



Health Insurance for Diabetes Prevention Confers Health Benefits and Breaks Even on Cost Within 2 Years

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Diabetes and its predecessor prediabetes are huge and costly problems in the U.S., affecting 24.7 (1) and 84.1 million people (2), respectively. Treatment of prevalent diabetes is a leading contributor of rising U.S. health care costs (3), and the cost of treating prediabetes, diabetes, and gestational diabetes mellitus combined is \$404 billion (4). Fortunately, there is strong evidence for prevention, or at least delay, of type 2 diabetes in high-risk individuals, especially those with impaired glucose tolerance (IGT), through lifestyle education programs, interventions that have been shown to be effective, cost-effective, and translatable in real-life settings (5–8). The challenge lies in scaling the implementation of proven programs like the U.S. Diabetes Prevention Program (DPP) at the community level with effective, easy, and low-cost ways to reach at-risk individuals and enroll, engage, and keep them in programs like the National DPP (9).

In their article in this issue of *Diabetes Care*, Ackermann et al. (10) evaluated the costs and financial implications for commercial health care insurers offering reimbursements for the National DPP available at YMCAs, the YDPP. They report impressive results: the YDPP program had no effects on net health care costs at 2 years, with no difference between the mean per-person health expenditures between

YDPP participants and matched control subjects. In addition, the authors report on the efficacy of workplace screening for identifying individuals with prediabetes for YDPP enrollment. They found that worksite screening, using the undescribed protocols set up by the individual worksites, were only able to identify 9.7% of the estimated at-risk population, of whom less than half (39.1%) attended the lifestyle intervention classes. This study has several notable strengths, including a large sample size and a well-designed analysis that accounted for differences at baseline using propensity score matching. Further, this analysis makes good use of existing data in an important natural experiment. Study participation was very good, with 71% of enrolled individuals attending nine or more classes.

The study is not without limitations. The authors defined “YDPP users” as anyone attending one or more YDPP classes. This generous definition of engagement might overestimate participation rates. In this and other studies, attendance at more DPP classes has been shown to be associated with increased weight loss (8), the factor most closely predictive of diabetes prevention (11). Additionally, the percentage of employees completing screening was low (5.8%), indicating that only a small portion of the at-risk population

was identified. This sample is likely to be individuals who are either seeking a program like the YDPP (e.g., already contemplating or engaged in lifestyle improvements) or who perceive their risk to be greatest. Without any information on how and when worksites advertised for and conducted screening, it is difficult to assess the potential coverage of these screening efforts. Furthermore, it is also not clear what level of commitment and support was given to the program from the leadership at the various worksites. Finally, given the slow nature of diabetes development and the design of the DPP curriculum, which prioritizes slow but lasting lifestyle changes over quick fixes, one would not necessarily see large health care costs in middle-aged (mean age 55.0 years) working adults.

This analysis adds important data to inform the continued implementation and scaling up of the DPP and similar proven lifestyle interventions. The authors show the utility of workplace screening and health insurance benefits for chronic disease prevention. By evaluating the output of community-based screening at worksites, Ackermann et al. (10) provide guidance on the success and drawbacks of such an approach and indicate several areas needing additional research. These include research on optimizing

