Benefit Design in Health Care Reform: Patient Cost-Sharing

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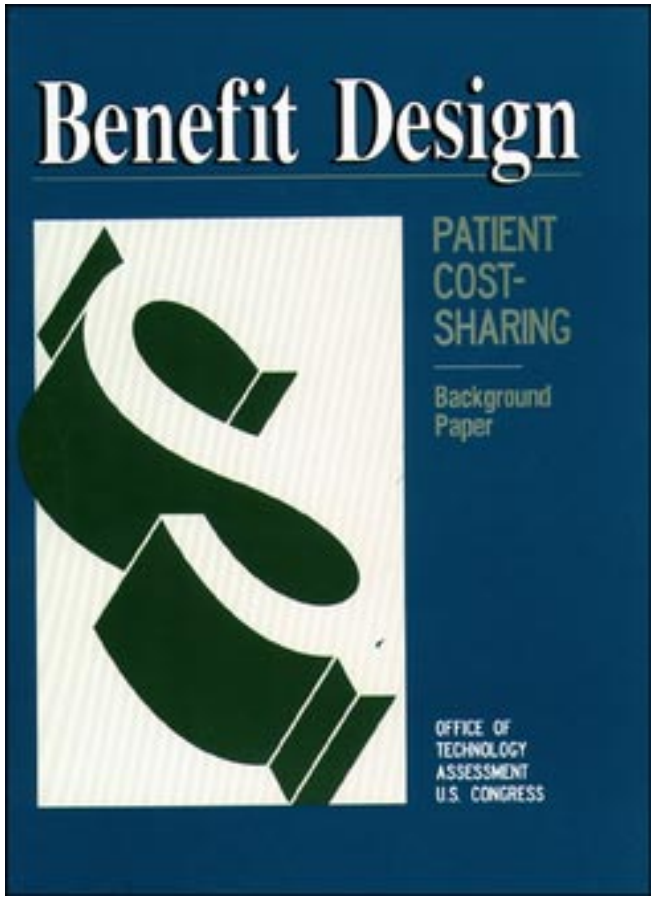

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Foreword

Health care is one of the Nation's preeminent domestic policy concerns. The contemporary health care reform debate has brought to the fore thorny issues surrounding the design of health care benefits. The scope and depth of health insurance coverage can have a substantial impact on the health care services people obtain, on the costs of the health care system, and, ultimately, on the health of the Nation.

This Background Paper is part of an OTA series on *Benefit Design in Health Care Reform* that explores the merits of using information on health effects and cost-effectiveness to formulate health insurance benefits. When it is complete, the series will include publications on general policy issues, coverage of clinical preventive services, benefits for mental health and substance abuse treatment, and patient cost-sharing requirements. The benefit design series is a component of a larger OTA assessment, *Technology, Isurance, and the Health Care System,* which was requested by the Senate Committee on Labor and Human Resources (Edward M. Kennedy, Chairman) and was endorsed by the House Committee on Energy and Commerce (John D. Dingell, chairman), the House Committee on Ways and Means Subcommittee on Health (Willis D. Gradison, then Ranking Minority Member), and Senator Charles E. Grassley (Committees on Budget, Finance, Special Committee on Aging). Other publications related to the assessment include Does *Health Insurance Make a Difference?-background Paper* and *An Inconsistent Picture: A Compilation of Analyses of Economic Impacts of Competing Approaches to Health Care Reform by Experts and Stakeholders.*

This Background Paper examines the health services and economics literature to learn what is known about the effects of patient cost-sharing (that is, annual deductibles, coinsurance, copayments, and out-of-pocket maximurns) on patients' use of health care services, on plan expenditures, and on patients' health outcomes.

OTA was assisted in the preparation of this Background Paper by the advisory panel for the *Technology, Insurance, and the Health Care System* assessment, a group of leading health care provider, insurer, business, academic, and consumer representatives, and by numerous other health policy experts. OTA gratefully acknowledges the contribution of each of these individuals. As with all OTA reports, the final responsibility for the content of this Background Paper rests with OTA.

Roger C. Herdman, Director

Advisory Panel

James C. Hunt, Chair
University Distinguished Professor
University of Tennessee-Memphis
Memphis, TN

Henry Aaron
Director
Economic Studies Program
Brookings Institution
Washington, DC

Robert Brook
Director
RAND Health Sciences program
RAND Corp.
Santa Monica, CA

Arthur Caplan
Director
Center for Biomedical Ethics
University of Minnesota
Minneapolis, MN

Deborah Chollet
Associate Director
Center for Risk Management and Insurance Research
Georgia State University
Atlanta, GA

Olivia Cousins
Associate Professor
CUNY-Health Education
New York, NY

Jane L. Deigado
President and CEO
National Coalition of Hispanic Health and Human Services Organizations
Washington, DC

Paula K. Diehr
Professor
Department of Biostatistics
School of Public Health and Community Medicine
University of Washington
Seattle, WA

M. Joycelyn Eiders*
Commissioner of Health
State of Arkansas
Little Rock, AR

Jack Hadley
Co-Director
Center for Health Policy Studies
Georgetown University
Washington, DC

Douglas E. Henley
Physician in Private Practice
Hope Miih, NC

William Hobson
Executive Director
Central Seattle Community Health Centers
Seattle, WA

John Lewin
Director of Health
State of Hawaii
Honolulu, HI

Barbara J. McNeil
Ridley Watts Professor and Head
Department of Health Care Policy
Harvard Medical School
Boston, MA

David Mechanic
Rene Dubos Professor of Behavioral Sciences
Director
Institute for Health, Health Care Policy, and Aging Research
Rutgers University
New Brunswick, NJ

Joseph Morris
Vice President for Information Systems
Delaware Valley Hospital Council
Philadelphia, PA

Patricia Nazemetz
Director of Benefits
Xerox Corp.
Stamford, CT

David G. Pockell
Senior Vice President and Regional Manager
Kaiser Foundation Health Plan
Oakland, CA

Carl Scott
Senior Vice President
Mutual of Omaha
Omaha, NE

Gordon R. Trapnell
President
Gordon R. Trapnell Consulting Actuaries, Ltd.
Annandale, VA

Cheryl B. Travis
Professor of Psychology and Assistant Department Head
Department of Psychology
University of Tennessee
Knoxville, TN

Special Consultant

Stephen H. Long
Senior Economist
RAND Corp.
Washington, DC

* Until May 1993.

NOTE: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel **members.** panel does **not** however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

Project Staff

Clyde J. Behney
Assistant Director, OTA

ADMINISTRATIVE STAFF

Beckie Erickson
Office Administrator

Carolyn Martin
Word Processing Specialist

Dan Carson
PC Specialist

Eric Gille
Secretary

PUBLISHING STAFF

Mary Lou Higgs
Manager, Publishing Services

Dorinda Edmondson
Typographer

Christine Onrubia
Graphic Designer

PRINCIPAL STAFF

Denise Dougherty
Senior Associate
Project Director for Technology, Insurance, and the Health Care System

JILL EDEN
Principal Analyst

Matthew Hahn
Douglas Berkson
Research Assistants

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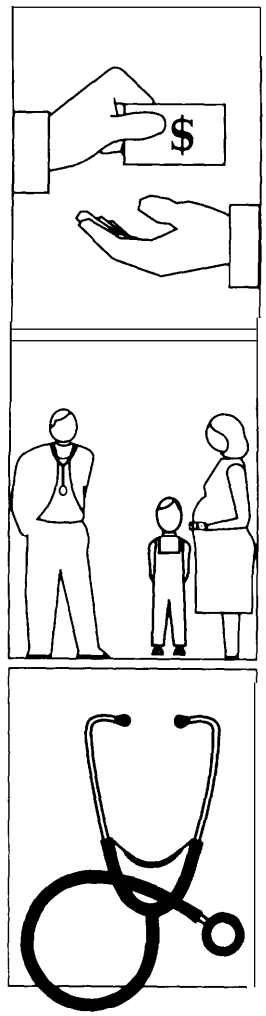

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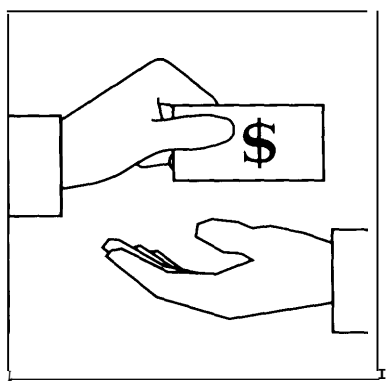
Summary 1

As reform of the Nation's health care system has risen to the top of the domestic policy agenda, the issue of benefit packages has increased in importance. Clearly, the scope and depth of services that are covered in any health insurance scheme can have a tremendous impact on how much health care people obtain, on the costs to the system, and, ultimately, on the health of the Nation's people. To provide Americans with an optimal level of care, at a reasonable cost, policymakers at all levels have been rethinking traditional approaches to benefit design and considering the merits of using explicit scientific criteria to more clearly define the benefit stfucture.

This background paper is one of a series of publications on *benefit design in health care reform* being issued as part of the Office of Technology Assessment's (OTA) assessment, *Technology, Insurance, and the Health Care System.* It examines the health services and economics literature to learn what is known about how patient cost-sharing affects the use of health care services, expenditures, and, ultimately, health outcomes. The focus is on basic physician and hospital care for services not typically related to mental and substance abuse disorders.[1] This chapter provides a summary of OTA's findings. Chapter 2 begins with a brief review of the philosophy behind patient cost-sharing and includes a discussion of current trends in private and publicly financed health coverage. Chapter 3 reviews the lessons and limitations of the Rand Health Insurance Experiment (HIE), the most valuable cost-sharing research available. An appendix



[1] Also see OTA's "Pharmaceutical R&D: Costs, Risks, and Rewards, ' for information on cost-sharing in prescription drug coverage (79). Prescription drug coverage is not within the scope of this paper.

presents the findings of selected studies that have examined the actual imposition of cost-sharing in various settings. (The other publications in the Benefit Design Series are described in box l-A.)

The overall assessment is being conducted in response to a request from the Senate Committee on Labor and Human Resources (Senator Edward M. Kennedy, Chairman), which was endorsed by the House Committee on Energy and Commerce (Congressman John D. Dingell, Chairman), the House Committee on Ways and Means Subcommittee on Health (then-Ranking Minority Member Willis D. Gradison), and Senator Charles Grassley, a member of OTA's Technology Assessment Board. Chairman Dingell asked OTA to assess the extent to which a minimum benefit package could be designed based on information about health effects and cost-effectiveness. Other requesters agreed that this was an important question and that OTA should address it by means of an overall brief on the topic, as well as through examinations of the evidence on clinical preventive services, mental health and substance abuse treatment services, and patient cost-sharing.

WHAT IS PATIENT COST-SHARING?

Almost all Americans with health insurance contribute to the premiums for their health coverage and have varying levels of out-of-pocket responsibility when they visit a physician, are hospitalized, or seek many other health care services. Employers are increasingly using patient cost-sharing to control the health care costs associated with plans they may offer to their employees and also as an incentive to employees to enroll in more tightly controlled managed-care plans. Cost-sharing also continues to be a basic feature of many health care reform proposals.

In traditional indemnity or fee-for-service (FFS) health care plans, cost-sharing typically consists of:

- an initial *deductible;*[2]
- plus a percentage of covered expenses, referred to as *coinsurance;*[3]
- up to a *maximum* annual dollar amount.[4]

Members of health maintenance organizations (HMOS) are rarely subject to deductibles or coinsurance but often pay a flat *copayment*[5] for primary care visits and sometimes for hospitalization.

This background paper focuses only on certain forms of patient cost-sharing-those such as deductibles, coinsurance, and copayments that are based on a person's actual use of health services and that are typically levied at the time services are received. Deductibles, coinsurance, and copayments are designed, in part, to make people ''think twice" before seeking care and to forgo the use of services that are expected to bring little benefit. Premium costs serve a different purpose than other cost-sharing mechanisms; they do not directly affect how many services are

[2] A deductible is the amount of covered health care expenses (e.g., $200, $500, $1,000) that must be incurred by the health plan enrollee and his or her dependents before any health benefits become payable by the health plan. Deductible requirements apply to each individual in a family for a specific time period (usually a year). Some plans *specify* deductibles after which no additional individual deductibles are required; family deductibles are typically equivalent to two or three times the individual deductible.

[3] Coinsurance refers to the freed percentage of covered expenses shared by a health plan and an enrollee after the deductible requirement has been met. For example, an 80-20 coinsurance arrangement means That after the deductible is reached, 80 percent of covered expenses we paid by the plan and 20 percent are paid by the person covered by the plan.

[4] Such maximums are dollar limits on covered out-of-pocket expenses (e.g., $750 or $1,000) for deductible and coinsurance requirements incurred by the health plan enrollee. Not all health plans place limits on enrollees' out-of-pocket expenses.

[5] Copayments are fixed-dollar fees that a health plan enrollee is required to pay for a covered service (e.g., $10 per office visit $3 per prescription drug).

Box I-A-Other Publications in the Office of Technology Assessment's Series on Benefit Design in Health Care Reform

- **Benefit Design in Health Care:** *Report #1-Clinical Preventive Services (U.S. Congress,* OTA, in preparation for September 1993). This report describes how information on effectiveness and cost-effectiveness might be used to design insurance benefit packages that might include clinical preventive servoces. The scope of the report is limited to clinical preventive services for asymptomatic persons (i.e., individuals without symptoms). Evidence on selected clinical preventive services is reviewed. The review covers most, but not all, services that might today be considered for inclusion in a benefit package, as well as issues to be considered for future decisions on inclusion or exclusion.
- *Benefit Design in Health Care Reform: #2 - Mental Health and Substance Abuse Treatment Services* (U.S. Congress, OTA, in preparation). This report has three goals. First, at the request of Congress, the report addresses the question of whether mental health and substance abuse benefits should be in a core benefit package, should there be such a package. Second, the report describes whether information on effectiveness and cost-effectiveness could be used to select specfic types of mental health and substance abuse services for coverage, and the limitations of using such information. And third, the report reviews information on the effectiveness and cost-effectiveness of services for selected mental health and substance abuse conditions.
- Benifit *Design in Health care Reform: Report #3--General Policy issues (U.S. Congress,* OTA, in preparation). This report uses the analyses in this background paper and the two publications listed above, as well as other sources (e.g., U.S. Congress, *OTA, Evaluation of the Oregon Medicaid Proposal,* May 1992) to gain insights into the possibilities and pitfalls associated with trying to design a benefit package based on effectiveness and cost-effectiveness information, in relation to other critical factors, such as public preferences and political considerations.

