

Can health promotion programs save Medicare money?

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Abstract: The impact of an aging population on escalating US healthcare costs is influenced largely by the prevalence of chronic disease in this population. Consequently, preventing or postponing disease onset among the elderly has become a crucial public health issue. Fortunately, much of the total burden of disease is attributable to conditions that are preventable. In this paper, we address whether well-designed health promotion programs can prevent illness, reduce disability, and improve the quality of life. Furthermore, we assess evidence that these programs have the potential to reduce healthcare utilization and related expenditures for the Medicare program. We hypothesize that seniors who reduce their modifiable health risks can forestall disability, reduce healthcare utilization, and save Medicare money. We end with a discussion of a new Senior Risk Reduction Demonstration, which will be initiated by the Centers for Medicare and Medicaid Services in 2007, to test whether risk reduction programs developed in the private sector can achieve health improvements among seniors and a positive return on investment for the Medicare program.

Keywords: health promotion, return on investment, Medicare, financial impact, risk reduction programs, demonstration

Introduction

United States healthcare costs continue to escalate with no immediate relief in sight. In 2005, healthcare spending totaled US\$2.0 trillion—16% of the gross domestic product (GDP) (Poisal et al 2007). Further, healthcare spending is projected to account for 18.4% of GDP by 2013, when more than one out of every four dollars of personal consumption will be spent on healthcare (Heffler et al 2004).

The aging of Americans is a central component fueling cost increases. In the year 2000, 12.4% of Americans were over age 65, but this will increase to 19.6% in 2030 (Goulding et al 2003). Chronic diseases, especially prevalent in the senior population, generate a large proportion of Medicare spending. In 1995–1999 (the most recent data), only 5% of Medicare beneficiaries, presumably many with chronic diseases, accounted for almost half (47%) of total spending. A much larger segment of the population (40%), those in relatively good health, accounted for only 1% of the total (Lieberman et al 2003).

Preventing or postponing the onset of chronic disease among seniors has become a crucial public health issue, as has the potential to compress the period of morbidity prior to death (Vita et al 1998). It has been estimated that approximately 70% of the total burden of disease (as measured in terms of premature deaths and potential years of life lost) can be traced back to illnesses that are preventable (Department of Health and Human Services 1991).

Particularly noteworthy is research by McGinnis and Foege (1993) and Mokdad and colleagues (2004) who concluded that about half of all deaths in the US are caused by modifiable risk factors. Although death is inevitable, it is now becoming clear that successful health promotion programs can improve health, prevent much disability, delay mortality, and thereby substantially improve the quality of seniors' lives (Aldana 2001; Chernoff 2001).

The growing awareness of the value of prevention and health promotion is evident at the executive branch of government. The President launched the *HealthierUS* initiative, promoting healthier lifestyles and a reduction of risk factors such as inactivity, obesity, and smoking (HealthierUS 2003). The rationale for this initiative, especially in relation to health promotion efforts directed at seniors, is described on the White House website:

“Poor health should not be a foregone consequence of aging. Improvements in diet and physical activity can greatly improve the quality of life at any age. Regular physical activity also helps older Americans maintain joint strength and mobility and substantially delays the onset of functional limitations and loss of independence.” (White House 2003).

The rapidly rising cost of healthcare, an aging population, and the high prevalence of chronic disease among the elderly generate a sense of urgency for finding innovative solutions to this country's healthcare crisis, including health promotion and disease prevention initiatives. In this paper, we highlight several key studies that underscore the value of introducing health promotion and risk reduction programs directed at seniors. Furthermore, we present evidence suggesting that health promotion and risk reduction programs may reduce unnecessary healthcare utilization and related expenditures for the Medicare program, yielding a favorable return-on-investment (ROI) for such interventions. We finish our discussion with a description of an innovative demonstration project that Centers for Medicare and Medicaid Services (CMS) will be introducing in 2007 to test whether health promotion programs can improve the health of seniors and also achieve a positive cost-benefit ratio.

The value of health promotion and risk reduction programs for seniors

A growing literature presents convincing evidence that seniors who reduce their modifiable health risks can forestall disability, reduce their utilization of health services, and ultimately save Medicare money (Hickey et al 1997; King

et al 1998; Vita et al 1998; Fries 2002; Omenn 2003). Lubitz and colleagues (2003) presented evidence that elderly persons in better health at age 70 live about 2.7 years longer than those in poor health, and their cumulative Medicare healthcare expenditures are no greater than those who die earlier; in fact, they may be slightly lower. The MacArthur Study on Aging, consisting of dozens of studies conducted over a decade, helped researchers identify components of successful aging (Seeman et al 2001). For example, quitting smoking and initiating other lifestyle changes even later in life have produced substantial health benefits (Hickey et al 1997; Hermanson et al 1988).

