

## **I. Fannie Mae Partnership for Healthy Living Program, Annual Report 1999**

### **A. Changes in the Program this Year**

#### **1. Health Assessment Software**

The software program that manages the health data for the PHLP was upgraded from the Wellsource 400 Level System to the Wellsource Comprehensive Plus System. The improved health management system provides Fannie Mae employees with an individual health report that has more data, is more accurate, and is presented and packaged better than in previous years. The system provides regional coordinators and program managers with more comprehensive aggregate reports and increased flexibility for custom reporting.

#### **2. Goals for Increased Utilization of the Partners In Health (PIH) Program**

Results from the first two years of this high-risk program in program year (PY) 97 and PY98 indicated that participants who complete the program are likely to show meaningful and measurable health improvements. However, the program was not running at capacity and the pool of eligible employees was shrinking. In fact, while the number of employees participating in health assessments has remained steady, about 2300 each year, the percentage of participants classified as high risk has steadily declined from 18.6% in 1994 to 10.3% in 1999. With this in mind, the Health One medical director suggested the addition of two risk factors not previously considered increasing the pool of PIH eligible employees by 24%. A goal was set for 100 PIH participants and 50 post assessment completions. In PY 98 61 employees participated and 33 completed a post assessment.

#### **3. Saturday Health Assessments**

In Washington, experimental Saturday health assessments were held in spring, 1999. A special invitation was extended to spouses/domestic partners and child care services and entertainment were provided. The event was well attended with 50% spouse/domestic partner participation (5% is customary).

#### **4. Expansion of Behavioral Modification Classes**

Aerobic and yoga classes were added in some regional offices. A behavioral modification program was specifically designed for partnership office employees (small offices distributed throughout the country).

#### **5. Seated Massage Program**

An employee-paid seated massage program was implemented and is now in full operation in most regional offices.

### **B. Employee Participation in Wellness Activities**

#### **1. Health Assessments**

The basic health assessment consists of:

- Wellsource Plus Lifestyle Questionnaire (75 questions/survey)

- Laboratory Blood Test ( full blood chemistry with a complete blood count — 45 blood tests in all, PSA for men over 40 years old)
- Measurements of resting pulse, height & weight, and blood pressure
- Measurement of percent body fat using infrared technology (Futrex)
- Personal Wellness Profile - 20 page color report for each participant

This year, 2259 employees completed a health assessment. During the past 5 years, between 2082 and 2465 employees have completed a health assessment each year. Approximately 70% of the current employee base have participated in at least one health assessment. Historically, 85 - 90% of the employees who complete a health assessment also attend a group feedback session and, therefore, receive the Healthy Living Day Off.

**2. Other Health Screening Tests**

The following tests were administered to employees in conjunction with the routine health assessment (as with the health assessment, spouses/domestic partners are also permitted to participate):

Prostatic Specific Antigen (PSA) Blood Test:	400
Pulmonary Function Tests:	1,399
Bone Mineral Density Testing	provided in even years
Mammography	82
Fitness Testing (strength, aerobic capacity, flexibility)	289
Colon Cancer Screening Tests	552
Tuberculosis Skin Tests	621
Vision Screening for Glaucoma	592
Vision Screening for acuity	716

**3. Health Promotion Events**

Influenza Vaccines                      Approximately 1,200 vaccines were administered to employees during the fall months of 1999.

CPR Classes                      In each region, CPR training was

offered to Fannie Mae employees during the workday. Eleven (11) training classes were completed during PY99.

Health Seminars

Lunch-time seminars were offered in every regional Fannie Mae office. Health professionals were contracted to provide informative and expert presentations on a variety of wellness topics. In PY99 54 seminars were sponsored. The average attendance was 21.

Walking Programs

In each region, teams of walkers were organized into a 16-week competitive, fun walking program. The programs culminated in award presentations and prizes to the winning teams. In PY99, 759 employees participated.

Group Counseling

Participants in the health assessments are encouraged to attend a group counseling session. Regional coordinators conduct these sessions geared toward helping participants understand their reports and increasing awareness of health issues. In PY99, 1,930 employees attended one of 66 sessions.

