



NIHCM
FOUNDATION

BUILDING A STRONGER EVIDENCE BASE FOR EMPLOYEE WELLNESS PROGRAMS

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EXECUTIVE SUMMARY

Employee wellness programs strive to promote a healthy lifestyle for employees, maintain or improve health and wellbeing, and prevent or delay the onset of disease. At their core, these programs assess participants' health risks and deliver tailored educational and lifestyle management interventions designed to lower risks and improve outcomes. Programs typically provide preventive services as well, and use coaching or other incentives to encourage program participation. As programs evolve they are increasingly offering disease management for employees with chronic conditions, and may also include employee assistance programs, nurse-based decision support for patients, workplace safety and injury prevention initiatives, and efforts to manage employee absences due to illness and disability.

Adoption of these programs has taken off in the United States in recent years, and several of the wellness and prevention provisions included in the Patient Protection and Affordable Care Act heightened attention to – and expectations for – worksite wellness programs. A growing body of research indicates that these programs can change employees' behavior, improve their biometric risk profile and work productivity, reduce use of and spending for health care services, and achieve a positive return on investment. Some observers remain skeptical, however, about the evidence on program effectiveness, citing weak study designs, poor data, a lack of transparency about methods, and possible vested interests of those producing the research. And while there has also been considerable progress in understanding the "best practices" to maximize program effectiveness, more work remains to be done on this front.

In May 2010 the National Institute for Health Care Management (NIHCM) Foundation brought together nearly 40 experts in wellness and research methods to discuss ways to strengthen the evidence base for employee wellness programs. The resulting research agenda reflected in this report is intended to guide future research and other activities that will encourage and assist employers to implement evidence-based wellness interventions. Key themes that emerged during the meeting include:

The importance of the environment in which the program is implemented. Past research consistently shows that a supportive corporate culture is one of the most critical factors affecting program success. This supportive environment should be entwined in all aspects of the organization, from its business goals and strategies to its corporate policies and physical plant. Given the importance

of these foundational elements, more research is needed to understand: (1) how various aspects of the corporate environment affect program success and (2) what program components work best in different types of environments.

A supportive corporate culture includes not only a commitment to the wellness program from senior management, but also extends to the mid-level and frontline managers best positioned to affect program success due to their day-to-day contact with employees. It is, thus, important to align their management and performance goals with the health and wellbeing of the people who report to them. More investigation of practices that work well on this front is warranted.

The environmental context also includes influences external to the workplace, such as the home setting, friends and social networks, and the policies and resources of the local and national community. Although workers spend a significant amount of their time in the employment setting, these other factors can also affect their need for and success in a wellness program. Research is needed to understand the relationship between these external influences and an individual's experience in a wellness program.

Engaging employees is key to program success. Even state-of-the-art programming will fail if workers do not engage with the program. Depending on the stage of implementation and program objectives, different types of engagement may be relevant, ranging from simple compliance with the health risk assessment to intensive participation in multiple interventions. Significant additional research is needed to understand how to use financial or other incentives and communication/motivational techniques to engage participants at these various levels. A "comparative effectiveness" approach designed to determine the relative effectiveness of different types of incentive structures (including premium discounts and less traditional approaches suggested by behavioral economics) would be particularly valuable.

More information on program design and implementation process is needed. Interest in wellness programs is strong, but many employers struggle with the "what" and "how" questions of getting a meaningful program off the ground. These challenges are particularly acute for smaller employers. Research, technical assistance, and other resources to identify best practice components for particular situations and lay out the steps to effective program implementation would be helpful.

Wellness programs have many stakeholders, who may be interested in diverse outcomes. It is important to understand customer-defined value when designing programs (what type of program will achieve what the customer wants?) and when evaluating programs (what was the program trying to achieve for different stakeholders and what is the best way to assess performance?). A broad research agenda will be needed to address the varied interests.

Return on investment (ROI) is an important but limited measure of program success. Consistent with the prior point about diverse stakeholders, many other outcome measures may also be relevant including worker productivity and ability to work, patient empowerment and ability to manage own care, behavior changes and clinical outcomes, employee satisfaction, recruitment/ retention, and corporate image.

An exclusive focus on ROI, often considering only direct health care costs, also forces wellness programs to justify their existence on this basis alone. While numerous well-designed studies have demonstrated a significant positive ROI, requiring programs to achieve a pre-determined level of return may be a high standard to meet. Instead, it is the value of the wellness investment relative to the value that could be derived from other uses of the funds that really matters in making the business case for wellness programs. Additional research to understand and compare the value obtained from different uses of corporate dollars is needed.

Additionally, methods for computing ROI vary, especially regarding determination of what costs and savings should be included and how this will be accomplished. Work to standardize the approach to computing ROI would help to make the calculations more transparent and more comparable across studies. Areas needing particular attention are how to monetize changes in absenteeism and presenteeism and how to account for incentive costs.

Balancing evaluation rigor with relevance and practicality. While always striving to use the strongest possible methods for the circumstances, conducting the "perfect" study is not the end in itself (if this were even possible). Rather, program assessments must balance the need for rigor with the need to be relevant and practical. Relevancy requires alignment of evaluation metrics and methods with the program's goals and implementation process, focusing on outcome measures of interest to the program implementers and communicating findings in a timely manner so as to guide implementation and fine tuning of the program. Evaluation practicality requires keeping the evaluation effort within the employer's means and in perspective to the overall scale of the intervention itself. Practicality also recognizes the

difficulty of implementing a randomized control trial design and accepts that well-designed quasi-experimental designs, case studies and observational studies have an appropriate role in program assessments.

Mix of study approaches and communication vehicles is necessary. Given the existence of multiple stakeholders who are interested in diverse outcomes and demanding varying degrees of study rigor, the ideal body of research will be a mix of rapid feedback studies and longer-term program evaluations and will use a mix of study methods. Methods for communicating results to various stakeholders will also be mixed. Busy corporate leaders are likely to find "CEO dashboards" and interim progress reports with well-honed key messages most helpful for assessments of their own programs. Likewise, reports in business publications and the mainstream press and communications from peers of like stature are expected to be key avenues through which senior management learns about wellness programs in general. On the other hand, most in the research and policy communities will be looking for more comprehensive evaluation studies that have been vetted by peer review and published in professional journals.

