# HumanaVitality®
## *provides a pathway to cost control and increased productivity*

### Wellness is vital. Why?

Because productivity losses related to personal and family health problems cost U.S. employers $226 billion annually.[1]

### Employers need help.

Currently, only 19 percent of employers are focusing on health programs to improve workforce performance versus focusing primarily on lowering medical costs. But... 46 percent of employers say they are looking to make that shift in three to five years.[2]

## Our results...

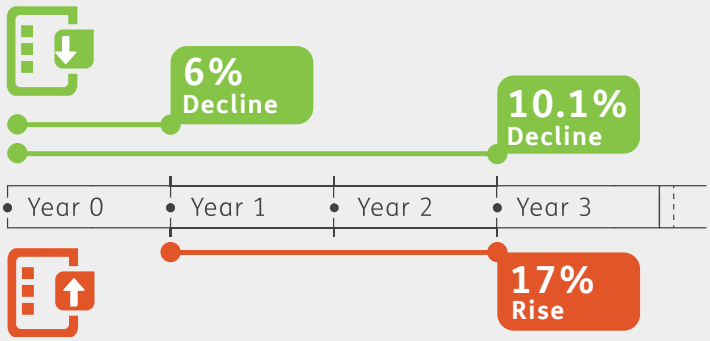
### HumanaVitality® three-year impact study *at a glance*

Employers need to know if their investments in wellness initiatives are effective and achieving their goals of a healthier and more productive workforce. We have those results.

HumanaVitality recently concluded a three-year study of how the program affected the productivity, as well as the healthcare usage and claims, of more than 8,000 Humana employees.[3] The study results showed that employees who were more engaged with HumanaVitality had fewer unscheduled absences, lower overall health claims costs, and fewer visits to the hospital and to the emergency room.

## Lower health claims costs[4]

**Engaged members' health claims costs** were 6 percent lower in Year 1, and continued to decline relative to those of unengaged members; by Year 3, their costs were even **lower** by 10.1 percent.




From year to year... **The healthcare costs of unengaged members** gradually **rose** by 17 percent from Year 1 to Year 3.

**Bottom Line for Employers:**

*Lower claims costs equals bottom line savings.*

## Less absenteeism

**Unengaged members** averaged **23 hours of unscheduled absences** per year over the course of three years.


**Engaged members**, on average, had **six fewer hours of unscheduled absences.**

**Bottom Line for Employers:**

*Less absenteeism means a workforce that is on the job.*

**More employers are looking at metrics other than healthcare costs to determine the value on investment (VOI) of their wellness programs.[5]**

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HumanaVitality is not an insurance product. Not available with all Humana health plans.
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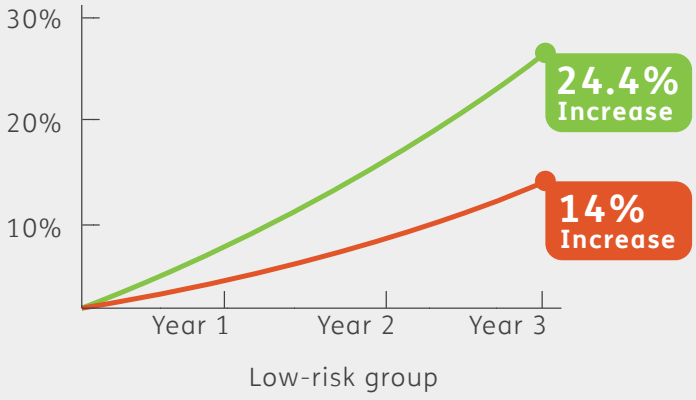
**According to the Centers for Disease Control and Prevention (CDC), chronic conditions are responsible for the bulk of healthcare costs in the U.S.[6]**

## Fewer lifestyle risk factors for chronic conditions

Among all types of medical claims, the **biggest difference** in healthcare spending between engaged and unengaged employees **was seen in those with "lifestyle chronic conditions."**


*Weight* *Tobacco* *Stress*

The percentage of engaged **members in the low-risk range increased** by ***24.4 percent*** over the three years, compared to only ***14 percent*** for the unengaged members.