Holiday Creep

During the holiday season, 100 employees participated in this weight management program offered in 4 regions. Regional coordinators weigh-in participants before Thanksgiving, provide weekly cooking and health tips/encouragement, and weigh-out participants after New Years. The goal is to avoid the "holiday

creep" of weight gain.

Individual  
Counseling

Regional Coordinators provided 685 private counseling sessions on personal health in PY99 to Fannie Mae employees.

#### **4. Partners In Health (PIH) Program**

This past year, 106 employees enrolled in the PIH program (160 were eligible).<sup>1</sup> Of the 106 enrollees, 56 completed the program by having a post assessment. Of the 56 post assessment participants, 30 graduated to non-high risk and 16 improved their health significantly.

#### **5. Behavior Modification Programs**

These 10-16 week programs are offered on-site at Fannie Mae and open to all employees.

Aerobics: 16 sessions in Washington, average participation: 15.  
8 sessions in Herndon, average participation: 9.  
1 session in Pasadena, participation: 22.  
1 session in Chicago, participation: 17.

Weight Management: 4 sessions in Washington, average participation: 10.  
1 session in Herndon, participation: 4.  
1 session in Dallas, participation: 13.  
1 session in Philadelphia, participation: 9.

Yoga: 4 sessions in Washington, average participation: 20.  
1 session in Philadelphia, participation: 13.

## **C. Trends in Employee Health Indicators**

### **1. Percentage of High Risk Employees**

Considering the five (5) PIH risk factors, the percentage of high-risk health assessment participants has declined steadily from 18.6 in 1994 to 10.3 in 1999.<sup>2</sup>

The Wellsource health management system has been customized to track the 5 PIH risk factors. The Wellsource system also tracks 13 other risk factors.<sup>3</sup> Individuals with zero or one risk factor tend to have lower medical costs than individuals with four or more risk factors. Since PY94, the percentage of participants testing with zero or one of the 13 risk factors has increased from 38% to 52%. During the same period, participants testing with four or more risk factors decreased from 16% in PY94 to 9% in PY98.<sup>4</sup>

## 2. Health Age

A participant's biological age is adjusted by self-reported health practices to compute a health age.<sup>5</sup> The average values for all health assessment participants are presented in the table below.

Year	Biological Age	Health Age
1994	36.8	37.6
1998	38.9	38.9
1999	39.1	38.3

## 3. Progressive Tracking of Individual Participants

High-risk employees who regularly participate in a health assessment tend, on average, to show health improvements. Non-high risk employees tend to stay non-high risk.

Of the 2259 health assessment participants in PY99, 1047 had participated in annual health assessments in at least two previous years since PY95. For these regular and current participants, 135 were high risk in their first year. By PY99, 72 (53%) of the high risk group had decreased their number of risk factors; 60 (44%) of them enough to be non-high risk.

Of the 1047 regular and current participants, 912 (87%) were tested non-high risk in their first year. In PY99, 861 (94%) were still non-high risk.

## 4. PIH Participants

In program years 97 through 99, 237 Fannie Mae employees at high risk for cardiovascular disease commenced participation in the PIH program. Of those 237, 131 (55%) completed the program by attending a post assessment. Of those completing the program, 86% significantly improved their health (54% of them improved enough to graduate to non-high risk).

A recent study indicated that 67% of the PY97 PIH graduates were still in the graduate (non-high risk) category three years later. All told, 74% of the PY97 PIH class tested significantly better three years later in terms of risk factors.

## D. Participation Incentives

During 1999, 1,930 employees (85%) qualified for the Healthy Living Day Off incentive by participating in a health assessment and a group feedback session.

## E. Miscellaneous

- A comprehensive 1998 Fannie Mae HR Survey indicated that 80% of the respondents felt that the annual health and fitness assessment "met their needs well".
- A September 1998 report to the HR Senior Vice President included a favorable Cost Benefit Analysis of the PHLP.