New partnerships between researchers, funders, and program implementers. Because limited funds have been available from traditional funding sources, much of the research on worksite wellness to date has been funded and conducted by vendors, program implementers, wellness advocates and others with a direct stake in the outcome of the work. Attracting talented independent researchers to the field – through new funding sources and new opportunities to partner with program implementers who control access to the necessary data – is one way to address outside observers' reservations about research credibility. Establishing a central database of entities that are willing to share data and collaborate on research would facilitate formation of research teams. Funding partners will need to recognize and accommodate the challenges of conducting real world evaluations. Significant study rigor can still be required and achieved, however, through a focus on top-priority areas of research (such as identified in this report) and careful attention to, and transparency about, study methods and metrics.

INTRODUCTION

Beyond a doubt, this is an exciting time for employee wellness programs (EWPs). Almost daily, new information is publicized indicating that these programs are being adopted by a growing number of employers seeking ways to hold down their health care costs and improve the productivity of their workforce. Once the exclusive domain of very large employers, wellness programs are increasingly showing up among mid-size and even smaller employers. At their best, the programs are also becoming increasingly sophisticated, and credible evidence about their effectiveness is quickly accumulating.

Attention to EWPs was heightened by numerous wellness and prevention provisions included in the Patient Protection and Affordable Care Act, which have great potential to expand the reach and effectiveness of worksite wellness programs. The U.S. National Physical Activity Action Plan has also recently offered a number of recommendations for how business can promote physical activity interventions within the workplace. These recommendations included calls for development and dissemination of best practice guidelines, establishment of a research agenda for physical activity and health in the workplace, and evaluation of worksite health promotion (i.e., wellness) programs.¹

Despite the promise and rapid growth, some observers remain skeptical about program effectiveness. Methodological and data shortcomings inherent in some program evaluations, often combined with a lack of transparency about methods, have contributed to this skepticism. Likewise, while considerable progress has been made in understanding best practices in program components and implementation processes, more work remains to be done on these fronts.

Rising demand from employers for state-of-the-art wellness programs that produce meaningful results, combined with new opportunities to advance wellness research and support implementation of proven programs, make this both a necessary and opportune time to strengthen the evidence about EWPs. Toward that end, the National Institute for Health Care Management (NIHCM) Foundation brought together nearly 40 national experts in May 2010 to develop an agenda to guide the future research needed to encourage and assist employers and other program adopters to implement evidence-based wellness programs. Participants represented a mix of perspectives including researchers with expertise in wellness evaluation and behavioral economics, wellness program vendors, employers, health plans, government agencies, and other relevant stakeholder organizations (the full list of participants is provided in Appendix A).

In this report, we summarize the group's discussions about the research that is still needed, ways to improve program evaluations and develop a more robust and accessible body of evidence, and opportunities to move the agenda forward.

WHAT DO WE MEAN BY EMPLOYEE WELLNESS PROGRAMS?

The initial session of the meeting focused on drawing out participants' views on how they wished to conceptualize employee wellness programs for the purpose of elaborating the research agenda to be developed during the meeting. This discussion centered on how broadly or narrowly they wished to think of EWPs and what features they viewed as essential or highly desirable for wellness programs.

Participants strongly favored thinking broadly about wellness programs, feeling that different interest groups would emphasize different aspects of wellness programs and have different outcomes of primary interest. Thinking broadly would, therefore, enhance the ability of the resulting research agenda to address needs of diverse stakeholders. They also felt that a broader concept would be helpful for investigator-initiated research, as it would expand the range of worthwhile studies that could qualify for funding opportunities.

There also was much agreement that wellness should be thought of as not merely the absence of illness but in terms of the total wellbeing of the individual – encompassing emotional, social, spiritual and intellectual health as well as physical health; healthy behavior; and supportive environments at work, in the home, and in the community. Participants also stressed that the workplace is not an isolated environment. Not only can employers influence the policy agenda and the health of their larger community, the external environment can affect the success of employer programs. Understanding (and controlling for) these influences and interactions would have a place in future research.

Participants saw employee wellness programs as being a subset of population health management initiatives, which strive to address the health needs of the entire population – from healthy, low-risk groups to those needing care for acute and complex conditions and at the end of life.² While EWPs also target the full population regardless of health status (in this case, employees and, perhaps, their dependents), they focus on promoting healthy lifestyles, maintaining or improving health, and preventing or delaying the onset of disease through lifestyle management. Care for populations

¹The discussion of employee wellness and disease management programs within the larger context of population health management drew heavily from work spearheaded by DMAA: The Care Continuum Alliance and described in greater detail in Volume 4 of their *Outcome Guidelines Report*.

at the extreme end of the population health management continuum (acute/complex care management and end-of-life care) was generally seen as beyond the scope of employee wellness programs.

Disease management programs are also a subset of population health management programs, but focus exclusively on people with specific chronic diseases rather than the full population. In the spirit of adopting a broad approach to thinking about employee wellness programs, however, participants felt that disease management initiatives should be considered to be part of EWPs. They noted that the lines distinguishing the lifestyle management activities of wellness programs from disease management initiatives are blurred, and that wellness is a "moving target" that shifts as personal circumstances shift. Wellness programs should be attempting to help individuals to achieve optimal outcomes given their current circumstances (including helping those with chronic conditions to be as well as they can be) at the same time they are attempting to prevent favorable circumstances from worsening and improve unfavorable circumstances (e.g., through prevention and lifestyle management).

In thinking about the components that make up a wellness program, participants favored incorporation of elements and ideas from several existing sources, including DMAA: The Care Continuum Alliance,² Healthy People 2010 and Partnerships for a Healthy Workforce,³ the Employee Health Management Best Practice Scorecard produced by the Health Enhancement Research Organization (HERO),⁴ WISCORESM, the Wellness Impact Scorecard supported by the National Business Group on Health,⁵ and the Worksite Health Promotion Standards developed by the National Committee for Quality Assurance (NCQA).⁶ Accordingly, there was general consensus that wellness programs would include many of the following features (as either essential or highly desirable):

- **Health risk assessment/health appraisal** for all members of the population. Data can be derived from participant surveys, biometric screening, and claims. Common data elements include height, weight and BMI, blood pressure, and cholesterol levels. Other information might assess risk and behavioral factors, readiness to change, and social and emotional factors. Systems should be in place to protect the confidentiality of personal information.
- **Stratification of the population based on risk.** Results from the health risk assessment are used to classify people according to risk; classification methods may range from a simple count of risk

factors to complex algorithms.

