

Financial Incentives and Workplace Wellness-Program Participation

By Paul Fronstin, Ph.D., Employee Benefit Research Institute, and M. Christopher Roebuck, Ph.D., RxEconomics

A T A G L A N C E

- Data from a large employer that offered financial incentives to encourage participation in its wellness program are analyzed in this paper. It examines how the characteristics of first-time, wellness-program participants changed with the enhancement of financial incentives for health-risk assessments (HRA) and biometric screenings. Those who completed an HRA or biometric screening in the two years prior to the change in financial incentives (i.e., pre-incentive) are compared to those who completed an HRA or biometric screening in the two years (for HRA) or three years (for biometric screening) after the change in the financial incentives. Findings from this study paint a vivid picture of the type of individual who favorably responds to wellness-program financial incentives—a research contribution with important implementation and evaluation implications.
- *Demographics*—Among employees who first completed an HRA post-incentive, 82.4 percent were male versus 70.2 percent who first completed an HRA pre-incentive. For biometric screenings, the gender comparison was similar. Late adopters also tended to be older. Among those first completing an HRA post-incentive, average age was 50.0 compared to 45.0 among the pre-incentive group. For biometric screenings, average age was 48.7 versus 46.4 for the post- and pre-incentive cohorts, respectively.
- *Health Status*—In general, individuals who first completed the wellness programs during the post-incentive period were less healthy than early adopters. Moreover, prevalence rates of diabetes, high blood pressure and high cholesterol were all higher in the post-incentive groups than in the pre-incentive groups.
- *Health-Services Utilization*—Visits to specialists were higher for the post-incentive cohorts. Prescription drug utilization was higher as well among post-incentive HRA completers (17.0 fills per year) compared to pre-incentive HRA completers (14.2 fills per year), and also greater for post-incentive biometric screening completers (18.7 fills per year) compared to pre-incentive completers (13.3 fills per year). In large part, individuals who first completed HRA and biometric screenings after the financial incentives were introduced were less likely to have consumed preventive care, and they were less likely to have visited a primary care provider.
- *Health Risks*—Individuals who first completed the HRA post-incentive had greater health risk than those first completing it pre-incentive. Employees first completing the HRA post-incentive were more likely than those completing it pre-incentive to be at risk for blood pressure, exercise, glucose, nutrition, smoking, and weight.
- *Biometrics*—Late adopters of biometric screening also had worse biometric values. Over one-third (35.2 percent) of post-incentive biometric screening completers was obese compared with about one-quarter (26.3 percent) of pre-incentive completers. Further, 50.3 percent of post-incentive biometric screening completers were pre-hypertensive, compared to 45.8 percent of early adopters.

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Introduction

Recently, there has been growing interest in workplace wellness programs. The Patient Protection and Affordable Care Act of 2010 (PPACA) allows employers to provide financial incentives of as much as 30 percent, up from 20 percent, of the total cost of coverage when tied to participation in a wellness program. This provision of PPACA is expected to drive increased adoption of financial incentives, and there is already evidence to suggest that adding wellness incentives is by far more popular among employers than alternative changes they could make to health plan designs (Fronstin 2014).

In 2014, the Equal Employment Opportunity Commission (EEOC) filed its first-ever legal challenges to wellness programs, claiming that they violated the Americans with Disabilities Act (ADA). A U.S. District Judge denied EEOC's request to block one of the programs from implementation. Uncertainty regarding the EEOC's stance and judicial merit may dampen enthusiasm for expanding financial incentives. However, the excise tax on high-cost health plans, which takes effect in 2018, may drive further adoption of wellness incentives. Furthermore, there is a growing body of evidence that workplace wellness programs may reduce health care costs, although the extant literature on this topic is not without its limitations, as will be discussed in greater detail below.

This paper analyzes data from a large employer that enhanced financial incentives to encourage participation in its workplace wellness programs. The research objective is to compare characteristics of employees who first participated prior to these enhancements, to individuals who first participated after they were in place.¹ Results describe the type of individual who favorably responds to wellness-program financial incentives, and this represents a significant contribution to the knowledge base with important implementation and evaluation implications. Forthcoming research will examine the impact of financial incentives on participation rates, as well as health and productivity outcomes associated with the wellness programs themselves.

Background on Wellness Programs

Employers of all sizes utilize various types of health management solutions. These include wellness programs designed to promote health and prevent disease, as well as disease management interventions, which are designed to manage patients with chronic conditions. Among larger employers, about four-fifths use case management, disease management, nurse advice lines, and health assessments (Figure 1), with about one-half offering employees financial incentives for participation. Smaller firms also employ health management solutions, although they are less likely than larger employers to do so. In addition to their employees, employers may also include spouses in these offerings.

Wellness programs usually include health-risk assessments (HRAs) and biometric screenings. An HRA is a questionnaire that individuals can complete to evaluate their health risks and quality of life. It collects data on health status and behavior, as well as medical history details, including those of the individual's family. It is common practice for employers to contract with third parties to administer the HRA in order to receive de-identified results on their employees in return. The information collected is used to provide custom feedback to participants about their current health risks, and an action plan for addressing them.

Biometric screening programs collect information on physical characteristics of the individual such as height, weight, body mass index, blood pressure, cholesterol, and glucose level. The screening is used to identify individuals at high risk for chronic conditions such as diabetes, high blood pressure (hypertension), and heart disease.

Since participation is voluntary, employers sometimes offer financial incentives, which can be provided in a number of different ways. Discounts and surcharges to premiums, reductions in cost sharing (such as deductibles and copayments), gift cards, giveaways (such as movie tickets), and contributions to health savings accounts (HSAs) are

typical mechanisms. The Health Insurance Portability and Accountability Act of 1996 (HIPAA) prohibits discrimination against individuals based on health status, but does allow employers to provide rewards or financial incentives for employee participation in a wellness program. While HIPAA allows for incentives up to as much as 20 percent of the total cost of coverage, a maximum of 30 percent is now legal under PPACA, which also allows up to 50 percent in incentives for interventions designed to prevent or reduce tobacco use.