## II. Partners in Health Program, March 2000 Report

### A. Overview

The Partners in Health (PIH) program is a voluntary individual counseling program for Fannie Mae employees who are determined to be at high risk for health problems. The determination is facilitated by a review of the health assessment data. Seven risk factors are considered:

1. LDL Cholesterol of 160 or above
2. Coronary Risk Ratio (TC/HDL) of 4.7 or over for women, 6.0 or over for men
3. Blood Pressure above 160 and/or 100
4. Smoking or Chewing tobacco
5. Body Mass Index (BMI) at or above 30
6. Personal history of diabetes (added in 1999)
7. Personal history of heart disease (added in 1999)

Individuals with two or more risk factors are invited to participate in this 12-week program. The long-term goal of the program is to help participants make permanent lifestyle changes that will positively impact the five modifiable risk factors cited above. The program includes an agreement on concrete goals to reduce risk factors, required medical clearance, weekly individual feedback/discussion centered on nutrition and exercise, referral to special programs as needed, interim testing, post health assessment, and final counseling on health maintenance.

### B. Participation & Outcomes - 1997 to 1999

During the three years from 1997 to 1999, **435** employees were determined eligible for the PIH program and **237** enrolled in the program. Of the 237 that began, **131** completed the program by attending a post health assessment.

#### **Results of the 131 post health assessments:**

- 71 graduated to non-high risk by the end of the program (graduates).

- 42 significantly and measurably improved their risk factors by the end of the program but not enough to graduate to non-high risk (improved).
- 18 failed to improve their risk factors (not improved).

### C. Progressive Tracking of Participants' Health

In 1997, 70 employees commenced the PIH program and 42 completed the program by attending a post assessment. Three years later, the risk factor health of each of the 42 was reexamined.

1997 Status	2000 Status
28- Graduates	<ul style="list-style-type: none"> <li>• 4 did not have another health assessment (3 left Fannie Mae)</li> <li>• 8 relapsed into high risk (3 of 8 were still healthier than before the PIH program)</li> <li>• 16 still non-high risk</li> </ul>
10- Improved	<ul style="list-style-type: none"> <li>• 3 did not have another health assessment after 1997 (2 left Fannie Mae)</li> <li>• 3 relapsed into high-risk status</li> <li>• 4 maintained or continued to improve (1 now non-high risk status)</li> </ul>
4- Not Improved	<ul style="list-style-type: none"> <li>• 1 no improvement</li> <li>• 1 significant and continuous improvement of 3 risk factors</li> <li>• 2 improved to such extent that now non-high risk</li> </ul>

### D. Summary

- Of the 1997 graduates that repeated health assessments 3 years later, 67% were still non-high risk.
- Compared to their 1997 health assessment, 74% were healthier 3 years later.
- Of the 35 PIH participants in 1997 who continued to take health assessments, none reported development of heart disease or diabetes.
- The marginal cost of administering the PIH program from 1997 to 1999 was \$86,113.

- Cost per enrollee: \$363
- Cost per "completed" enrollee: \$657
- Cost per "significantly improved" enrollee: \$755
- Cost per graduate: \$1,213

### **III. Excerpt from Fannie Mae Wellness Report (report to Senior Management), September 1998**

#### **A. Cost-Benefit Study**

This study was conducted as an attempt to determine whether there are quantitative data to support the qualitative evidence of the significant benefits associated with participation in this program, both to individual participants and to Fannie Mae. Data on participation in the program, sick leave records and health insurance claims were analyzed, and the results are presented here. There are clear indications that the quantitative results do indeed indicate significant program benefits. Specifically, results of the study show that:

- Over the three-year period 1994 through 1996, the average increase in health-care cost for employees who participated in all of the health assessments for those years was less than the cost of the program over the same period. For those who participated in no health assessments, increases in health care costs were greater than the cost of the program.
- Over the five-year period 1993 through 1997, the health care costs for those with three health assessments in the years 1994 through 1996 declined relative to costs for those with no health assessments in those three years.