- **Tailored and personalized interventions.** Personalized programming is based primarily on risk classification but might also incorporate other personal characteristics (such as readiness to change and social factors). Common interventions aimed at modification of risk factors and behavior change focus on encouraging physical activity and good nutrition, smoking cessation, stress management, and achieving a healthy weight. Disease management initiatives would also be relevant here, targeted to individuals with specific chronic conditions.
- **Strategies to encourage program engagement.** Typical strategies include financial and non-financial incentives and health coaching.
- **Multimodal communication and intervention delivery strategies.** Recognizing that people have different preferences and learning styles, and differing access to technology, programs should use a mix of internet-based, direct mail, email, telephonic, and in-person strategies to communicate about the program and deliver interventions.
- **Health mentoring or coaching** to help participants develop skills and improve health.
- **Population-based educational resources and self-management tools.** Distinct from resources provided as part of personalized interventions, these resources are aimed at the full population and focus on skill development, lifestyle change, and awareness building (e.g., articles on healthy eating in employee newsletters).
- **Employee Assistance Programs** that can help to address social and emotional factors that impact wellbeing.
- **Preventive services**, including screenings and immunizations and a personalized prevention plan.
- **Leadership engagement and supportive organizational culture and work environment**, including corporate values that promote employee wellbeing, a healthy physical environment, and an emphasis on wellness from senior, mid-level, and even frontline management.

- **Injury prevention.** Programs could include initiatives to enhance workplace safety and ergonomics as well as more general injury prevention efforts targeted to time spent outside the workplace.
- **Return to work / absence and disability management** efforts to restore sick or injured workers to full functional status and productivity.
- **Consumer medical decision support**, such as through nurse hotlines.
- **Involvement of participants' health care providers**, designed to make the providers partners in improving employees' health.
- **Program integration.** The best programs combine the diverse wellness program components into a unified and coherent program that is also integrated with other benefits and related programs offered by the employer as well as incorporated into the organization's structure.
- **Ongoing program assessment and improvement.** Good programs will monitor program performance regularly (ideally in relation to realistic goals for what could be expected at a given time) and use the interim results to modify programming as needed to achieve long-term goals.

WHAT DO WE ALREADY KNOW ABOUT EMPLOYEE WELLNESS PROGRAMS?

In the keynote address Dr. Ron Goetzel provided an overview of prior wellness program evaluations and summarized key findings regarding program impact and the factors affecting program success. He began by demonstrating the evidence chain that links worksite health promotion programs to reductions in health care spending – citing the evidence showing that modifiable health risk factors are causal factors for many preventable diseases and are associated with higher health care costs, and that worksite wellness programs can improve these health risk factors and reduce health care costs.

Evidence compiled through a recent review of worksite health promotion programs showed strong or sufficient support for the hypotheses that wellness programs that use health risk assessment with feedback to participants combined with health education (with or without other health promotion interventions) can produce favorable changes in health risk behavior (alcohol use, fat intake, physical activity, tobacco use, and seat belt use); improve biometric outcomes (blood pressure, cholesterol) and worker productivity (primarily by lowering absenteeism); and reduce health risk and use of health care services.⁷

Considerable evidence also exists demonstrating that employee wellness programs can achieve cost savings and produce significant returns on investment. This evidence comes from case studies of individual programs^{9,9,10,11,12,13} as well as from a series of systematic reviews of the literature^{14,15,16,17,18} that employed strict criteria for inclusion and gave more credence to studies with the strongest methods.^b Estimated ROIs across these studies ranged from 1.49:1 to 4.7:1, with most clustering in the neighborhood of about a \$3 return for every \$1 invested in the program over a multi-year period.

Regarding the key components of successful wellness programs, evidence points to a commitment from senior leadership and middle management, a supportive corporate culture, and alignment of company policies with wellness program objectives as the most important factors for success. Other critical components include strategies to encourage participation (incentives and multimodal communication efforts); stratification of the population according to risk, combined with programming to keep low-risk people healthy and aggressive targeting of high-risk people for tailored interventions expected to have a high payoff; use of evidence-based programming; integration of program components, both within the wellness program itself and within the larger fabric of the company; and rigorous evaluation with regular communication of results and fine tuning of the program in response to results.¹⁹ Clearly, these components of successful programs jive closely with meeting participants' views about the features that should be part of wellness programs.

^bA caveat of relying on published literature to derive conclusions about program impacts arises due to "publication bias" – namely, assessments showing program failures are unlikely to be published. Thus, the favorable outcomes reported in the literature may not generalize to all wellness programs, and it can be difficult to determine what approaches do not work.

WHAT ADDITIONAL RESEARCH DO WE NEED?

For the task of specifying the research questions that merit additional attention in future research, we assigned meeting participants to one of four small workgroups organized around the following topic domains: (1) Structure, (2) Process, (3) Health and Other Non-Financial Outcomes, and (4) Financial Outcomes. The Structure Work Group was to focus on questions related to wellness program components and their integration into the organizational environment and culture. The Process Work Group was to develop questions regarding program implementation, including incentive mechanisms to encourage participation and engagement. The two Outcomes Work Groups were charged with thinking about research to understand the impact of wellness programs, with questions about financial outcomes considered separately from all other outcomes given the importance often accorded to this outcome by those considering investments in employee wellness programs.

We recognized at the outset that this framework was somewhat artificial and that there would likely be some overlap in what groups discussed. In fact, that was the case, with groups sometimes honing in on similar research questions from their different starting points. We also noted that this approach was not the only possible way of structuring the group's thinking about research questions, but adopted this framework simply as a starting point for soliciting more organized input from participants.