### Bottom Line for Employers:

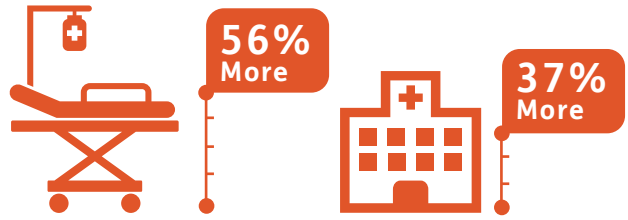
*Chronic conditions are responsible for the bulk of healthcare costs in the U.S.[7] Lower risk for those chronic conditions means happier and healthier employees.*

## Less emergency healthcare consumption

In the third year of the study... Non-chronic **engaged members** were likely to use healthcare for routine **check-ups/physicals, preventive screenings**, and musculoskeletal claims, while...

*Check-ups* *Physicals* *Preventive Screenings*

**Unengaged members had 56 percent more emergency room visits** than engaged members. They also had 37 percent more hospital visits.




*Emergency Room Visits* *Hospital Visits*

### Bottom Line for Employers:

*Generally, less emergency healthcare means less healthcare costs. And with an increase in regular physicals and screenings, employees can be healthier and more productive.*

Employers are still looking for ways to validate the success of their wellness programs, and there are more ways than ever to measure a value on investment (VOI). HumanaVitality is one program that has delivered such results over a multiyear span.

**For more information about the study, the HumanaVitality program, or how to increase the VOI of your program, go to *humana.com/employer.***

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Sources
1. Centers for Disease Control and Prevention - Worker Productivity, http://www.cdc.gov/workplacehealthpromotion/business-case/reasons/productivity.html, accessed January 19, 2016. 2. The Future of Health. Calling All Employers: Be Agents of Change. Highlighting results from the 2015 Aon Hewitt Health Care Survey. 3. Engaged HumanaVitality members are defined as those who earned more than 5,000 Vitality Points. Members who earned fewer than 5,000 Vitality Points were defined as unengaged. 4. All internal findings from the HumanaVitality 3-year impact study, 2015. 5. 10087_Willis_Health_Productivity_Survey_2015 6-7. CDC_Chronic_Disease_Prevention_2014.

# HumanaVitality three-year impact study

## Report

## Introduction

HumanaVitality® (HV) is a wellness and rewards program in which members earn points for completing various healthy lifestyle activities, including online educational assessments, preventive screenings, and fitness activities. Points accumulated define a member's status in the program (Blue, Bronze, Silver, Gold, and Platinum), and some of these points are ultimately redeemable for rewards. The more members engage in HumanaVitality, the more points they can earn. HumanaVitality was first introduced to Humana employees for the employee medical plan year starting July 1, 2011.

**Objective:** This study assesses whether any associations exist between participation in the HumanaVitality program and (1) healthcare costs and utilization, (2) productivity, and (3) biometric screening results of employees in the first three plan years HV was made available to employees. For the purposes of this study, engagement in the program was determined using the average points earned by employees during the three years. For the health claims and productivity analyses, members were divided into three engagement tiers (high, medium, low), and for the biometric screening analysis only two levels of engagement were compared (engaged vs unengaged) due to a smaller sample of members who had complete biometric screening data for all three years. These engagement levels were defined to be consistent with points required to achieve the various Vitality Status™ levels.

## Methodology

### Sample

This study was performed on a population of 8,904 Humana employees who participated in the HV program and had uninterrupted medical coverage through the Humana employee medical plan for three years. The study period was as follows: Year 1 of the HV program (July 2011–June 2012), Year 2 of the HV program (July 2012–June 2013), and Year 3 of the HV program (July 2013–June 2014). Only Humana employees were included in the study; employees with high cost claims (>= $ 100,000 in any of the three years) were removed from the sample.* Engagement in the program was determined using the average points earned by employees over the three-year period (more details below). The engagement thresholds were chosen to correspond with the points required to achieve various Vitality Status levels.