SOURCE: Office of Technology Assessment 1993.

purchased, but rather the amount and type of insurance purchased.[6]

Discussions of cost-sharing policy typically center on copayments, coinsurance, and deductibles, but insured individuals have other, sometimes substantial, out-of-pocket health care costs (see table l-l). These include the liability for physician fees that exceed the amount of reimbursement ''allowed' by the health plan, referred to as "balance billing"; care received for uncovered preexisting conditions or during the waiting period before an employee or dependent becomes eligible for coverage; and frequently uncovered services such as routine physicals, vision and hearing care, experimental treatments, and speech, physical, and occupational therapy.

SUMMARY OF FINDINGS

The folIowing discussion reviews 14 fundamental questions key to developing cost-sharing policy. The first six questions are discussed in the context of the cost-sharing literature, emphasizing the lessons and limitations of the literature the Rand Health Insurance Experiment (HIE) in particular. OTA found that the HIE provides the most valuable research available concerning the use effects of cost-sharing and is the only source examining the health implications of cost-sharing. The HIE, closely examined, challenges commonly held notions about cost-sharing (see table 1-2). It also offers some fundamental lessons

[6] Nevertheless there is a relationship between premiums and other forms of cost-sharing. If a purchaser faces a choice between higher premiums with limited cost-sharing and lower premiums with high cost-sharing, he or she may choose to purchase the less expensive policy with higher deductibles and copayments or coinsurance.

Table l-l—Elements of Out-of Pocket Spending in Empioyment-Based Health Coverage

premiums	+ Cost-sharing for covered benefits	+ Coverage exclusions[a]	= Total out-of-pocket spending
	. deductibles . colnsuranoe • copayments • balance billing[b]	• treatment for uncovered preexisting conditions [b] many preventive services (e.g., well-baby care, well-child care, adult physicals) • prenatal and maternity care for non-spouse dependents • services provided during new employee waiting periods • hospital stays beyond an approved length of stay • dental services • vision care • hearing aids • speech, physical, and occupational therapy • rehabilitation care • infertility (e.g., in vitro fertilization) • voluntary sterilization • experimental treatments (e.g., some AIDS drugs, autologous bone marrow transplants for breast cancer) • cosmetic surgery	

a Includes common exclusions that are sometimes but typically not covered by employer-sponsored health plans. Based on surveys conducted by the Health Insurance Association of America (1 992), KPMG Peat Marwick (1992), and the Department of Labor Bureau of Labor Statistics (1993).
b Balance billing includes the provider's charges that exceed the health plan's "usual or customary" amount for the billed services.

SOURCE: Office of Technology Assessment, 1993.

about the impact of patient cost-sharing on the use of health care services in a *generally healthy, nonelderly* population, but the significant limitations of the experiment should be acknowledged (see box l-B).

The final eight questions are also addressed here because of their importance to cost-sharing policy; they are reviewed only briefly because the available literature provides little relevant wisdom and OTA did not examine these issues in depth.

Fundamental Issues Related to Cost-Sharing

1. Does cost-sharing reduce utilization by promoting the use of more cost-effective, appropriate care and by discouraging the use of unnecessary services?

It now seems obvious, but the HIE and other cost-sharing literature have plainly demonstrated that, on average, insured individuals seek medical attention less often when they have to pay an out-of-pocket portion of the cost.

Although it is often argued that cost-sharing motivates people to seek information and make *better* decisions about their health care (i.e., to avoid the frivolous use of care), the HIE offers no supporting evidence for this. Instead it suggests that cost-sharing is a rather crude instrument for matching health care services with health needs. In fact, the experiment found that coinsurance deters individuals from seeking all types of care, even potentially effective treatment.

In addition, the HIE confirms the power of the health care provider in determining the use of health services. HIE participants in cost-sharing plans were much less likely to *seek* medical

Table 1-2—Patient Cost-Sharing: Conventional Wisdom vs. the Evidence

Conventional wisdom	Evidence
. Cost-sharing reduces utilization by promoting the use of more cost+ffective, appropriate care and by discouraging the use of unnecessary services.	No. The Rand Health Insurance Experiment (HIE) offers no supporting evidence for this and, instead, suggests that cost-sharing Isa rather crude instrument for matching health care services with health needs. Coinsurance deterred individuals from seeking all types of care, even potentially effective treatment and appropriate hospitalizations. The HIE also confirmed the power of the health care provider in determining demand for medical care. HIE participants in cost-sharing plans were much less likely to seek medical attention than others, but once they did, the amount and cost of their care was largely unaffected by cost-sharing and apparently was determined principally by their physician,
• Cost-sharing does not pose any health risks.	The jury is out. The HIE health-related findings are inconclusive in many respects. They do suggest, however, that some individuals, especially lower income persons in poor health, may be harmed by cost-sharing. The HI E identified three instances in adults (i.e., diastolic blood pressure; the estimated risk of dying from any cause based on smoking habits, cholesterol level, and systolic blood pressure; and corrected vision) and one in low-incomme children (i.e., anemia) where cost-sharing harmed the average participant. While this may suggest that the health risks of cost-sharing are minimal, this conclusion is confounded by the HIE finding that potentially effective treatment and appropriate hospitalizations were significantly deterred by cost-sharing, This conflict in the health-related results of the HIE may be due in part to the design of the experiment. For example, the Rand researchers acknowledge that the sample size was too small to measure how the experiment affected low-income chiidren and adults, adults with chronic conditions such as cancer and rheumatoid arthritis, and children with chronic diseases such as asthma, congenital anomalies, or with life-threatening conditions.
• Cost-sharing reduces total system-wide health care spending.	it is clear that coinsurance has a major Impact on expenditures, at least in the short term and under the conditions of the HIE. The total annual medical expenditures of individuals (i.e., insurer payments plus patients' out-of-pocket costs for covered services) with no rest-sharing in the HIE were 23 percent higher than those with a 25 percent coinsurance rate, and 46 percent higher than those with a 95 percent rate. The Long term cost implications of deterring the use of potentially effective health care services are not known.
Eliminating cost-sharing encourages compliance with preventive care recommendations.	Yes, but not necessarily to recommended levels. Preventive care use in the HiE was well below recommended levels in both the no-cost-sharing and cost-sharing plans. Participants in cost-sharing plans were the least likely to use preventive care of any t ype including annual physical examinations, Pap smears by women ages 45 to 65, and immunizations among children under 7 years of age.

SOURCE: Office of Technology Assessment, 1993, based on W. Manning, J. Newhouse, N. Duan, et al. "Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment," *American Economic* /review77(3):251 -277, 1987; K. Lohr, R. Brook, C. Kamberg, et al., "Use of Medical Care in the Rand Health Insurance Experiment: Diagnosis- and Service-specific Analyses in a Randomized Controlled Trial," contract report prepared for the U.S. Department of Health and Human Services, Contract No. 016B-80, Santa Monica, CA, December 1986; R. Brook, J. Ware, Rogers, W. H., et al., "The Effect of Coinsurance on the Health of Adults: Results from the Rand Health Insurance Experiment," contract report prepared for the U.S. Department of Health and Human servises, Contract No. 016B-80, Santa Monica, CA, December 1984; E. Keeler and J. Rolph, "How Cost Sharing Reduced Medical Spending of Participants in the Health Insurancx Experiment," *Jourmd of* the *American Medica/Association 249(16):2220-2222,* 1983; and N. Lurie, W. Manning, C. Peterson, et al,, "Preventive Care: Do We Practice What We Preach?" *American Journal of Pubfic Health 77(7):801-804,* July 1987.

attention than others, but once they did, the amount and cost of their care was largely unaffected by deductible or coinsurance requirements and apparently was determined pMcipally by their physician or other health care provider.

2. Does cost-sharing have health effects?

Despite persistent press reports and conventional wisdom to the contrary (see, for example, *54, 55),* OTA finds that the health results of the HIE are largely inconclusive. The HIE findings do suggest, however, that some individuals,

Box I-B—Important Limitations of the Rand Health Insurance Experiment

The Rand Health Insurance Experiment (HIE) provides policymakers the richest source of information available on the efects of patient cost-sharing. Nonetheless, there are limitiations to the experiment's relevance to today's health reform deliberations. These limitations are not due to the shortcomings of the Rand designERS but result largely from three factors: the dramatic changes in American health care delivery and financing since the time of the experiment,[1] the relatively small size of the HIE study population, and the unique nature of the health coverage provided to HIE participants. The most critical limitations are outlined below:

- The HIE was essentially a study of the effects of *coinsurance* on the average use of traditional, fee-for-service medical care by generally healthy, nonelderly individuals who were either well- or very well-insured.
- The HIE health plans were atypically comprehensive; for example, prescription drugs and preventive care were fully covered. HIE participants had complete freedom of choice of providers and there were no limits on providers' discretion to order services for patients-hardly typical of today's increasingly restrictive managed-care environment.
- The Rand researchers acknowledge that the sample size was too small to adequately measure how the experiment affected low-income children and adults,[2] adults with chrotic conditions such as cancer and rheumatoid arthritis, and children with chronic diseases such as asthma, with congenital anomalies, or with life-threatening conditions.
- All the participants in the experiment were protected by income-based limits on their out-of-pocket costs, an approach to cost-sharing that was unique at the time of the experiment and remains rare today, Further, this feature of the experiment probably moderated the effect of cost-sharing on low-incomeparticipants since

[1] The HIE was conducted from 1974 through 1982. The design period of the experiment occurred even earlier.

[2] "Low income" was defined differently in the various Rand analyses, sometimes including individuals with family incomes as great as two times the Federal poverty level (FP'L). The FPL was estimated to be $14,343 for a family of four in 1992 (83).

especially lower-income[7] individuals in poor health, may be harmed by the deterrent effects of cost-sharing. In general, the HIE researchers concluded that *not* having cost-sharing led to *more* medical care, but they were unable to find much evidence that, for the average participant, *more care* led to better health outcomes. Nor did they find much measurable harm from less care among average participants. There were, however, three instances in which the average adult with *no* cost-sharing was shown to experience better health outcomes: diastolic blood pressure improved significantly among participants with hypertension;[8] the estimated risk of dying for those who were at elevated risk was reduced by 10 percent;[9] and corrected vision improved @@Y due to an increased number of eye exarninations. Among children, the only measurable poor health

[7] The HIE working definitions of 'low income' or "poor" differed across the series of published Rand findings. In many of the HIE reports, ''low income' was used to describe persons whose family incomes were at the bottom 20 percent of the HIE income distribution well below the Federal poverty level. Because of sample size limitations, some important Rand analyses used a much broader definition of low income, one that included a large segment of the population with family incomes as great as two times the Federal poverty level-equivalent to one out of three nonelderly individuals (71.9 million people in the U. S.) in 1991.

[8] Not having cost-sharing reduced diastolic blood pressure among clinically defined hypertensive HIE participants by an average of 1.9 mm Hg.

[9] The high-risk group included the 25 percent of the sample who were the least healthy, based on their initial levels of serum cholesterol, blood pressure, and cigarette smoking.

they were the most likely to exceed their annual out-of-pocket cost ceiling, after which all covered services became available with no cost-sharing.[3]

- ***Any possible long-term health effects*** of cost-sharing could not be identified led with confidence because participants were followed for a maximum of five years.
- The HIE could not examine how providers might respond to national scale changes in patient cost-sharing. This dynamic could have important cost implications if, for example, widespread increases in patient cost-sharing diminished demand for health care services and providers responded by increasing their fees or the volume of services they provide to their patients. On the other hand, expanding coverage to those who are currently uninsured could generate demand for care that would more than compensate for the deterrent effects of cost-sharing.
- Finally, the HIE and the cost-sharing literature in general offer almost no insight into how cost-sharing influences use of care and health outcomes in a managed-care environment! In fact, the only peer-reviewed cost-sharing studies on health maintenance organizations derive from a single staff model plan, the Group Health Cooperative of Puget Sound, and these analyses do not assess health effects.[5] This gap in our knowledge is especially critical today as employers and other payers steadily persuade Americans to adopt the strictures of managed care and as they also persuade HMOS to adopt cost-sharing in addition to other means of trying to keep utilization low.

[3] The maximum out-of-pocket liability was set at either 5 percent, 10 percent, or 15 percent of family income per year, or no more than $1,000($750 in some sites). Note that anyone with a family income over $25,000 (in 1973 dollars) was excluded from the experiment; inflating this by the change in median household income, this is the equivalent of approximately $78,(XM in 1992 dollars.

[4] The HIE also randomly assigned a group of people to an HMO to assess the effect of an HMO *delivery system* (which did not require patient cost-sharing) on utilization and health outcomes, but that component of the study is not within the scope of this report because there was no patient cost-sharing in the HMO.

[5] These studies were conducted by D. Cherkin, L. Grothaus, and H. Wagner (15,16) and were not part of the HIE. See appendix D for a review of this literature.