Subsequent discussions with meeting participants brought up an alternative approach that emphasized a pathway from the initial wellness interventions through intermediate (or proximate) outcomes to ultimate (or distal) outcomes. Each link in the pathway offers opportunities for research and program improvement. For example, one would first want to understand how different interventions can be designed and put into practice, then explore how specific interventions affect workers' participation in the program and the strategies that can be used to maximize engagement. These types of questions fit into the Structure and Process domains we adopted for the work groups. Other steps along the wellness pathway consider the outcomes realized once participants are engaged in the program – moving through stages such as changes in health risk factors and behavior, changes in worker productivity and, ultimately, changes in direct medical and other costs. Questions related to these pathway steps are covered in the two Outcomes domains we used.

Results of the work group discussions are presented below. Although there is variation across groups in the level of specificity for suggested research, participants felt comfortable that the key areas of inquiry have been identified and that the illustrative questions are sufficiently detailed to guide development of and response to requests for proposals for employee wellness research.

RESEARCH QUESTIONS RELATED TO THE STRUCTURE OF EMPLOYEE WELLNESS PROGRAMS

The Structure Work Group opted to develop a broad framework for thinking about research questions related to wellness program structure. Their two-pronged framework gave somewhat less emphasis to research on the specific "program components" that comprise worksite wellness initiatives, and more emphasis to the "foundational elements" that lay the groundwork for successful programming. Echoing a common theme that was heard from participants throughout the meeting, members of this work group stressed the critical importance of having a corporate environment and committed senior and mid-level leadership that support wellness efforts. The group also felt that while some research is surely still needed to improve program components, much is already known in this area and that even best practice components will not be successful if they are implemented in a non-supportive environment. Conversely, a mediocre program still may achieve good outcomes if the environment is primed for success.

In addition to further research around various aspects of the environmental foundation and how they affect program success,²⁰ the work group also noted the importance of research to better understand what program components work best in different types of environments. Several existing tools might be helpful for studying the relationship between environmental characteristics and program outcomes. The Environmental Assessment Tool developed by DeJoy et al.²¹ can be used to assess environmental supports for health management, and the "Leadership Engagement" section of the HERO Scorecard⁴ focuses on cultural and environmental factors.

This group organized illustrative research questions within the following framework.

I. Foundational Elements

A. Organizational Objectives

- B. Performance Metrics
- C. Alignment with Business Strategy
- How can the job expectations for mid-level managers be made more consistent with encouraging wellness for the employees who report to them? What strategies and incentives are effective at encouraging mid-level managers to play a wellness leadership role for the employees they supervise?
- D. Culture of Organization
- What aspects of the organizational environment or culture affect program success (positively or negatively)?
 - What changes can employers make to create a more supportive wellness culture within their company? In particular, what changes could be made fairly easily and at a relatively low cost yet still affect the wellness culture in a positive way?
- E. Targets and Scope of Wellness Programming
- What conditions and risk factors (individually or in combination) are the top priorities to address through wellness programs?
 - o Which are the biggest drivers of medical spending?
 - o Which contribute significantly to absenteeism, presenteeism, and/or disability?
 - o Which are most amenable to achieving favorable outcomes?
 - What is the minimum level of investment that will lead to a measurable and worthwhile benefit/outcome (or a "good" return)?
 - What is the optimal level of investment?
 - How much of the total benefit dollar should an employer invest in wellness? What is the "payoff" for an investment in wellness relative to spending for other types of benefits or to other uses of the corporate dollar?
 - What wellness programs are feasible and most effective for smaller employers? What is "small" for purpose of program design? Are there effective models for coalitions of small employers?
- F. Organizational Integration
- What are the most effective strategies for integrating wellness programs with other benefits?
 - Are there opportunities for wellness programs to build effective links with employees' physicians?
 - What wellness programs are feasible and most effective for highly dispersed populations with no/few large worksites?
- G. Community Integration
- How do overarching cultural trends regarding health and wellness influence employers' corporate cultures? How can employers capitalize on these larger trends to foster a wellness culture within their organizations? What can workers do to bring these influences into their work environment?
 - How can employers foster a culture of community health at the local, state and federal levels?
- II. Program Components
- What are the essential/desirable components of effective wellness programs?
 - What do we know about "best practices" for the design and implementation of each component? For example:
 - o What features make coaching programs most effective?
 - o How important is it to collect biometric screening information in the HRA?
 - o What is lost if the HRA does not ask about family history?

- Which individual intervention approaches are most effective and efficient at achieving the desired outcome? For example, what approach achieves the greatest results (per dollar invested) in reducing obesity rates? How does the effectiveness of each approach vary by population characteristics?
 - What program components are most effective in different types of corporate environments?
 - How do various interventions interact with one another? What program features are complements of one another? What features are substitutes for one another?
 - How should individual components be combined to achieve desired results most efficiently and cost-effectively? What is the impact of varying the way components are combined (or not combined) in a single program?
- engagement, behavior change, health improvements, etc.)?
 - o How do different incentive designs affect the experience of the user?
 - o What is the long-term impact of using financial incentives and other engagement strategies? Over time, do the incentives work against intrinsic motivation? Are larger incentives required over time to achieve a similar response?
- How much individual tailoring of program components and program delivery is optimal? What is the right balance between individual versus group interventions?
 - How should various program components be put into practice so that they are most likely to achieve favorable outcomes for specific targeted populations? What program processes are most appropriate and effective for different populations (e.g., defined by demographic and socioeconomic characteristics)? For employers with global operations, what processes work best for different populations globally?
 - How do answers about most effective program processes differ depending on what outcome is of interest?
 - What is the optimal roadmap and timeline for developing and implementing a comprehensive wellness program? What should employers undertake as first steps? What activities should be added later? How do answers to these questions vary by type of employer (e.g., small vs. large)?
 - How should wellness programming connect to employee benefits (health and other insurance benefits as well as other benefits such as leave time, child care, etc.)? Does better integration across benefits enhance the results achieved by wellness interventions?
 - What communication strategies are most effective at engaging program participants? How is the outreach process best customized to reach specific populations?
 - What is the influence of social and emotional variables on the target population's behavioral response to wellness initiatives? How are these factors appropriately captured on the health risk