Prior Literature and Research Limitations

There is a small (and often controversial), but growing body of literature that has evaluated various aspects of workplace wellness programs. Recent reviews include Baicker, Cutler and Song (2010), Baxter, et al. (2014), Goetzel, et al. (2014), and Mattke, et al. (2013). Published studies include examples of both successful and unsuccessful programs. Main findings in this research base are often at odds. For example, two recent reviews examined the return-on-investment (ROI) from wellness programs. The 2010 review concluded that medical costs declined an average of about \$3.27 for every \$1 spent on wellness programs (Baicker, Cutler and Song 2010). The more recent (2014) paper found an average ROI of \$1.38, which was lower in high-quality studies and higher in low-quality studies (Baxter, et al. 2014). This review also reported an improvement in study quality over time.

Many investigators acknowledge the methodological challenges of program evaluation. Perhaps the most critical issue derives from the voluntary nature of workplace wellness programs. Employees who volunteer to take part in HRA or biometric screenings are likely to be different from those who do not opt in. Economists call this selection bias. If these differing characteristics are correlated with outcomes of interest such as health-services utilization and worker productivity, naive observational analysis of wellness-program impacts will yield incorrect estimates. In the absence of a randomized, controlled trial, the analyst might employ advanced econometric techniques in an attempt to correct for this selection bias, but understanding the differences between volunteers and non-volunteers is of great importance in such pursuits.

Many studies share another limitation, small sample sizes. Evaluations based on too few observations are often underpowered, which leads to few statistically significant results. Furthermore, analyses on subpopulations (e.g., patients with chronic conditions) suffer the same fate. Finally, investigations that only examine one employer do not generate results that are generalizable to broader populations.

The timing of the evaluation is also an issue. Sometimes, workplace wellness programs are studied too soon after implementation. Use of health services and related spending may be expected to increase during year one of a wellness program, when health issues are first identified and treatments and/or preventive services are sought. Goetzel, et al. (2014) and Grossmeier, et al. (2012) suggest that three or more years may be needed in order to detect population health effects. Nyce, et al. (2012) submit that it may take a year or more for health spending patterns to change after worker health risks are impacted.

Finally, the existing literature is replete with problems of incomplete data. In some cases, prescription drug claims were not available, and reversals and adjustments occurring after claims were submitted were not reconciled. One study did not have health care claims so average spending was imputed based on utilization. And, in some studies, HRA and biometric screening data were often missing.

Data

This study utilized data from a large manufacturing employer headquartered in the Midwest, with employees located throughout the United States. Health insurance-enrollment information, medical and prescription-drug claims, and wellness-program-participation data were provided covering the period 2009-2013. The employer had been offering a health-risk assessment (HRA) since at least 2004 and introduced biometric screenings in 2007. Answers that participants provided in the HRA, as well as information from the biometric screenings, were also used.

HRA Incentives—When the HRA was first introduced, employees were offered a \$50 gift card to complete it. A few years thereafter, employees were instead given a \$20-per-month discount on their health insurance premiums if they completed the HRA. The goal of the change in financial incentives was to increase participation in the HRA program.

Biometric Screening Incentives—When biometric screenings were first implemented, employees were offered incentives to participate via random drawings for gift cards and movie tickets. Shortly after the \$20-per-month reduction in health insurance premiums was introduced for HRAs, employees were also required to complete biometric screenings to continue to receive the discount.

Sample—This analysis examined the set of employees who were ages 18–64 and continuously enrolled in the company health plan over the five-year period 2009 through 2013. Union employees, members in capitated health plans, as well as spouses, partners, and other dependents were excluded from the analysis.

Overall, HRA completion was examined for 41,030 employees; and biometric screening completion for 41,649 employees. For each wellness program, three groups were constructed: those who completed an HRA or biometric screening in the two years prior to the change in financial incentives (pre-incentive); those who completed an HRA or biometric screening in the three years (for HRA) or two years (for biometric screening) after the change in the financial incentives, but not in the pre-incentive period; and those that did not complete an HRA or biometric screening in any of the years under investigation.

Participation in the Program

HRA participation—In the two years prior to the introduction of the \$20-per-month, premium discount, 30,574 employees (75 percent) had completed the HRA (Figure 2). During the three years after the introduction of the financial incentive, another 9,777 employees (24 percent) completed it. Only 689 employees (2 percent) had never completed an HRA by the end of the five years.

Biometric screening participation—In the two years prior to the introduction of the \$20-per-month, premium discount, 12,239 (29 percent) had taken part in a biometric screening. During the two years after the financial incentive was put into place, another 26,912 employees (65 percent) received biometric screenings. Nearly 2,500 employees (6 percent) never completed a biometric screening during the study period.

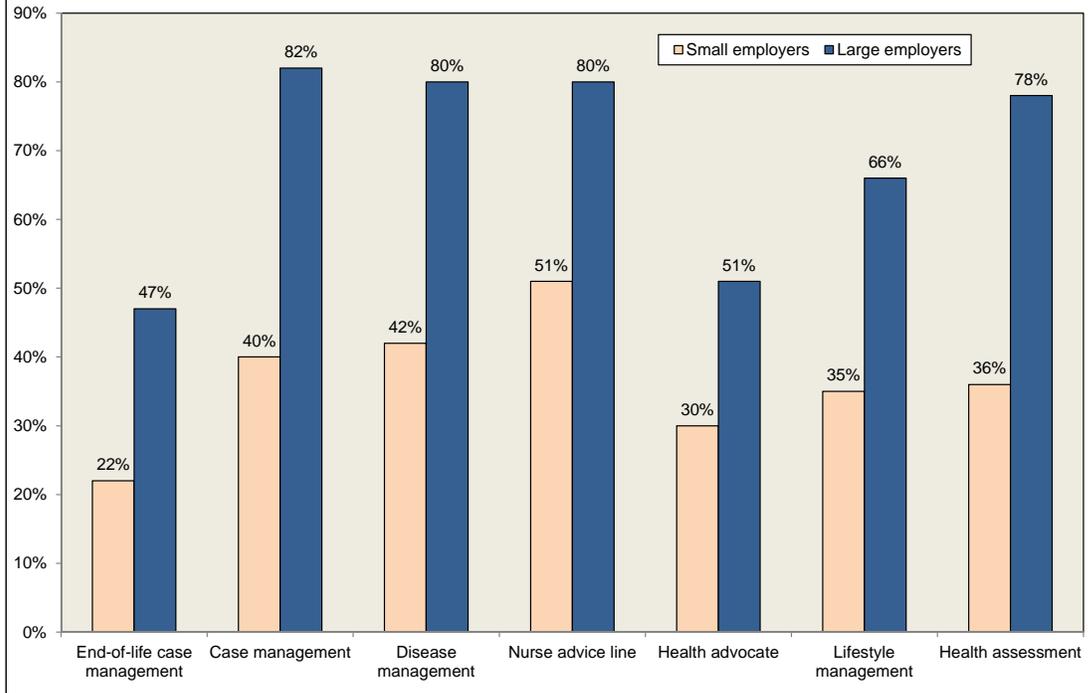
Characteristics of Wellness-Program Participants Pre- and Post-Incentive

