To evaluate program results, a longitudinal study was performed to investigate the impact of HCU on participants versus non-participants over time. The HCU participants were divided into two cohorts:

- HCU participants from round 1 only (implementation in 1994); and
- HCU participants from round 2 only (implementation in 1996).

HCU Time 1 participants' data were analyzed from 1993 (baseline for Time 1) through 1997. HCU Time 2 participants' data were analyzed from 1995 (baseline for Time 2) through 1997. The HCU participants in both these groups were compared to a group of non-participants whose data were analyzed from 1993 through 1997. In Time 1 there were approximately 680 participants. The Time 2 group had roughly 940 participants. The non-participant group was comprised of about 2,500 Connecticut employees and over 10,000 non-Connecticut employees. Analysis of the Time 1 cohort over multiple years in the longitudinal database allowed investigation of the sustained impact of the program.

## HCU Results - Overall Impact

Over 40 percent of eligible employees participated in HCU in either Time 1, Time 2 or both times. Participation in Time 2 only was higher than in Time1 only (19 percent vs. 14 percent). The overall results for the Time 1 cohort showed that these participants had lower rates of health care adjusted cost growth over the four year period after HCU implementation. The averae rate of adjusted cost growth from 1993 to 1997 for these employees was 4 percent, compared to the non-participants' rate of 7.3 percent. Furthermore, the average adjusted costs in 1995 for the Time 1 participants was $210 lower than the participants, yielding a 2.4 to 1 cost savings for the HCU for that year alone.

The Time 2 group also showed a positive impact of HCU. Their average adjusted cost trend from 1995 to 1997 was 7 percent compared to the nonparticipants’ 12 percent trend. The average adjusted annual cost difference between the Time 2 participants and the nonparticipants was $371 (across both 1996 and 1997), yielding a 4.2 to 1 cost savings for the program.

Demographic analysis showed that the HCU program was targeting employees at greater risk of health problems: HCU participants’ average age and the percent of female participants were both significantly higher than nonparticipants.

## HCU Results—Cardiovascular

Drilling down from the overall HCU results, it was found that a significant portion of the cost decrease could be tied to the impact on cardiovascular charges. This is not surprising since many components of HCU, as well as other health management initiatives that are part of the Power of 2 program, are designed to impact on cardiovascular health. When charges related to cardiovascular care were examined, the HCU participants

who took part in cardiovascular health programs in Time 1 (the CV–1 group with approximately 480 participants) showed significantly lower average adjusted cardiovascular charges after program implementation. These participants' charges were actually higher than the nonparticipants' at baseline, but then decreased significantly after program participation. The 1993 to 1997 average trend in average adjusted cardiovascular charges was 12 percent for the nonparticipant group but only 6 percent for the CV–1 group. The experience of the cardiovascular participants in Time 2 (the CV–2 group) was also tracked and appeared to be producing positive results for the program, but the results are not credible due to the small number of participants (less than 100) in this group. Both these groups will continue to be monitored over time to determine if the results are sustained.

## HCU Results—Cancer

The HCU runs seminars and offers screenings related to cancer detection and prevention. Mammography services, skin cancer screening and seminars on colon and other cancers are provided. The HCU participants who took part in cancer related programming showed an interesting pattern of total average health care charges that is worth noting, even though their numbers are fairly low. The HCU participants who were involved in cancer programs in Time 1 (the CS–1 group with approximately 100 participants) had significantly lower average adjusted costs at baseline than the control group. After program participation, their costs increased to a level about 35 percent higher than the nonparticipant group in 1995. In the later years, their cost moderated back to a level nearer to the nonparticipants'. Investigation of this pattern revealed that that the driver behind the cost increases after program implementation were outpatient diagnostic services (lab and radiology). The Time 2 group (the CS–2 group with about 260 participants) also showed a similar pattern: lower costs at baseline but increases in outpatient costs after program participation. These patterns are consistent with the hypothesis that the program is increasing awareness of the need to obtain to diagnostic services to check out potential health problems in a group who formerly did not seek out those services.

## Results—Self Care

The HCU program emphasizes personal responsibility and self-care via a variety of methods. Self-care educational sessions are offered periodically, and the Take Care of Yourself guide to self-care is used as a reference for participants. In addition, ongoing educational programs support and emphasize appropriate self-care and consumerism.

