

# Appendix D: Selected Research on the Effects of Patient Cost-Sharing on the Use and Cost of Health Care<sup>1</sup>

This appendix reviews selected studies that examined the actual imposition of cost-sharing in various settings, including the Palo Alto Medical Clinic, United Mine Workers of America health plan, the California Medicaid program, and the Group Health Cooperative of Puget Sound. As noted in chapter 3, these studies are not considered as valuable as the Rand Health Insurance Experiment (HIE)-and are not discussed in detail in the main body of this background paper-for two reasons: first, they were not conducted under experimental conditions and, second, they did not examine the health status of study participants. The *sine qua non* of scientific experiments-the *random* assignment of study participants to experimental (and control, if appropriate) conditions-was not a feature of the studies discussed below. Thus, although these studies resulted in some potentially intriguing findings (e.g., 23) and/or they are consistent with the HE, their apparent findings may be the result of forces other than the imposition of patient cost-sharing. Limitations of the studies other than the lack of a randomized control group are discussed briefly for each study.

## Palo Alto Medical Clinic

The first notable study on cost-sharing reported in the literature took place at Stanford University in the late 1960s (66,67).<sup>2</sup> The setting was the Palo Alto Medical Clinic (PAMC), which was operated largely on a fee-for-service basis.

Through 1966, the faculty and staff at Stanford and their dependents had received care through a prepaid medical plan, without any cost-sharing requirements. In an effort to minimize premium rate increases and curb health care utilization and costs, 25 percent coinsurance requirements on physician inpatient and all outpatient services (including ancillary services such as laboratory and X-ray procedures) were instituted in April 1967. Only inpatient services billed by the hospital were exempt from the coinsurance requirement. Scitovsky and Snyder analyzed the change in utilization between 1966 and 1968 but they did not examine the impact of any changes in utilization on health status. Nor could they analyze the impact of deductibles on use of services, since none were included in the plan.

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<sup>1</sup> This literature review benefited from an initial review prepared under contract to OTA by Thomas Rice.

<sup>2</sup> Another study of interest from that time period was one **examining** the imposition of copayments in the province of **Saskatchewan**, Canada in 1968 (6) *and* their subsequent removal with the enactment in Canada of universal, **first-dollar coverage** in 1971 (7). This study is less relevant than those reviewed here primarily because of the **difficulty** of controlling for the various factors that may have changed province-wide utilization over time. Like the studies discussed here, the analyses of the Saskatchewan experience found an apparently substantial impact of copayments on service usage.

The study's overall finding<sup>3</sup> was that the utilization and total cost of all physician services fell considerably—by 24.8 percent and 25.7 percent respectively—with the imposition of the 25 percent coinsurance rate. In addition, the use of outpatient ancillary services dropped by 16.6 percent and ancillary costs declined by 25.7 percent. These findings imply a decline in utilization of 1.4 percent with every 10 percent increase in cost-sharing. In a follow-up study four years later, Scitovsky and McCall found that utilization remained at this same lower level, implying that the effect of cost-sharing on the use of services was permanent rather than transitory (66).

There are limitations to the study design used by Scitovsky and Snyder, but the study's results appear valid. The findings could be questioned if, for instance, something changed over the study period (e.g., health status or other efforts at cost containment), that might have had the effect of reducing 1968 utilization compared to the 1966 level. For example, if a serious flu epidemic had hit the area in 1966, and not in 1968, then one would expect 1968 utilization to be lower even in the absence of the institution of coinsurance. Such events are unlikely to have influenced the results, however. In an effort to test for the impact of illness on demand, the authors compared the number of physician visits at PAMC with those in another area health plan—the Kaiser Foundation of Northern California—and showed that Kaiser's physician visits per capita did not change between 1966 and 1968.<sup>4</sup> A second problem would be if, in response to the coinsurance requirements, employees sought more services outside of the health plan for which utilization data were recorded (the PAMC). This would result in underestimating use in 1968, thereby overestimating the decline over the study period. This was also unlikely because in-plan use was still reimbursed at a 75 percent rate, whereas out-of-plan use was not covered at all.