SOURCE: Office of Technology Assessment, 1993.

outcome was found among low-income children with anemia.[10] Low-income children who were at highest risk of anemia were much less likely to have anemia at the end of the study if they were enrolled in a plan that did *not* require cost-sharing than if they were in a cost-sharing plan. While this limited set of health effects implies that cost-sharing poses health risks to an average, healthy population in only a few instances, this conclusion is called into question by the HIE finding (see #1 above) that coinsurance significantly kept individuals from potentially effective treatment, even hospitalizations that were judged to be appropriate. How is it that coinsurance substantially reduced the use of care thought to be "highly effective" but without any *measurable* harm? This may be due in part to the design of the experiment (see box l-B). For example, the Rand researchers acknowledge that the sample size was too small to measure how the experiment affected low-income children and adults, adults with chronic conditions such as cancer and rheumatoid arthritis, and children with chronic diseases such as asthma, congenital anomalies, or with life-threatening conditions.

In addition, the long-term health effects of cost-sharing remain unknown. One example, the HIE finding that coinsurance led to significant reductions in Papanicolaou (Pap) smears and immunizations, is enough to cast doubt on the

[10] In most of the HIE analyses, children were defined to include anyone under the age of 14. No separate analyses of adolescents were conducted.

conclusion that there was no long-term harm from financial obstacles to these particular preventive services.

3. Does cost-sharing help to control expenditures?

Coinsurance requirements substantially reduced the total health care spending in the HIE by keeping people out of the health care system altogether.[11] HIE participants with *no* cost-sharing incurred 23 percent higher anual expenditures than those who were subject to 25 percent coinsurance, and 46 percent higher annual expenditures than those with 95 percent coinsurance. However, the *long-term* cost implications of deterring the use of potentially effective health care services are not known.

4. How are individuals with low incomes affected by cost-sharing requirements?

Cost-sharing was based in part on income in the HIE and this feature of the experiment probably moderated the effects of cost-sharing on lower-income families. Nonetheless, even with the income protections in the HIE health plans, the Rand findings reveal a pattern of greater cost-sharing effects on HIE participants with lower incomes, especially those in poor health. In many of the Rand reports, persons with lower incomes used care less often than those who were better off financially, sometimes with striking results. For example, the improvement in blood pressure among those with hypertension was greatest for those HIE participants with low incomes who were in a no-cost-sharing plan and this improvement had significant mortality implications. In addition, low-income adults who began the experiment in poor health, and were enrolled in a plan with *no* cost-sharing, reported the largest reduction in serious symptoms during the course of the study .12

5. Do coinsurance requirements affect children differently?

The HIE found that, on average, coinsurance had similar effects on children's and adults' use and expenditures for outpatient care. In contrast, while adults in the no-cost-sharing plan were hospitalized at greater rates than others, the absence of cost-sharing did not lead to more pediatric hospitalizations except for children under 5. Thus, the hospital-related findings suggest that there would be little risk of overutilization of hospital care by children 5 years old and over, if children's hospital stays were exempt from patient cost-sharing. However, should outpatient cost-sharing be required of adults, the HIE findings do not support different requirements for children *overall,* with two important exceptions.

First, not having cost-sharing in the HIE led to significantly higher use of any pediatric *preventive* service, especially immunizations among children under age 7. In light of this finding, eliminating cost-sharing for certain children's preventive services could be justified if prevention were a policy goal.

Second, the HIE findings reveal that coinsurance has a substantially stronger deterrent effect among low-income children compared with others with greater financial resources in the HIE; these low-income children included anyone under age 14 with family incomes up to 200 percent of the Federal poverty level. Special income protections for low-income children, as defined in the Rand HIE, may be necessary to ensure their access to basic, primary care.

6. How is the use of preventive services affected by cost-sharing?[13]

A broad range of clinical preventive services for asymptomatic individuals was fully covered by the HIE health plans and subject to the same

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11 Spending included all expenses reimbursed by the health plan to providers as well as out-of-pocket costs borne by the participants.

12 Although the HIE demonstrates the benefits of not having cost-sharing to some low-income individuals, studies of Medicaid beneficiaries and other low-income groups also make clear that "free care" alone does not assure adequate access to care (58).

13 For a review of issues related to designing preventive health care benefits, see "Benefit Design in Health Care Reform: Report #1--Clinical Preventive Services," (80).

deductible and coinsurance requirements as all other health services. Consequently, the experiment offers several insights. First, requiring coinsurance significantly reduced use of Pap smears by women ages 45 to 65 and immunizations among young children. Second, despite the higher use of preventive services in the no-cost-sharing plan, use of these services remained well below recommended levels. Finally, even though HIE participants in the no-cost-sharing plan had, on average, an additional one to two physician visits annually, this increased contact with their doctor appeared to have no influence on their smoking habits, weight, or cholesterol levels.

Other Questions and Pending Issues

Although available cost-sharing research provides limited insight into the following policy questions, they are briefly reviewed here because of their importance.

7. Are there specific services that should be considered for possible exemption from cost-sharing?

If cost-sharing is required, current research provides little evidence to support exemptions from cost-sharing for any specific services other than selected preventive services (see #6 above). However, several categories of care might merit cost-sharing exemptions or special consideration, including prenatal, maternity care, and services for the chronically ill, In addition, Brook has argued that cost-sharing policy be used to promote higher rates of appropriate care by, for example, waiving or reducing cost-sharing in cases where medical care interventions have clearly been demonstrated to be appropriate (10).

8. If cost-sharing is required, how can individuals be shielded from the risk of financial hardship and catastrophic costs?

Maximums on out-of-pocket expenditures based on income and limits on balance billing would substantially lessen the risk of financial hardship due to health care costs. There are no reports of the extent to which balance billing contributes to catastrophic health care costs. However, without limits on balance billing, the public would remain vulnerable to costs substantially in excess of their health plan's out-of-pocket maximum.

9. Does cost-sharing help reduce premium requirements?

Patient cost-sharing clearly reduces overall health expenditures and would thereby reduce premium requirements, but the extent of savings would depend on the type of cost-sharing mechanism and the amount. The reduction in premiums would also depend, in part, on the administrative complexity of the cost-sharing structure. If out-of-pocket payments are allowed to vary substantially with income, type of service, or other patient characteristics, the related administrative costs could reduce any savings generated by a drop in demand for services.

10. Is it administratively feasible to base cost-sharing on income?

Although there are many supporters of income-based cost-sharing, little attention has been paid to the methods, logistics, and financial tradeoffs of administering such a policy. Important questions remain unresolved: how to determine and define income, how to account for changing personal or economic circumstances that families often encounter during a year (e.g., becoming unemployed, changing jobs, getting married or divorced), and whether the Federal income tax system can be relied onto support the administration of cost-sharing by providing income data or allowing for end-of-year tax credits or additional cost-sharing payments. Also, if cost-sharing were to be based on income, the HIE findings suggest that a substantial proportion of the population with family incomes *above the Federal poverty level* may require special income protections to ensure adequate access to care (see #4 above) .14

Administrative costs are likely to increase with the complexity of the cost-sharing system and the

14 The Federal poverty level was estimated to be $14,343 for a family Of four in 1992.

amount of information required to determine patients' out-of-pocket payments. Simplicity would argue for flat, nominal copayments characteristic of health maintenance organizations, yet such nominal fees generate only minimal revenue that would be futher offset by administrative costs.

11. Does cost-sharing improve the efficiency of the health care system?

If efficiency implies that patient cost-sharing alone would make the system less wasteful, the answer is probably no. Coinsurance requirements would reduce total expenditures and the volume of services by deterring people from seeking medical attention altogether, although this would have no effect on overall efficiency. Some also argue that coinsurance and deductibles help minimize fraud and abuse by motivating patients to scrutinize the charges they are obligated to pay (75).

12. Is cost-sharing equitable?

Equity in health coverage may be viewed in several ways. ''Horizontal equity' would require that individuals with the same income face the same economic burden. "Vertical equity" implies that persons with greater resources should bear a greater financial burden than others (71). Equity in *access* **to care** calls for the allocation of services on the basis of need, suggesting inequity when a person's cost-sharing requirements are an important predictor of his or her access to care (3). The HIE results indicate that in order to facilitate equitable access to potentially effective health care services, cost-sharing should be based on income. Compared with others who had higher family incomes, the deterrent effect of coinsurance was substantially stronger among low-income children and adults across a wide range of preventive (including well-child care, general adult medical examinations, and Pap smears), acute (including care identified as ''highly effective"), and chronic care services. Among the lower-income adults at elevated risk, the absence of cost-sharing appeared to yield substantial benefits in improved vision, blood pressure, and even risk of dying.

Equity concerns can also be voiced for those who have chronic health problems and are repeatedly required to pay each year's maximum cost-sharing obligation.

13. Is cost-sharing generally acceptable to the public?

Some polling data indicate that many consumers commonly perceive cost-sharing to be more the problem than the solution to the health care crisis and that they are particularly worried about rising out-of-pocket expenses, confirming billing procedures, and unforeseen restrictions in coverage (35). It could be that personal preferences regarding cost-sharing could depend, to a great extent, on persons' economic status, their knowledge of their risk for incurring health care costs, their attitudes toward financial risk, and their past experience with the health care system (e.g., whether they have ever experienced substantial out-of-pocket costs) (53).

14. If cost-sharing is required, what is the ideal arrangement?

Unfortunately, the literature offers little guidance for developing specific cost-sharing formulae. The search for the ideal form and amount of cost-sharing cannot be separated from efforts to plan and reform the overall structure of health plan coverage and delivery. There is no obvious, magic formula for calculating precise recommended deductible, coinsurance, and out-of-pocket maximum levels in fee-for-service or managed health care. No one solution would fit all approaches to financing and health care delivery nor would it be equitable in all circumstances.

CONCLUSIONS

The cost-sharing literature makes very clear a basic lesson of human nature: people will use services less often when they have to pay for them. However, conventional wisdom to the contray, there is no evidence that people make better choices and decisions about their health care when they bear some of the cost. In the Rand

ing all types of care, even potentially effective treatment and appropriate hospitalizations.

The overriding power of the health care provider in determining the use of health services was also made clear, at least within the circumstances of the Rand HIE. In the HIE, once an individual sought medical attention, the amount and cost of their care was largely *unaffected* by cost-sharing and apparently was determined Principally by their physician.

Policymakers can be less certain about the *health* implications of cost-sharing but the HIE findings suggest that, if health effects are a concern, Congress should be cautious about the extent to which cost-sharing is relied onto control costs, especially for *sick,* low-income individuals. These individuals are the most likely to benefit from receiving health care services at no out-of-pocket cost and the most likely to be harmed by patient cost-sharing requirements. Policymakers should also be aware that there is no evidence to suggest that cost-sharing's greater deterrent effect on those with lower incomes ceases at a rigid dollar income threshold.

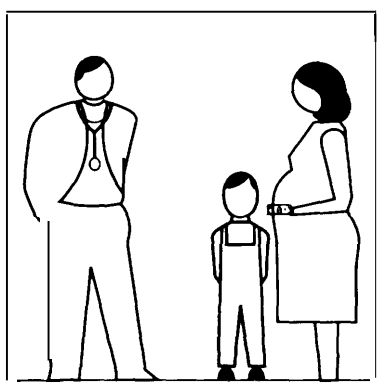
Finally, the lack of information on how patient cost-sharing affects children and adults in *poor health,* regardless of their income, is worrisome and merits further investigation.

Background 2

Patient cost-sharing is common in health insurance and whether it should remain a feature of national health reform is a critical issue. What are the effects of patient cost-sharing? Do upfront copayments affect health outcomes because they discourage the use of health services? Does not having cost-sharing lead to unnecessary, frivolous care? Is there evidence that patients really do make better choices when they bear some of the costs of their care? Which cost- sharing mechanisms work best? If cost-sharing is warranted, should poor people, people with chronic illnesses, children, pregnant women, or others be shielded from it? These are some of the fundamental questions that relate to cost-sharing policy in all models of health reform, whether they be managed competition, single payer, or other approaches.

WHY COST-SHARING?

Patient cost-sharing has been increasingly viewed by many employers and health benefit managers as an essential deterrent to health services and as a way to minimize premium price increases (30,40). For those who believe that harnessing competitive forces is key to health care reform, requiring patients to share in the costs of their health care is based on perhaps one of the most fundamental concepts of competition: that consumers make better choices when they bear some of the financial cost of their decisions (56).



Patient cost-sharing has long been a standard feature of conventional fee-for-service (FFS) health care delivery,[1] but the

[1] In fee-for-service health care, physicians and other providers bill separately for each patient encounter or service rendered. This system contrasts with salary, per capita, or other prepayment systems, where the payment to the practitioner does not change with the number of services actually rendered.

cost-sharing philosophy of health maintenance organizations (HMOS) has, until recently, been decidedly different.[2] In all HMOS, for example, health plan members must obtain care within the HMO system to be covered and HMO contract physicians are at financial risk for the care provided to enrolled members. In such a setting, extensive cost-sharing has typically been viewed as an unnecessary barrier to care because overall utilization and access to specialty care are so tightly controlled. Yet, recently, employers have demanded that even the most tightly structured HMOS require at least nominal copayments to futher reduce access to primary care providers and to help lessen premium requirements (14,59).

Advocates of increasing the number of people in HMOS and other managed care plans use *differntial* cost-sharing as a ''carrot and stick"; for example, some health plans structure nominal out-of-pocket payments to encourage consumers to ''sample" managed care with its more limited choice of providers, while relatively high cost-sharing requirements are used to persuade people to surrender their attachment to fee-for-service medicine and unlimited freedom of choice of providers (31,40). Many reform proposals also view cost-sharing as a way to encourage or discourage the use of specific health services; for example, by mandating little or no cost-sharing for some or all preventive services and requiring high out-of-pocket payments for inappropriate use of the emergency room (for example, in the 102d Congress H.R. 3205, H.R. 5514, and H.R. 5502; refs. 1 and 2).

Still others reject cost-sharing as an ill-advised financial obstacle to early diagnosis and treatment (for example, in the 102d Congress S. 2320, H.R. 1300; 34).

WHAT ARE THE OUT-OF-POCKET COSTS OF INSURED PEOPLE?

