THE SCIENCE OF HEALTH INCENTIVES™

Impact of Incentive Values on Participation in Comprehensive Wellness and Health Risk Assessment Interventions

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Research Review

Impact of Incentive Values on Participation in Comprehensive Wellness and Health Risk Assessment Interventions

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The first in a series of reviews on "The Science of Health Incentives[TM]"

Abstract

Healthcare costs are expected to exceed 20 percent of Gross Domestic Product by 2018[1]. There is widespread agreement that a vast majority of these costs are avoidable by modifying risk factors associated with chronic conditions, improving medication adherence, adopting technology such as e-prescribing and electronic medical records and improving patient safety. The industry is at an inflection point where payers, employers, providers and consumers must manage the cost of care, improve outcomes and reduce delivery costs. Incentives have emerged as an essential tool for impacting cost - with participation levels often at only 10 to 15% without incentives. Incentive research has focused on census studies and the analysis of a specific incentive program outcome. This Research Review builds on that valuable foundation by analyzing a robust data set of incentive programs. This Research Review outlines the important relationship between incentive value and participation, the required levels of incentive value to reach desired participation rates and the elements that work hand in hand with incentive value. The relationship between incentive value and participation serves as the first step in establishing the link between participation, behavior change, outcomes and cost savings to determine return on investment.

Background

IncentOne has undertaken to develop *The Science of Health Incentives™* – a comprehensive framework for the discussion and analysis of any consumer and provider health incentive programs. When complete, this framework will allow meaningful comparisons across various incentive programs and support quantitative predictions about the financial impact of different consumer and provider incentive program designs.

This Research Review is the first of a series designed to analyze the impacts of various health incentive programs. *The Science of Health Incentives™* framework will allow analysis not only in the area of risk reduction, but in the many other areas of consumer and provider behavior including:

Consumer

- Utilization
- Benefit Selection
- Medication Adherence
- Risk Reduction
- Administrative Process

Provider

- E-Adoption (E-prescribing/EMR)
- Pay-for-Performance
- Patient Safety
- Administrative Procedure
- Medical Home

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Framework for Determining Financial Impact

The end result of *The Science of Health Incentives*™ and the supporting series of Research Reviews will show the relationship between incentive value and actual cost savings. The actions consumers and providers need to take are somewhat widely accepted. Nonetheless, to show cost savings, we must establish the relationship between the different stages of interaction:

Participation → Behavior Change → Outcomes → Cost Savings

More specifically,

Participation	Behavior Change	Outcomes	Cost Savings
What level of participation can be obtained with a certain incentive value?	What percentage of those individuals that *participate* in a program will take the steps to change behavior?	What percentage of the individuals that are *changing behavior* will reach the milestone that is readily accepted to reduce cost?	What cost savings results from achieving the milestone?

This series of Research Reviews will establish a relationship between these different stages and the impact of incentive programs for both consumer and provider initiatives. While it is common to think of this discussion in terms of risk reduction only, it will also provide a framework for all incentive programs. For example, for consumers, how do different steps of driving utilization, brand to generic switching, or medication adherence deliver results? For providers, how do the different steps of e-prescribing and EMR adoption or patient safety efforts reflect this relationship?

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Why IncentOne?

Due to its business model, IncentOne is impartial. Specifically, IncentOne provides solutions that administer any health program, incentive value and reward type (i.e., monetary and non-monetary). As a result, it has no motivation to advocate a specific health program or reward type. Furthermore, because of this business model, IncentOne has a reason to not only collect and analyze its own data but data associated with health incentive programs run by third parties. This enables IncentOne to provide an independent view of the true drivers of results.

This Research Report

In this report, we focus on incentives targeted at **Risk Reduction** through consumer wellness programs and health risk assessment ("HRA") completion. Specifically, we focus on the relationship between the dollar value of the incentive offered ("incentive value") and their participation to estimate what incentive value is required to drive consumer participation in these programs.

By analyzing both a single event (HRA Completion) and a multiple event (Comprehensive Wellness Program) intervention, we seek to gain insight of the impact of incentive value on these two very different interventions.