There is also no way to know whether the experience at Stanford in the 1960s—representing a single plan in

a university setting in the San Francisco Bay Area—can be generalized to either other places or to the present time. The health plan under which Stanford employees and dependents were initially enrolled was a prepaid medical plan, which was also somewhat unusual for the time.

## The United Mine Workers of America Health Plan

The effects of newly instituted cost-sharing have also been studied from the experience of the United Mine Workers of America (UMWA) health plan. Until July 1977, the UMWA health plan reimbursed for all covered benefits at no charge to patients. On July 1, 1977, the health plan was dramatically modified to include cost-sharing requirements that were very high for that time: a \$250 annual inpatient deductible and a 40 percent coinsurance on physician and most outpatient services up to a \$500 per family maximum<sup>5</sup> (65). These changes were short-lived, however. Five months after they came into effect, the UMWA struck, in part as a result of the reduction in health benefits. After the strike, cost-sharing was reduced substantially, to a flat \$7.50<sup>6</sup> copayment per physician visit (23,62).

Although an analysis of the five-month period preceding the strike has been published (65), data limitations seriously threaten the validity of this study.<sup>7</sup> Two other studies based on the UMWA data—Roddy, Wallen, and Meyers (62) and Fahs (23)—examined utilization in the *poststrike period*. The study by Fahs is unlike other cost-sharing analyses because it focuses not only on how patients respond to cost-sharing but also on how physicians behave when a large segment of their patient population is required to pay for a portion of the costs of care. The author examined one large multispecialty group practice in western Pennsylvania whose patients were, almost exclusively, mine workers, steelworkers, and their families; the steelworkers did not experience any

<sup>3</sup> The findings reported here are adjusted for age.

<sup>4</sup> Phelps and Newhouse also make this point in their reanalysis of the Scitovsky and Snyder data (57).

<sup>5</sup> The \$250 deductible would be equivalent to approximately \$579 in 1992 dollars (based on the rate of increase in the overall consumer price index between 1977 and 1992). Similarly, the \$500 deductible would be equivalent to approximately \$1,158 in 1992 dollars.

<sup>6</sup> Inflating by the consumer price index, this would be equivalent to about \$16.00 in 1992 dollars.

<sup>7</sup> For example, the study was not able to take into account the potential impacts of rumors among the mine workers that the cost-sharing requirements would be temporary, seasonal factors that affect use of health services, and changes in provider payment methods that coincided with the implementation of cost-sharing (65).

change in their health plan benefits over the study period. The practice's medical records and billing files were used to analyze episodes of treatment for diabetes, urinary tract infection, tonsillitis, pharyngitis, and "sore throat conditions" in the year before the institution of cost-sharing and the subsequent two years.

The sample size for the study by Fahs was small,<sup>8</sup> and the analysis is limited to a relatively unique geographic area (i.e., New Kensington, Pennsylvania) and population, but it nonetheless examines a generally unexplored and important factor in the dynamics of cost-sharing, that is, providers' behavior. Fahs' findings suggest that physicians may raise their fees or even induce demand for their services when a significant share of their patients is suddenly deterred from seeking care because of increases in their out-of-pocket costs. The physicians serving the UMWA and the steelworkers were salaried by an established group practice, the Russelton Medical Group (RMG) of Miners, Inc. Yet, after UMWA cost-sharing was imposed, the RMG management increased the fees to *steelworkers* for physician ambulatory and inpatient services. There is also some evidence that the group practice physicians may have deliberately increased the steelworkers' inpatient lengths-of-stays to compensate for the drop in demand by UMWA patients.