RESEARCH QUESTIONS RELATED TO THE PROCESS OF IMPLEMENTING EMPLOYEE WELLNESS PROGRAMS

The work group charged with developing research questions related to wellness program process issues centered its discussions around the overarching question, "What processes are most effective at changing behavior and achieving desired outcomes?" Within that framework, work group members and subsequent input from other participants during the full group discussion identified the following priority areas for future research:

- What is the role of financial incentives in encouraging engagement and participation and in motivating behavioral change?
 - o How effective are different ways of structuring financial incentives (i.e., comparative effectiveness research on different incentive approaches, including benefit design alternatives)?
 - o Are penalties or rewards more effective as incentives?
 - o Does effectiveness of incentives vary by population subgroups? What approaches are most effective for specific populations?
 - o What incentive designs are most effective for producing the various outcomes the program is trying to achieve (e.g., compliance, participation,

assessment? How are they best incorporated into programming to enhance the likelihood of program success?

- What processes are effective at establishing and maintaining a commitment to wellness among senior, mid-level and frontline management?
- How can incentives be used to align managers' performance goals and their team members' wellbeing? Do these incentives help to achieve better program results overall?
- Independent of the coaching model used, what characteristics of wellness coaches (e.g., skill set, life experience) affect their ability to motivate behavior change for different types of clients?
- What processes are effective for creating a sustainable wellness program?

RESEARCH QUESTIONS RELATED TO HEALTH AND OTHER NON-FINANCIAL OUTCOMES OF EMPLOYEE WELLNESS PROGRAMS

Members of this work group noted that there is a range of outcomes that might be expected from wellness programs, and that the outcomes that will be considered most meaningful will vary according to one's perspective. In other words, the answer to the question, "What is in wellness programming for me?" will depend on who you are. They urged program evaluators and other researchers to think carefully about the types of outcomes that are important to different stakeholders. While the financial impact of the program is typically (but not always) the outcome of highest importance for employers, there are many intermediate outcomes that need to be considered and achieved on the path to favorable economic returns. Furthermore, these intermediate outcomes might be considered key endpoints for other stakeholders, such as employees and clinicians.

Non-financial outcomes include the employee's quality of life, psychosocial drivers of behavior, health risk factors, behavioral changes, and clinical health outcomes. Ultimately, using the "pathway to wellness" construct introduced earlier, improvements in these non-financial outcomes might also be expected to translate into positive financial outcomes through reductions in direct medical spending and improved worker productivity. Accordingly, while work group members directed their attention to the non-financial health outcomes,

they also felt that measurement of productivity outcomes and estimation of associated financial impacts were key.

Important research questions related to this domain were:

- How do worksite wellness programs affect employees' quality of life? psychosocial drivers of behavior (e.g., stress, social isolation, self-efficacy)? health risk factors and behavior? clinical health outcomes?
- How do these impacts vary by type of wellness program?
- How do the impacts vary by population subgroup?
- How long does it take to achieve favorable results for these non-health outcomes? When should program implementers expect to observe changes in the specific variables of interest to them?
- Are the results sustained over time? What types of interventions are associated with sustained results?
- What is the impact of health on work productivity? How can health-related productivity losses (or gains) be measured and monetized in ways that are salient for business leaders and shareholders?

RESEARCH QUESTIONS RELATED TO FINANCIAL OUTCOMES OF EMPLOYEE WELLNESS PROGRAMS

Return on investment (ROI) was the key focus of the deliberations of the work group charged with identifying research questions related to the financial outcomes of wellness programs. Group discussion included not only questions meant to improve understanding of the financial impact of program investments, but also identified several methodological issues related to ROI analyses.

Regarding methodological issues, the group noted the following areas for future work:

- How should the ROI measurement and computation be standardized? What programs costs (in particular) and savings should be included in ROI calculations so that programs are assessed in the most consistent manner possible? Should the direct cost of (employer-paid) incentives be included in ROI calculations?

- Should factors such as absenteeism and presenteeism be included in the quantification of financial benefits when calculating ROI? What measures and data should be used?^{2c} How should improvements in productivity be monetized? How do decisions about monetization of productivity gains vary according to the type of employee (e.g., hourly vs. salaried)?
- How does the fact that employers often insure against losses due to worker injury and disability affect decisions about how to account for workers' compensation and disability spending/savings in the calculation of ROI?

Research questions about the financial outcomes of wellness programs included the following:

- Does improved health for employees translate into positive financial impacts for employers?
- What is the ROI (or total dollar financial impact) of employee wellness programs?
 - o How do returns vary according to program design? What features of wellness programs contribute the most to a positive return?
 - o How do the financial returns vary by type of employee? Are some groups of employees more motivated and easier to reach than others? What interventions are most effective at changing outcomes and achieving positive returns for hard-to-reach populations?
 - o How do financial returns vary by size of employer? Can smaller employers achieve a positive return and, if so, what factors affect the likelihood of doing so?
 - o How do ROI estimates vary depending on what specific costs and benefits are included?
 - o How do ROI estimates vary according to the evaluation design and research methods used?
- What level of program investment is needed to achieve the level of returns employers are seeking from wellness programs?
- What is the upper limit to what can be achieved from wellness investments?
- How do returns on wellness program investments compare to returns on investments in other types of benefits for employees (e.g., comparative effectiveness analyses of how to best spend the benefit dollar)?
 - o How would the employees' implicit valuation of various benefits factor into this analysis?
 - o What is the impact of investing in organized wellness programs vs. using the same investment to pay employees for achieving targeted outcomes (where the employee can decide how to achieve the outcome)?
- How do the company's workplace culture, its policies, and its leadership affect its returns on investments in wellness programs?
- What are the most effective ways to communicate the results of ROI analyses to corporate leadership?
 - o Can the wellness research community develop a "Moody's health score" to reflect how the employer is doing with respect to the health and wellbeing of its employees? How could this score be linked to financial outcomes? How could this type of measure be made most helpful and acceptable to senior management?
- How do wellness programs affect use of and spending for health care services? Do wellness programs slow the growth of health care costs or achieve absolute reductions in spending? How do impacts vary by employee characteristics, by type of medical service, by wellness program attributes? To whom (employer or employee) do any savings in medical costs accrue?
- How do wellness programs affect absenteeism and presenteeism (and how can this be translated into financial returns – see methodological issues, above)?
- How do wellness programs affect employee retention? What is the financial impact for the employer of improved worker retention? How does this impact vary by type of worker? For example, how are calculations of financial return affected if older/sicker employees are retained vs. younger/healthier employees?

