Does Population Management Of Chronic Disease Lead To Lower Costs Of Care?

Despite lingering concerns, disease management shows promise in improving the care of the chronically ill and helping control its cost.

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ABSTRACT: The paper by Bruce Fireman and colleagues is an important contribution to the dialogue about the role of chronic disease management in quality improvement and health care cost mitigation. There is much enthusiasm for the potential impact of disease management techniques on the costs associated with chronic and complex health conditions. This Perspective describes several considerations that are important to the interpretation of studies of the cost impact of disease management and to assessments of the future usefulness of these interventions.

The paper by Bruce Fireman and colleagues from the Permanente Medical Group (TPMG) Division of Research concludes that Kaiser Permanente achieved important clinical quality improvements over the period 1996–2002 in four major categories of chronic disease management: coronary artery disease, heart failure, diabetes, and asthma. However, even though there was a reduction of more than $200 million compared with cost trends for that time period, the researchers did not find evidence that these quality improvements led to absolute cost savings over 1996 expenses, and they remain cautious about claims that disease management can reduce health care costs by improving quality.

These findings of relative cost reduction, but no absolute cost savings, arrive at a time when the health care marketplace is saturated with claims of both quality improvement and financial savings for disease management programs (DMPs). For instance, Victor Villagra and Tamin Ahmed report a prompt 5 percent decline in health care costs following implementation of a diabetes DMP in a large network-model health plan. Unlike the study by Fireman and colleagues, Villagra and Ahmed did not look at the entire diabetic population, but rather at selected subgroups of diabetic patients.

Recently a commercial disease management industry has emerged, spurred by employers and other purchasers, in hopes of reducing the high cost of chronic health conditions. It is likely that more studies of the effectiveness of disease management will appear, as both the science and the economics of these interventions evolve. Here we raise several issues related to the cost impacts of disease management that may be of use in interpreting future studies.

- Different definitions of “cost savings.” The study by Fireman and colleagues uses a stringent definition of cost savings: that is, it asks whether there was an absolute decline
in cost for the entire population over time, rather than reporting the more common measure, relative cost savings (obtained by comparing current costs with a projection of what costs would have been without the DMPs). Also, Fireman and colleagues did not adjust cost trends for medical inflation, whereas others have (they used the Consumer Price Index, or CPI). These study design choices—using an absolute rather than relative cost reduction benchmark and using the CPI rather than the medical cost trend as an inflation adjustment—create a higher threshold for a positive result than would be created by the alternative design choices. In addition, studying the cost trend for the entire enrolled population of patients with certain chronic conditions rather than patient subgroups with those conditions creates a similar effect. This is because when such subgroups involve primarily persons who are high users of services during the baseline year, their follow-up is likely to overstate what would be seen for the entire population. Each of these design choices should be kept in mind when one is reviewing studies of disease management.

**Identification of the baseline clinical environment.** DMPs' cost impact can vary widely in different care settings and depends greatly on the baseline rates of use and costs. By the beginning of the 1996–2002 time frame analyzed by Fireman and colleagues, Kaiser Permanente had already achieved a fairly mature state of cost and utilization management in Northern California, with a baseline of health care costs that was among the lowest in the country, by implementing many techniques deemed “disease management.” By 1996 Kaiser Permanente had already designed and implemented comprehensive multidisciplinary programs for disease prevention and health maintenance; appropriate use of hospital care, pharmaceuticals, and new medical technologies; and multispecialty coordination of care for most chronic conditions.

Fireman and colleagues compared subsequent costs against a baseline that was already much lower than that of comparable organizations at the time. Commercial premiums in California, where Kaiser Permanente has acted as one of the main drivers of price competition for the past decade or so, continue to range about 10 percent below the U.S. average and 20–25 percent lower than in many markets on the East Coast. One study of twenty-six not-for-profit multihospital systems found that Kaiser Permanente had the shortest average length of stay in 1998 and 1999, while another suggested that the presence of Kaiser Permanente had shaped the entire California hospital market prior to 2000 by pressuring the competition toward more efficient use of hospital admissions and days.

As a result, Kaiser Permanente had already harvested much “low-hanging fruit,” in terms of cost management, before 1996. In contrast, many DMPs, especially commercial ones, are being implemented in the setting of the more fragmented delivery of care that prevails throughout the country. In addition, disease management techniques in such settings are more narrow in methodology than the comprehensive approach used in mature integrated delivery systems (IDSs) such as Kaiser Permanente.

Fireman and colleagues in effect examined the incremental impact on a mature delivery system of a subset of today's arsenal of disease management techniques—specifically, the increased use of care managers, more standardized care processes, and increased information technology (IT) support that appeared after 1996 in Kaiser Permanente's Northern California region. Conclusions about the potential cost impact of DMPs relative to their ability to absolutely reduce baseline year costs thus should be viewed in the context of the matu-
rity of the underlying delivery system.

**Whose cost and when?** It is possible, as Fireman and colleagues suggest, that absolute cost savings from incremental disease management interventions, beyond those already achieved by mature IDSs, will prove to be elusive in the end for payers. The greatest amount of quality improvement engendered by disease management occurs when additional care is provided to patients who have not been receiving all available beneficial care. This adds costs for risk-bearing entities. Also, in some cases, lengthening life allows chronically ill patients to continue to use care for both existing and new medical conditions (for example, hip replacements). This can further increase outlays beyond even risk-adjusted revenue.

On the other hand, the quality improvements noted by Fireman and colleagues and by others may well result in “cost savings” to employers, because of increased productivity and decreased absenteeism among workers, as well as broader societal “cost savings,” such as reduced wage losses for family caregivers. While difficult to quantify, such gains should be considered in analyzing DMPs’ usefulness.

**Light on the horizon?** Even while acknowledging the concerns described above, we do not believe that it is appropriate to dismiss the promise of disease management as a tool to help further manage unnecessary health care costs. The advent of fully deployed clinical information systems combined with interactive physician-patient communication via the Internet promises to create a new set of care management tools for both quality improvement and innovative cost management. The “virtual office visit”; greatly improved patient compliance with treatment regimens; and interactive, system-supported self-care are several examples of ways to redefine effective disease management in the era of the electronic medical record (EMR). Kaiser Permanente is making a long-term investment to this end. Perhaps disease management is really still in its infancy, and we have yet to understand these techniques’ potential contribution to the quest for value in health care.

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**NOTES**

3. Ibid.