Today, almost all Americans with health insurance contribute to the premiums for their health insurance and have varying levels of out-of-pocket responsibility when they visit a physician, are hospitalized, or seek many other health care services (see box 2-A). In traditional indemnity[3] or FFS health care plans, cost-sharing beyond premiums typically consists of:

- an initial *dedictob;*[4]
- plus a percentage of covered expenses, referred to as *coinsurance;*[5]
- up to a *maximum* annual dollar amount.[6]

In addition, covered benefits are usually subject to a lifetime maximum after which the insured person is fully liable for any health care costs.

Members of health maintenance organizations (HMO) are rarely subject to deductibles or coinsurance but often must pay a flat *copayment7*

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[2] Health maintenance organizations are organizations that, in return for prospective per capita (cavitation) payments, act as both insurer and provider of specified health care services. Prepaid group practices and independent practice associations (IPAs) are types of HMOs.

[3] Traditional indemnity plans are fee-for-service health plans that typically reimburse health care providers on a ''reasonable and customary" basis or as billed.

[4] A deductible is the amount of covered health care expenses (e.g., $200, $500, $1,000) that must be incurred by the health plan enrollee and his or her dependents before any health benefits become payable by the health plan. Deductible requirements apply to each individual in a family for a specific time period (usually a year). Some plans *specify family* deductibles after which no additional individual deductibles are required; family deductibles are typically equivalent to two or three times the individual deductible.

[5] Coinsurance refers to the freed percentage of covered expenses shared by a health plan and an enrollee after the deductible requirement has been met. For example, an 80-20 coinsurance arrangement means that, after the deductible is reached, 80 percent of covered expenses are paid by the plan and 20 percent are paid by the person covered by the plan.

[6] Such maximums are dollar limits on covered out-of-pocket expenses (e.g., $750 or $1,000) for deductible and coinsurance requirements incurred by the health plan enrollee. Not all health plans place limits on enrollees' out-of-pocket expenses.

[7] Copayments are fixed dollar amounts that a health plan enrollee is required to pay for a covered service (e.g., $10 per office visit, $3 per prescription drug).

Box 2-A—Health Insurance Premiums

This background paper focuses only on certain forms of patient cost-sharing-those such as deductibles and coinsurance that are based on a person's actual use of medical cam services and that are typically levied at the time services are received. Deductibles, coinsurance, and copayments are designed, in part, to make people 'think twice" before seeking care and to forgo the use of services that are expected to bring little benefit. Premium costs serve a different purpose; they do not directly affect how many services are purchased, but rather the amount and type of insurance purchased. Nevertheless these two types of cost-sharing are related. If a purchaser faces a choice between higher premiums with limited cost-sharing and lower premiums with high cost-sharing, he or she may choose to purchase the less expensive policy with higher deductibles and copayments or coinsurance.

Premiums are a major component of total consumer spending for health care. In 1990, it was estimated that U.S. households spent a total of $224.7 billion on health care expenses; 19 percent or $42.6 billion were payments by consumers for private health insurance premiums (42).

There is little agreement on the degree to which higher premiums reduce the purchase of insurance. Estimates range from a very low price responsiveness—where a 10 percent increase in premiums reduces the purchase of insurance by only 1.6 percent—to very high estimates, in which a 10 percent premium increase reduces insurance purchase by 28 percent (48).

SOURCE: Office of Technology Assessment 1993.

for primary care visits and sometimes for hospitalization (Group Health Association of America (28)).

In addition to cost-sharing for covered services, other health care costs are commonly borne by those with private and public health insurance (see table 1-1 presented earlier in this report). These include the difference between the provider's bill and the health plan's *approved* reimbursement for a covered service or ''balance billing" (see box 2-B); care received for uncovered preexisting conditions or during the waiting period before an employee or dependent becomes eligible for coverage; and frequently uncovered services such as preventive services, vision and hearing care, experimental treatments, and speech, physical, and occupational therapy.

The National Medical Expenditure Survey conducted by the Agency for Health Care Policy and Research provides estimates of *total* out-of-pocket spending by people under 65 with private health insurance, but the proportion of these dollars paid to meet health plan cost-sharing requirements is not known. In 1987, the privately insured population under age 65 spent in aggregate (excluding premium expenses) approximately $51.9 billion out-of-pocket for health care services; this equalled about 28 percent of their total cost of care (85).[8] On an individual basis, the proportion of health care expenses paid by insurers and the insured is split almost evenly: on average in 1987, people under 65 with private health insurance paid about one-half of their health expenses and their insurers paid most of the balance (86).[9]

Current Trends in Patient Cost-Sharing

Publicly and privately funded surveys of employment-based health plans are the principal

[8] This figure includes expenses for inpatient hospital and physician services, ambulatory physician and nonphysician services including vision care and telephone calls with a charge, prescribed medicines, home health care services, dental services, and medical equipment purchases and rentals (85). Over-the-counter medications are not included.

[9] In addition to payments by private health insurers, an unknown proportion of health care spending for privately insured people under age 65 is paid by other sources such as Medicare, Medicaid, other public programs, worker's compensation, and private charity care (86).

Box 2-B—Balance Billing

Balance billing is an important component of patient cost-sharing that is often overlooked in analyses of cost-sharing policy. There are no data estimating the dollar value of consumer payments for balance billing but the burden on individuals can be considerable.

Balance billing works as folows. In fee-for-service health insurance, when someone submits a health claim, the insurer first determines the expenses on the claim that are "eligible" for reimbursement. The eligible expenses, often referred to as the ''usual or customary amount,' are those that are ultimely applied to coinsurance and deductible requirements to determine patients' out-of-pocket liabilities. The isured individual is responsible for *100 percent of balance* billing, i.e., provider charges that exceed the usual or customary amount regardless of any coinsurance or deductible requirements. The insurer compares the charges on each insurance claim with the amount it usually allows for the billed services. Each insurer determines the usual and customary charges based on local fees for services and procedures. The usual and customary proportion of physicians' charges accepted by insurers varies and is often unknown to patients (18). For example, some companies set reimbursement at the 90th percentile of the average charges for a particular service in the provider's geographic **area while others** use the 75th percentile.

Thus, as illustrated in the example below, if after meeting deductible requirements, the coinsurance rate is *80* percent and the health insurance plan reimburses physician charges at the *75th* percentile, the insured patient would actually be liable for 40 percent of the physician's fees.

Physician fee = $100

Usual and customary amount (at 75th percentile) = .75x $100= $75.00

Balance billing = $100- $75.00= $25.00

Insurer's total cost = $60.00
(.80 coinsurance x $75,00)

Patient's out-of-pocket cost = $40.00
(.20 coinsurance **X** $75.00) + $25 balance billing
Patient share of total cost= $40/$100=40 percent

T'here is no limit on balance billing in private health insurance. Under Medicare, physicians are prohibited from charging Medicare patients more than 115 percent of the approved Medicare fee schedule. Some reform proposals have argued for eliminating or limiting balance billing so that consumers are protected from excessive out-of-pocket expenses and are better able to predict the costs of their care (8,50).

SOURCE: Office of Technology Assessment, 1993.

sources of data on the cost-sharing features of private health insurance, but no one survey provides a wholly representative picture of the health coverage provided to the Nation's workforce. Further, the details of sampling and question construction in privately-funded surveys are typically proprietary (i.e., not open to public scrutiny) and have been criticized on methodological grounds. In addition, little is known about the extent of required cost-sharing in individual or nonemployment-sponsored health plans (25). Nonetheless, the available surveys clearly show that employer-sponsored health insurance plans are increasingly using deductibles, coinsurance, and copayments to deter utilization, minimize premium requirements, increase consumer cost-consciousness, and promote alternative delivery systems such as HMOS, preferred provider organ-

izations (PPOs), and point of service (POS) plans[10] (32,40,76,89).

This trend toward increasing reliance on patient cost-sharing is further reflected in a 1992 survey of business executives; it found that 61 percent of respondents reported that they *perceived* sharing costs with employees to be a very effective cost-control measure (30). A large proportion of respondents (i.e., up to 47 percent) also planned to have their company's employees bear the increasing costs of health benefits in 1991 and 1992. In light of these plans, it should also be pointed out that efforts by employers to shift costs to the employee are frequently a contentious issue in labor-management disputes (76).[11]

Fee-For-Service Coverage

Deductibles

In 1991, the average individual deductible in traditional FFS medium and large establishments was $198 per year (89). Although there appears to be a trend among some employers to base deductible requirements on wages, income-based arrangements are still relatively uncommon. In 1991,5 percent of participants in medium or large employer health plans were subject to deductibles that varied with their wages (89).

Coinsurance

Coinsurance rates of 80 percent insurance-financed and 20 percent employee-financed are the most prevalent in employer-based plans of all sizes and are typically applied to both ambulatory and inpatient care (72,88,89). The 80-20 combination has been the predominant coinsurance rate for some time, although not until the late 1980s did most plans also require cost-sharing for the entire portion of a hospital stay (87).

Annual Limits on Out-of-Pocket Expenses[12]

In FFS plans, coinsurance is typically required only up to some maximum annual limit after which allowed charges for covered benefits become fully reimbursable. Dollar limits on out-of-pocket expenses vary; in 1991, the most common individual limits ranged from $750 to $1,000 for participants in health plans sponsored by medium and large firms.[13] Still, as many as 11 percent of participants in these health plans had no limit at all on their out-of-pocket expenses (89).

The cost to insurers of including an annual out-of-pocket limit is minimal because most insureds' expenses do not reach their limit (73). The Congressional Research Service has, for example, calculated that in 1988 a typical annual premium would have increased by only 0.7 percent if it included a $1,000 annual out-of-pocket maximum as compared to no limit (73).

Maximum Lifetime Benefit

Most indemnity plans place a limit on the amount they will reimburse an insured person for medical expenses over a lifetime. In 1991, three-

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lo The term preferred provider organization (PPO) refers to a variety of different insurance arrangements under which plan enrollees who choose to obtain medical care from a specified group of 'preferred' providers receive certain advantages, such as reduced cost-sharing charges. PPO providers typically furnish services at lower than usual fees in return for prompt payment by the health insurance plan and a certain assured volume of patients. Point-of-service (POS) plans are a hybrid form of managed-care plan based on a mixture of cavitation and fee-for-service (FFS) payment arrangements. POS plans permit health plan enrollees to choose a FFS, PPO, or HMO provider at the time he or she seeks services (rather than at the time they choose [o enroll in a health plan).

1 1 In 1989, the leading strike issue was health benefits, accounting for 60 percent of work stoppages and 78 percent of striking workers (76).

12 Limits on out-of-pocket expenses usually apply to the sum of deductible and coinsurance (e.g., 20 percent of allowed charges) payments incurred by the insured for *allowed* charges for covered benefits; balance billing payments are never limited in private health plans. Dental and mental health benefits are usually subject to separate limitations. Individual and family limits may be separate.

13 These dollars limits apply only to out-of-pocket *coinsurance* payments.

quarters of participants in medium and large firms' health plans that required cost-sharing had a lifetime maximum, most commonly set at $1 million (89).

Health Maintenance Organizations (HMOS)

The cost-sharing features of HMOs mirror both industry philosophy and government mandates established in the HMO Act of 1973 (Public Law 93-222) and its amendments in 1988 (Public Law 100-51) (28). The HMO Act of 1973 established guidelines that set limits on the type and extent of patient cost-sharing in health maintenance organizations. Although Federal HMO requirements do not apply to all HMOs, they determine the cost-sharing burden of the three out of four HMO enrollees who belong to federally qualified HMOs (29).[14] Among federally qualified HMOs, copayments may not exceed 50 percent of the total cost of any individual service and, in the aggregate, copayments may not exceed more than 20 percent of the cost of providing all "basic health services" as defined by Federal regulations (42 CFR 417.104(4)(i); 42 USCA S300e-1(1)).[15] In addition, an individual's total copayment charges may not exceed 200 percent of the total annual premium cost that would be required for coverage with no copayments. Deductibles for basic benefits are prohibited except for open-ended arrangements such as point-of-service plans (42 USCA S300e(b)(l)).

Copayments are the most common cost-sharing feature of HMO coverage and are used most often by Independent Practice Associations (IPAs) (28).[16] Overall, in 1991, 72 percent of HMO enrollees were required to pay a fixed copayment for primary care visits. Among the best-selling packages[17] offered by HMO, primary care visit copayments ranged from $2 to $15 in 1991 (28). Because access to physician specialists in HMOs is typically controlled by ''gatekeeper" primary care providers, copayments for specialty care are usually not required (53).

In 1991, three-quarters of HMO enrollees were not subject to cost-sharing when hospitalized, according to a survey of HMOs by the Group Health Association of America (28). Copayments for hospital care were used most often in IPA-model HMOs but are also used in some staff-model HMOs.[18]

Some reform proposals apparently leave the door open to types and levels of cost-sharing that have traditionally been associated with fee-for-service, indemnity health insurance. For example, Sheils and his colleagues analyzed various impacts of high-and low-cost-sharing for managed care under a managed competition model of reform (69). In their high-cost-sharing scenario, individuals would face a $250 deductible ($500 per family) with 20 percent coinsurance up to a maximum out-of-pocket of $2,000 ($3,000 per family).

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14 A Federally qualified HMO is one that has&en determined by the U.S. Department of Health and Human Services to meet the standards set forth in Title XIII of the Public Health Service Act, in such areas as financial and administrative stability, quality, scope of services covered, and rate-setting practices.

15 Federal statute and regulations define HMO basic health services to include: physician services (including consultant and referral services by physicians); inpatient and outpatient hospital services; short-term rehabilitation if it is expected to result in significant improvement of the member's condition within two months; medically necessary emergency services; at least 20 necessary and appropriate evaluative and/or crisis intervention mental health visits; diagnosis, medical treatment and referral services for abuse of or addiction to alcohol and drugs; diagnostic laboratory and diagnostic and therapeutic radiologic services; home health services; and certain preventive health services.

16 Independent Practice Associations (IPAs) are a form of HMO in which participating physicians remain in their independent office settings, seeing both enrollees of the IPA and patients covered by other health insurance plans. Participating physicians may be reimbursed by the IPA on a fee-for-service or a cavitation basis.