*These employees were excluded to reduce the possibility of random fluctuations caused by data outliers.**

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## Propensity score matching

Because of the way the HV program was implemented, a true randomized control trial was not possible. To eliminate bias in the results, a case-control matched analysis was performed using a propensity score matching technique. A logistic regression model was used to calculate a propensity score for each individual in the study and represents the probability of that individual engaging in the program based on a number of demographic characteristics. These characteristics included age, gender, salary, health plan type, and job function. Employees with similar probabilities of engaging in the program were then matched to form the comparison groups.

## Health claims and productivity analysis

In the health claims and productivity analysis, employee engagement was classified as: "high" for those who earned an average of 8,000 points or more per year; "medium" for those who earned an average of 5,000–7,999; and "low" for those with less than 5,000 points. Propensity scores were used to match two medium and two low engaged members to each high engaged member. The final matched sample included 8,015 employees: 1,603 high engaged, 3,206 medium engaged, and 3,206 low engaged.

Within the final matched samples, the following outcome measures were evaluated between the comparison groups: (1) the overall health claims costs (per member, per month claim amounts), (2) the health claims costs by condition category (described in the first white paper and included in appendix for reference), (3) healthcare utilization metrics in Year 3, and (4) unscheduled paid time off (PTO), which was used as a proxy for absenteeism. Health claims costs included medical and pharmacy claims allowed by the plan. Combined results for the high and medium engaged groups were also calculated (weighted by the percentage of members in each group) and compared to the low engaged group to allow consistency with previous studies and the biometric screening outcomes analysis.

## Biometric screening outcomes analysis

As part of the HumanaVitality program, employees are awarded points for having in-range biometric screening outcomes. In order not to bias or skew engagement results, biometric screening outcomes points were excluded and the points threshold used to classify members as engaged was reduced accordingly, down to 3,900 from 5,000. Members with an adjusted average points total less than 3,900 were classified as unengaged, and those with an average of 3,900 points or more were classified as engaged.

Engaged and unengaged members were matched in a similar manner to the claims and productivity analysis, but the number of at-risk factors in Year 1 was used as an additional covariate to ensure the engaged and unengaged comparison groups had similar risk profiles to begin with. One engaged member was matched to one unengaged to create the comparison groups; the final sample included 8,904 employees.

In the biometric screening outcomes analysis, the four screening measures analyzed included blood pressure, blood glucose, total cholesterol, and body mass index (BMI). The "at-risk" cut-offs for each of these measures are shown in the table below.

| Risk factor | "At-risk" definition |
|---|---|
| Blood pressure | Diastolic BP >= 80 or Systolic BP >= 120 |
| Blood glucose | >= 100 mg/dL |
| Total cholesterol | >= 200 mg/dL |
| BMI | >= 25 or < 18.5 |

The distributions of the number of risk factors per employee were then compared between the engaged and unengaged members in the matched comparison groups for each year.

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# Results

## Health claims

Figure 1 shows the results of the three-year claims analysis, with low engaged members benchmarked at 100% and compared to high and medium engaged members. Health claims costs for members that were medium engaged were 4.1% lower in Year 1, 7.8% lower in Year 2, and 7% lower in Year 3. Compared to low engaged members, claims for high engaged members were 10.6% lower in Year 1, 17.1% lower in Year 2, and 17.8% lower in Year 3. When combined, the high and medium engaged members had 6% lower claims costs than low engaged employees in Year 1, 10.5% lower in Year 2, and 10.1% lower in Year 3. Differences between all groups were significant, $p < 0.05$.