In this section, the characteristics of employees who first completed an HRA or biometric screening after the change in incentives are compared to those who completed them beforehand. Employees who abstained from HRA or biometric screening during the five-year study period are also included in the Figures, but are not discussed below. Generally, the characteristics of individuals not completing an HRA or biometric screening are similar to those of the post-incentive groups. Unless otherwise noted, only statistically significant differences between the pre- and post-incentive groups are discussed.

Demographics—Employees who first completed an HRA or biometric screening post-incentive were older and more likely to be male relative to those opting in earlier. Of the HRA post-incentive group, 82.4 percent were male, compared to 70.2 percent of the HRA pre-incentive group (Figure 3). Similarly, 75.6 percent were male among those who first completed biometric screenings post-incentive compared to 66.8 percent of the biometric screenings pre-incentive cohort. Average age was higher in both of the post-incentive groups (50.0 for HRA; 48.7 for biometric screenings) compared to the pre-incentive groups (45.0 for HRA; 46.4 for biometric screenings).

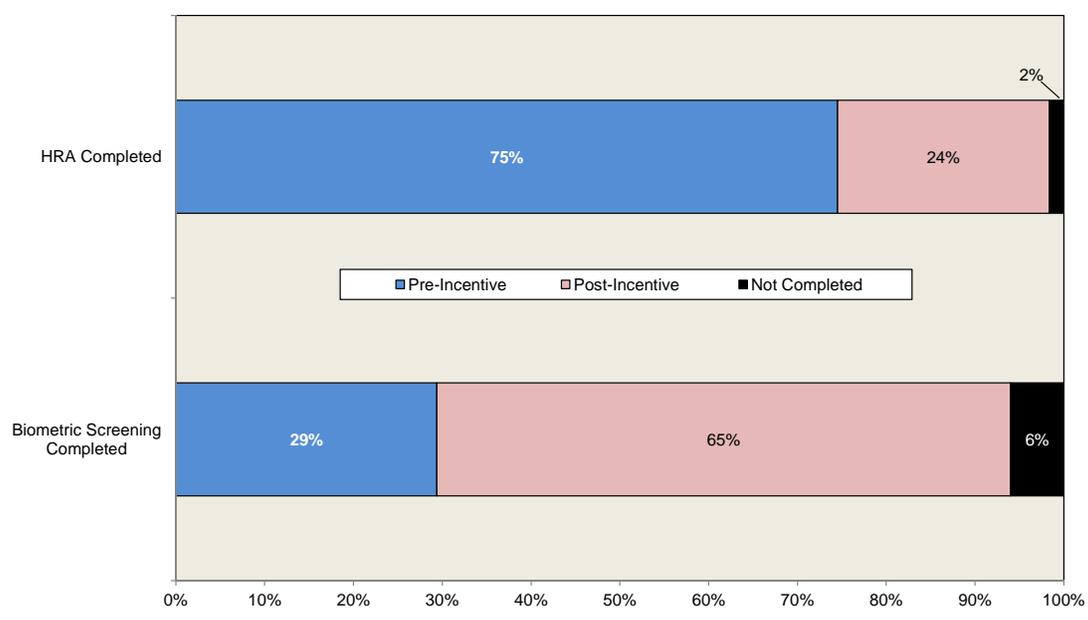
Employees who first completed an HRA or biometric screening post-incentive had higher wages than early adopters (Figure 4).² This suggests that employers may need to consider incentive levels relative to income, since the opportunity cost of time will enter into individuals' wellness-program-participation decision. That is, higher earners will require greater incentives as compensation for their time spent completing an HRA or receiving a biometric screening.³

Figure 1
Use of Specific Health Management Programs, by Firm Size, 2013



Source: page 13 in <http://www.nvbgq.org/wp-content/uploads/Making-Wellness-Work-Mercer.pdf>

Figure 2
Completion of HRA* and Biometric Screenings Relative to Year Financial Incentive was Introduced, Workers Ages 18–64



Source: Employee Benefit Research Institute analysis of administrative claims data.
 * Health risk assessment.

Health Status—The Charlson Comorbidity Index (CCI) is a proxy measure of health status derived from diagnosis codes from medical claims data. The index theoretically ranges from 0 to 37 with higher scores indicating greater disease burden (Charlson, et al. 1987) (Deyo, Cherkin and Ciol 1992) (Quan, et al. 2005). In the present study, employees who first completed an HRA or biometric screenings post-incentive had higher CCI scores (i.e., were less healthy) than those who completed either or both of the wellness programs pre-incentive. CCI averaged 0.21 for employees with post-incentive HRAs and 0.16 among those with pre-incentive HRAs (Figure 5). Mean CCI was 0.22 and 0.15 for the post- and pre-incentive biometric screening groups, respectively.

Differences in health status between those completing an HRA or biometric screening with and without financial incentives can be explained by differences in prevalence of diabetes, high blood pressure, and high cholesterol. Among those completing an HRA post-incentive, 7 percent were being treated for diabetes, 14 percent for high blood pressure, and 19 percent for high cholesterol (Figure 6). In contrast, among those who first completed an HRA pre-incentive, 5 percent were being treated for diabetes, 10 percent for high blood pressure, and 15 percent for high cholesterol. Similar prevalence rates and patterns for these chronic conditions were found when comparing the pre- and post-incentive biometric screening groups.