17 The Group Health Insurance Association of America uses ''best-selling package'' in its industry analyses to describe the features of the typical HMO benefit package. On average, 69 percent of total HMO enrollment is represented in the best-selling packages (28).

18 In staff model HMOs, the majority of health plan enrollees are cared for by physicians who are typically salaried staff of the HMO.

Other Private Health Insurance Arrangements

In recent years, many employment-based health plans have initiated various hybrid insurance arrangements. For example, preferred provider organizations (PPOs) selectively contract with providers for discounted services but pay them on a traditional fee-for-service basis. Employees who enroll in PPOs are often exempt from deductibles or have reduced cost-sharing compared with those who choose more traditional health plans with unrestricted choice of providers (31,40). Point of Service (POS) plans combine the features of FFS and HMO health plans and are among the fastest growing of ''hybrid' delivery systems (22). POS plans allow enrollees considerable freedom of choice in selecting a provider but the choice is made in the context of cost-sharing requirements that promote HMOS over PPOs and discourage traditional FFS care overall. In a typical POS arrangement, HMO care is available at little or no cost at the point of service, PPO care is offered at reduced cost-sharing rates, and traditional FFS care is subject to standard or even higher than average deductible and coinsurance requirements.

Yet the reductions in out-of-pocket cost- sharing offered to PPO health plan members who use preferred providers may not be cost saving to the insurer and employer. Although controlled studies are lacking, reports are increasing that, despite negotiated discounts with preferred providers, little or no savings can be found when coinsurance requirements are waived or reduced for the use of FFS preferred providers (20,26,33,92).

Publicly Funded Plans

Medicare

Cost-sharing is a basic feature of Medicare coverage. In addition, unlike most health plans, Medicare has no maximum liability on out-of-pocket expenses (61). However, only 20 percent of Medicare beneficiaries actually have to pay deductibles and coinsurance because they are either covered by a supplemental Medigap plan or are dually eligible for Medicaid benefits[19] (47).

As of 1992, Medicare beneficiaries were required to pay a $652 deductible on the frost hospital admission in a benefit period[20] and $163 daily copayment for hospitilal stays of 61 to 90 days (84). A $326 daily copayment is also required if, during the course of a benefit period, total hospital stays exceed 90 days. The Medicare inpatient hospital deductible is updated annually.

Medicare coverage for physician services is optional under Part B coverage and requires a separate premium. For those who purchase Part B benefits, Medicare requires 20 percent coinsurance after a $100 annual deductible. Balance billing is limited in the Medicare program; Federal law does not allow physicians to charge Medicare patients more than 115 percent of the Medicare fee schedule.

Unlike private insurance plans which have steadily increased cost-sharing in recent years, Medicare has implemented few changes in cost-sharing requirements (61). During the 1990 budget reconciliation hearings, major increases in Medicare premiums and cost-sharing were dropped as a result of the much publicized opposition by elderly people.

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19 Federal Medicaid law requires States to pay the coinsurance for Medicare participants with family incomes under 100 percent of the Federal poverty level (74).

20 Medicare Part A benefits are paid on the basis of benefit periods. A Medicare benefit period is defined as beginning with the first day a beneficiary receives Medicare covered inpatient hospital services (84). It ends when the beneficiary has been out of a hospital or skilled nursing facility (SNF) for 60 days in a row. It also ends if the beneficiary remains in a SNF but does not receive skilled care there for 60 days in a row. A new benefit period starts when inpatient hospital services are again required. The number of benefit periods is unlimited.

Table 2-l-State Medicaid Programs Requiring Copayments for Basic Physician, Clinic and Hospital Services, as of Jan. 1, 1991

State	Service category	Copayment amount[a,b]
Alabama	Federally qualified health centers	$1.00
	Inpatient hospital	50.00/admksion
	Outpatient hospitat[c]	3.00
	Physician off ice visits (excluding optometric)	1.00
	Rural health ciinics[c]	1.00
Arizona	office visits	1.00
	Elective surgery	5.00
	Nonemergency use of emergency room	5.00
California	Emergency room (inappropriate use)	5.00
	Outpatient hospital	1.00
Colorado[d]	Physician services	2.00
	Inpatient hospital	15.oo/stay
	Outpatient hospital	3.00
	Physician visits	2.00
	Rural health clinics	2.00
Illinois	Inpatient hospital	Variese
Kansas	Ambulatory surgery center services	3.00
	Hospital:	25.00/admission
	inpatient	
	nonemergency outpatient	1.00
	outpatient surgery	3.00
	Physician office visit	1,00
Mississippi	Hospital:	
	emergency room	*2.00*
	inpatient	*5.00*
	Rural health clinic-office visit	1.00
Missouri	Hospital:	
	Inpatient	1 O.00/admission
	outpatient	*3.00*
Montana	Clinic Services	1.00
	Hospital:	
	inpatient	3.00/day[f]
	outpatient	1.00
	Physician	1.00
North Carolina	Hospital-outpatient	1.00
	Physician	*0.50*
Pennsylvania	Hospital:	
	inpatient	3.00/da~
	nonemergency service in a hospital	Varies[h]
	emergency room	Varies[h]
South Dakota	Ambulatory surgical center	Varles[i]
	Hospital-outpatient (except lab)	Varles[i]
	Physician	3.00
Virginia	Clinic	1 .Ooj'k
	Hospital:	
	inpatient	30.00/admission
	outpatient, nonemergency	*2.00*
	Physician	1.00

Table 2-l-State Medicaid Programs Requiring Copayments for Basic Physician, Clinic and Hospital Services, as of Jan. 1, 1991-Continued

State	Service category	Copayment amount
Wisconsin	Hospital:	
	inpatient, general	3.00/da~
	outpatient	3.00
	surgery	3.00
	Physician visits:[m]	
	cunsultaion	3.00
	diagnostic procedure in office	1.00
	office	1.00
	outpatient hospital	1.00

a Unless otherwise specified, copayment amounts are paid per service visit. They apply to all population groups allowed under the law except where otherwise noted.
b States may not impose these fees on categorically or medically needy persons under a variety of circumstances, including: services provided to children; pregnancy-related, emergency, family planning and hospice care; and services provided to categorically needy persons in health maintenance organizations.
c For these services the State requires the copayment be paid per claim for all Medicaid beneficiaries who are also Medicare eligible. All other Medicaid beneficiary-the copayment is per visit.
d Applies to persons age 19 and over.
e $2 for per diem of $275 to $325; $3 per diem over $325.
f Maximum copayment charge of $66 per stay.
9 Maximum copayment charge of $21 per stay.
h In Pennsylvania the copayment for services range from $1 t. $6 based on the Medicaid fee for the services provided. If the Medicaid fee is: $1.00-10.00 the copay is $1; $10.01-25.00 the copay is $2; $25.01-50.00 the copay is $4; $50.01 or more the copay is $6.
i Copayment is 5 percent of reimbursement for these services.
j Applies to pregnant women for nonpregnancy-related services.
k Applies to persons age 21 and over.
l Maximum copayment Of $75 per stay.
m A cap of $30 cumulative limit per calendar year per physician for all physician services (physician visits, surgery, lab and X-ray services, and diagnostic tests) applies.

SOURCE: U.S. Congress, Library of Congress, Congressional Research Service, Medicaid *Source Book: Background Data and Analysis* (Washington, DC: U.S. Government Printing Office, January 1993).

Medicaid

Although Federal rules permit State Medicaid programs to impose flat copayments for selected beneficiaries under certain circumstances, only 10 States require them for basic physician or hospital care (see table 2-1) (74). States are prohibited from imposing deductible or coinsurance charges on categorically needy persons (e.g., recipients of Aid-to-Families With Dependent Children [AFDC] cash assistance) or medically needy persons under a variety of circumstances, including: services provided to children; pregancy-related, emergency, family planning, and hospice care; and services provided to categorically needy enrollees in HMOS (74).[21] If cost-sharing charges are used, they must be ''nominal' that is, the maximum deductible for noninstitutional services cannot exceed $2.00 per month, coinsurance may range from $.50 to $3.00 (depending on the Medicaid payment amount). Providers are prohibited from denying care to those who are unable to or who do not pay their cost-sharing charges.

21 ''Categorically needy'' refers to those who are Medicaid-eligible by belonging to certain categories of poor people, such as those who are members of families with dependent children where one parent is absent, incapacitated, or unemployed. States have the option to offer Medicaid to medically needy persons when their family income and resources lie above the AFDC need standards *if* they meet the categorical requirements of the program (e.g., an absent parent or disability).

The Lessons and Limitations of the Rand Health Insurance Experiment[1]

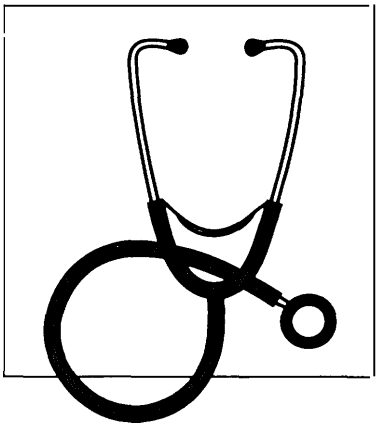
3

The Rand Health Insurance Experiment is the most relevant and valuable research available concerning the effects of patient cost-sharing. The HIE was a randomized, controlled trial specifically designed to study how various cost-sharing arrangements affect the use and cost of health services as well as health outcomes.[2] This chapter examines the lessons and limitations of the experiment focusing on basic physician and hospitaI care services.[3]

Other notable studies of the effects of patient cost-sharing are reviewed in appendix D. Also see table 3-1 for a summary of the characteristics of the other important studies on the effects of cost-sharing on utilization, expenditures, and health.

DESCRIPTION

The Health Insurance Experiment (HIE), conducted by the Rand Corporation between November 1974 and January 1982,[4] employed a true experimental design to determine the effect of patient cost-sharing on the utilization and cost of medical services, and on patients' health status.[5] The HIE is widely regarded as one of the most important studies ever conducted in the health services area, and its results—particularly with regard



This chapter benefited from a review prepared under contract to OTA by Thomas Rice.

[2] See OTA's background paper, ''Does Health Insurance Make a Difference?,' for a review of the literature examining the effects of health insurance per se on access to and use of care and health outcomes (78).

[3] Although not reviewed here, there is an additional Rand HIE literature examining the effects of cost-sharing on dental care and mental health care (e.g., ref. 5 and 91).

[4] The Rand experiment was in the field during this period, but the design phase of the HIE began earlier and analysts continue to use the experiment's rich database today.

[5] The study was funded by the U.S. Department of Health and Human Services.

Table 3-I-Selected Studies on the Effects of Cost-Sharing on Utilization, Expenditures, and Health

Study authors and year	Type of study	Number in sample	Location of study population
Scitovsky and Snyder, 1972 and Scitovsky and McCall, 1977 (based on 1966 and 1968 data)	Interrupted time series;[b] studied a prepaid health plan that imposed a 25% coinsurance for all physian services.	2,567 Stanford University employees and their dependents.	Palo Alto, CA (single clinic).
Rand Health insurance Experiment; various authors (based on data from Nov. 1974-Jan. 1982)	Randomized trial? studied the effects of various coinsurance rates and out-of-pocket maximums.	5,814 persons in 2,005 families.	Six sites: Dayton, OH; Seattle, WA; Fitchburg, MA; Franklin County, MA; Charleston, SC; Georgetown County, SC.
Fahs, 1992 (based on 1976-1978 data)	Nonequivalent group design[d] studied the UMWA health plan before and after the institution of a $7.50 pervisitcopayment and compared it with the United Steelworker's health plan which did not change during the same time period.	1,089 UMWA[e] and nonUMWA patients diagnosed with diabetes meilitus, urinary tract infection, or sore throat.	New Kensington, PA (single clinic).
Cherkin, Grothaus, and V@-ner, 1990-91 (basedon 1985 data)	Nonequivalent group design;[d] studied the effects of a new $5.00 repayment on State employees compared with Federal employees who had no copayment requirements.	30,415 Washington State and 21,633 Federal employees enrolled in the Group Health Cooperative of Puget Sound.	Seattle, WA (single staff-rnodel HMO).

a Full citations are listed at the end of this report.
b Interrupted Time Series: A type of quasi-experiment in which the effects of an intervention are inferred from comparing measures of performance (e.g., use of health care services) taken at many time intervals before the intervention with measures taken at many intervals *afterwards* (19). Quasi-experiments are experiments that have interventions, outcome measures, and experimental units, but do not use random assignment to create the comparisons from which intervention-caused change is inferred.
C Randomized Trial: Randomized experiments are characterized by the use of initial random assignment for inferring intervention-caused change (19). Randomized trials are often used to test the safety and efficacy of a medical technology in which people are randomly assigned to experimental or control groups, and outcomes are compared.
d Nonequivalent Group Design: A type of quasi-experiment in which the responses (e.g., use of health care services) of a treatment group and a comparison group are measured before and after a treatment (19). However, study participants are not randomly assigned to treatment versus comparison conditions, and the design is subject to threats to internal validity related to selection-maturation (i.e., respondents in one group could be changing more so than in the other group).
e UMWA refers t. United Mine Workers of America beneficiaries.

SOURCE: Office of Technology Assessment, 1993.

to the impact of cost-sharing on the use and cost of care-are widely used in the cost projections of various health care reform proposals.

Approximately 5,800 persons in six sites[6] were randomly assigned, for three years or five years, to one of over a dozen fee-for-service health insurance plans.[7] The study included individuals and families who, before participation in the experiment, had private health insurance or Medicaid coverage as well as those who were uninsured. As an inducement to participate in the experiment, participants were to be compensated on a monthly basis if their current (preexperimental) health insurance policy provided more financial

6 The sites were: Dayton, Ohio; Seattle, Washington the city of Fitchburg and Franklin County, Massachusetts; and the city of Charleston and Georgetown County, South Carolina.