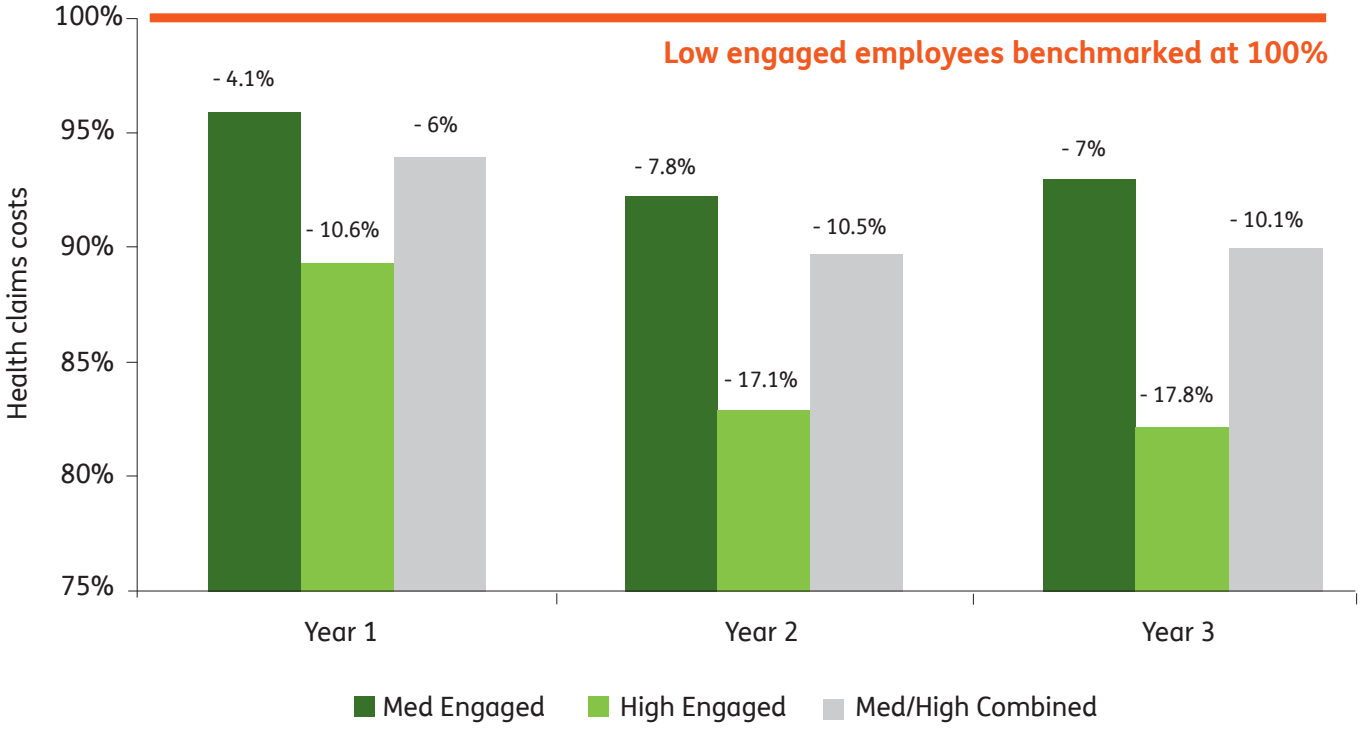


**Figure 1:** Increased engagement associated with lower healthcare spending

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## Lifestyle risk factors and chronic conditions

In Figure 2, the matched analysis was taken a step further to look at differences between the combined group of high and medium engaged members (>= 5,000 points per year) and low engaged members (< 5,000 points per year) within different health condition categories (see appendix). Claims costs in these categories were combined for Year 1, Year 2, and Year 3, and the largest difference between engaged and unengaged members was seen in those with chronic conditions that are mostly modifiable through improvements in lifestyle. This was an encouraging result as the HV program focuses on helping members improve their lifestyle.