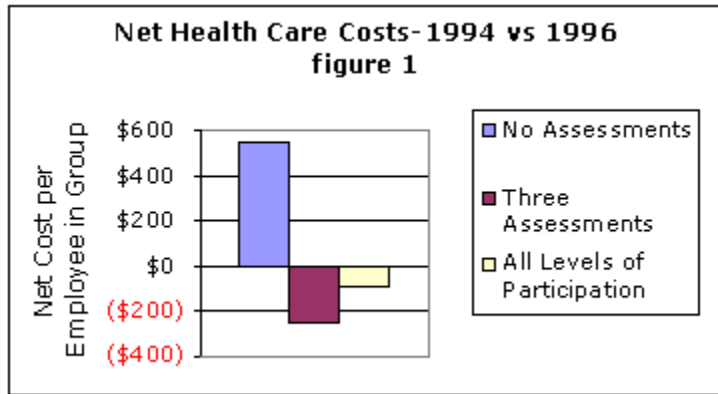
##### **1. Analysis**

- The employee base that was used to track individuals over time consisted of 3,454 employees in all Fannie Mae locations as of mid 1997. Participation, by members of the base, in health assessments in 1994, 1995, and 1996 ranged from none to three. Two kinds of analysis were carried out: snapshot, which used data for all participants in a given year, and longitudinal, which used data only for members of the employee base who participated in all of the years considered in a given segment of the study.
- Cost data were obtained from health insurance claims paid, compiled by Fannie Mae covering the four calendar years 1994 through 1997 and from sick leave records covering the four calendar years 1993 through 1996, using a multiplier of \$35 per sick leave hour.

**Figure 1** shows cost data from a longitudinal comparison of people for whom data were available in both 1994 and 1996. The net costs were obtained by subtracting the average change in cost from 1994 to 1996 from the cost of the program per person over the three-year period, \$327. Thus, negative values indicate



that health care costs decreased by more than the cost of the PHLP program.



**Table 1** shows the results of a snapshot study of average costs in each year from 1993 through 1997.

**Table 1**

**Yearly Cost Factors Without Tracking of Individual Employees**

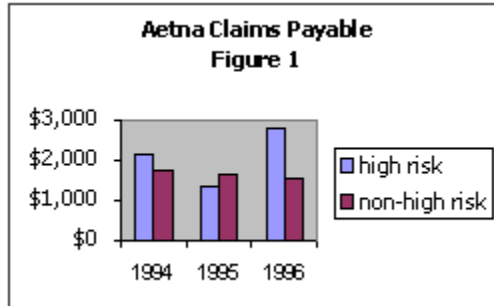
**All Costs are Average per Employee in Each Group. See Note 1**

Employee Base	Cost Factor	1993 Costs	1994 Costs	1995 Costs	1996 Costs	1997 Costs
Entire Group	Sick Leave	\$1,469	\$1,338	\$1,444	\$1,399	NA
	Claims Paid	NA	\$1,710	\$1,620	\$1,649	\$2,165
	Total	NA	\$3,048	\$3,064	\$3,048	NA
No Health Assessment	Sick Leave	\$1,386	\$1,292	\$1,470	\$1,367	NA
	Claims Paid	NA	\$1,570	\$1,718	\$1,645	\$2,231
	Total	NA	\$2,862	\$3,188	\$3,012	NA
3 Health Assessments	Sick Leave	\$1,407	\$1,372	\$1,454	\$1,284	NA
	Claims Paid	NA	\$1,850	\$1,741	\$1,526	\$2,018

Total NA \$3,222 \$3,194 \$2,810 NA

#### IV. Excerpt from Fannie Mae Wellness Report, February 1998 (Preliminary)

### A. Incidence of risk factors among FM employees

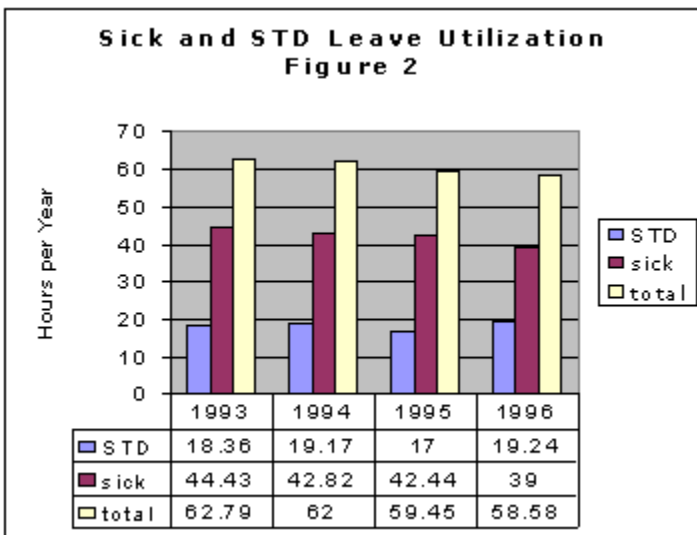


In 1994, tested employees had an average of 0.77 high risk factors of the 5 risk factors being tracked. The average has fallen steadily to the current level of 0.51 risk factors per person. Similarly, the percentage of high-risk employees among the 2/3 or more of the participating workforce has declined steadily each year since 1994 from 18.6% to 11.2%.

