OPTUM™

Jump-start health management program engagement with predictive analytics

Introduction

Increasingly, employers are offering health management programs to improve the health of their employees, raise productivity levels and help control medical plan costs. But employee engagement in these programs remains a huge challenge. In a recent Towers Watson survey, employers ranked engagement as the single greatest obstacle they face when it comes to changing health behaviors.[1]

Without question, employers' commitment to these programs remains unwavering, and the recent Optum Wellness in the Workplace survey revealed continued growth in the number of programs offered and strong management support.[2] What's more, 40 percent of the respondents told us that their health management program budgets will increase over the next three years.

Yet, many employers continue to struggle with getting more employees to engage in health management initiatives. The increase in the number of programs offered has not necessarily translated to a corresponding uptick in participation rates.

Employers are addressing the engagement challenge in a variety of ways. Many offer incentives — health insurance premium reductions, cash payouts, fitness center discounts, contributions to health savings accounts and other rewards — to encourage enrollment and participation. Indeed, more than three-fourths of employers offer some type of incentive, according to Optum survey research. But relying heavily on incentives can be costly for employers and doesn't guarantee sustained behavioral change.

• Employers report that lack of engagement is the biggest obstacle to changing health behaviors.[1]

Innovative solution — Optum Propensity to Engage Index (PEI)

Recently, however, a new solution is enabling employers to address low engagement rates in a way that makes a difference. Optum, for example, is leveraging the science of predictive analytics — the ability to discern patterns in vast data pools and extract actionable insights — to identify not only those employees who can most benefit from a health management program, but also those who are most likely to actually engage in such programs.

This paper highlights an Optum innovation — known as the "Propensity to Engage Index" (PEI) — a proprietary model designed to predict consumer likelihood to enroll in Optum health management programs. The PEI attempts to predict the likelihood of an individual engaging in a health management program based on a variety of demographic, psychographic, geographic and clinical attributes.
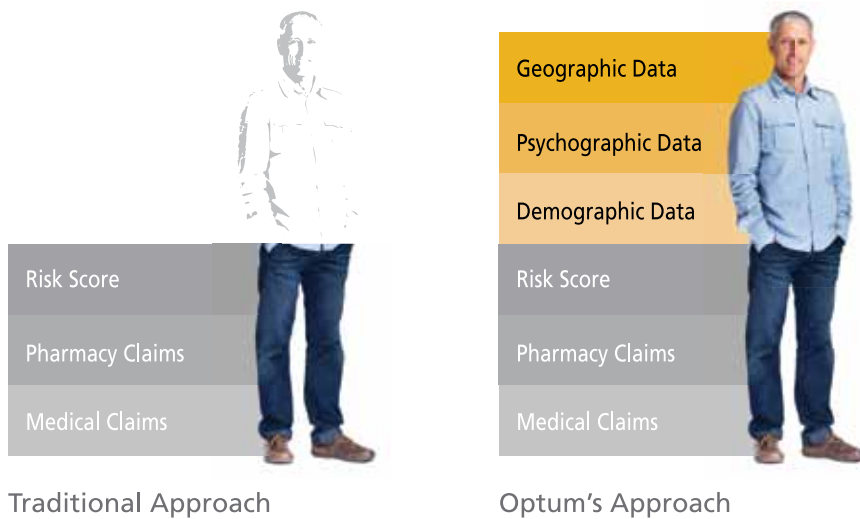
Traditional vs. new engagement model

In the traditional engagement model, wellness coaches and nurses reach out either by phone or direct mail to employees in an attempt to engage them in wellness, disease management, case management or other health management programs. Eligibility for these phone-based programs has historically been determined by pharmacy and medical claims, clinical risk scores and health assessment data.

We believe that health management program enrollment rates have remained flat, in part, because traditional engagement models are focused solely on clinical indicators. The clinical data that drives enrollment criteria isn't supplemented with other consumer attributes that help predict which employees are most likely to engage **(See Figure 1).**

By applying additional consumer attributes to the traditional engagement model, a far more complete picture of the individual becomes available.