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Data Sources

In the development of *The Science of Health Incentives*™ framework, IncentOne compiled and analyzed a comprehensive set of incentive data from literature, IncentOne programs ("IncentOne data") and programs administered or studied by third parties ("third party data") to determine the value and impact of incentives used to modify behavior.

Third party data was compiled by searching various public and private sources of incentive behavior articles and studies including MEDLINE (January 1966 to July 2008), CINAHL (1982 to 2008), Ebscohost (1960 to 2008) and Google Industry searches from 1995 to 2008. IncentOne data includes IncentOne's internal data from administering health incentive programs. We not only considered randomized controlled trials, allocating individuals, workplaces, groups within workplaces, or communities to experimental or control conditions, but we also considered controlled studies with baseline and post-intervention measures. Finally, we included single site, pre-post test designs where incentive values were tied to certain outcomes, such as participation. The compilation of third party data and IncentOne data was then reviewed and coded into a meta-analytic database of incentive studies that represent the relationship between incentives and results.

Our compilation resulted in the IncentOne Meta-Analytic Database (IOMD), a bibliographic and meta-analytic database of health incentive data of:

- 2,700 abstracts and articles between the 1950s to the present with over 90% occurring after 1990.
- 1,500 sets of incentive specific data from both IncentOne data and third party data.

The IOMD is comprised of various data elements such as health programs, incentive program descriptions, incentive activities, incentive values, result rates and various other health and demographic information. IncentOne continues to expand the IOMD on an ongoing basis with IncentOne data and third party data.

FIGURE 1.
Number of Incentive Studies in the Meta-database by Decade

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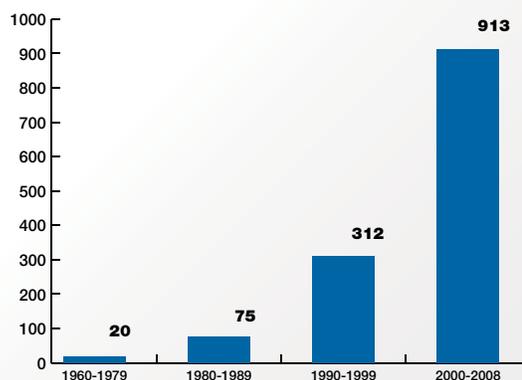
This Research Review also includes data from previously published surveys of consumer incentive program design and results conducted by many of the nationally recognized consulting firms, health management companies, health information companies and the research arms of national and regional payers. These surveys, which have been conducted for several years through traditional research survey processes, provide a census and illustrate the landscape of incentive programs. In this paper, we expanded upon this valuable survey data with IncentOne's IOMD to allow for enhanced quantitative analysis and conclusions.

Objectives

We focused our initial analysis on two common consumer incentive programs: comprehensive wellness and HRA completion. Both programs have a significant sample set within the IOMD. We structured our analysis around four important questions:

1. What is the relationship between incentive value and participation rates?
2. How does an incremental increase of incentive value impact participation rates?
3. If we assume that 60 percent participation is the desired state ("target participation rate") for these two interventions,[2] what is the incentive value required to achieve this level?
4. What incentive value is required to drive a desired level of participation?

The above insights are key components to assessing impact through *The Science of Health Incentives™* approach. As noted above, our analysis will ultimately correlate levels of participation with actual cost savings. In order to do so, an understanding of how incentive value impacts participation is required.

Summary Findings

We conducted two different regression analyses, one using data for comprehensiveness wellness programs and the other for HRA completion. In both analyses, we set the incentive value as the independent x variable and the participation rate as the dependent y variable. The goal of the analysis was to determine the extent to which participation increases as a function of the incentive value.