Importantly, several studies confirm the value of physical activity for improving health among the elderly (King 2001). Physical activity can extend life, help prevent heart disease and colon cancer, (Christmas and Andersen 2001; Penedo et al 2004) mitigate the effects of chronic diseases such as arthritis or diabetes (Christmas and Andersen 2001; Bean et al 2004), improve coordination and flexibility to help avoid falls (Christmas and Andersen 2001; Bean et al 2004), and alleviate depression among older adults (Christmas and Andersen 2001). Adults who practice even simple physical activity can improve their health status and use fewer health and social services (Aldana 2001). To emphasize the importance of physical activity, a comprehensive review by Himes (2002) identified these two overriding determinants of health status for seniors: social isolation as a strongly negative influence and regular physical activity as a strongly positive factor.

Can seniors' health behaviors be changed?

In the private sector, evidence suggests that multicomponent health promotion and risk reduction programs can permanently change lifestyle habits and reduce population health risks for nonseniors (Heaney and Goetzel 1997). The same is found in seniors. A report by RAND (2001) concluded that successful risk reduction programs directed at working and senior populations share certain characteristics that make them effective in changing life-long health habits. Successful programs are anchored in behavior change theory, employ tailored and personalized interventions, are sufficiently intensive, and are complemented by adequate social supports. Such programs appear to work effectively even if they are not delivered face-to-face, but instead provided by telephone, internet, and mail. In addition, health promotion programs that engage participants in self-care activities and increase

their involvement in healthcare decision-making can achieve long-term behavior change and risk reductions (Heaney and Goetzel 1997).

Although much of this private sector research has been conducted with those under age 65, the underlying principles and methods employed by these programs possess sufficient flexibility to be tailored to the unique needs of diverse populations, suggesting that risk reduction programs targeting seniors have a high potential to achieve lasting behavior changes and potentially lower utilization of healthcare services (RAND 2001).

The potential for cost savings

Other research in the private sector is pointing in the direction that evidence-based health promotion and risk reduction programs can save money. Several literature reviews that weighed the evidence from experimental and quasi-experimental research studies suggest that programs grounded in behavior change theory and that utilize tailored communications and individualized counseling for high-risk individuals produce a positive ROI (Goetzel et al 1999; Aldana 2001; US Department of Health and Human Services 2003). Much of the ROI research has emerged from employer-sponsored health promotion programs directed at active employees (Goetzel et al 1999; Pelletier 2001). In a review of 32 health promotion program evaluations, Aldana (2001) found 28 studies that reported medical cost savings. Of the seven studies that calculated cost-benefit ratios, financial returns averaged \$3.48 for every dollar expended. Studies often cited with the strongest research designs and large numbers of subjects included those performed at Johnson and Johnson (Bly et al 1986; Breslow et al 1994), Citibank (Ozminkowski et al 1999), Dupont (Bertera 1990), the Bank of America (Leigh et al 1992; Fries et al 1993), Tenneco (Baun et al 1986), Duke University (Knight et al 1994), the California Public Employee Retirees System (CalPERS) (Fries et al 1994), Procter and Gamble (Goetzel, Jacobsen, et al 1998), and Chevron Corporation (Goetzel, Dunn, et al 1998). Even accounting for certain inconsistencies in design and results, most produced positive cost outcomes.

The most recent review on this topic conducted by Chapman (2003), summarizing the results from 42 qualifying financial impact studies conducted over the past two decades, concluded that worksite programs achieve a 25%–30% reduction in medical and absenteeism costs in an average period of about 3.6 years (Goetzel, Jacobsen, et al 1998). Similarly, the RAND report (2001) concluded that health promotion and risk reduction programs using health risk assessments

(HRAs) and ongoing tailored interventions have the potential to be cost-beneficial.

Five financial analyses are especially pertinent to cost-benefit calculations for Medicare enrollees engaged in health promotion programs: Four (Fries et al 1993; Fries et al 1994; Fries and McShane 1998; Ozminkowski et al 2006) focused on risk reduction programs for seniors (at the Bank of America, CalPERS, and at General Motors Corporation), and one for working-age individuals at Citibank (Ozminkowski et al 1999). Employing available medical claims data to estimate changes in medical expenditures, the Citibank study reported an ROI of \$4.70 to \$1.00. That ROI estimate was similar to one obtained in a randomized trial using the same intervention program in a different population (Fries et al 1993). Using methods that imputed changes in medical expenditures from changes in utilization, the evaluations of Bank of America and CalPERS programs for seniors reported ROIs of approximately \$5.00 to \$1.00. The General Motors study was not an ROI study, because it contained no program cost information. However, it did demonstrate that health promotion programs offered to seniors, particularly those that are based upon administering a health risk appraisal, can save \$101 to \$648 per person per year (at the US dollar value for 2006), depending upon who participates and how many programs they use.

Admittedly, the methodological rigor of evaluations performed at many corporate health promotion programs has not been consistent. In fact, randomized trials are hard to find in the literature, largely because they are not well accepted in a business environment. However, methodological shortcomings in earlier analyses have diminished significantly over the past two decades. The most recent evaluations using sophisticated econometric methods that control for selection bias do assess impact over several years (with some extending for three to five years and one, performed at Johnson & Johnson, lasting nine years) (Ozminkowski et al 2002). These advances should inform future study designs of similar health promotion interventions directed at seniors.