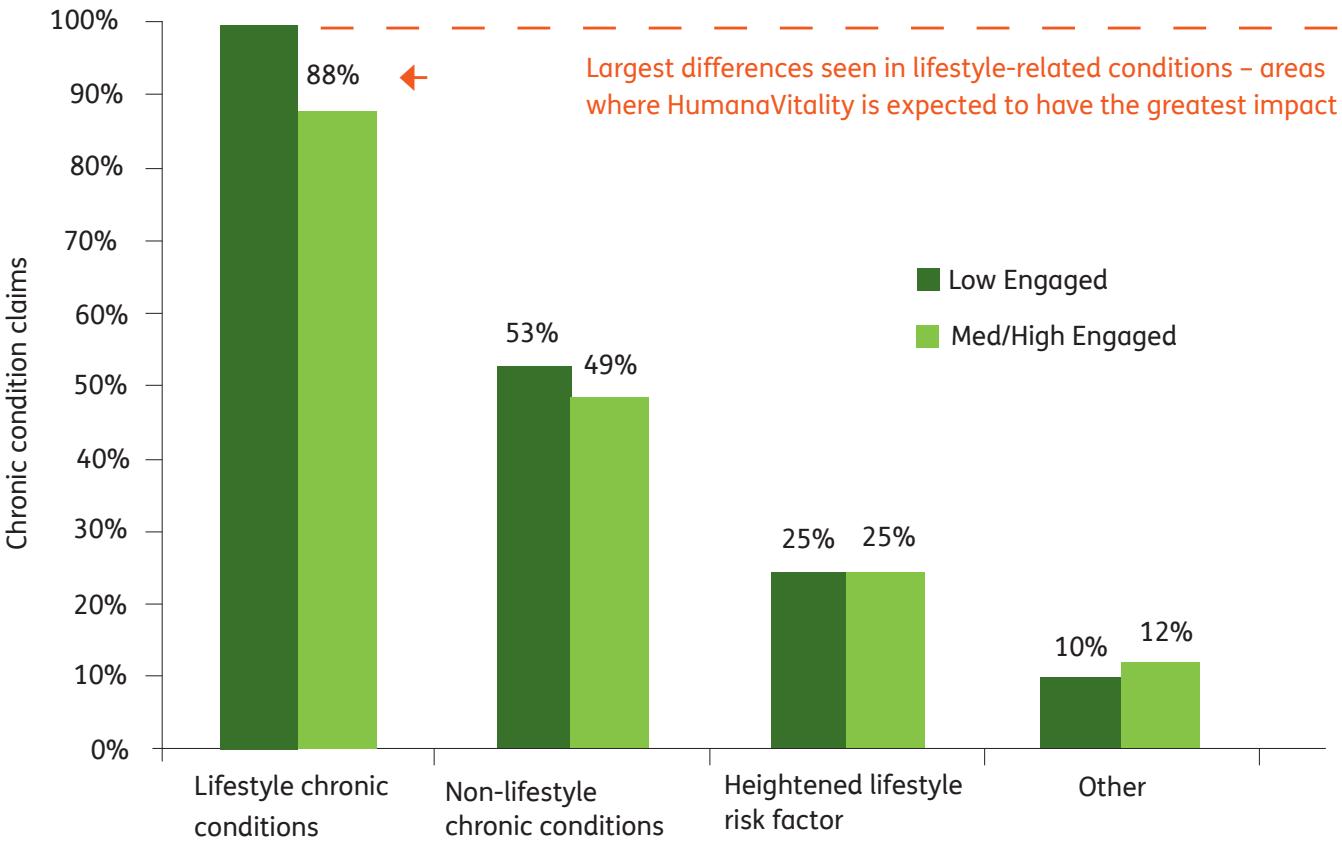


**Figure 2:** Claims by condition category

Note: See Appendix for more about conditions included in Figure 2.

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Figure 3 illustrates the differences in risk factor distributions between engaged and unengaged members in the first three years. The comparison groups were matched such that risk profiles of engaged and unengaged members were similar in Year 1. Over the three years, the risk profiles of both the engaged and unengaged members improved, probably due to the "Boosting Biometrics" initiative through which employees were given additional financial incentives to reduce their number of risk factors. Even so, employees who engaged in the program exhibited better results, with significantly more engaged employees in the 0–1 risk factor category than unengaged employees.