7 The HIE also randomly assigned a group of people to an HMO in the Seattle area to assess the effect of an HMO *delivery system* (not patient cost-sharing) on utilization and health outcomes, but that component of the study is not within the scope of this report.

protection than the insurance plan to which they were randomly assigned.[8] The primary exclusion criteria were that the 3 percent of the population with the highest income (over $25,000 in 1973 dollars[10]) and people age 62 and over were excluded from the sample. Other people excluded from the sample included those eligible for Medicare due to disability, those in jails or institutions, military personnel and their dependents, and veterans with service-connected disabilities (46).

All the participants in the study received health insurance coverage that was, in part, income-based.11 The experimental health plans varied on two dimensions: the coinsurance rate and the out-of-pocket maximum. Coinsurance was imposed on all medical services and rates were set at O percent,[12] 25 percent, 50 percent, and 95 percent; out-of-pocket maximums (which applied to all plans with a coinsurance rate above O percent) were set at either 5 percent, 10 percent, or 15 percent of family income per year, but could never exceed $1,000 ($750 in some sites) .13 Finally, one plan (called the "individual deductible' plan) provided free inpatient care but had a $150 dedeductible[14] per person for outpatient services.

All of the HIE health insurance plans provided the same benefit package. Coverage was atypically comprehensive; prescription drugs, preventive care, and the services of a wide range of providers were fully covered.[17] Participants had

8 Suppose, for example, that a person had a policy with a $500 out-of-pocket annual maximum. If the person was assigned to the no-cost-sharing plan, he or she would not be eligible for a cash subsidy because that person would never be worse off financially under the experiment. If, however, the person was assigned to a cost-sharing plan, he or she could spend up to $1,000 or a particular percentage of income, whichever was less. If the person faced a $1,000 maximum out-of-pocket liability under the experiment but only $500 beforehand, he or she was given a subsidy of $500 per year to participate. In that way, becoming involved in the experiment could not make the person worse off.

9 In addition, the designers of the HIE were concerned that participants might become medically uninsurable during the course of the experiment (13). To ensure that all HIE participants would continue to have access to health coverage after the experiment every participant was reimbursed for the amount they had to payout-of-pocket for their premiums. This kept participants' preexperimental health insurance active during the experiment and available to the participants afterwards,

10 Inflating this by the change in median household income, this is the equivalent of approximately $78,000 in 1992 dollars.

11 The out-of-pocket maximum was the only cost-sharing feature based on income.

12 The 'O percent plan is generally referred to as the 'free care' plan in the HIE literature but is referred to by OTA as the 'no-cost-sharing plan" throughout this paper.

13 The $750 or $1,)00 annual limits were constant throughout the &year course of the experiment, so there is no single 1992 equivalent. Even if one were to use the midpoint of the experiment (1978) as the base, there is still no unambiguous way to inflate, for example, $1,000 to 1992 dollars. Using growth in median household income, the $1,000 figure would be about $2,000 in 1992 dollars. Using the overall consumer price index (CPI), it would be about $2,151. Using growth in the medical component of the CPI, it would be about $3,076. Using growth in per capita personal medical expenditures, it would be about $3,900.

14 Using the midpoint of the experiment as the base year (i.e., 1978) and inflating by the overall consumer price index, this would be about $323 in 1992 dollars.

15 The structure of this plan was actually somewhat more complicated. patients were responsible for paying 95 percent of outpatient expenses per year up to an out-of-pocket maximum of $150 per person, with a total family limit of $450. According to the HIE researchers, this effectively amounted to a $150 outpatient deductible with care provided free after the deductible was met (41).

16 The purpose of the individual deductible plan was to allow the researchers to e xamine the extent to which price induces people to substitute inpatient for outpatient care.

17 coverage included inpatient and outpatient hospital care, physician services, ancillary services (e.g., X-ray and laboratory tests), skilled nursing facility ***stays, maternity benefits,*** up to 52 mental health visits per year, prescription drugs, certain over-the-counter medications for selected conditions (e.g., chronic allergic conditions, arthritis, pregnancy, and chronic respiratory disease), dental care, vision care (including eyeglasses), hearing care, home health care, preventive services, substance abuse treatment and rehabilitation family planning, acupuncture (if performed by a physician), and equipment and supplies (including prosthetic devices). A wide range of providers was covered, included chiropractors; audiologists; clinical psychologists; optometrists; podiatrists; physical, occupational, and speech therapists; Christian Science nurses; and private duty nurses. The principal exclusions from coverage were most orthodontics, cosmetic dental services, and cosmetic surgery (12).

complete freedom of choice of providers and there were no limits on providers' discretion to order services for patients. Payments to providers were based on 'reasonable or standard' charges .18

LIMITATIONS OF THE RAND HIE

Despite its status as the only true experimental test of the effects of a variety of levels of patient cost-sharing, it is important to recognize that the HIE had several limitations which hamper its usefulness to policymakers of the 1990s (see box 1-B presented earlier in this paper). As a result, it became essentially a study of the *average* use of health care paid for on a fee-for-service basis by nonelderly individuals who were either well- or very well-insured. Because of sample size, the HIE was especially weak at assessing the health effects of cost-sharing on certain population subgroups, even those included in the experiment. These subgroups included people who may have had substantial health care needs, including low-income children and adults, adults with chronic conditions such as cancer and rheumatoid arthritis, and children with chronic diseases such as asthma, congenital anomalies, or with life-threatening conditions. Thus, the health effects of patient cost-sharing on many individuals with *greater than average* health care needs remain largely unknown.

In addition, the HIE could not examine how providers would respond to national-scale changes in patient cost-sharing. This dynamic could have important cost implications if, for example, widespread increases in patient cost-sharing diminished demand for health care services and providers responded by increasing their fees or the volume of services they provide to their patients. Also, some HIE providers were aware that their patients were participating in a federally funded experiment. It is not known whether this knowledge may have affected provider behavior.

Finally, by design, participants in the HIE were subject to numerous unique interventions including: requirements to complete a biweekly diary on health care use, symptoms, and restricted activity; annual health questionnaires; and even compensation if the participants' preexperimental health insurance policy provided more financial protection than the insurance plan to which they were randomly assigned. These features are not typical of most insurance policies, and they may have affected the conclusions of the study.

KEY FINDINGS

Within the caveats above, the HIE generated a wealth of published reports related to coinsurance and its effects on health care use and outcomes.[19] The key findings of the experiment are discussed below in the context of seven fundamental questions key to the development of cost-sharing policy.

Does patient cost-sharing affect utilization of health care services?

In general, the HIE found that coinsurance was a significant deterrent to health care utilization.[20] Above all, coinsurance reduced the number of medical care contacts for which treatment was sought (46). However, once someone in the experiment sought medical attention, the amount and intensity of services that **they received was largely unaffected by coinsurance and apparently was determined principally by physicians or other health care providers (36).** That is, as coinsurance requirements increased, people

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18 Except in rare instances, the HIE paid the providers' charges in full (51).

19 Although the Rand researchers typically describe the experimental health plans as being 'cost-sharing' or 'free care'' plans, the principal type of cost-sharing analyzed was coinsurance. Unless this review of the HIE indicates otherwise, the reader can assume that ' 'cost-sharing' refers to coinsurance and that separate effects of varying coinsurance level are not available.

20 The Rand findings imply a decline in utilization of 2,0 percent with every 10 percent increase in cost-sharing similar to earlier results reported by Scitovsky and McCall (see appendix A) (46,66).

were less likely to seek *any* ambulatory care.[21] HIE participants who were subject to any coinsurance had, on average, at least one fewer contact with a provider each year than the participants who had *no* cost sharing. Probably as a result, those subject to coinsurance were also much less likely to be hospitalized and, on average, received fewer prescription medications, procedures, and diagnostic tests (i.e., X-rays and laboratory tests), compared with participants who did not face coinsurance requirements (24,43).

Similarly, although the likelihood of being hospitalized was significantly lower in the cost-sharing plans—'paying' patients were hospitalized about one-third less often than enrollees with no cost-sharing-average costs per hospital stay for the cost-sharing and no-cost-sharing plans were not significantly different (36). In addition, a widely held view concerning the relationship of inpatient to outpatient health insurance coverage was not supported by the Rand experiment (46,63). It had been previously thought that increasing outpatient benefits, while holding constant inpatient coverage, would reduce total expenditures by encouraging early intervention in the outpatient setting. Instead, on average, HIE participants who had to pay some portion of their outpatient costs but no portion of their hospital care had lower total costs overall (46).

Finally, coinsurance was found to deter care significantly for more than half of the diagnostic categories studied, including chronic, acute, and preventive care (see table 3-2) (43). This effect was strongest among low-income participants,[22] especially low-income children (see more on income effects below). For example, the likelihood that a low-income child on a cost-sharing plan had an episode of outpatient care for the diagnosis "diarrhea and gastroenteritis" was only 37 percent of that of low-income children with *no* cost-sharing. As another example, low-income women subject to cost-sharing were half as likely as similar women without cost-sharing to seek medical attention for "vaginitis and cervicitis."

Effects of Out-of-Pocket Maximums and Deductibles

HIE analysts found that deductibles alone appear to reduce use of services.[23] They also reported no differences in utilization by the coinsurance groups with differing out-of-pocket maximus.[24] The Rand researchers had hypothesized that once people in the cost-sharing groups exceeded their annual out-of-pocket maximums, they would seek care at the same rate as those who had no cost-sharing at all. This did not take place, however, leading the Rand researchers to speculate that "people may not have the energy or inclination to think about their future insurance status' when making medical care decisions (37).

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21 This finding represents face-to-face contacts with physicians, osteopaths, or other providers and excludes visits for only radiology, anesthesiology, or pathology services. Dental care and outpatient psychotherapy are also excluded.

22 Low-income in this analysis was equivalent to family incomes as great as *two* times the Federal poverty level (FPL). The FPL was estimated to be $14,343 for a family of four in 1992 (83).

23 Strictly speaking, with one exception (the ''individual deductible' group) the HIE did not employ deductibles. As noted earlier, the ''individual deductible' plan was actually devised as a plan that required 95 percent coinsurance for outpatient expenses per year up to an out-of-pocket maximum of $150 per person, with a total family limit of $450. No cost-sharing was required for inpatient services. This arrangement was functionally equivalent to a $150 outpatient deductible with *no* cost-sharing after the deductible requirements were met. In addition, the group that had to pay 95 percent coinsurance for all covered services faced a deductible approximately equal to the size of their annual out-of-pocket maximum (5, 10, or 15 percent of income up to $750 or $1,000 per year).

24 For this reason, almost all the HIE analyses were conducted by coinsurance category, grouping together the different out-of-pocket maximums.

Table 3-2—Summary of the Significant Differences Between Rand Health Insurance Experiment Health Plans in the Predicted Probability of an Episode of Care

Condition or service	The relative probability of an episode of care in a cost-sharing plan compared with the no-cost-sharing plan[ab]	Cost-sharing population subgroup[c]
General medical examination	5470	Low income adults
	71	Nonpoor adults
	68	low-income children
	79	Nonpoor children
Vision examinations	58	low-income adults
	61d	Low-income children
Hay fever	39	Low-income adults
obesity	49	Nonpoor adults
Acute upper respiratory infection	49	low-income children
	65	Nonpoor children
Acute pharyngitis	54	Low-income adults
	68	Nonpoor adults
	56	low-income children
	82	Nonpoor chiidren
Otitis media	45d	Low-income adults
	~ d	Low-income children
Diarrhea and gastroenteritis	37	law-income children
Vaginitis and cervicitis	50	low-income women
	54	Nonpoor women
Skin rashes and other noninfectious skin diseases	57	Low-income adults
	69	Nonpoor adults
	w	low-income children
Lacerations, contusions, and abrasions	58	Low-inmme adults
	72	Nonpoor adults
	46	low-income children
Acute sprains and strains	33	Low-income chiidren
Other injuries and adverse effects	72	Nonpoor adults
	44	Low-inmme chiidren

a All effects of cost-sharing shown in this table significant at $P < 0.05$ unless otherwise indicated.
b Shows th, probability of seeking care for those subject to cost-sharing divided by the probability of seeking care for those with 110 cost-sharing.
c "Low-income" includes anyone with a family income up to 200 percent of the Federal poverty level (FPL). "NonPoor" includes those with family incomes greater than or equal to 200 percent of the FPL.
d Significant at $P < 0.10$.

SOURCE: Lohr, K., Brook, R., Kamberg, C., et al., "Use of Medical Care in the Rand Health Insurance Experiment, Diagnosis- and Service-Specific Analyses in a Randomized Controlled Trial, "contract report prepared forthe U.S. Department of Health and Human Services, contract No. 01 66-S0, Santa Monica, CA, December 1966. Used by permission.

Does coinsurance reduce utilization by promoting the use of more cost-effective, appropriate care and by discouraging the use of unnecessary services?

Advocates of patient cost-sharing argue that requiring patients to bear some of their costs of car-e will motivate them to ''think twice' before seeking medical attention and lead patients to make better choices between appropriate and inappropriate care (49). The Rand researchers attempted to validate this claim by examining whether coinsurance equally deterred patients from seeking care for conditions for which treatments were thought to vary in effectiveness. In one analysis, more than 80 conditions and symptoms were divided into four groups: 1) those where medical care interventions were judged *likelylikely to be highly* effective, 2) quite effective, 3) less effective, or 4) ineffective or self-care effective (see table 3-3).[25] They found that higher coinsurance rates apparently did *not* lead the study population to make better decisions about their medical care (43). In fact, coinsurance generally reduced the seeking of care that was judged likely to be "highly effective" and likely to be ''rarely effective' equally. One study subgroup was an exception: children from average-to above-average-income families. For these children, apparently, their parents did selectively reduce their use of medical services in favor of care that was more likely to be ''highly effective. '

In addition, a separate analysis found that coinsurance did not selectively reduce ''inappropriate" hospital stays among adults (70).[26,27] In fact, cost-sharing deterred both "appropriate" and ''inappropriate' hospitalizations based on the criteria used by the researchers. Using the HIE researchers' appropriateness criteria, Siu and colleagues estimated that, when cost-sharing was required for both out- and in-patient services, there were almost 22 percent fewer "appropriate' hospital stays and 27 percent fewer ' 'inappropriate" hospital stays.