^{2c}EMPAQ® Employer Measures of Productivity, Absence and Quality, a reporting system maintained by the National Business Group on Health, may be a resource for standardized productivity metrics.

- How do employee wellness programs affect employer spending on workers' compensation and disability?
- What is the timeline for realizing various program impacts and financial returns? How do program costs and returns (and, thus, the resulting ROI) vary over time? How long does it take to realize an ROI that is high enough to warrant program investments? Are program returns sustained over time?

STRENGTHENING WELLNESS PROGRAM EVALUATIONS

For many reasons, conducting rigorous evaluations of wellness programs is challenging. Arguably the biggest challenge is finding an appropriate control group since wellness program participation is almost always voluntary and nonrandom: if program participants are systematically different from non-participants in ways that might affect the outcomes under study, then it is difficult to conclude that any outcome differences observed between participants and non-participants are due to the wellness program. Since it is rarely possible to randomize employees to participant and control groups within a given company or worksite, using a randomized control trial (RCT) evaluation design is likewise seldom possible. While RCTs are generally viewed as the "gold standard" for evaluation research – and government research funding is often limited to RCT designs – participants noted that even this approach is not without its problems, especially as related to external validity.

Participants discussed a number of options for minimizing the threat posed by the possible selection bias caused by nonrandom assignment to the treatment group. One option is to use structured program rollouts, or staged implementation, to generate a group of early participants and a control group. To avoid objections based on equity or fairness and achieve randomness in program participation, one could use a lottery to determine who is admitted to the program in the early stages. To make this approach more acceptable to employers and employees alike, evaluators may wish to describe it as pilot testing with careful evaluation for subsequent program improvement and expansion, rather than as randomization with a control group.

Another option for dealing with selection bias is to employ principles from choice architecture, such as enrolling all employees and allowing them to opt out instead of simply allowing interested employees to opt into the program. Since

few employees will take the steps to opt out, the group of program participants becomes much more representative of the entire employee population (and an adequate size control group becomes correspondingly more difficult to find). A pre/post comparison of outcome metrics for the large participant group is used to estimate program effects in this case, although care still must be taken to control for known contemporaneous changes other than the wellness program that might explain observed changes in outcomes.

Participants also noted that propensity scoring can be used to generate a matched or suitably weighted control group to mitigate selection bias, and that these statistical methods have been improving. Curtis et al.²² provides a recent description of propensity score matching and weighting methods.

Taking advantage of natural experiments is another way to implement an evaluation design that reduces concerns about selection bias. For example, one might use a work location within the same employer (or employees of a similar employer) that is not implementing the wellness program as a control for another work location (or another employer) where the program is being adopted. In this case, concerns about selection bias move to the worksite/employer level, where the problem may be easier to mitigate than at the individual level. However, in the most rigorous statistical treatment of data from such a design, the sample size is effectively reduced to the number of sites or employers in the study, not the number of employees.

Participants spoke at length throughout the meeting about the need to balance the desire for evaluation rigor with the need to conduct evaluations that are both relevant and practical. Relevancy in evaluation design requires that the assessment align with program goals and implementation. As such, relevant evaluations must consider the outcomes of interest to program implementers (not program evaluators) and communicate the results in ways that are both timely and salient to senior managers so the information can be used to make program modifications as needed over the longer term. In this regard, regular reporting of near real-time results through a "CEO dashboard" is likely to be far more useful to program managers than waiting until the end of a long assessment period to report findings in a peer-reviewed journal article. The outcomes reported will likely vary over the life of the program, reflecting realistic timelines for when specific outcomes of interest should begin to be observed. For example, early evaluation metrics might focus on health risk assessment completion rates and program participation and satisfaction, while mid-term metrics could include changes in risk behavior and biometric measures.

Changes in health care use and spending, and overall return on investment, might not be examined critically until later in the program's lifespan.

Practicality in evaluation design recognizes the extreme difficulty of utilizing an RCT approach. Practicality also dictates keeping the evaluation within the employer's means and keeping the evaluation resources in perspective relative to the overall scope of the program. Smaller and even many mid-size employers are unlikely to have the resources and/or internal expertise needed to conduct a comprehensive program evaluation, and small programs or those of short duration may not warrant an extensive evaluation. Nor does it make sense to devote a disproportionate share of total program resources to evaluation at the expense of actual programming.

In the end, participants felt that evaluators need to design the best approach that is feasible given the specific situation and be as transparent as possible about the methods adopted and the pros and cons of the approach taken. They felt very strongly that well-designed case studies and observational studies have an appropriate role in program assessment, particularly in light of the need to produce results throughout the life of the program that are relevant to a diverse range of decision makers.

Participants also noted, however, the tension that exists between the need to have rapid feedback for effective program management and clients' desire to have a comprehensive ROI assessment. For one thing, periodic mid-course changes to the program destroy the fidelity of the intervention and complicate the task of determining program effects. It is especially difficult to compute a meaningful ROI on an ever-changing program, particularly if multiple vendors become involved and data are not available centrally. Additionally, the time lag to obtain all needed data (especially claims) is significant, and the vendor's (i.e., evaluator's) contract may have expired before the data for the ROI assessment are available.

Access to necessary data is another issue affecting the ability of researchers to conduct rigorous program evaluations. In particular, access to participants' medical claims is often quite difficult (questions of data ownership are in addition to the significant lag time before claims are adjudicated and could be available for analysis). Vendors also do not own their clients' data and cannot share it without permission; additionally, vendors have little incentive to share their data with health plans, fearing that plans will use the data to learn the vendor's business and then attempt to bypass the vendor. Participants noted the trend toward vendors being acquired by health plans and wondered whether data access might become easier in the future as disease and lifestyle

management programs become more fully integrated (with one provider and one data repository). These acquisitions often limit the reach of the vendor's product, however, to only people enrolled in the health plan. Participants also commented on the growing availability of electronic medical records and patient-generated data and wondered if and how these data sources might be leveraged to support wellness program evaluations.