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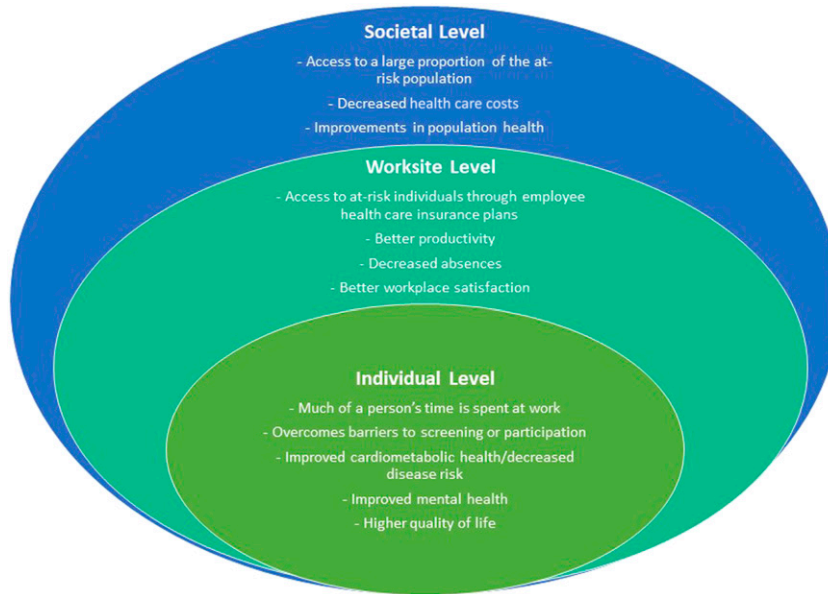


Figure 1—Multilevel benefits of worksite-based diabetes prevention.

workplace screening programs to reach more at-risk individuals and successfully refer those individuals for the YDPP and similar prevention programs. Furthermore, better data are needed to describe the population that does and does not matriculate to DPP classes in order to design incentives or other nudges to assist people in taking the next step. Finally, more implementation studies are needed that include data on cost and cost-effectiveness from a payer's perspective. This component is key for encouraging payers and policy makers to invest in programs.

One potential challenge for participants in this study might have been that although screening was done at worksites, the intervention classes were held at a different community location. Delivering lifestyle programs at worksites, using the existing structure of worksite health facilities for testing and training and even utilizing trained worksite staff as peer health educators, could be an effective and cost-effective approach for lifestyle education delivery. Such an approach may overcome many individual-level barriers to participation in a lifestyle education program (e.g., lack of time and social support, inability to locate resources) and could be beneficial to employers (e.g., higher employee satisfaction and retention and possibly less lost productivity due to illness) (12–14). More data are needed

to understand how programs like the YDPP with screening at worksites but interventions elsewhere affect outcomes at the worksite such as attendance, presenteeism, worker satisfaction, and productivity.

Even so, employers play a key role in providing access, ability to participate, and encouragement through screening and health insurance benefits. They should be encouraged to provide these benefits to improve the health of workers. The potential advantage of accessing at-risk individuals through worksites is huge, as approximately 157 million Americans are employed (15) and a high proportion of them are likely to be at high risk for diabetes and could benefit from proven lifestyle interventions. The benefits of worksite-based prevention programs are likely to accrue at multiple levels (Fig. 1). Furthermore, social network analyses show that behaviors adopted by one individual can spread to family and friends (16). There are also long-term benefits to be reaped for the nation by investing in health insurance for prevention. For example, studies have shown that health care access before the age of 65 years can reduce individuals' Medicare costs after they reach age 65 (17).

In conclusion, in their article Ackermann et al. (10) provide excellent evidence that health insurance for diabetes prevention is beneficial and did not increase net

costs, with the possibility of breaking even within 2 years. Worksite screening appears to be an effective mechanism for enrolling participants in the National DPP and seems like a natural avenue to tap, given that worksites provide access to a large population of at-risk individuals and most people spend a majority of their waking hours at work (see Fig. 1). However, more effective methods are needed to increase program uptake among eligible individuals identified through worksite screening programs. Better enrollment in DPP programming through worksites may result in reductions in diabetes incidence, savings in medical costs, and improvements in overall well-being and productivity of U.S. workers. Despite nearly 17 years having passed since the publication of the primary results of the famous DPP trial, only 1.3% of eligible adults participate in the DPP or a similar lifestyle program for diabetes prevention (18). If we hope to make significant inroads toward diabetes prevention in the U.S., imaginative use of all natural settings, such as worksites, churches, and other community venues, is critical for reaching the massive population of people with prediabetes in order to deliver high-quality lifestyle interventions.

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