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Comprehensive Wellness Programs

For comprehensive wellness programs, the data in the IOMD can be illustrated as follows:

FIGURE 2.
Comprehensive Wellness Program Participation and Incentive Value
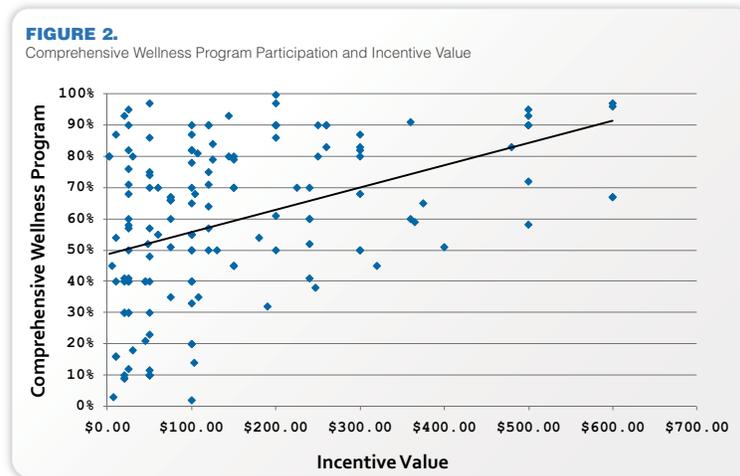
The results of a regression analysis of this data were as follows:

- Correlation coefficient: .37.

- p-value: .0001.
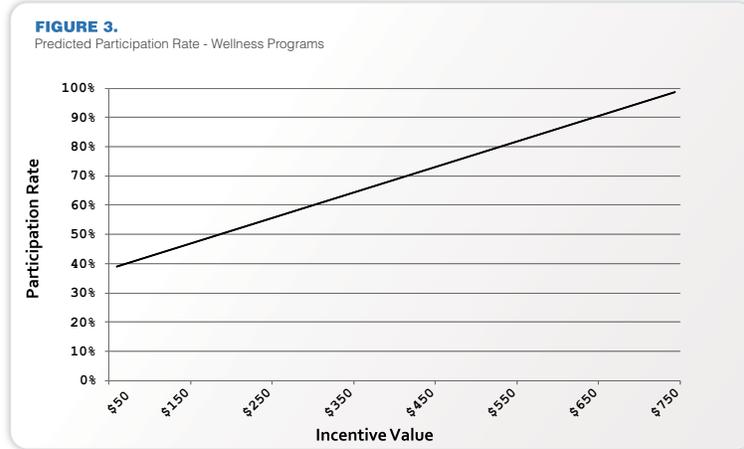
- Equation of regression line: y = .0007x + .3509.

Our regression analysis allows us to make some estimates about the rate of increase in participation in wellness programs as a result of increasing incentive value. In this case, the slope of the regression line is .0007, which means that:

> **For each $100 increase in incentive value, we would predict that participation will increase by 7%, until it reaches a maximum of 100% at approximately a $900 incentive value.**

We can also use the regression equation to solve for the incentive value likely to produce 60% participation. Setting y to 60%, we can solve for x in the equation .60 = .0007x +.3509. In this case, x = $356. In other words:

> **To achieve a desired participation rate of 60% in wellness programs, an incentive value of $356 is appropriate.**

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Similarly, the regression equation can estimate the incentive value needed to achieve any given level of participation, as illustrated in Figure 3:

FIGURE 3.
Predicted Participation Rate - Wellness Programs

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Health Risk Assessments

For HRA completion, the data in the IOMD can be illustrated as follows:

FIGURE 4.
HRA Completion and Incentive Value
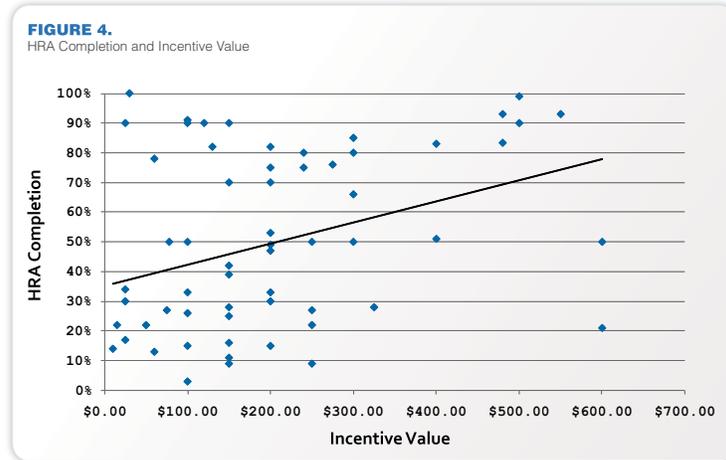
A regression analysis of this data produced the following results:

- Correlation coefficient: .41.