Forging partnerships between researchers and employers for the purpose of designing and implementing program evaluations was suggested as a way to overcome some of the data access issues. Employers could then instruct their health plan or wellness vendor to let their research partners access their employees' data for purpose of program evaluation. It is important to recognize that these arrangements can entail significant added work for the employer, making them less attractive to wellness program managers. Participants recommended that grant applications seeking support for this type of partnership include a full-time staff position for a research team member who will be based at the employer to handle the day-to-day tasks of coordinating with the research team. This position could even be a requirement included in any requests for proposals.

BUILDING A STRONGER BODY OF EVIDENCE

Following the discussion of ways to improve the rigor of individual program evaluations, the group engaged in a lively discussion of possible ways to improve the collective body of evidence and make it more accessible and meaningful to stakeholders. The underlying theme woven through this discussion was how to make a stronger case for wellness programs, such that it would resonate with private-sector decision makers (convincing and helping them to implement evidence-based programs) and government policymakers (encouraging them to adopt policies favorable to widespread adoption of workplace wellness initiatives). Many of the ideas discussed in the prior section were relevant to this discussion, too, since improving individual evaluations is a necessary building block to delivering a more robust and credible body of evidence.

A multi-pronged approach to improving the strength and usefulness of the evidence base emerged from these discussions. The suggested strategies aim to cull lessons from existing research, fill knowledge gaps through new high-quality research, and effectively disseminate information to key stakeholders and help them to act upon the information.

Knowledge synthesis. Participants felt that while much is already known about best practices in worksite wellness, this learning is not organized and readily accessible to those

who might wish to implement evidence-based programs or support their adoption through policy. Additionally, because findings from negative program assessments are generally not published (publication bias), there is little public knowledge about what does not work. The evidence base could, therefore, be strengthened through coordinated efforts to synthesize and disseminate information about wellness approaches that are effective (and not effective) at achieving desired outcomes.

As new evidence is generated, it would need to be regularly and systematically incorporated into these syntheses. Evidence gaps would also be identified through the syntheses, guiding future research efforts. The government could help to fill identified knowledge gaps by addressing specific research questions or testing innovative ideas through wellness pilot programs put in place for local, state, or Federal employees.

Messaging and communication. Throughout the meeting there was continued discussion about who the target audiences for wellness research and evaluation information are and the best ways to reach each audience with the information it needs. The key audiences identified by participants are program managers and senior leadership at employers, health plans and wellness vendors who are designing and implementing programs, and government policymakers. Accordingly, participants indicated that the ideal body of research will be a mix of rapid feedback studies that can guide program implementation (termed a "learning agenda") and longer-term evaluations capable of establishing the high-caliber scientific evidence policymakers seek. These are not necessarily mutually exclusive approaches, however, as real-time feedback loops can be incorporated into rigorous program assessments.

Mechanisms for communicating with the target audiences will also be mixed. Congressional Budget Office analysts and policymakers, for example, will be looking for peer-reviewed articles published in top professional journals when they think about "scoring" the probable impact of legislation to promote worksite wellness programs. Corporate leaders, on the other hand, are more likely to rely on business publications and the mainstream media for their information. Participants suggested that having the right messenger is key and that peer-to-peer communication using someone of like stature is most effective for reaching business leaders. They also felt that researchers must work hard to pull out essential messages and draft "marquee statements" that will catch the attention of busy top managers. Several participants also pointed out that these communication approaches are not mutually exclusive either; rigorous research that is vetted through the peer-review process and published in leading journals will have greater external credibility and will be more likely to be reported in the mainstream press.

One specific idea related to communication that was proposed by the session moderator was to establish an ongoing mechanism for measuring and publicly reporting employer accomplishments in promoting the health of their employees. This system could be used, for example, to recognize employers who are among the "healthiest places to work." Participants reacted quite favorably to this idea, suggesting that it could change the paradigm by bringing new prominence to leading employers and incenting other employers to improve their employee wellness efforts. The National Business Group on Health reported that their employer recognition program has been quite popular with employers.

Technical assistance and other resources. A common theme throughout the meeting was that willing employers need more information on how to implement effective programs. Participants agreed that smaller, mid-size, and even some larger employers could benefit from technical assistance, consulting services, and other resources intended to help them design, implement and evaluate their wellness programs. Offered resources could include things like evaluation instruments, financial modeling software and cost calculators. Many of these tools already exist and some are publicly available. Centralizing information about, and access to, these tools through a single access portal – such as a Worksite Wellness Resource Center or Clearinghouse – may be helpful. Access to one-on-one technical assistance and consulting services could also be provided through this gateway. Participants agreed that an effort such as this would likely involve both the public and private sectors.

Standardization of methods and enhanced transparency. Yet another theme that came up several times during the meeting was the need to establish greater standardization and transparency for research methods. For example, studies should consistently use established scientific methods for dealing with challenges such as skewed data, selection bias, small sample sizes, inflation and discounting, and for computing financial performance measures.²³ These steps would enhance the credibility of the work to external reviewers and facilitate comparison and synthesis of results across multiple studies. Recognizing the role of case studies in program evaluations, participants suggested that this methodology would be more valuable if a standardized framework could be developed and widely adopted, so that all case studies employ similar methods.

New researchers, external funding, and partnerships to enhance credibility. Due in large part to a lack of funding and expertise outside the wellness community, much of the research that has been conducted to date in the field of worksite wellness has been performed by program vendors, wellness advocates, and others with a direct stake

in the outcome of the program assessment. This fact has saddled the field with perceptions from outside observers that the findings may not be as credible as they would like. As discussed above, the inherent difficulties in conducting real world program evaluations, use of varying metrics and evaluation approaches, and occasional lack of clarity about methods also add to some observers' worries about the rigor and validity of the research. Efforts to address these threats to credibility would go a long way toward improving the evidence base and making it more useful to corporate leaders and public policymakers.

