05                    | 29.66 | 206.65                        | 224.24 |
| Cohort2 Incomplete thru 2005 | 164     | 168   | 3.26  | 4.75 | 33.00                    | 54.00 | 80.60                         | 384.95 |
| Cohort2 Incomplete thru 2006 | 1,829   | 2,124 | 6.14  | 6.48 | 32.05                    | 28.13 | 219.96                        | 217.69 |
| Cohort3                      | 7,988   | 8,775 | 6.17  | 4.52 | 33.86                    | 35.27 | 231.99                        | 213.62 |
| Cohort3 2005                 | 919     | 955   | 4.79  | 3.51 | 25.55                    | 25.94 | 122.37                        | 116.56 |
| Cohort3 2006                 | 5038    | 5782  | 5.94  | 4.74 | 37.75                    | 35.70 | 249.86                        | 221.72 |

## ROI of Employee Health & Wellness Centers

### Study Purpose

This study examined the ROI of PBG's on-site Health & Wellness Centers

### Methodology

•Direct operating costs of the clinics and staff were compared to the savings which were calculated based on estimates of the savings for each of the following:

- Reduced claim costs/litigation
- Fewer office visits and physical therapy costs
- In-house DOT testing
- Lower replacement labor and administrative fees

•The following “softer savings were not included in the study:

- Increased productivity
- Lower absenteeism
- Improved morale
- Early intervention
- Gains credited to location

### Findings

•Total quarterly savings of \$745,840 on a cost of \$455,328 yields an estimated ROI of 1.7:1 for the 6 clinics that have completed at least two years of operations.

Wellness Center Utilization (Figure 14)

| Location     | Occupational<br>Utilization |                 |                     |               |                  |       | Non-Occ<br>Utilization |
|--------------|-----------------------------|-----------------|---------------------|---------------|------------------|-------|------------------------|
|              | Visits                      | Drug<br>Testing | Breath &<br>Alcohol | PreEmp<br>Phy | DOT<br>Physicals | Total | Total                  |
|              | YTD                         | YTD             | YTD                 | YTD           | YTD              | YTD   | YTD                    |
| <b>Total</b> | 2041                        | 1877            | 143                 | 1182          | 833              | 6076  | 4625                   |



# Innovation

## Establishing the Industry's Best Practice ROI Methodology

### Study Purpose:

PBG is working with RAND Corporation to benchmark health and productivity management ROI evaluation methods. This study's goal is to establish an industry-standard methodology for measurement that addresses selection bias, regression to the mean and double counting for multiple program impact



### Methodology

- **Compare methodologies** (Johns Hopkins University aggregate actuarial approach to Mercer HR Consulting's recommended evaluation guidelines)
- **PBG HPM programs evaluated include:** health risk assessment and lifestyle management, nurseline, disease and case management
- **PBG specific analysis used multi variate analysis and focused on:**
  - **Enhance Baseline:** Define baseline with two-year timeframe
  - **Utilization:** Utilization change over time (Inpatient, Outpatient, ER, Prof. Services, Rx)
  - **Employer Adjusted Trend:** Based on plan design changes, plan enrollment, changes in demographics
  - **Detailed Categorization of Participation:** Individual-level data to determine program participation or combinations
  - **Multiple Analyses:** Determine ROI and trend impact ranges (with and without exclusions, caps, eligibility requirements)
  - **Multiple Methods:** Multivariate regression and Actuarial trend modeling
- **Additional Sensitivity Analyses:** Analyses comparing methods will be conducted to determine the value of each approach for future use.

### Methodology – PBG Specific

- Difference-in-difference method - Use PBG claims data to compare the difference in baseline to program year between the participants and non-participants (Figure 15)
- Compare the difference between a1 and a2 to the difference in b1 and b2 to determine the difference in differences.