Individuals repeating health assessments over several years tend to show improved health, regardless of their initial health status or their participation in other wellness programs. Furthermore, the 12-week, high-risk intervention program initiated in 1997 was successful in helping high-risk employees change to non-high risk.

### B. Sick and Health Leave Costs

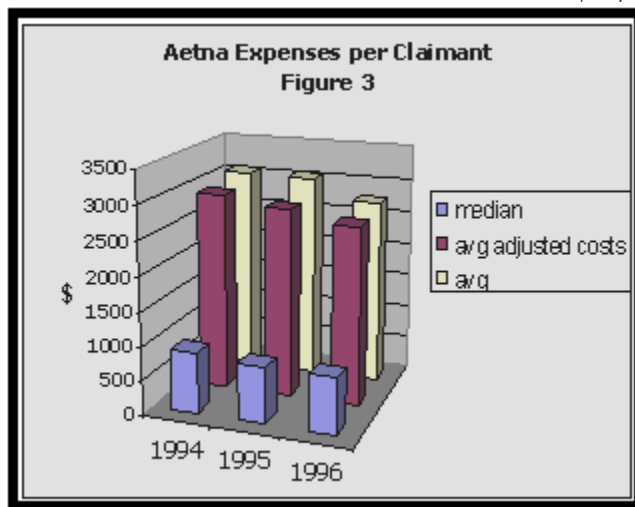
Non-maternity sick leave declined steadily from 1993 through 1996, though, the non-maternity, short-term disability did not show a trend, figure 2.



## C. Cost-Benefit of Program

Program administration fees from 1994 through 1996 were \$1,176,453. The estimated benefit of the reduced leave time during the period was \$1,042,072, and the benefit from reduced medical claims totaled \$1,487,500 for a total benefit of \$2,529,572. Therefore, there was a net benefit of \$1,353,119. If we include the cost of lost time at work connected to the Health Living Day Off incentive, the total net benefit declines to approximately \$200,000.

The cost-benefit of the high-risk intervention program was not specifically analyzed because estimating the benefit and the likelihood that a successful participant avoided or postponed a major health event is beyond the scope of this review. However, the 1997 cost to bring a high risk employee to non-high risk was \$1,142, while the cost of treatment for a heart attack was \$51,000, not including \$32,000 for heart bypass surgery.



## D. Summary

- Employees with more risk factors appear to cost more in health care costs and sick leave than non-high risk employees.
- By several different measures, the average health of the Fannie Mae employees is better than 3 years ago.
- Employees who routinely participate in health assessments tend to show health improvements over time, independent of their participation in other health programs.
- The high-risk intervention program shows promise in reducing individual risk factors.
- The wellness program appears to pay for itself by reducing sick leave utilization and health care expenses.
- High employee participation levels and acclaim from outside sources indicate the program is considered a worthwhile benefit.<sup>6</sup>

## E. Recommendations

1. Continue program funding [subsequent continued funding through 2000].

2. Concentrate on maintaining participation, especially in the health assessment and high-risk intervention programs.
3. Continue to measure results and report on the program annually.

## **V. Employee Feedback**

*KS (Fannie Mae employee) June 10, 1999 letter to Health One Wellness Coordinator.*

"I had to take a moment to share with you the success I have achieved since I had my last health assessment performed in December, 1998. I was encouraged by a co-worker to have my health assessment done so that I could get the Healthy Living Day Off ... I wasn't in the mood to have blood work done, however, I was grateful that my co-worker had insisted I go for the assessment ... My blood pressure was 150/100, my body mass index was 39, and I weighed in at 238 lbs! To make matters worse, my total cholesterol was 252 and the LDL was 191! What was amazing was I had been feeling great and that is common in people who have hypertension. From the startling results, I immediately called my physician and made an appointment. She reviewed the results and commented on how great it is to have a corporation that takes an interest in its employees' health by providing a program such as Healthy Living. She also prescribed medications for both the high blood pressure and cholesterol.