Data analysis shows that participants in a self-care program during 1994 and 1995 had sustained lower emergency room cost and use from 1994 through 1997. In addition, self-care participants maintained a higher number of professional visits, indicating that this group tended to seek more low-level planned care

versus waiting until an acute episode precipitated care. Based on this analysis, the self-care program has helped participants to access health care appropriately and more cost-effectively than nonparticipants. Return on investment (ROI) for the self-care initiative has been included in the overall HCU ROI.

## Results—HRA

Pitney Bowes assists HCU participants in prioritizing and addressing their individual risks by using a health risk appraisal questionnaire. The questionnaire is also useful in providing Pitney Bowes with aggregate data that provides direction in prioritizing the most significant risks for their population, and shows overall change in risk levels for HCU participants. A first round of HRAs were administered in 1995, with a follow-up in 1997. Results of the HRAs compare as follows:

The total risk factor score for HRA participants decreased from 12 to 10 in the follow-up period. This is an aggregated score for all participants and indicates overall improvement in Pitney Bowes health risk profile. The most marked change occurred the category of highest total risk score, which decreased in number of participants by 25 percent in the follow-up time period. The number of participants in the highest cardiovascular and cancer risk categories also decreased in the follow-up time period. Finally, a greater number of participants decreased their total number of risks in the second HRA than those who stayed the same or increased in their number of risk factors in the follow-up. These results indicate that HCU is having a positive impact on the higher risk HCU participants risk profile.

## Results—Evaluation of Medical Clinics

The effectiveness of the on-site medical clinics was evaluated using a comprehensive set of measures from the IHIS which included all health care claims, short and long term disability episodes, incidental absence data and clinic encounter information. This information was used to determine how the presence of the clinics contributes to access to care for employees, as well as measure how clinic use impacts overall health care costs and productivity. Over 70 percent of Connecticut-based employees utilize the on-site clinics. Younger than average, male employees are the most likely to use the clinics as their only source of primary care. Historically, this demographic slice of the workforce has had lower rates of care use and is less engaged with the community health care system.

Overall, employees who used the clinic as their exclusive source of primary care had significantly lower health care costs and fewer absences and disability episodes than employees who used community-based primary care services exclusively. Since the clinic group tended to be younger, have less chronic illness and be ore likely to be male, it was necessary to control for these factors when evaluating impact. Multivariate analysis confirmed the positive findings for the clinic. As an illustration, results presented below are for

males between the ages of 35 and 49 with no chronic disease. The findings compare those who used the clinics as their exclusive provider for primary care and those who used exclusively community-based providers. The clinic only group had average health care charges 33 percent lower than those who used exclusively community-based services. Even with higher use of "management" services (i.e., visits for evaluation and counseling), fewer and less costly tests and prescription drug services were used by the clinic providers. Incidental absence (i.e., non-disability related absence) was about half as high for the clinic only group. The clinic group had one short-term disability episode that was due to a relatively minor accident sustained at home.

## Results—Disease Management Program

The Diabetes Management program began in May of 1997, and included multiple educational sessions, individual support for participants by a nurse case manager, and HbA1c screening at baseline and at six-month intervals. A total of 36 participants completed the program. Pitney Bowes tracked clinical outcomes for this group via HbA1c, and tracked satisfaction, behavior change, and increased knowledge regarding control of diabetes via self-reported measures.

Results showed that at the six-month screening, 20 participants had improved their HbA1c when compared with their baseline value, 13 participants increased their HbA1c, and 3 remained the same. Pitney Bowes also recently completed the one-year HbA1c follow-up, but they have not yet obtained the results of this analysis. Approximately 56% of participants (N = 20) provided self-reported data regarding behavior change and treatment compliance. Within this self-reporting group, all reported making behavior change as a result of the diabetes program. A high percent of participants also reported increases in other specific compliance areas such as improved eating habits, increased exercise, and improved attitudes.

## Results—Disability Management

**Overall Results**

Evaluation of the Disability Management program focused on the trend in short term disability payments and durations for most common conditions resulting in a disability. Among the leading categories were maternity (17 episodes per 1,000 in 1997), mental health/chemical dependency (12 per 1,000), musculoskeletal (9 per 1,000), digestive (7 per 1,000) and circulatory (6 per 1,000). Trends in adjusted duration for these conditions indicate that after the program geared up in 1994, the average duration dropped 12 days per episode between 1994 and 1995 and then decreased an additional 4 days from 1995 to 1996. The adjusted average payments per episode also showed strong decreases. Between 1994 and 1995, the average for these conditions dropped 9 percent and then between 1995 and 1996, there was an additional 5 percent

decrease. More detailed analysis of the data (shown below) indicated that maternity payments per episode were increasing, due to a rise in the incidence of complicated maternity cases. To address this issue, Pitney Bowes has strengthened its maternity management model.

