

## Higher Deductibles Can Reduce Emergency Department Use, But at What Cost?

Wharam JF, Landon BE, Galbraith AA, et al. Emergency department use and subsequent hospitalizations among members of a high-deductible health plan. *JAMA* 2007;297:1093–102.

### Study Overview

**Objective.** To examine rates of emergency department (ED) visits and subsequent hospitalizations among individuals after transitioning to a high-deductible health plan (HDHP) and to compare these with rates among matched health-maintenance organization (HMO) controls.

**Design.** Controlled observational study.

**Setting and participants.** 8724 individuals aged 1 to 64 years who were insured by Harvard Pilgrim Health Care from 1 March 2001 to 30 June 2005 and who were enrolled at least 1 year in a traditional HMO plan followed by at least 6 months in the Harvard Pilgrim HDHP (deductible of \$500–\$2000 for an individual and \$1000–\$4000 for a family), compared with 59,557 adult/child matched controls who were enrolled in the Harvard Pilgrim traditional HMO plan during the same period. For each HDHP member, the baseline period was defined as the 12 months preceding the index date (date the member switched to the HDHP), and the follow-up period was defined as the 6- to 12-month period following the index date. Each HDHP member was matched with 8 controls who were assigned the same index date and baseline and follow-up periods.

**Main outcome measure.** Rates of first and repeat ED visits classified as low, intermediate, or high severity during the baseline (1 year prior to transition to the HDHP) and follow-up periods (6 months after transition to the HDHP) as well as rates of inpatient admissions after ED visits.

**Main results.** After controlling for age at index date, sex, employer size, socioeconomic status, membership in an association plan, membership in an individual versus a family plan, and morbidity, there was a 10% relative decline in ED visits (absolute change,  $-20.2$  visits per 1000) from baseline to follow-up among HDHP members compared with HMO controls (95% confidence interval [CI],  $-16.6\%$  to  $-2.8\%$ ;  $P = 0.007$ ). There was a nonsignificant 4.1% decrease in the rate of first ED visits for HDHP members versus controls (95% CI,  $-11.8\%$  to  $4.3\%$ ). However, there was a 24.9% relative

decrease in all repeat ED visits among HDHP members from baseline to follow-up (95% CI,  $-37.5\%$  to  $-9.7\%$ ;  $P = 0.002$ ). This decrease was greatest for low- and intermediate-severity visits. Analysis by income category demonstrated a 25% decline (95% CI,  $-59.1\%$ – $36.1\%$ ;  $P = 0.34$ ) in high-severity ED visits among lower income HDHP members compared with lower income HMO members but only a 1.9% decline (95% CI,  $-21.3\%$ – $23.8\%$ ;  $P = 0.91$ ) in ED use among higher income HDHP members compared with higher income HMO members. Finally, compared with HMO members, the HDHP group experienced a 27% decline in hospitalizations following ED visits (95% CI,  $-41.4\%$  to  $-9.0\%$ ;  $P = 0.005$ ).

**Conclusion.** Individuals who switch from a traditional HMO plan to a HDHP may have fewer ED visits and fewer hospitalizations than individuals who remain in a traditional HMO plan. Additional research is needed to determine whether these utilization patterns persist over the long term and to evaluate the potential impact of HDHPs on clinical outcomes.

### Commentary

The RAND Health Insurance Experiment (HIE), the largest health policy experiment ever conducted in the United States, sought to determine how much more medical care individuals would use if it were provided free of charge and whether cost sharing had any adverse effect on patients' health [1]. The study was initiated in 1971 and involved 7700 patients younger than age 65 years. The HIE demonstrated that across all levels of coinsurance, patients with cost sharing had 1 to 2 fewer physician visits per year and 20% fewer hospitalizations than patients with access to free care. In general, the reduction in services induced by cost sharing had no adverse effects on participants' health; however, the HIE lasted only 3 to 5 years and was conducted at a time when fewer treatments were available for acute and chronic illnesses. The HIE also demonstrated that those in the study population who were the poorest and sickest at the start of the experiment had better outcomes under the free plan (no cost sharing). Free care was associated with improved control of hypertension (a condition with significant long-term morbidity if left

untreated) as well as improved vision and dental care.

More recently, HDHPs have been promoted as a mechanism to decrease health care utilization. Like the findings reported in the HIE study, Wharam and colleagues found that cost sharing in the form of HDHPs decreased utilization. Not surprisingly, cost sharing did not affect the rate of first ED visits after enrollment in a HDHP, presumably because patients were not aware of the costs of care until after the first visit. However, subsequent ED use by HDHP members declined by nearly 25%.

At first glance, HDHPs may seem like a tool employers can use to control rising health care costs. Patients appear to use the ED less for low-severity conditions that arguably should be treated through primary care visits. However, before HDHPs can be seen as a reasonable mechanism to decrease utilization, closer attention must be paid to their potential health consequences. This study suggested that individuals with lower income may have deferred care for high-severity conditions. Thus, although HDHPs may decrease inappropriate care, these plans may also decrease appropriate care that, if deferred, may have long-term health consequences. This study classified conditions as low, intermediate, or high severity using a previously described algorithm, but a low-severity condition such as a headache may turn out to be a subarachnoid hemorrhage [2]. We do not know short- or long-term health consequences for patients

who defer care. Will patients with lower income ignore chest pain a little longer because of the financial ramifications of an ED visit? And, as a result of late care, will these patients have significantly more myocardial injury? Although well designed, this study does not speak to this critical issue. Before HDHPs become more widely adopted, research needs to clarify the relationship between use of such plans and clinical outcomes.

### **Applications for Clinical Practice**

HDHPs are becoming a more common type of health insurance. Patients who are enrolled in these plans may make health care decisions that are not in their best interest. Physicians should pay close attention to their patients' insurance plans to attempt to dissuade poor health care decision making due to monetary concerns.

—Review by Salomeh Keyhani, MD, MPH

### **References**

1. Brook RH, Keeler EB, Lohr KN, et al. The Health Insurance Experiment: a classic RAND study speaks to the current health care reform. Available at [www.rand.org/pubs/research\\_briefs/RB9174](http://www.rand.org/pubs/research_briefs/RB9174). Accessed 23 Apr 2007.
2. Grudzen CR, Brook RH. High-deductible health plans and emergency department use. *JAMA* 2007;297:1126-7.

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