Over the three years, the risk profile of engaged and unengaged members improved, but engaged members significantly more so ($p < 0.01$).

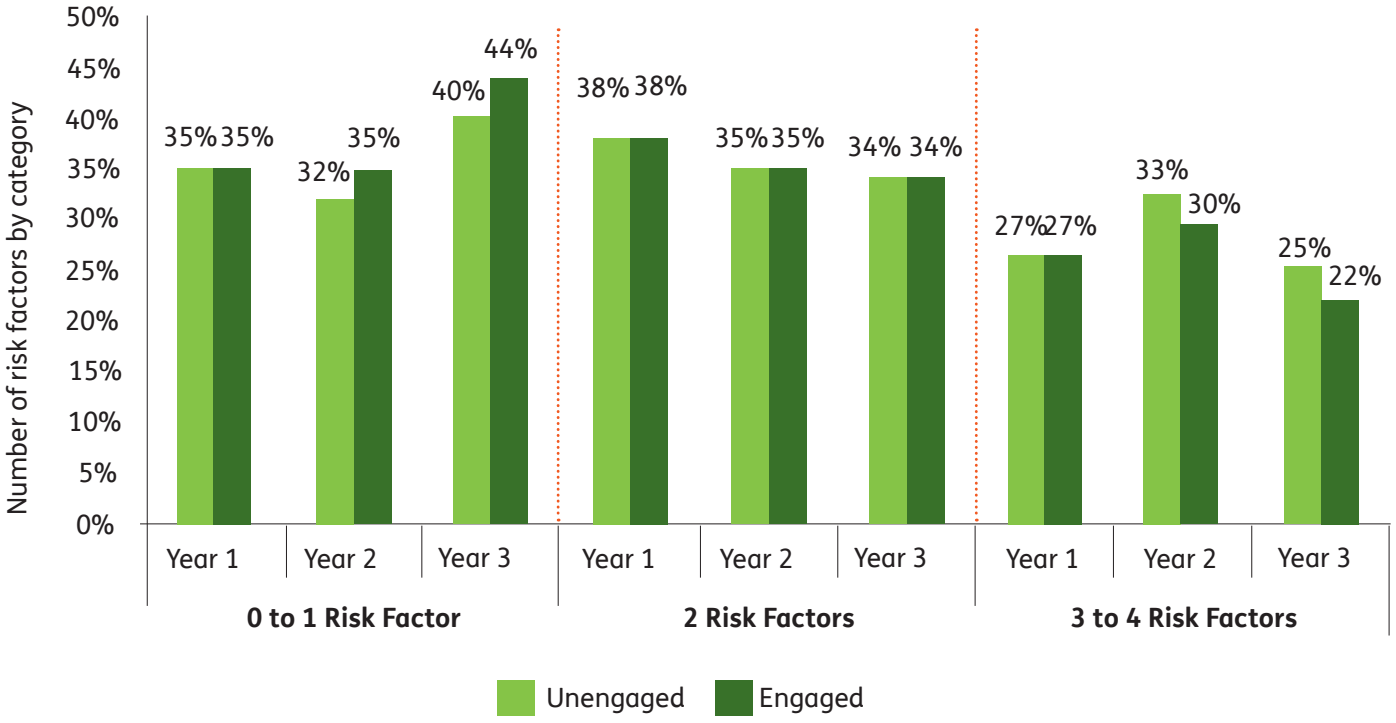


**Figure 3:** Biometric screening results

## Absenteeism

Unscheduled PTO data was used to get an estimate of the differences in absenteeism between high, medium, and low engaged members. Figure 4 illustrates the differences for the matched comparison groups in all three years with directionally similar results to claims analysis. In Year 1, the medium engaged members had 17.1% lower unscheduled PTO than low engaged members, 20.5% lower in Year 2, and 23.6% lower in Year 3. High engaged members had the best experience with 41.5% lower unscheduled PTO than low engaged members in Year 1, 42.5% lower in Year 2, and 43.7% lower in Year 3.