Health-Services Utilization—Physician's office visits for specialists were higher among post-incentive completers of HRAs and biometric screenings relative to the pre-incentive groups (Figure 7). However, physician's office visits for primary care were lower among post-incentive completers of HRAs and biometric screenings compared to the early adopters.

Post-incentive HRA completers had 17.0 prescription drug fills compared to 14.2 prescription drug fills among pre-incentive HRA completers. Similarly, prescription drug utilization was also higher (18.7 fills) for late adopters of biometric screening relative to members who opted for biometric screening prior to the change in financial incentives (13.3 fills).

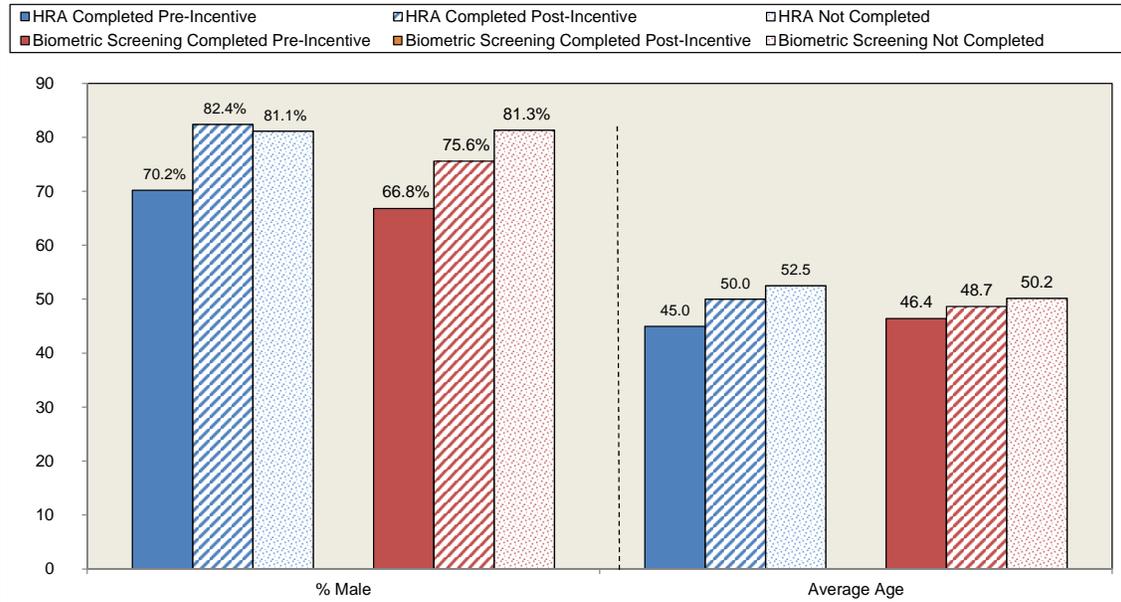
There were no statistically significant differences in inpatient stays, inpatient days, or emergency department visits between the pre-incentive and post-incentive groups.

In general, post-incentive HRA and biometric screening completers used less preventive care than pre-incentive completers. Employees with a first HRA in the post-incentive period were less likely to have had a preventive office visit than the pre-incentive group; or to have had a screening for breast cancer, cervical cancer, or colorectal cancer (Figure 8). Among individuals who completed biometric screening, those first receiving it post-incentive were less likely than those completing it pre-incentive to have had a screening for breast cancer or cervical cancer. The two groups were equally likely to have received a colorectal cancer screening, and the post-incentive biometric screening cohort was somewhat more likely to have had a preventive office visit.

Health Risks—It has been shown that health risks are associated with medical spending (Anderson, et al., 2000) (Goetzl, et al. 1998) (Birnbaum, et al. 2011) (Goetzl, et al. 2009) (Yen, et al. 2006) (Burton, et al. 2003), and that reducing these risks may result in lower health care costs (see (Nyce, et al. 2012) and citations 18–25 within). The HRA was used to derive risk indicators for alcohol, blood pressure, cholesterol, depression, exercise, glucose, nutrition, smoking, and weight. Employees first completing the HRA post-incentive were more likely than those completing it pre-incentive to be at risk for blood pressure, exercise, glucose, nutrition, smoking, and weight (Figure 9). However, those completing the HRA pre-incentive were more than or just as likely as those completing it post-incentive to be at risk for alcohol, cholesterol, and depression.

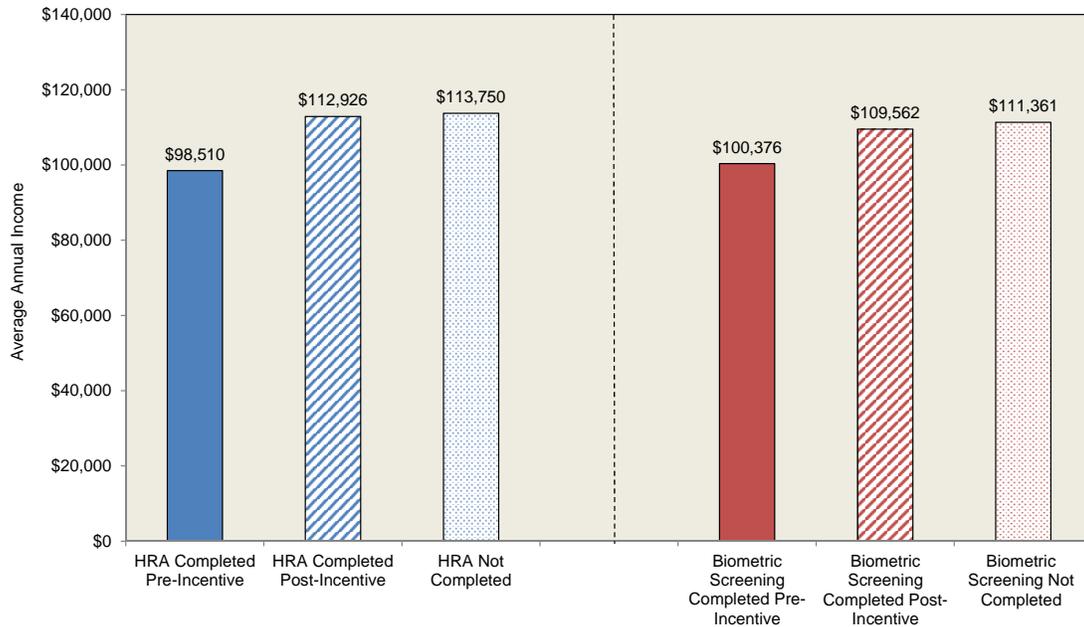
Number of health risks was grouped into categories of 0–2, 3–4, and 5 or more to examine the relationship between overall risk level and timing of HRA participation. While it appears that individuals first completing the HRA post-incentive had more health risks than those completing it pre-incentive, the differences were not statistically significant (Figure 10).