- p-value: .001.

- Equation of regression line: y = .0007x + 0.4856.

Our regression analysis allows us to make some estimates about the rate of increase in participation as a result of increasing incentive value. In this case, the slope of the regression line is .0007, which means that:

> **For each $100 increase in incentive value, we would predict that participation will increase by 7%, until it reaches a maximum of 100% at approximately a $700 incentive value.**

We can also use the regression equation to solve for the incentive value likely to produce 60% participation. Setting y to 60%, we can solve for x in the equation .60 = .0007x +.4856. In this case, x = $163.

> **To achieve a desired participation rate of 60% in HRA completion, an incentive value of $163 is appropriate.**

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Similarly, the regression equation can estimate the incentive value needed to achieve any given level of participation, as illustrated in Figure 5:

FIGURE 5.
Predicted Participation Rate - Health Risk Assessment
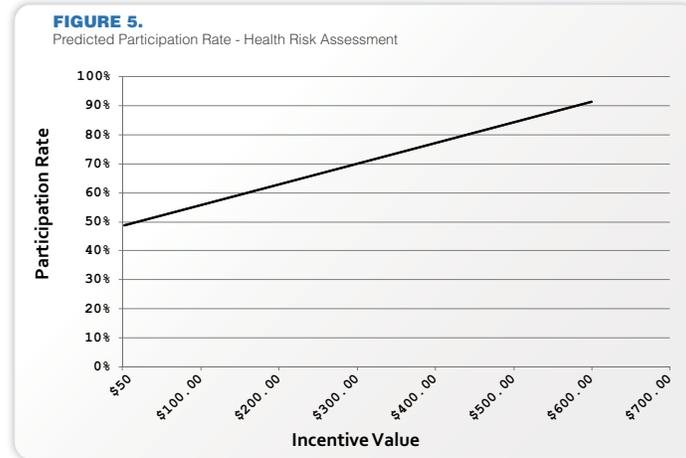
Additional Factors

From the correlation coefficient for wellness programs and HRA completion (0.37 and 0.41 respectively), it is clear that incentive value is a central determinant of participation in these interventions. However, the correlation of less than 1.00 indicates that other factors influence participation. We hypothesize that the other primary influences are:

- Communications Program (the extent of the communications effort and cultural support).
- Reward Type (the reward received in the form of monetary or non-monetary rewards.
- Health Program (the quality of the health program offered).

IncentOne will conduct future research and analysis to validate these hypotheses.

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Conclusions

Our review has indicated some key trends regarding the impact of incentive value on participation for both narrowly focused health interventions such as HRA completion and more extensive comprehensive wellness programs.

Certainly, and it comes as no surprise, increasing incentive values increases wellness program participation and HRA completion. More specifically, our analysis suggests the following:

- To attain a participation rate of 60% in comprehensive wellness programs, the incentive value should be approximately $350. However, as noted in Figure 3, levels of $100 can drive significant participation.

- Each $100 increase in incentive value yields a 7% increase in participation in comprehensive wellness programs.

- To attain a participation rate of 60% in HRA completion, an incentive value of approximately $160 should be used. However, as indicated in Figure 5, levels of $50 can drive significant participation.

- Each $100 increase in incentive value yields a 7% increase in participation in HRA completion.

- While there is a significant correlation (0.37 for comprehensive wellness programs and 0.41 for HRA completion) other important factors likely include the Communications Program, Reward Type and Health Program Quality.

Statistical analysis of these two programs demonstrates the power of using IOMD data to predict levels of participation based on incentive value. Taking into account contributing factors, payers, partners, employers, governments and pharma can implement incentive programs and set incentive values with a greater degree of confidence in expected outcomes.