"From October through December 1998, I had participated in the Exercise Program in Herndon, but had not changed diet. So, with the New Year, I decided I would need a new attitude. I knew that medicine alone was not going to do it, but I would need to change my eating habits also. With the assistance of Partners in Health, we mapped out a plan where I would maintain a daily food/exercise log and monitor my blood pressure on a weekly basis. The food log really benefited me because it made me accountable for what, when and why I would eat. The exercise log also made me look at physical fitness as I would look at going to meetings or taking classes. Once I wrote it on my calendar, I had to go! On the weekends, I would incorporate some of the foods I love to eat. But during the week, I would get back on schedule.

"From Partners in Health, I learned that I should eat breakfast because it fuels the body and keeps me from eating too much at lunch. ... I [was taking college] classes in the evening, ... and I learned that I didn't have to sacrifice eating dinner, but should modify what I would eat after 8:00 p.m. So instead of eating meat, potatoes, veggies, etc., I would have salad with lite dressing, soup, bagel, canned or fresh fruit.

"... I could determine if I was reducing by the way my clothes would fit. Within four weeks, I noticed that what was a little snug on me in December, was a little loose on me in February. When I went to my physician for a follow-up in March, 1999, I was totally elated when I weighed in at 229 lbs and my blood pressure was 130/80! ...in May, my total cholesterol count was down to 173, the LDL was 106, and I weighed in at 222!

"With Partners in Health, my physician, and my determination to succeed, I have achieved results. ... now I have a formula ... good ole fashioned exercise and eating healthy ... to help me be successful in being healthy. For me, the bottom line is to get off of the medications, be at the weight I would like to be, and view regular physical activity as natural as breathing. I believe I'm on my way. Thanks, Partners in Health. Sincerely, KS"

*TM (Fannie Mae employee), excerpt from conversation with Health One Counselor, January 1999*

Blood tests done in conjunction with TM's health assessment over the years had detected elevated liver enzymes. In the past, his physician had not been concerned. This year, TM went to a new internist who did some additional tests and diagnosed TM with hemochromatosis, an inherited tendency to store excess iron in the tissues.

TM began treatment and started to show health improvements quickly. Now, he is off his blood pressure medication, his arthritis pain is gone, he no longer needs medication for diabetes, and he has more energy. He told his brothers, both of whom then tested positive for hemochromatosis and are under treatment.

(Newsweek: November 1998 article: "The early symptoms are easy to brush off, but the gradual iron buildup can literally rust the body to dust. Hemochromatosis affects more than one million people... The good news is that it is extremely easy to manage, if you're lucky enough to get a diagnosis.")

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1To enroll, a Fannie Mae employee must meet with a Health One regional coordinator, and complete a goal sheet, a medical history form and informed consent, a personal health contract, and gain medical clearance (usually from his/her personal physician).

2Percentage of high risk employees by program year: 18.6 (PY94), 17.6 (PY95), 17.6 (PY96), 16.7 (PY97), 11.2 (PY08), 10.3 (PY99)

3Health Management risk factors: sick days, low life satisfaction, smoker, systolic blood pressure, diastolic blood pressure, drug use, sedentary lifestyle, stress signs, health age, alcohol intake, weight, total cholesterol, seat belts. In 1999, 4 more risk factors added: not satisfied with job, has COPD, serious health problem, poor health perception.

4In PY99, 4 more risk factors were added, now 17 in all. The percentage of employees tested with 4 or more of 17 risk factors went up to 12%.

5Health age adjusters: smoking, good daily breakfast, regular aerobic exercise, weight in desirable range, none of light drinking, 7-8 hours of sleep daily, avoid frequent snacking.

6Fannie Mae ranked as the #1 U.S. company for women in 1996 by Working Woman Magazine. Much of the assessment involved the wellness services (which received the highest possible ratings). Fortune ranked Fannie Mae 76th best U.S. Company to work for in 1997, citing specifically the Fannie Mae exercise classes and health assessments.