Figure 3
Percentage Male and Average Age, by Year of First HRA* and Biometric Screening Completion Relative to Year Financial Incentive was Introduced



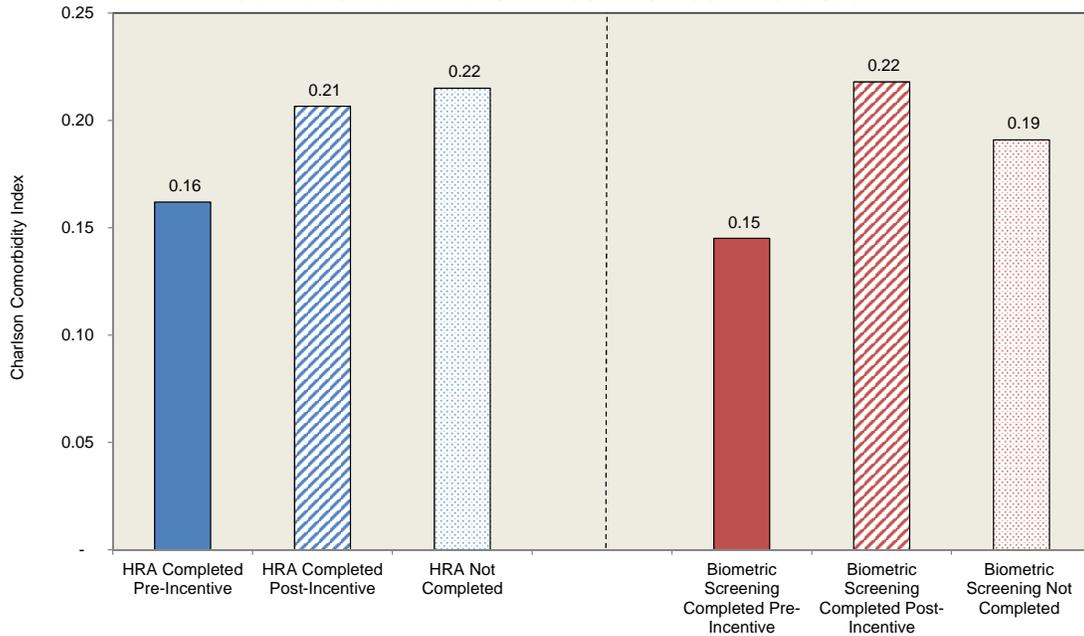
Source: Employee Benefit Research Institute analysis of administrative claims data.
 * Health risk assessment.

Figure 4
Average Annual Income, by Year of First HRA* and Biometric Screening Completion Relative to Year Financial Incentive was Introduced



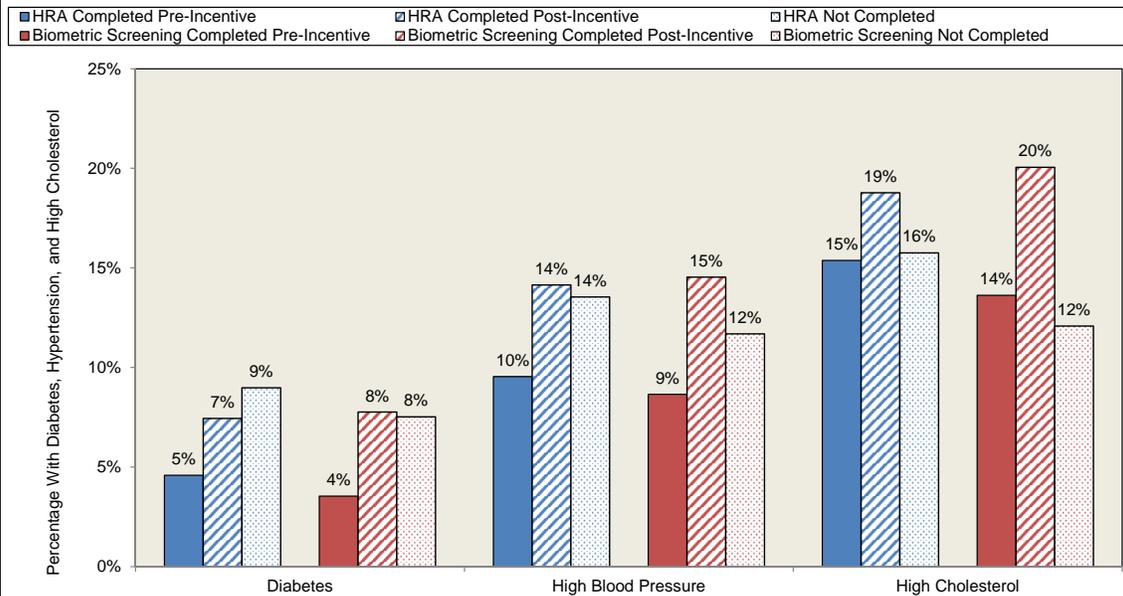
Source: Employee Benefit Research Institute analysis of administrative claims data.
 * Health risk assessment.

Figure 5
Average Charlson Comorbidity Index, by Year of First HRA* and Biometric Screening Completion Relative to Year Financial Incentive was Introduced



Source: Employee Benefit Research Institute analysis of administrative claims data.
 * Health risk assessment.

Figure 6
Percentage of Sample With Diabetes, High Blood Pressure, and High Cholesterol, by Year of First HRA* and Biometric Screening Completion Relative to Year Financial Incentive was Introduced



Source: Employee Benefit Research Institute analysis of administrative claims data.
 * Health risk assessment.