In short, a focus on prevention and health promotion offers a most promising approach to the urgent challenges that the Medicare program faces today and into the future. Research in the private sector presents compelling evidence to warrant large scale federally funded demonstrations that test the prospect for well-designed health promotion and risk reduction efforts to pay for themselves through lower healthcare expenditures. Although some corporate studies have recently begun to focus on productivity impacts from these programs (eg, reduced absenteeism, shortened

disability periods, decreased “presenteeism”), much of the private sector research has emphasized healthcare cost savings. This is the same focus of policy makers and legislators with oversight responsibility for Medicare.

Medicare policy implications— initiation of a senior risk reduction demonstration

There are still several unanswered questions related to the application of health promotion and risk reduction programs in an elderly population. For example, will living a healthy life truly reduce seniors’ illnesses and incidence of disability prior to their demise or will they simply live longer and their illnesses and disability be delayed? Thus, will a longer life span cost Medicare more because seniors are alive longer and may still experience significant end-of-life illness and costs? These are testable hypotheses.

While successful health promotion interventions could extend the period of healthy life and result in costs being incurred to the Medicare program over a longer period of time, the alternatives are not appealing. The obesity epidemic striking all populations has serious implications for Medicare. Researchers at RAND recently estimated the costs of the future obese elderly, and found that Medicare will spend 35% more caring for an obese 70-year-old person over his or her lifetime than for a normal weight person, at a cost of \$36,000 (Lakdawalla et al 2005).

To explore these very complex issues, in 2007, Medicare will initiate a three and a half year research project entitled Senior Risk Reduction Demonstration (SRRD), to test the health and economic impacts of providing health promotion services, modeled after programs provided to those under age 65. The SRRD will provide insights on how to deliver such programs practically, an important step in advancing the Medicare program from one focused on the diseases of older people to one focused on improving their health and quality of life.

SRRD will operate under the following parameters:

- *Target population.* CMS will offer risk reduction services to noninstitutionalized Medicare beneficiaries between the ages of 67 and 74, to be delivered by private sector vendors. Five vendors will be given contact information for a random sample of beneficiaries from across the US, as well as from communities that have exemplary Information and Referral/Assistance (I&R/A) programs for seniors.
- *Voluntary participation.* Beneficiaries will enroll in and complete the program voluntarily. Incentives will be

offered to induce high participation and retention rates, but participation will be at the discretion of the beneficiary.

- *Focus on self-care.* The SRRD will emphasize health improvement and risk reduction to complement the clinical aspects of medical services that are offered by other healthcare professionals. The program will contain elements of chronic disease self-management that take the form of patient education, advice, and counseling but will be primarily targeted at seniors who are well and do not need disease management services.
- *Tailoring to beneficiaries.* Vendor programs will be tailored to the needs, concerns, and learning styles of seniors. The goal is to develop personalized materials and instruments, followed by interventions tailored to the risks presented by the participants.
- *Central coordination.* Programs will be centrally coordinated and administered by CMS through its vendors. Programs will deliver interventions via the mail, internet, and/or telephone counseling and coaching.
- *Referral to local community resources.* Vendors will be required to refer beneficiaries to national or local community resources. For beneficiaries residing in preselected exemplary I&R/A communities, vendors will be required to make referrals to the local I&R/A organizations.
- *Multiple behavior change modules.* Programs will address several modifiable health risk categories simultaneously in the assessment, triage, and follow-up phases of the intervention. Risk factors addressed in the SRRD include the following: 1) physical inactivity/lack of exercise; 2) poor nutrition; 3) smoking/tobacco use; 4) excessive alcohol consumption; 5) high blood pressure; 6) high blood glucose; 7) high total cholesterol; 8) being overweight/obese; 9) inappropriate use of clinical preventive services; 10) depression; 11) high stress; 12) lack of general well-being; 13) burden of providing care giving; 14) social isolation; 15) lack of motor vehicle/home safety; 16) falls (preventable accidents); and 17) polypharmacy/medication issues.

The SRRD will be judged on its ability to achieve high enrollment, participation, and retention rates; improve beneficiaries’ health, health risks, and functionality; and achieve a positive ROI for the Medicare program. Readers interested in learning more about the SRRD are invited to visit CMS’ website (CMS 2006).

Conclusion

This Administration’s interest in prevention, combined with the impending insolvency of the Medicare Trust Fund,

make it timely for CMS to explore and test evidence-based approaches to risk reduction and health promotion that may not only help beneficiaries to take better care of themselves, but that are likely to generate a positive ROI. The SRRD will provide insights on how to deliver such programs practically, an important step in advancing the Medicare program from one focused on the diseases of older people to one focused on improving their health and quality of life. In short, a focus on prevention and health promotion offers a most promising approach to the urgent challenges that the Medicare program faces today and into the future.

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