**Managed Maternity Experience**

The managed maternity is a combination of a prenatal care program and managed disability efforts by Pitney Bowes Disability Management Staff. This program is a comprehensive maternity management program designed to prevent or reduce poor birth outcomes, such as low birth weight, incident births, and neonatal intensive care hospitalization. The managed disability integration ensures efficient postpartum return to work, reduced extended disabilities due to maternity or childbirth complications, and support for mothers re-entering the workplace.

The prenatal care program is offered to employees in Connecticut and includes a series of three risk assessments performed at milestone intervals during pregnancy, a 24-hour information line that continues to six weeks postpartum, and educational support. A follow up assessment is also performed to collect outcome data. Connecticut maternity experience was compared to non-Connecticut experience to examine the impact of the prenatal care program.

Pitney Bowes has determined that they will extend the prenatal care program to all locations in 1998 because of poor maternity experience in non-Connecticut locations. They have also determined that the current program should be fully integrated with the current health care plan and providers to improve compliance and to support behavior change. Therefore Pitney Bowes will pilot a prenatal care program in Connecticut in 1998 in partnership with their health plan versus a carved-out approach.

**Future Direction**

Pitney Bowes will continue to utilize integrated data to measure and refine their health management initiatives. Future directions include: continued focus on identification and engagement of at-risk individuals and those with chronic conditions for focused, intense interventions, greater integration of existing health care delivery system, and focus on referral to those providers who have demonstrated the greatest efficiency. For example, the on-site health clinics have demonstrated greater efficiency in delivery of counseling and medical management, so future disease management efforts may be delivered via the clinics where appropriate. Pitney Bowes will also continue to integrate disability management with other aspects of health management to manage “total episodes” versus management of disparate segments of care.

Within the HCU program, Pitney Bowes will continue to focus on self-care and attempt to engage all employees in education to assist them in becoming educated consumers. Review of Cardiovascular charges for participants provides direction in that participants in the first round of HCU are beginning to demonstrate increased cost and use of cardiovascular services. This suggest that there may be some recidivism in this population, which can be addressed by increased focus and attempts to target the at-risk population in this area.

Finally, Pitney Bowes will continue to refine and integrate additional sources of data to provide a total picture of health care and disability outcomes. Disability data integration via a relational data base is being expanded, and will provide a rich source of information for future analyses.

# Health Care University—Fact Sheet

**On-Site Medical Centers**

Staffed by highly qualified clinicians, the on-site medical centers offer:

- Primary care—Diagnosis and Treatment
- Physical therapy
- Disability Management
- Health screening services
- Patient advocacy
- Health counseling/treatment compliance
- Disease management assistance

Services are free, and are offered during work hours to eliminate the issue of "lack of time" for accessing appropriate care.

**On-Site Fitness Centers**

Staffed by exercise physiologists, the two on-site centers offer:

- Fitness assessment
- Phase 3 cardiac rehabilitation
- Exercise guidance and monitoring
- Convenient access

**Educational Seminars**

These 30–60 minute talks are provided to employees by local experts. At least one per month is offered at sites with high concentrations of employees:

- Self Care

- Skin Cancer
- Heart Disease
- Lyme Disease
- Ergonomics
- Exercise
- Arthritis
- Colon Cancer
- Diabetes
- Stress Management
- Glaucoma
- Nutrition

**Multi-day Seminars**

Seminars run five to eight weeks with periodic follow-up:

- Weight Management
- CPR/First Aid
- Stress Management
- Asthma Management
- Smoking Cessation

**Screenings/Services**

Offerings at the worksite include:

- Mammography
- Glaucoma
- Diabetes
- Hypertension
- Skin Cancer
- Lipid Profiles
- Annual Influenza Injections

## Employee Assistance Program

Pitney Bowes partners with providers to offer a comprehensive Employee Assistance Program for employees and dependents. The program uses a counseling and referral model. Program assessment includes measures such as utilization, demographics, referral types, primary diagnosis/reason for visit, and risk status.

**Self Care**

Wise health consumerism and self-care initiatives are integrated with seminars, and are supplemented by the health-care providers at our on-site clinics.

**Other Initiatives**

- Public awareness campaigns
- Community involvement
- Screening coverage through the medical plan (employees and dependents)
- Smoke-free facilities
- Seat belt use promotion through benefit design.