Biometrics—Post-incentive biometric screening completers were more likely than early adopters to be obese and pre-hypertensive. About one-third (35.2 percent) of post-incentive biometric screening completers was obese compared to about one-quarter (26.3 percent) of pre-incentive completers (Figure 11). Just over 50 percent of post-incentive biometric screening completers were pre-hypertensive, compared to 45.8 percent of early adopters (Figure 12). Differences in cholesterol levels between the pre- and post-incentive biometric screening cohorts were not statistically significant (Figure 13).

Figure 7

Use of Health Care Services, by Year of First HRA* and Biometric Screening Completion Relative to Year Financial Incentive was Introduced

	HRA Completed Pre-Incentive	HRA Completed Post-Incentive	HRA Not Completed	Biometric Screening Completed Pre-Incentive	Biometric Screening Completed Post-Incentive	Biometric Screening Not Completed
Hospital inpatient stays (per 1,000 individuals)	15.5	18.4	26.5	14.0	16.7	15.2
Hospital inpatient days (per 1,000 individuals)	36.5	49.8	76.6	35.2	40.5	50.4
Emergency department visits (per 1,000 individuals)	122.1	118.4	132.5	118.2	127.8	124.1
Specialist office visits	1.2	1.5	1.4	1.5	1.7	1.2
Primary care provider office visits	2.5	1.9	1.7	2.2	2.1	1.6
Prescription drug fills	14.2	17.0	16.5	13.3	18.7	14.4

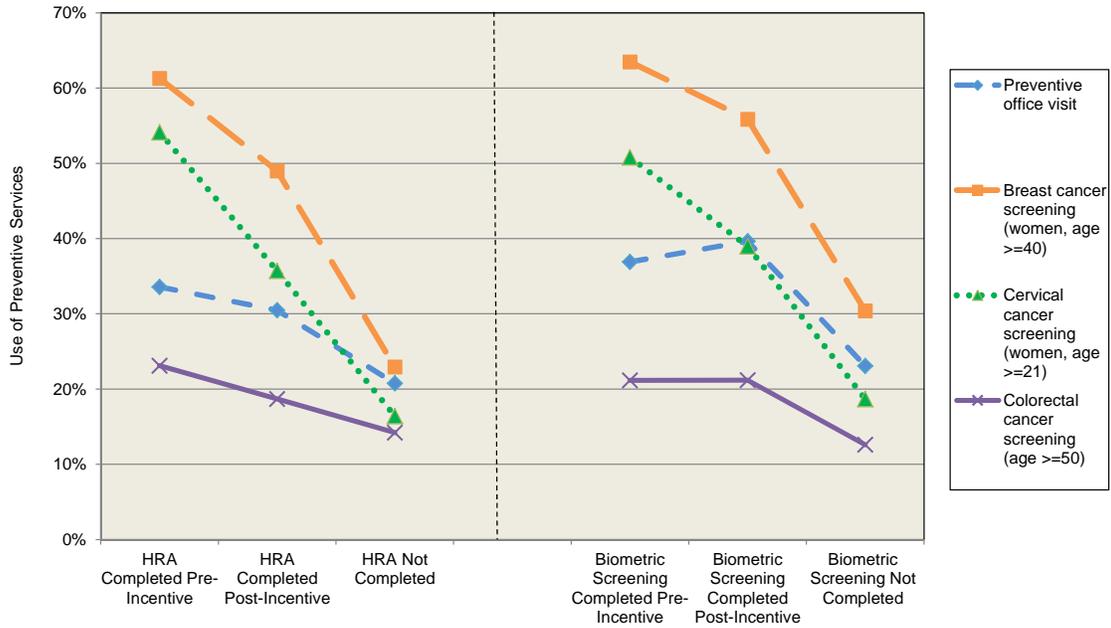
Source: Employee Benefit Research Institute analysis of administrative claims data.
* Health reimbursement arrangement.

Conclusion

This paper examined administrative health insurance claims, wellness-program participation, and data collected from health-risk assessments and biometric screenings. It reports distinct differences between individuals who participated prior to the enhancement of financial incentives and those who first participated after the new incentives were in place. Indeed, employees who delayed completion of an HRA and/or biometric screening were more likely to be male, older, higher wage earners, and in poorer health—as evidenced by higher Charlson Comorbidity Index scores; and to have higher prevalence rates of obesity, diabetes, pre-hypertension, high blood pressure, and high cholesterol. Moreover, patients first completing an HRA and/or biometric screening post-incentive had greater use of specialist visits, and prescription drugs; and were less likely to use preventive services, such as preventive office visits, breast cancer, cervical cancer, and colorectal cancer screening. In short, the employees who had abstained from participating in the workplace wellness programs were likely the ones in need of them most. The significantly increased financial incentive appears to have been effective at encouraging their participation. While results from this study cannot shed light on the magnitude of financial incentives necessary to sufficiently bolster participation, a greater proportion of employees remained unscreened for biometrics under the financial incentive than the fraction of the population without a completed HRA. The differential may be due to the time required to complete each, for which the individual may incur opportunity costs. Support for this theory is provided by the fact that higher income earners were more likely to forgo the wellness programs.