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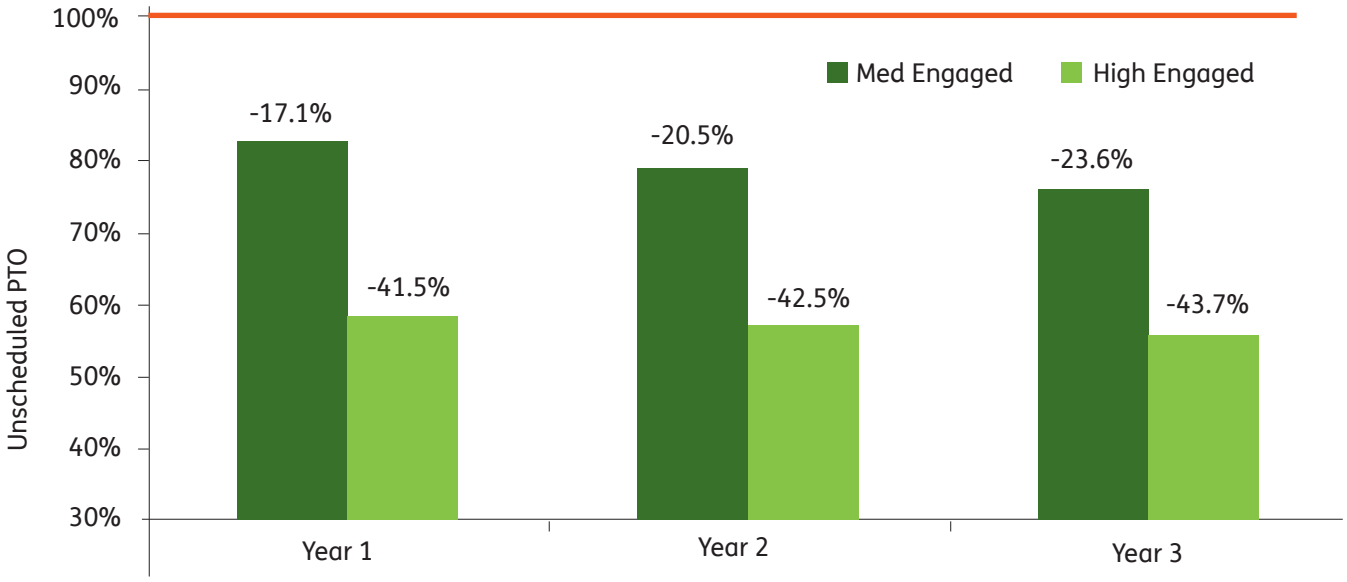


**Figure 4:** Higher engagement associated with lower unscheduled PTO

## Healthcare utilization

Figure 5 shows the differences in healthcare utilization rates between high, medium, and low engaged employees in Year 3. The utilization metrics compared in this study were doctors' office visits, emergency room (ER) visits, and hospital admissions. High engaged employees had the highest doctors' office visits, which is consistent with more utilization of primary and preventive care services; but they had the lowest number of ER visits and hospital admissions. Conversely, low engaged employees had the lowest number of office visits, but the highest number of ER visits and hospital admissions.