Does cost-sharing have health effects?

Overall, the HIE health-related findings are inconclusive but they do suggest that some individuals, especially lower income persons in poor health, may be harmed by the deterrent effects of cost-sharing. In general, the HIE researchers concluded that *not* having cost- sharing led patients to seek *more* medical care, but they were unable to find much evidence that, for the average participant, *more care* led to better health outcomes. Nor did they find much measurable harm, in the short term, from Less care among average participants. (See box 3-A for a summary of the sources of information on health status used in the HIE.) In only three areas did the adults with *no cost-sharing* experience better health outcomes: diastolic blood pressure (i.e., hypertension), the estimated risk of dying for those who were at elevated risk, and corrected vision:

a) *Hypertension*—Having *no* cost-sharing significantly reduced diastolic blood pressure for clinically defined hypertensives by an average of

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25 The groupings were developed through an iterative ranking process by Rand physicians and were also based on the actual content Of participants' insurance claims data. Thus, for example, although chest pain may be a serious symptom, the claims analysis found that, for the purposes of insurance claims, it was actually being used as a catch-all diagnosis for minor complaints. Consequently, for the medical effectiveness analysis, chest pain was placed in the least effective category.

26 The determination of "appropriate" and "inappropriate" hospital stays was based on physician reviews of patients' hospital records using the Appropriateness Evacuation Protocol (70). This technique assesses unnecessary days of hospital care based on 27 criteria related to medical services, nursing and life-support services, and the patient's condition (see ref. 27). Physician reviewers were allowed to override the protocol based on their clinical judgment.

27 Pediatric admissions, admissions related to pregnancy and to alcohol rehabilitation, and psychiatric admissions were excluded from the analysis by Siu and his colleagues (70).

Table 3-3-Medical Effectiveness Groupings Used in the Rand Health Insurance Experiment

- Group 1: Highly Effective Treatment by Medical Care System
  - Medical care highly effective: acute conditions
    - Eyes-conjunctivitis
    - Otitis media acute
    - Acute sinusitis
    - Strep throat
    - Acute lower respiratory infections (acute bronchitis)
    - Pneumonia
    - Vaginitis and cervidtis
    - Nonfungal skin infections
    - Trauma-fractures
    - Trauma--lacerations, contusions, abrasions
  - Medical care highly effective: acute or chronic conditions
  - Sexually transmitted disease or pelvic inflammatory disease
    - Malignant neoplasm, including skin
    - Gout
    - Anemias
    - Enuresis
    - Seizure disorders
    - Eyes—strabismus, glaucoma, cataracts
    - Otitis media not otherwise specified
    - Chronic sinusitis
    - Peptic and nonpeptic ulcer disease
    - Hernia
    - Urinary tract infection
    - Skin-dermatoptrytoses
  - Medical care highly effective: chronic conditions
  - Thyroid disease
    - Diabetes
    - Otitis media chronic
    - Hypertension and abnormal blood pressure
    - Cardiac arrhythmias
    - Congestive heart failure
    - Chronic bronchitis, chronic obstructive pulmonary disease
    - Rheumatic disease (rheumatoid arthritis)
- Group 2: Quite Effective Treatment by Medical Care System
  - Diarrhea and gastroenteritis (infectious)
  - Benign and unspecified neoplasm
  - Thrombophlebitis
  - Hemorrhoids
  - Hay fever (chronic rhinitis)
  - Acute pharynitis and tonsillitis
  - Acute middle respiratory infections (tracheitis, laryngitis)
  - Asthma
  - Chronic enteritis, mlitis
  - Perirectal conditions
  - Menstrual and menopausal disorders
  - Acne
- Group 2 (Continued)
  - Adverse effects of medicinal agents
  - Other abnormal findings
- Group 3: Less Effective Treatment by Medical Care System
  - Hypercholesterolemia, hyperlipidemia
  - Mental retardation
  - Peripheral neuropathy, neuritis, and sciatica
  - Ears-deafness
  - Vertiglnous syndromes
  - Other heart disease
  - Edema
  - Cerebrovascular disease
  - Varicose veins of lower extremities
  - Prostatic hypertrophy, prostatitis
  - Other cervical disease
  - Other musculoskeletal disease
  - Lymphadenopathy
  - Vehicular accidents
  - Other injuries and adverse effects
- Group 4: Medical Care Rarely Effective or Self-Care Effective
  - Medical care rarely effective
    - Viral exanthems
    - Hypoglycemia
    - obesity
    - Chest pain
    - Shortness of breath
    - Hypertrophy of tonsils or adenoids
    - Chronic cystic breast disease
    - Other breast disease (nonmalignant)
    - Debility and fatigue (malaise)
  - Over-the-counter or self-care effective
    - influenza (viral)
    - Fever
    - Headaches
    - Cough
    - Acute URi
    - Throat pain
    - Irritable colon
    - Abdominal pain
    - Nausea or vomiting
    - Constipation
    - Other rashes and skin conditions
    - Degenerative joint disease
    - Imw back pain diseases and syndromes
    - Bursitis or synovitis and fibrositis or myalgia
    - Acute sprains and strains
    - Muscle problems

SOURCE: Lohr, K., Brook, R., Kamberg, C., et al., "Use of Medical Care in the Rand Health Insurance Experiment: Diagnosis-and Servi--spedfic Analyses ina Random izedControlledTrial," contract report prepared forthe U.S. Department of Health and Human Services, Contract No.016B-80, Santa Monica, CA, December 1966. Used by permission.

Box 3-A—The Sources of Information on Health Status Used in the Rand Health Insurance Experiment

The health status information used to evaluate the health effects of patient cost-sharing in the Rand Health Insurance Experiment were drawn from the following sources:

- A comprehensive medical history questionnaire that collected data on general health status, health habits, and about 20 important chronic diseases from all participants (and from parents on behalf of children under age 14) upon enrollment and exit from the experiment (12).
- A medical screening examination that was performed on a randomly selected 60 percent of the sample at enrollment and on all participants at exit from the experiment. The medical screening consisted of a thorough physical examination and numerous physiological measurements, including blood pressure, serum cholesterol level, visual acuity, shortness of breath, hearing loss, glucose intolerance, thyroid abnormalities, hemoglobin, and other tests (39).
- An annual questionaire completed by all adult paticipants regarding their functional limitations in everyday life due to poor health and whether they visited a physician in the past month for an inventory of 27 serious and minor symptoms (12). Examples of the serious symptoms include chest pain when exercising, loss of consciousness, and shortness of breath with light exercise or light work. Minor symptoms include cough without fever for less than one week, nose stopped up for two weeks or more, and an upset stomach for less than 24 hours.
- A biweekly diary on health care use, symptoms, and restricted activity for each family member that the designated head of the family completed throughout the full term of the experiment (12,64,68).

SOURCE: Office of Technology Assessment 1993.

1.9 mm Hg (38).[28] The improvement in blood pressure among those with hypertension was even greater for participants with low incomes than for high-income participants (i.e., 3,5 vs 1.1 mm Hg improvement).[29]~[30] The reduction in blood pressure was achieved largely through additional physician contacts, where problems were diagnosed and treatment initiated. In the no-cost-sharing plan, one-half of the gain in hypertension control derived from a screening entry exam that led to notification of patients' physicians when hypertension was identified.[31] The deterrent effect of coinsurance on use of services among the 856 HIE participants with hypertension is particularly striking. There were 42 HIE participants with hypertension who never visited a physician dur-

28 Participants were identified as ''hypertensive" on entry into the experiment if they (a) reported taking antihypertensive drugs; (b) were found to have a repeated systolic blood pressure greater than or equal to 160 mm Hg or diastolic blood pressure greater than or equal to 95 mm Hg during the physical examination; (c) had a repeated systolic blood pressure greater than or equal to 140 mm Hg or diastolic blood pressure greater than or equal to 90 mm Hg and reported that their physician had previously told them they were hypertensive; or (d) reported that a physician had told them more than once they were hypertensive and were among the random sample that did not get an entry physical exam or had systolic blood pressure greater than or equal to 130 mm Hg or diastolic blood pressure greater than or equal to 80 mm Hg. Others were called ''hypertensive' upon exit from the experiment if they met criteria& b, or c or if (e) they had both repeated enrollment and exit systolic blood pressure greater than or equal to 140 mmHg or diastolic blood pressure greater than or equal to 90 mm Hg or (f) a physician had reported on an insurance claim form ***and the*** participants reported they had been diagnosed as hypertensive, or the physician had reported hypertension on two or more insurance claim forms (38).

29 In this analysis, low income was defined as the bottom 20 percent of the study sample's income distribution (an average $7,300 for a family of four in 1982 dollars); high income was defined as the top 40 percent (an average $40,000 for a family of four in 1982 dollars) (38).

30 The 1.1 mm Hg apparent ''improvement' among high-income hypertensive participants was not statistically significant.

31 A random sample of 60 percent of the HIE study population had a physical examination upon entry into the experiment (12).

ing the study (i.e., three to five years). Only five of these 42 were on the no-cost-sharing plan—significantly fewer than would be expected statistically if cost-sharing had no effect on utilization. In addition, those without cost-sharing were more likely to reduce smoking and to keep to a low-salt diet, and they tended to follow their medication regimens more closely.

The hypertension findings and the vision results (reported below) led the Rand researchers to conclude that *not having cost-sharing* benefits people the most when they have specific conditions that physicians have been trained to diagnose and treat (11).

b) ***Risk of Dying***—For high-risk HIE participants,[32] the estimated risk of dying from any cause (''on the basis of smoking habits, cholesterol level, and systolic blood pressure' '), was an average 10 percent higher in the cost-sharing plans (see Box 3-B) (12). This difference was significant and mostly related to the greater improvement of blood pressure in the plans without cost-sharing. Low-income participants at risk for hypertension had the greatest reduction in risk of dying—overall, their risk was 14 percent lower if they were enrolled in a no-cost-sharing rather than a cost-sharing plan. The potential risk of death from other causes (e.g., cancer, liver disease) was not assessed.

c) ***Vision***[33]—Not having cost-sharing significantly improved corrected vision among average participants in the HIE (11,44). Lurie and her colleagues have reported that the improvement in vision was largely due to an increased number of eye examinations received by people in the no-cost-sharing plan (44). Once the *average* HIE participant received an eye exam, coinsurance appeared to have no effect on their obtaining corrective lenses. However, this was not true of low-income individuals.[34] Low-income enrollees with impaired vision were the least likely to have an eye exam if they were in a cost-sharing plan and they purchased fewer lenses if they did have an eye exam.

Among children, the single, *measurable,* poor health outcome was found among children of low-income families (90). Low-income children who were at highest risk of anemia were much less likely to have anemia at the end of the study if they were enrolled in a plan without cost-sharing than if they were in a cost-sharing plan.

While the above suggests that cost-sharing poses health risks in only a few instances, this finding is confounded by the HIE conclusion that coinsurance significantly kept individuals from potentially effective treatment, even hospitalizations that appeared to be appropriate (43,70). How is it that coinsurance substantially reduced the use of care thought to be "highly effective" but without any *measurable* harm? Some observers have noted that the overall health effects component of the HIE findings is basically a ''nonresult' (56). Others have concluded that the obvious mixed messages of the HIE health-related findings rest in part on the limited measures of health and appropriateness of medical care available to the Rand researchers (60). Even today the methods for measuring health outcomes and effectiveness of care are relatively immature and their ultimate usefulness is still uncertain (77).

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32 The high-risk group included the 25 percent of the sample who were the least healthy, based on their initial levels of serum cholesterol, blood pressure, and cigarette smoking. For example, a person was considered to be at elevated risk of hypertension if he or she had a diastolic blood pressure reading of 83 mm Hg. or more, or was taking hypertension drugs at enrollment (11).

33 Vision services were subject t. the same cost-sharing requirements as other services, but coverage was limited to: one eye exam for refraction purposes per year; one pair of corrective lenses per year (contact lenses had an additional charge); and one pair of frames every two years, with a maximum payment based on the typical price of standard frames in that area (44).

34 In this analysis, low income was defined as the bottom one-third of the HIE study population's income distribution% equivalent to 200 percent of the Federal poverty level.

Box 3-B—The Risk of Dying Related to Patient Cost-Sharing

Brook, Ware, Rogers, et al., provide the following example to illustrate the magnitude of the gains associated with no patient cost-sharing relative to any cost-sharing in the Rand Health Insurance Experiment (HIE):

> ''An average 50-year-old man in the late 1970's had approximately a 5-percent chance of dying within five years (U.S. Public Health Service, 1980). A 50-year-old man at elevated risk had approximately double that chance of dying. If 1,000 50-year-old men at elevated risk were enrolled on a free[1] rather than a cost-sharing plan, then we would anticipate that about 11 of them, who would otherwisee have died, would be alive five years later (1,000 x 0.05 x [2.11 - 1.90] = 10.5). "2

The magnitude of the effect of cost-sharing on low-income[3] men at elevated risk is even more dramatic, even with the conservative assumption that 50-year-old low-income men are only at *average* risk (i.e., 5-percent chance within five years) of dying. The HIE results imply that if 1,000 low-income 50-year-old men at elevated risk were enrolled in a no-cost-sharing rather than a cost-sharing plan, then we would anticipate that about 15 of them, who would otherwise have died, would be alive five years later (1,000 x 0.05 x [2.13 - 1.83] = 15,0).[4]

1 The Rand researchers used the term "free" to describe the no-cost-sharing Plan.

2 For high-risk HIE participants, the relative risk of dying was found to be 2.11 for those in the cost-sharing plain and 1.90 for those in the no-cost-sharing plan.