Figure 15

| Population Group     | Total Cost PMPM |                |
|----------------------|-----------------|----------------|
|                      | 2003-2004       | 2005           |
| Program participants | a <sub>1</sub>  | a <sub>2</sub> |
| Non-participants     | b <sub>1</sub>  | b <sub>2</sub> |

### Findings

- Overall, PBG's population appears to be well-managed\*
  - Group health cost for the self-insured population fell in real terms by \$2.65 PMPM (or 2.2 percent) in the first full year of the HPM intervention compared to the two previous years
  - Program participation appeared to contribute an additional savings of \$10.74 PMPM without adjusting for demographics or a \$130 PMPY
    - Estimated gross savings, before adjustment, on 21,949 identified participants is about \$2.8M
- *Caution, however, should be taken because the results are not statistically significant and are only of directional value*
  - Sample size for participant groupings are small due to low participation levels in intervention period
  - Expected impact of HPM programs is most likely understated due to existence of many programs in both the baseline and intervention periods, and the immaturity of the new programs

# Innovation

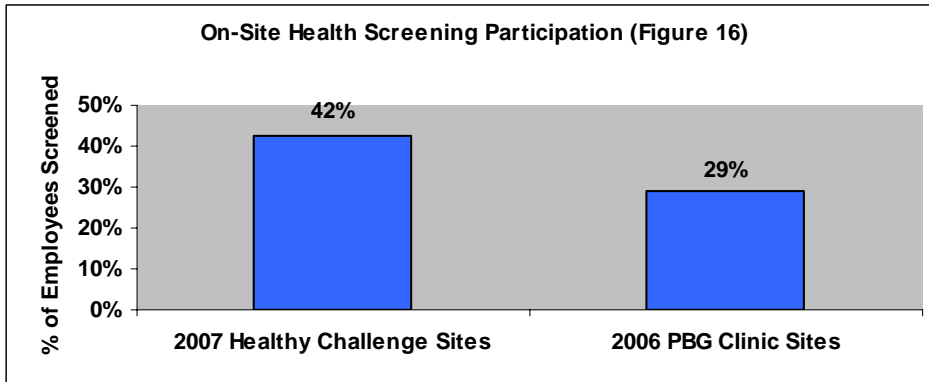
## Impact of Competition & Local Ownership on Program Participation

### Study Purpose

This study examined the feasibility and impact of establishing local wellness champions and inter-business unit competition to increase participation in health risk assessments, lifestyle management programs, Weight Watchers, a pedometer activity program and community volunteering.

### Methodology

- Wellness Champions were recruited at seven locations covering 1,717 employees (one site in each of seven business units) to compete in the 2007 Healthy Challenge for the titles of Healthiest Location and Most Improved Location. PBG Corporate HR funded \$75 per employee which included the cost of new programs, communications, incentives and charitable donations.
- Programs and incentives were designed to impact four of the top five health risks identified in the sites' 2006 HRAs: Weight, stress, nutrition and health exams. A point system was designed focusing on three themes to reward employees and their families to "Know Your Numbers" (i.e. attend an on-site screening and complete an HRA) , "Take Action" (i.e. participate in a lifestyle management program, Weight Watchers or a pedometer activity program) and "Reach Out" (i.e. volunteer in your community or participate in a charitable event). In addition to prizes for individuals and teams, sites competed for corporate wide recognition and visibility in various PBG publications, local celebration events and the Healthy Challenge Trophy. The challenge began in January, 2007 and ended in May, 2007.