As noted above, participation rates are only step one. The specific relationship between participation and actual cost savings will be the ultimate result of *The Science of Health Incentives™*.

Future Research Reviews

Using this methodology, we will apply a similar correlation analysis to many other aspects important in incentive program design and discover relationships useful in predicting program outcomes based on specific values for these variables.

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We will study the impact of incentive value on other health interventions in the risk reduction arena including:

- Smoking Cessation

- Maternity and Pre-Natal Care

- Weight Management

- Stress Management

- Flu Shot and Immunization

- Physical Activity

- Health Screenings

- Nutrition

- Disease Management

In addition to further Research Reviews as part of *The Science of Health Incentives™* that look at health programs aligned to the most common health conditions and drivers of cost, we will be studying the relationship between incentive value and other factors as they relate to many of the variables contained in the IOMD such as:

- Industry

- Company/Population Size

- Geography

- Gender

- Age

- Reward Type

As noted above, "Risk Reduction" is only one area to which the *Science of Health Incentives™* will be applied. The IOMD provides the basis for similar analyses for other consumer and provider programs:

Consumer

- Utilization

- Benefit Selection

- Medication Adherence

- Risk Reduction

- Administrative Process

Provider

- E-Adoption (E-prescribing/EMR)

- Pay-for-Performance

- Patient Safety

- Administrative Procedure

- Medical Home

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Acknowledgements

About IncentOne

IncentOne is the leading provider of incentive solutions to the health community, serving customers with more than 75 million lives. IncentOne's programs have driven over 4 million health milestones. IncentOne delivers these results by combining solutions and science – marrying its highly flexible technology solutions with the *Science of Health Incentives™* to drive consumer and provider behaviors that reduce healthcare costs. IncentOne programs target consumers to improve utilization, reduce health risks, increase medication adherence and steer benefit selection and providers to adopt e-prescribing and EMR technology, adhere to pay-for-performance standards and improve patient safety. IncentOne delivers solutions through turn-key design, implementation and administration services. IncentOne is the first incentive company dedicated exclusively to the healthcare community.

About Discern Consulting

Discern is a healthcare policy consulting organization focused on improving health systems by aligning incentives with high-quality care. Discern has extensive experience developing and implementing pay-for-performance and other value-based purchasing programs for leading healthcare organizations, and specializes in decision analysis and support, including ROI analysis, financial modeling and simulation. For more information, visit www.discernconsulting.com.

About The Author

Guy D'Andrea founded Discern, LLC in 2004. Since that time, Mr. D'Andrea has worked with leading healthcare organizations nationwide – including The Leapfrog Group, Bridges to Excellence and the National Business Coalition on Health – to design, implement and evaluate pay-for-performance and value-based purchasing strategies. Mr. D'Andrea specializes in assessing the return on investment from these programs. Projects include the development of hospital and physician pay-for-performance programs, value analysis for HIT adoption, an interactive P4P decision tool for healthcare purchasers, and quality standards for wellness programs. Before Discern, Mr. D'Andrea spent seven years as Vice President at URAC, where he was responsible for the development of URAC's accreditation programs, including quality standards for PPOs, utilization management organizations, case management organizations and consumer-directed healthcare. Prior to URAC, he spent five years working on managed care policy issues with the American Association of Health Plans (now AHIP) and the Maryland Association of HMOs. Mr. D'Andrea has co-authored several papers on healthcare reform, including: "Should Healthcare Come with a Warranty?" featured in *Health Affairs*, "Physicians Respond to Pay-for-Performance Incentives: Larger Incentives Yield Greater Participation" in *The American Journal of Managed Care*, and "Sustaining The Medical Home: How Prometheus Payment Can Revitalize Primary Care" for the Robert Wood Johnson Foundation. Mr. D'Andrea received an undergraduate degree in philosophy from Cornell University. He earned dual Master of Business Administration degrees from Columbia University and the London Business School, where he graduated as the valedictorian of his program. He is a member of the American Association of Healthcare Consultants and the American College of Healthcare Executives.

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