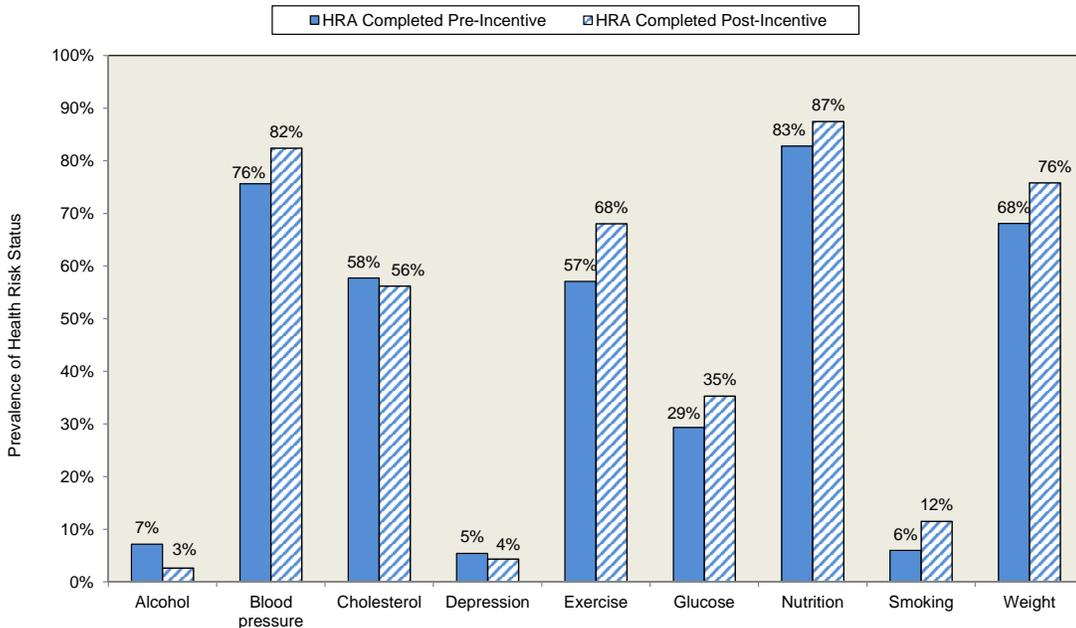
Firms offering wellness programs should expect to have to employ financial and other incentives to encourage member participation. Relatively low financial rewards may attract the young and well. Higher financial incentives—while more costly for the employer in the short-run—may bring in older, less healthy employees who are consuming more health services, and accounting for a large proportion of health care spending. If wellness programs are effective at improving patient health, positive longer-term, returns-on-investment (ROI) may support the use of high financial incentives. Forthcoming research will investigate the impact of these wellness programs on health-services utilization and spending, as well as worker productivity.

Figure 8
Use of Preventive Services, by Year of First HRA* and Biometric Screening Completion Relative to Year Financial Incentive was Introduced



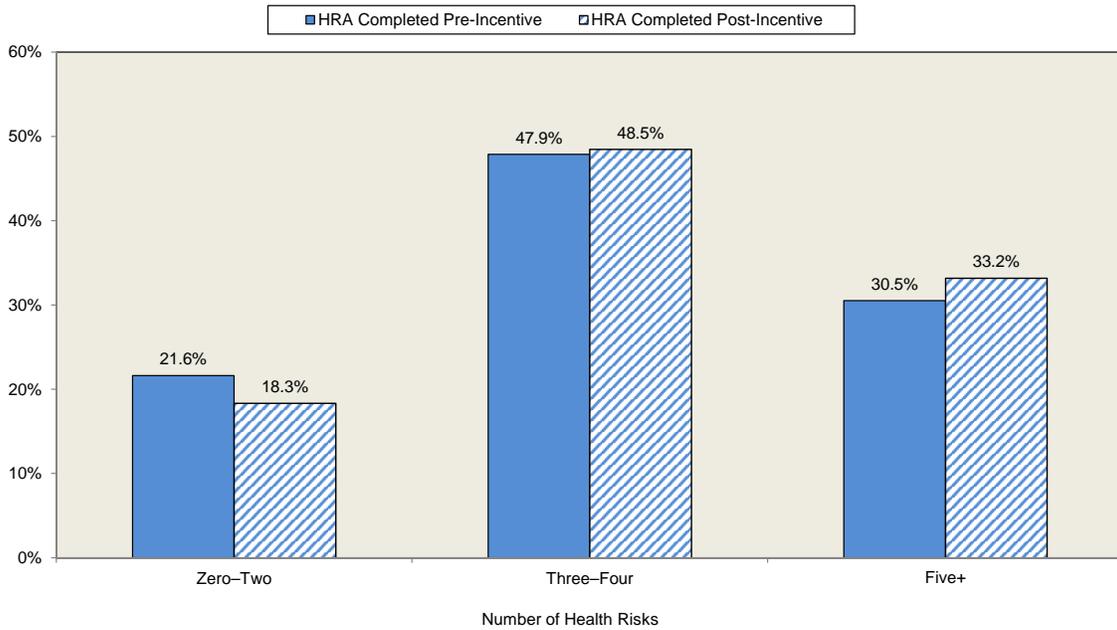
Source: Employee Benefit Research Institute analysis of administrative claims data.
 * Health risk assessment.

Figure 9
Prevalence of Health-Risk Status, by Year of First HRA* Completion Relative to Year Financial Incentive was Introduced



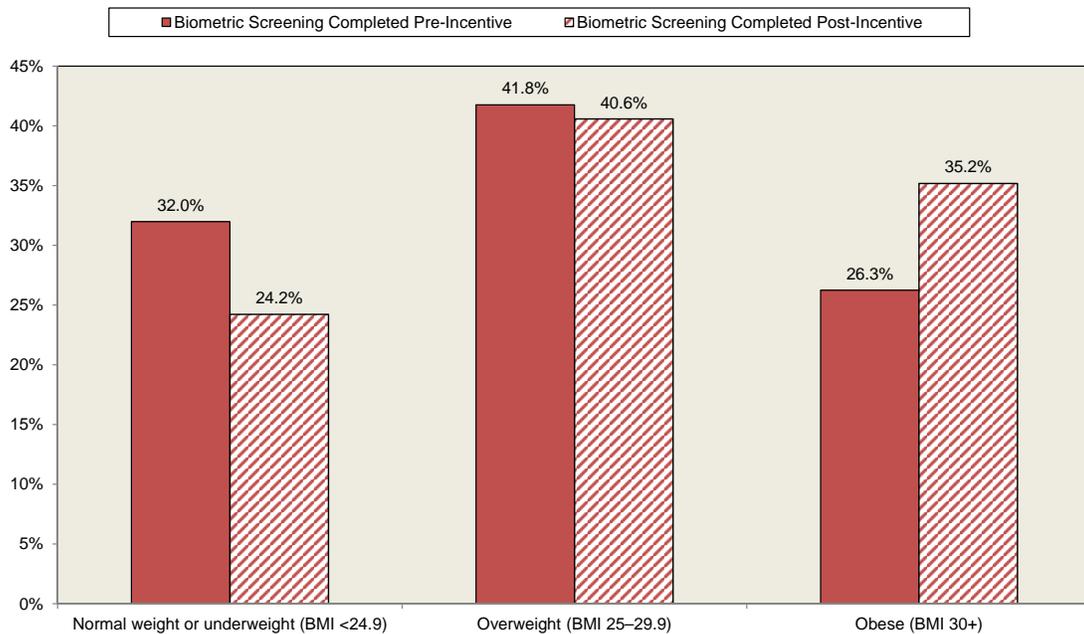
Source: Employee Benefit Research Institute analysis of administrative claims data.
 * Health risk assessment.