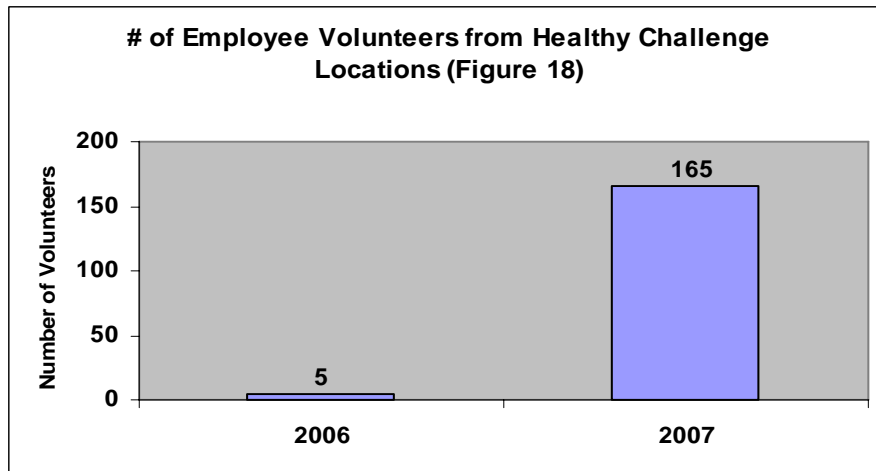
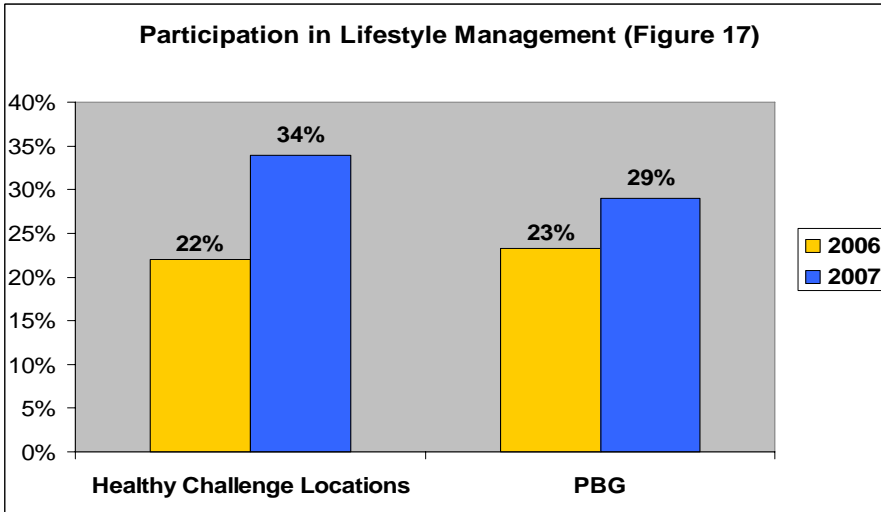
### Findings

- PBG is undertaking an analysis of the Healthy Challenge using program participation statistics and interviews of champions and stakeholders to identify learnings, success factors and recommendations for continuing the momentum in the pilot sites and expanding the Healthy Challenge nationally. Longer term analysis will include an estimate of the ROI and trend analysis of the population over time.
- Preliminary observations and the Key Statistics below indicate that cross functional teams of wellness champions combined with inter-business unit competition, locally targeted communications and incentives can significantly improve 1) individual participation in onsite screenings and health risk assessments, and 2) group activities including pedometer teams, weight loss teams and group volunteer activities. (e.g. 30-fold increase in volunteer activity)

# Innovation

## Impact of Competition & Local Ownership on Program Participation (continued)

### Findings (continued)



### Key Healthy Challenge Statistics

•**9% Increase in HRA Participation:** Avg. Pilot increase of 4% vs. overall PBG decrease of 5% (employees and covered spouses/DPs)

•**16% Increase in Health Screening Participation:** 45% of Pilot employees participated vs. 29% of employees with access to on-site clinic screenings (Figure 16)

•**6% Net Increase in Lifestyle Management Participation vs. PBG all PBG sites:** Healthy Challenge locations achieved a 12% increase over 2006 participation vs. a 6% gain among all PBG sites. (Figure 17)

•**5-6% Weight Loss (Weight Watchers Competition):** West Team (6% weight loss) leads East Team (5% loss) in 10 week weight loss challenge

•**30%+ Participation in Pedometer Exercise Program:** 4 of 7 sites exceeded 30% participation; 268 Participants, 62million steps, 31,000 miles

•**30-fold increase in Volunteering (PBG's "We Are Involved Neighbors" (WINS) program):** 9.6% of Healthy Challenge employees participated in PBG's WINS Program in 2007 vs. 0.3% in 2006. (Figure 18)



2007 Healthiest Location Trophy