## Studies of Cost-Sharing in Medicaid

Federal rules permit State Medicaid programs to impose copayments only for selected beneficiaries under certain conditions. However, 40 States do not require cost-sharing for basic physician and hospital

care and, in those that do, it is commonplace for the copayment fees to go uncollected (see ch. 2) (74).<sup>9</sup>

In only a few instances has Medicaid cost-sharing for physician and hospital services been studied at all and in no instance has methodologically rigorous research been conducted. Thus, it may not be possible to come to valid conclusions about the impact of patient cost-sharing on the use of Medicaid services or the health implications for Medicaid beneficiaries.<sup>10</sup>

One instance that has been examined is the California Medicaid program's implementation of patient cost-sharing. In January 1972, California received an 18-month waiver from the Federal government to charge \$1 per visit<sup>11</sup> for the first two physician visits per month.<sup>12</sup> Several reports analyzing the effects "the waiver have been published but the data, study design, and other shortcomings of these analyses are so problematic that the related findings do not merit reporting here (9,32,63).

## Studies of Patient Cost-Sharing in Health Maintenance Organizations

There is virtually no peer-reviewed literature on the effects of cost-sharing in a managed-care environment. In fact, all of the available published analyses derive from the cost-sharing experience of one staff model HMO—the Group Health Cooperative (GHC) of Puget Sound (15,16,17).<sup>13</sup> For the first time, beginning in 1985, Washington State employees enrolled in the GHC were required to pay a \$5 copayment for ambulatory care visits.<sup>14</sup> *Inpatient care, immunizations, injections, laboratory tests, and radiology remained exempt from copayments.* In contrast, Federal employees enrolled in the GHC continued to have

<sup>8</sup> The sample included 1,089 UMWA and nonUMWA patients diagnosed with diabetes mellitus, urinary tract infection, or sore throat.

<sup>9</sup> Federal regulations prohibit providers from denying care to Medicaid patients who do not pay their cost-sharing charges.

<sup>10</sup> The Rand Health Insurance Experiment (HIE) included individuals who had been Medicaid beneficiaries before enrolling in the experiment but they made up only a small portion of the study population. In addition, during the HIE, previously Medicaid-covered individuals had the same private health coverage as other participants in the experiment and were not subject to any of the obstacles to care that are characteristic of many Medicaid programs (e.g., relatively low provider payment levels, problems in provider participation, etc.). (An extensive review of the HIE appears in chapter 3.)

<sup>11</sup> Inflating by the consumer price index, this would be equivalent to about \$3.36 in 1992 dollars.

<sup>12</sup> Physician visits during hospital stays were exempted from the copayment requirements.

<sup>13</sup> Additional analyses look at the impact of prescription drug copayments in an HMO setting, but these go beyond the scope of this background paper.

<sup>14</sup> The copayment applied to all visits to physicians, physician assistants, nurse practitioners, optometrists, and physical therapists (15). Some groups of enrollees were already subject to a substantial copayment for visits to mental health professionals after the first 10 or 20 such visits during a year (16).

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**access** to ambulatory **care** without paying a copayment. Each of the GHC analyses focuses on the ambulatory care utilization of Washington State employees compared with Federal employees who were enrolled in GHC at the same time; health effects were not studied.

The \$5 copayment led to an almost 11 percent reduction in primary care visits which was found to persist over a one-year time period<sup>15</sup> (15). Specialty care visits declined by a statistically insignificant 3 percent. The authors suggest that the effect on specialty care may have been limited because GHC patients could not visit a specialist without a referral from a primary care physician (15). The copayment's

deterrent effect on primary care use was greatest among women under age 40; their visits dropped at twice the rate of men in the same age group.

The effect on use of preventive services varied (16). General physical examinations fell by 14 percent after the copayment was introduced; the greatest decline (20 to 25 percent) was among children under age 17 of both sexes. Immunizations<sup>16</sup> of children under 2 years old and breast and cervical cancer screening of women 40- to 63-years-old appeared to be unaffected by the institution of the \$5 charge. The observed effects of cost-sharing on the immunization rates of older children appear to be inconclusive.

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<sup>15</sup> Primary care **visits** were defined as those provided by family physicians, pediatricians, internists, physician assistants, **and family nurse practitioners**.

<sup>16</sup> Note **that although no** copayment was charged for **immunizations, childhood immunizations** provided in conjunction with a physical examination were subject to the \$5 office visit copayment.