Figure 10
**Total Number of Health Risks, by Year of First HRA*
 Completion Relative to Year Financial Incentive was Introduced**



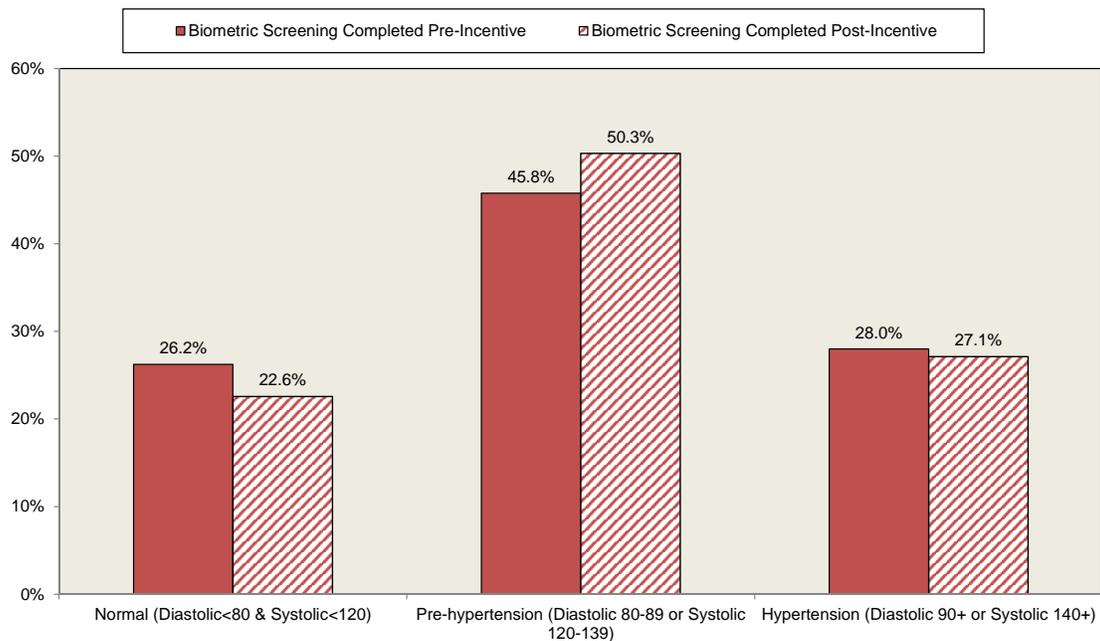
Source: Employee Benefit Research Institute analysis of administrative claims data.
 * Health risk assessment.

Figure 11
**Body Mass Index (BMI), by Year of First Biometric Screening
 Completion Relative to Year Financial Incentive was Introduced**



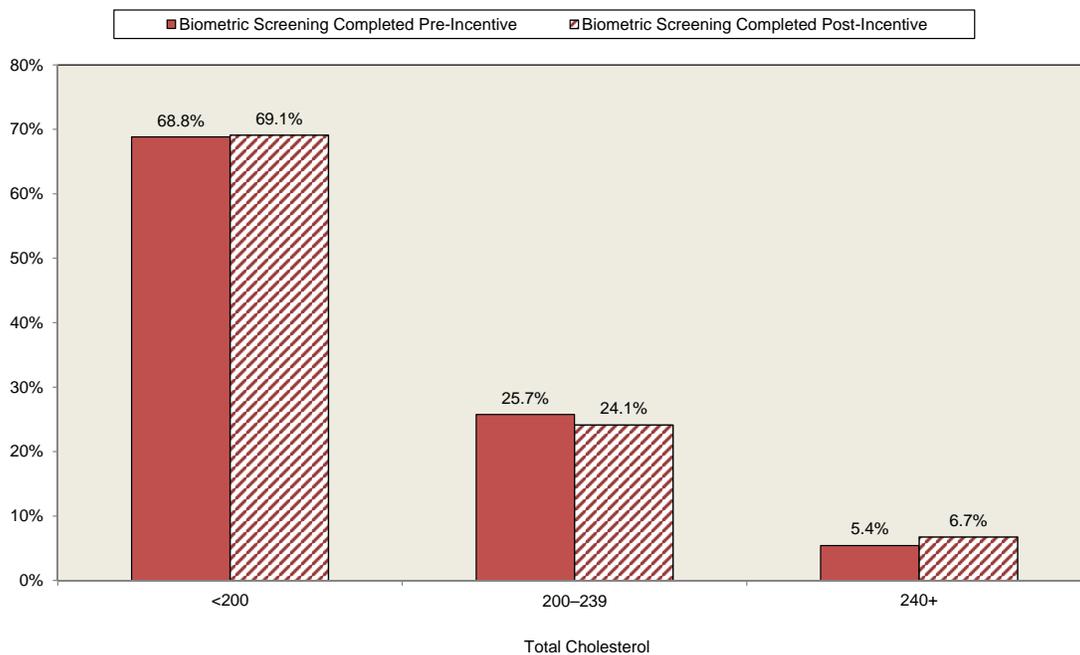
Source: Employee Benefit Research Institute analysis of administrative claims data.

Figure 12
Blood Pressure, by Year of First Biometric Screening Completion
Relative to Year Financial Incentive was Introduced



Source: Employee Benefit Research Institute analysis of administrative claims data.

Figure 13
Total Cholesterol, by Year of First Biometric Screening Completion
Relative to Year Financial Incentive was Introduced



Source: Employee Benefit Research Institute analysis of administrative claims data.

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Endnotes

¹ This report takes a similar approach to Huskamp and Rosenthal (2009) who examined individuals who completed an HRA and compared them against individuals who abstained from participation.

² All wage data are in 2013 dollars.

³ Wage levels are relatively high in the working population examined. Wages for union workers from this employer were also examined. Average annual wages were between about \$65,000 and \$70,000 when examining the timing of HRA completion. In addition, similar to non-union employees, among union employees, those who first completed an HRA or biometric screening post-incentive had higher wages than early adopters.

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