The PEI payoff for employers:

- Higher employee engagement in health management programs

- More efficient use of health management marketing program dollars

- Improved employee health outcomes

- Improved employee productivity

- Better control of medical spend

Figure 1: Complete Picture

Traditional Approach   Optum's Approach

In short, claims history and clinical information help determine those individuals who clinically need a health management program; by layering on demographic, geographic and psychographic attributes however, Optum can also identify which employees are most likely to want to be supported.

As a result, employers and their wellness vendors can more intensively target those employees who are more likely to engage in a program, thereby improving engagement rates.

• In the health care industry, there is great opportunity to expand the use of predictive analytics to improve consumer engagement.

The Optum predictive model

Using predictive analytics, the Optum PEI helps employers increase enrollment in health management programs by identifying and prioritizing employees who are more likely to engage.

In developing the PEI:

1 Optum first examined a pool of individuals who were eligible for a particular health management program (such as a wellness or disease management program) based on traditional clinical data patterns.

2 This pool was then divided into two groups: one consisting of individuals who enrolled in a health management program, and a second populated with non-enrollees.

3 Variables available from consumer databases — demographic (such as age and gender), geographic (such as ZIP code) and psychographic (such as hobbies, interests and attitudes) — were then matched with each group.

4 Optum then analyzed the data, observed trends and identified patterns in an effort to determine which variables strongly correlate with enrollment. For example, we found that seemingly random data points — such as home ownership or an optimistic attitude — were closely associated with people who are likely to take charge of their health and who, therefore, are inclined to sign up for health management programs.

5 Last, the model assigned a score to individuals based on their probability of enrolling, which in turn, allowed us to prioritize referrals to our health management programs. The premise behind the model is simple: if employees are more likely to enroll in a program, they may be more motivated to lose weight, start exercising, stop smoking or take some other step to improve their health. Thus, the PEI provides an opportunity to improve health outcomes.

Of course, predictive analytics is not new. It is being actively embraced by several industries to understand consumers' interests in an effort to better serve them. Retailers, for instance, increasingly analyze information from an array of databases and other sources to gain insights into shoppers' likely future purchases. In the health management arena, however, the use of consumer-focused predictive analytics represents an innovative breakthrough.

Scaling PEI

The PEI model, which Optum is currently scaling across its various businesses, can be applied to an Optum product — such as wellness coaching or case management — or can be tailored to a specific employer population.

Optum is also beginning to juxtapose engagement opportunity with future cost savings by integrating the PEI with monetized health care value to create an opportunity score. Using the PEI to engage consumers with the greatest health improvement opportunity will result in medical savings for employers. This strategy supports the notion of judiciously using marketing dollars to invest in individuals considered most likely to engage, ultimately leading to improved enrollment rates and return on investment. The goal of the PEI is to improve the health of more employees and control costs.

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Leveraging PEI and attitudinal segmentation

The PEI uncovers who in a population should be contacted. But it doesn't yet reveal how that individual should be communicated with. Combining an attitudinal segmentation model with the PEI will ultimately answer this question.

Attitudinal segmentation divides consumers based on their health care motivations, behavior and needs. The goal of segmentation is to identify distinct consumer groups and determine how best to engage them. It allows Optum to adopt a targeted and customized marketing approach to ensure that we are meeting individuals' needs and expectations. Segmentation reveals a consumer's preferred communication message and helps guide Optum engagement specialists in their communication tactics.

As the rollout to Optum customers evolves, Optum continues to seek ways of improving the PEI to make it more valuable for employers.

Case studies — PEI in practice

Optum Call Center:

The Optum St. Louis call center handles case management programs for hundreds of companies in the Midwest. The center receives referrals based on claims data that are aggregated, run through the PEI model and scored.