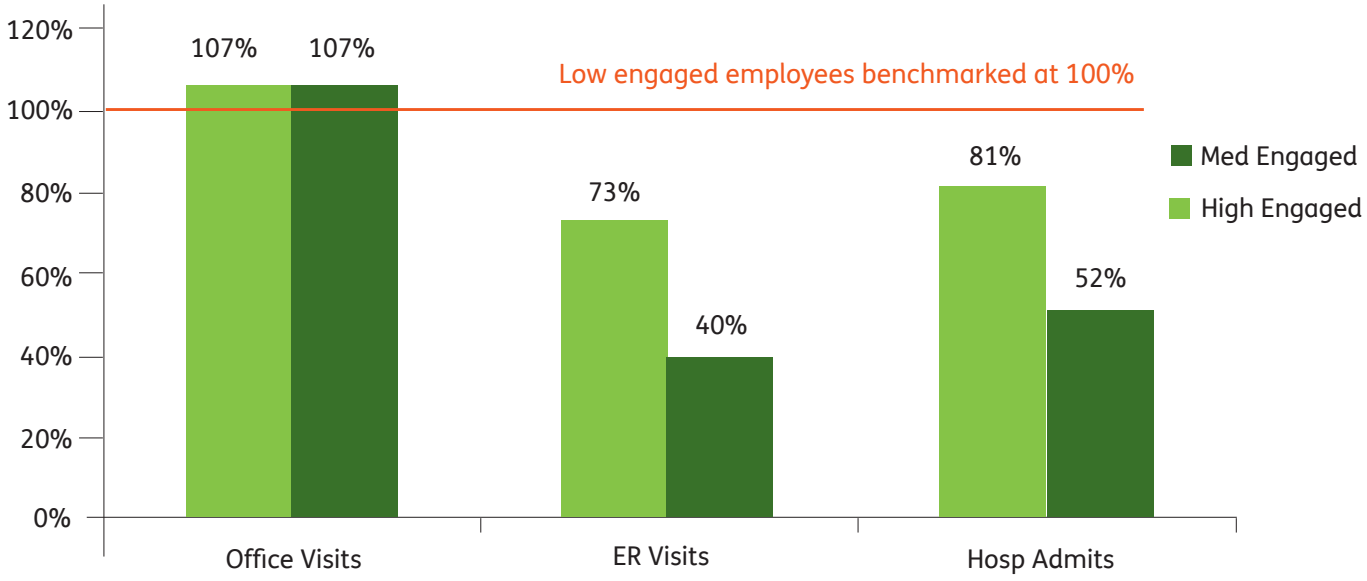


**Figure 5:** Comparison of office visits, ER visits, and hospital admission between low, medium, and high engaged members

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## Conclusion

In summary, this study's results continue to show a positive correlation between engagement in the HumanaVitality program and lower healthcare costs, absenteeism, and biometric risk factors in the first three years. There also seems to be a close response relationship between engagement in the program and health outcomes, with high engaged members exhibiting the best results, followed by medium engaged, and then low engaged members having the worst results.

###

## Citations

Jaco Conradie is an actuarial analyst on the HumanaVitality Product and Innovation team. Conradie is a graduate of Pretoria University (South Africa) with a degree in actuarial mathematics.

Conradie is also the co-author of "Participation in Fitness-Related Activities of an Incentive-Based Health Promotion Program and Hospital Costs – A Retrospective Longitudinal Study" American Journal of Health Promotion May/June 2011, Vol. 25, No. 5.

## Appendix

For a full overview of the HumanaVitality program's points system, activities, and status thresholds, **click here.**

Claims category definitions:

- Lifestyle chronic – If a member had health claims for one or more chronic conditions and at least one of the conditions was lifestyle related, then the member was categorized in this group. Examples: lung cancer, chronic obstructive pulmonary disease, Type 2 diabetes, coronary artery disease
- Non-lifestyle chronic – If a member had health claims for one or more chronic conditions and none of the conditions was lifestyle related, then the member was categorized in this group. Examples: heart valve disorders or arrhythmias, leukemia, Type 1 diabetes, epilepsy, asthma
- Heightened lifestyle risk factors – If a member did not have any chronic conditions but had health claims for treatment of one or more lifestyle risk factors, then the member was categorized into this group. Examples: treatment for high blood pressure, alcoholism, high cholesterol, impaired glucose/ insulin resistance
- Other – All other generally healthy members not fitting into any of the above groups

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