Toward this end, meeting participants noted the need to attract new people to the field. This new research talent would include newly minted and well-trained investigators who choose to make a career in wellness research as well as established academicians who bring their talents to the field for specific studies. Wellness research will be an attractive choice for these people only if financial support and research opportunities are adequate. To minimize questions about the objectivity of the research, more financial support will need to come from sources that do not have a vested interest in the outcome of the research. For Federal grant opportunities, in particular, this means that the proposal review criteria will need to recognize the difficulty of implementing an RCT design and other real world evaluation challenges and embrace alternative, but-still-rigorous methodologies more suited to the workplace setting.

Likewise, research opportunities necessary to attract and keep top talent will require a new level of partnerships between academic researchers, external funders, and those implementing programs and holding the keys to requisite data. These collaborations would be expected to lead to stronger evaluation designs and methods and to top-tier publications, all of which will enhance the credibility of the findings. Participants suggested creating a central database of entities that are willing to share data and collaborate with others on research in order to facilitate formation of these partnerships; interested researchers could use this information to find partners, request data, and develop joint research projects.

Participants also discussed the idea of having a large, Federally funded research project that would accomplish many of the strategies described above. Noting that a typical NIH grant can be in the neighborhood of \$5 million while a typical wellness evaluation for a single employer might cost \$250,000 to \$500,000, participants advanced the idea of a single large grant that would involve program evaluations for 10 to 20 employers. Prior to conducting the work, the research team would develop a standard set of metrics and a

common research design that would be applied consistently at all evaluation sites, helping to improve the rigor of the work and the ability to draw generalizable conclusions based on the experiences of multiple employers.

MOVING FORWARD

The meeting closed with a broad discussion of possible roles the various participant organizations and other stakeholders could play to move forward with some of the steps identified above as a means to improving the wellness evidence base. We began with a review of key provisions of the Patient Protection and Affordable Care Act (ACA) affecting employee wellness programs and their possible implications for future research on the topic. Representatives of the Centers for Disease Control and Prevention (CDC), the National Institutes for Health (NIH), and AHRQ spoke about their agencies' priorities and mechanisms for grant funding and partnerships – both in general terms and specifically related to new opportunities from the health reform legislation.

The CDC, in particular, expects to become more visible in grantmaking related to worksite health promotion through expansion of the existing Prevention Research Center program funded through the National Center for Chronic Disease Prevention and Health Promotion and the Worklife Centers for Excellence funded by the National Institute for Occupational Safety and Health. The agency also anticipates funding a new set of Worksite Wellness Research Centers, and is expected to play a significant role in providing technical assistance and other resources to help employers evaluate their wellness programs, as called for in the ACA.

Additionally, the new Prevention and Public Health Trust Fund that was established as part of health reform is slated to be dispersing \$2 billion annually by 2015, and worksite wellness is a key topic for the advisory panel making recommendations for how these funds will be spent. It is expected that the majority of these funds will flow through the CDC and be used to support community transformation grants aimed at promoting healthy living and preventing disease.

At NIH and AHRQ, the existing framework of investigator-initiated grants would be the expected funding mechanism for researchers seeking support for research on employee wellness programs. The NIH Foundation is also an avenue for exploring partnerships between the private sector and the government in order to test new products and models.

Beyond funding opportunities from the Federal government, a number of private organizations have some limited resources available to support research. The American College of

Occupational and Environmental Medicine, for example, reported having four research grants available that could support the type of research outlined in this report, and the Integrated Benefits Institute indicated their possible interest in moving toward more support for research projects driven by their members (employers). The Care Continuum Alliance (formerly DMAA: The Care Continuum) also expects to start funding additional research projects, working in partnership with external researchers and other organizations.

While these developments hold some promise for future research, finding financial resources to support wellness research remains a challenge. Given this landscape, it is not hard to see how so much of the wellness research to date has been funded by vendors, employers, and others with a direct stake in the outcomes of the work. As described earlier, securing new streams of external funding and involving talented independent researchers will be critical steps to enhancing the credibility of wellness research. These funders will also need to recognize and accommodate the challenges of conducting real world evaluations, most notably the infeasibility of randomly assigning employees to treatment and control groups for the purpose of implementing a randomized control trial design. Simply broadening the scope of existing investigator-initiated Federal grant mechanisms to include wellness research and applying the same review criteria as are used for other applications (e.g., NIH clinical studies) will doom even well designed and important wellness proposals to failure. A distinct funding stream and grant mechanism is likely needed.

In addition to enhanced funding, additional training opportunities would play an important complementary role in attracting new researchers to the field. Training can also help wellness practitioners and those responsible for wellness programs to conduct more rigorous program assessments and implement evidence-based programs; this assistance is likely to be particularly valuable for smaller employers without extensive internal resources and expertise. The CDC is a logical partner to provide these training opportunities (either using internal staff or through its various prevention and wellness research centers), and Section 4303 of the health reform legislation provides a mechanism through which this training and technical assistance can be delivered.

Regarding new communication strategies, NIH indicated interest in spearheading a public relations workgroup to develop effective ways to share information with business leaders and other key decision makers using channels other than peer-reviewed journals. The National Business Group on Health was supportive of the idea to develop a systematic way to recognize employers that are doing a good job of

promoting health and wellness for their employees, and would seem to be a logical partner in any efforts on this front. This organization would also be well poised to play a role in efforts to get effective wellness innovations incorporated into employers' benefit language.

In the end, it was clear that important work remains to be done to strengthen the evidence base for employee wellness programs and that new contributions and partnerships will be needed from a mix of public and private stakeholders to accomplish this goal.

APPENDIX A

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About NIHCM Foundation

The National Institute for Health Care Management (NIHCM) Research and Educational Foundation is a nonprofit organization whose mission is to promote improvement in health care access, management and quality.

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This Meeting Brief was written by Julie A. Schoenman, PhD, under the direction of Nancy Chockley, both of NIHCM Foundation. NIHCM staff members Kathryn Santoro and Katherine McDonald contributed to the meeting preparations, and Carolyn Myers edited and finalized the brief.



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