In May 2012, case managers received 4,419 referrals: 1,562 were traditionally prioritized based on high-cost claims and medical risk scores, while 2,857 were prioritized using the PEI. When enrollment rates for the two groups were compared, a twenty percent lift in enrollment was observed for the group leveraging the PEI.   **(See Figure 2).**

Figure 2: Call Center – PEI impact

20%

increase in
enrollment

Traditional, no PEI   Traditional + PEI
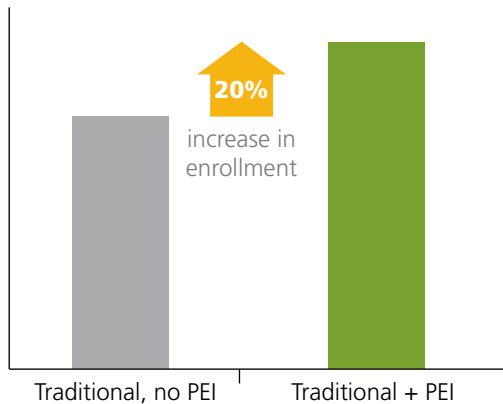
- At the Optum St. Louis call center, the PEI model yielded a nearly 20 percent lift in enrollment.

- At an Optum call center supporting a transportation company, Optum found that individuals in the top PEI segment were 66 percent more likely to enroll than those in the bottom segment.

Optum client:

At its call center supporting a mid-Western transportation company, Optum applied PEI methodology to group the employee population into 16 segments, ranging from most likely to least likely to enroll in wellness programs (T01-T16). Employees in the top PEI segment were found to be 66 percent more likely to enroll than those in the bottom segment. And the top four PEI segments (the top 25 percent) as a group were 33 percent more likely to enroll than the bottom four segments. With this kind of data, Optum was able to prioritize outreach efforts. For example, Optum could focus its outreach on those who not only had the greatest clinical need but also those employees most likely to enroll — those in the top four segments — by calling them more often than those in other segments.

Conclusion

Today, analytic-driven insights are helping Optum discover new patterns and relationships that help it understand an individual's behaviors and choices, and ultimately drive its consumer engagement model. Using the PEI, Optum can better engage the right members with the right messages at the right time, helping to guide individuals to making improved health care choices.

For employers, that means increased overall enrollment in health management programs, a healthier population and a way to drive down medical costs.

Authors:

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Kevin has a diverse 20-year career across multiple industries, with the last 8 years focused on consumer engagement, marketing and analytics in health care. Prior to Optum, Kevin spent six years at UnitedHealthcare where he focused on driving utilization of mail order and lower-cost medication alternatives through innovative consumer marketing programs in the UnitedHealthcare Pharmacy division. At Optum, Kevin's focus is on driving consumer engagement in Population Health Management

programs using predictive analytics and campaign management to optimize engagement. Kevin holds a bachelor's degree in economics from the University of Minnesota — Twin Cities and a Master of Business Administration from the University of St. Thomas, Minneapolis, Minn.

Peter Halverson
Manager, Consumer Analytics Operations, Optum
Peter Halverson has more than five years of experience in health care data and analytics including time with pharmacy benefit management, wellness, and case and disease management programs. As manager of the Consumer Analytics operations at Optum, Peter oversees the implementations and operational processes governing the use and deployment of predictive models.

Peter has his undergraduate degree from Bethel University in St. Paul, Minn., and is pursuing his MBA at Carlson School of Management in Minneapolis, Minn.

Asif Mujahid
Director, Consumer Analytics, Optum
Asif Mujahid has more than 10 years of experience in the consumer analytics/predictive modeling space across different industries. In his current role, Asif leads a team of analysts and strategists involved in determining how to optimize outreach to consumers in the health care space, given major fundamental changes to the industry in the near future. Asif's interests lie primarily within uncovering insights in the consumer response/consumer engagement domain — trying to answer the ultimate question as to why individuals do what they do. Asif has an undergraduate degree in Economics from the Lahore University of Management Sciences and an MBA from the University of North Carolina.

Spencer Pratt
Analyst, Consumer Analytics, Optum
Spencer Pratt began his career at Optum on the Consumer Analytics team in August of 2012, where he has focused on the end-to-end analytics process — strategic planning, predictive model development and model implementation. Spencer works with a variety of stakeholders across multiple areas of the business to develop, integrate and scale out strategic analytics solutions to drive optimal data-driven marketing strategies. Spencer graduated from Carleton College in June of 2012 with a degree in Economics.

Sources:

1. NBGH/Towers Watson survey, 2010.
2. 4th Annual Optum Wellness in the Workplace study, 2012.

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