3 Low-income was defined as the bottom 20 percent of the HIE study sample's income distribution (an average $7,300 for a family of four in 1982 dollars or about $10,613 in 1992 dollars).

4 For high-risk, low-income HIE participants, the relative risk of dying was found to be 2.13 for those in the cost-sharing plans and 1.83 for those in the no-cost-sharing plan.

SOURCE: Based on an example provided in 'The Effect of Coinsurance on the Health of Adults: Results from the Rand Health Insurance Experiment" (p. 26) by Robert Brook, John Ware, William Rogers, et al., under a grant from the U.S. Department of Health and Human Services, December 1984.

It is especially important to recognize, as acknowledged by the HIE researchers, that the small size of the HIE study population may have masked the effects of cost-sharing on health and access to care for certain groups with greater than average health care needs, especially low-income ''at-risk' persons, chronically ill children and adults, and people with relatively rare conditions (e.g., cancer *or* congenital anomalies). Although these groups were too few in number to generate *measurable* results in the experiment, they make up an important proportion of the general population and, by definition, have substantial health care needs.

It may also be that by examining the impact of cost-sharing on health status for only three to five years, the study could not detect clinically significant effects that manifest themselves only over a longer period. For example, the HIE research found that coinsurance led to significant reductions in Papanicolaou (Pap) smears among women ages 45 to 65 (see below) (45), but they were not able to identify any related harm (e.g., higher rates of cervical cancer among women subject to cost-sharing) within the time period studied.

In addition, the Rand investigators suggest that the health *benefits* of not having cost-sharing in the HIE may have been offset by the adverse effects of *unnecessary* care-leading to no measurable *net* effect on the typical participant (12,43). For example, HIE participants in the no-cost-sharing plan used 85 percent more antibiotics than those who were subject to coinsurance (24). The increased use of antibiotics was across all diagnoses, including conditions such as viral infections, for which antibiotic use is ineffective and inap-

propriate. As a result, people in the no-cost-sharing plan were found to be much more likely to suffer adverse effects from the unnecessary use of antibiotics.

Does cost-sharing help to control overall expenditures?

It is clear that coinsurance has a major impact on expenditures, at least in the short term. The total anual medical expenditures of individuals (i.e., insurer payments plus patients' out-of-pocket costs for covered services) who were not subject to cost-sharing in the HIE were 23 percent higher than those with a 25 percent coinsurance rate, and 46 percent higher than those with a 95 percent rate (46).

As noted earlier, coinsurance reduced costs almost entirely by deterring people from seeking any medical attention, including potentially effective treatments. The *long-term* cost implications of deterring potentially effective health care services are not known.

How are individuals with low incomes affected by cost-sharing requirements?

Patient cost-sharing was based, at least in part, on income in the HIE. This feature of the experiment probably moderated the effects of cost-sharing on lower-income families. That is, since the maximum limit on expenditures in the HIE was income-related, poor families were the most likely to exceed their annual out-of-pocket cost ceiling, after which all covered services became free.[35] Without this protection, lower-income families in cost-sharing plans might have spent even less on medical care than they did during the experiment (41).

Nonetheless, even with the income protections in the HIE health plans, the Rand findings reveal a pattern of greater cost-sharing effects on HIE participants with lower incomes. As noted above, individuals in the experiment with lower incomes used care less often than those who were better off financally, sometimes with striking results. For example, cost-sharing significantly increased the estimated risk of dying for some low-income men (also see box 3-B). In addition, low-income adults who began the experiment in poor health, and were enrolled in a no-cost-sharing plan, reported the largest reduction in serious symptoms[36] during the course of the study (68).

The HIE working definitions of 'low income' and "poor" differed across the series of published Rand findings. In many of the HIE reports, "low income" was used to describe persons whose family incomes were at the bottom 20 percent of the HIE income distribution, well below the Federal poverty level (see, for example, ref. 12,39). Because of sample size limitations, some important HIE analyses used a much broader definition of low income, one that included a large segment of the working population with family incomes as great as two times the Federal poverty level (see, for example, ref. 4,41,43,44,46). These HIE analyses could have implications for as many as one out of three nonelderly individuals in the U.S.[37]

Regardless of how "low income" is defined, policymakers should be aware that there is no evidence to suggest that cost-sharing's greater deterrent effect on those with lower incomes

35 The maximum out-of-pocket liability remained at $750 or $1,000 throughout the experiment. These limits, however, would never have been reached by a low-income person because the most they could have paid was 15 percent of their income before reaching their own maximum.

36 Serious symptoms include chest pain when exercising; bleeding other than nose bleeds or periods not caused by accidents; loss of consciousness, fainting or passing out; shortness of breath with light exercise or light work; and weight loss of more than 10 pounds (unless through diet).

37 Unpublished data from the March 1992 Current Population Survey show that 71,889,000 nonelderly U.S. residents, or 32.5 percent of all nonelderly U.S. residents, lived in families with incomes below 200 percent of the Federal poverty level in 1991 (21).

ceases at a rigid dollar income threshold. In addition, the HIE analysts concluded that *sick,* low-income individuals are the most likely to benefit from receiving health care services at no out-of-pocket cost (11).

Do coinsurance requirements affect children differently?

The HIE found that, in general, coinsurance had similar effects on children's and adults' use of and expenditures for outpatient care.[38] Among *average* children, coinsurance led to about one fewer. office visit per year (4). This less frequent contact with health care providers significantly reduced pediatric preventive services, especially immunizations among children under age 7 (45). Sixty percent of children in the no-cost-sharing plan received a well-care examination, immunization, or tuberculosis test; only 49 percent of the children in the cost-sharing plans had at least one of these preventive services.

Adults in cost-sharing plans had approximately one-third fewer hospital stays than others. By contrast, coinsurance did not affect the *overall* frequency of children's hospitalizations (90) except for children under 5 (41). Among these younger children, the plans with no cost-sharing requirements for inpatient care showed significantly greater hospital use than the cost-sharing plans (41). As was true for low-in-come adults, the Rand findings also revealed that coinsurance has a substantially stronger deterrent effect among lower income children (i.e., with family incomes up to two times the Federal poverty level) compared with other children with greater financial resources in the HIE.

How is the use of preventive services affected by cost= sharing?[39]

The HIE health plans covered clinical preventive services for asymptomatic individuals in the same way it covered all other health services. Nonetheless, Lurie and her colleagues found that preventive care use in the HIE was well below recommended levels in both the no-cost-sharing and cost-sharing plans (45). For example, across all HIE plans, fully 7 percent of newborns had had no well-baby care in the first 18 months of life; only 45 percent of infants received the recommended three doses of diphtheria, tetanus, and pertussis (DTP) and poliovirus vaccines at the recommended time; only 57 percent of women ages 45 to 65 received a Pap smear during the 3-year study period; and a very low 2 percent of women in this age group had a mammogram for preventive purposes during the same time period.40

When Lurie and her colleagues compared cost-sharing and no-cost-sharing plans, they found that participants in cost-sharing plans were the least likely to use preventive care of any type including immunizations, annual physical examinations, general medical examinations, routine gynecologic examinations, and office visits listed only as well-care visits (45). In particular, coinsurance was found to reduce significantly the use of Pap smears by women ages 45 to 65. While 65 percent of women in this age group in the no-cost-sharing plan had a Pap smear at some point during the 3-year study period, only 52 percent of similar women in the cost-sharing plans had the procedure. Coinsurance was also associated with lower immunization rates among children under 7 years of age. In the 3-year study period, 49 percent of the children under 7 who

38 As noted above, in most of the HIE analyses, children were defined to include anyone under the age of 14. No separate analyses Of adolescents were conducted.

39 For a review of issues related to designing preventive health care benefits, See "Benefit Design in Health Care Reform: Report #l-Clinical Preventive Services" (80).

40 An additional 6 percent of women aged 45 to 65 had a mammogram for diagnostic evaluation.

were subject to coinsurance had at least one immunization compared with 59 percent of similar children in the no-cost-sharing plan.

Even though HIE participants in the no-cost-sharing plan had, on average, an additional one to two physician visits annually, this increased contact with their doctor appeared to have no influence on smoking or dietary habits related to the prevention of many types of cancer and cardiovascular disease (12).

Appendix A: Overview of OTA Assessment: Technology, Insurance, and the Health Care System

Background

Congress has been concerned for many years with serious and growing problems of health care costs, access, and quality. In response to a request from the Senate Committee on Labor and Human Resources (Edward M. Kennedy, Chairman) that was endorsed by the House Committee on Energy and Commerce (John D. Dingell, Chairman), the House Committee on Ways and Means Subcommittee on Health (Willis D. Gradison, then Ranking Minority Member), and Senator Charles E. Grassley (Committees on Budget, Finance, Special Committee on Aging), the Office of Technology Assessments (OTA's) assessment, *Technology, Insurance, and the Health Care System,* addresses these congressional concerns by focusing on the following issues:

1. What does the available literature say about the impact of health insurance on access to care and patient health outcomes?

2. Can a minimum benefit package for uninsured people be fashioned from the perspective of effectiveness and cost-effectiveness?

In addition, Senator Ted Stevens (as a member of the Technology Assessment Board) asked OTA to examine an additional question under the auspices of this assessment:

3, What cost implications do the leading types of health care reform proposals have in seven areas: health care spending and savings; Federal, State, and *local* budgets; employers (large and *small);* employment; households (low-, middle-, and upper-income); other costs in the economy; and administrative costs?

The assessment was approved by the Technology Assessment Board in April 1991, and began in July, 1991. In June 1992, the letter was received from Senator Stevens. An advisory panel for the overall assessment was formed in November 1991. The advisory panel met in January 1992, December 1992, and in May 1993.

Documents Produced as Part of the Assessment

The following documents have been or will be available as part of the assessment.

Publications Avalible From the U.S. Government Printing Office

Does Health Insurance Make a Dlfference? (OTA-BP-H-99).

This interim report, requested by the U.S. Senate Labor and Human Resources Committee, summarizes the state of the literature on the relationships among insurance coverage, access, and patient health outcomes; provides a conceptual framework for evaluating access to health care and the health effects of such access; and provides an overview of insured and uninsured populations in the United States as of 1990. The background paper is available from the U.S. Superintendent of Documents (phone number 202/275-3030; address: Washington, DC 20402; GPO stock number 052-003-01301-1, $5.00 per copy) or, for congressional purposes, from OTA (49241).

An Inconsistent Picture: A Compilation of Analyses of Economic Impacts of Competing Approaches to Health Care Reform by Experts and Stakeholders (OTA-H-54).

This report compiles and summarizes available analyses of the economic impacts of four major competing approaches to health care reform (popularly known as "single payer," "play-or-pay," "individual vouchers or tax credits, ' and ''managed competition"). The report was requested by Senator Ted Stevens, and was released in June 1993. The report is available for public use from the U.S. Superintendent of Documents (phone number 202/783-3238; address: P.O. Box 371954, Pittsburgh, PA 15250-7954; GPO stock number 052-003-01327-4, $8.00 per copy) or, for congressional purposes, from OTA (49241).

Benefit Design Series-Publications from this series of reports explore issues involved in designing a benefit package based on effectiveness and cost-effectiveness, in relation to other critical factors in benefit design. Two of the topics (clinical preventive services; mental health/substance abuse) were chosen in part because of Congressional interest in them as contentious, 'gray' areas in benefit design and in part because of OTA's already-existing expertise in the topics. Patient cost-sharing was in some respects a new area for OTA, but was an issue of particular importance in the benefit design debates. The general issues report will pull together lessons learned about benefit design from the other reports in the Benefit Design Series and from other sources, including previous work by OTA. The reports in this series are:

Benefit Design in Health Care Reform: Report #l—Clinical Preventive Services (September 1993).

This report addresses issues pertaining to insurance coverage of clinical preventive services. The report describes how information on effectiveness and cost-effectiveness can, and cannot, be used for purposes of insurance benefit design and for improving access to effective clinical preventive services.

Benefit Design in Health Care Reform: Background Paper-Patient Cost-Sharing (September 1993).

This background paper describes what is known, and not known, about the effects of patient cost-sharing on the use of health care services, expenditures, and health outcomes based on a review of the literature.

Benefit Design in Health Care Reform: Report #2—Mental Health and Substance Abuse Treatment Services (in preparation).

This report addresses issues pertaining to insurance coverage for mental health and substance abuse services. The report emphasizes the role that scientific data on efficacy, effectiveness, and cost-effectiveness can, and cannot, play in the design of insurance benefits for mental health and substance abuse treatment.

Benefit Design in Health Care Reform: Report #3-General Policy Issues (in preparation).

This report reviews policy issues related to the topic of designing benefit packages based on effectiveness and cost-effectiveness in relation to other factors such as public preferences, professional judgment, and political concerns.

Background Papers Available Only From **OTA**

These background papers are available from OTA. For Congressional use call 49241, and for public use, call 202/228-6590.

Health Insurance: The Hawaii Experience Background Paper (OTA-BP-H-1O8). (June 1993).

This Background Paper provides a detailed look at the State that is often considered a model for what other States can do to help provide universal or near-universal health insurance coverage for their residents. Unfortunately, valid data were not available to demonstrate either the overall financial costs of Hawaii's approach or the health effects on residents.

Coverage of Preventive Services: Provisions of Selected Current Health Care Reform Proposals (OTA-BP-H-1 10). (October 1992).

This background paper summarizes the provisions of selected congressional (102d Congress) and private health care reform proposals with respect to the coverage of clinical preventive services.

Contractor Papers Available from National Technical Information Service or from the Authors

Primary Care for the Uninsured: A Review of the Literature

Paper prepared under contract to OTA by David Blumenthal, M. D., M. P, P., Elizabeth Mort, M. D.,

M. P. H., and Jennifer N. Edwards, M.H.S., Health Policy Research and Development Unit, General Internal Medicine, Massachusetts General Hospital (May 1993).

The Relationship among Insurance Coverage, Access to Services and Health Outcomes: Case Study of Depression

Paper prepared under contract to OTA by Thomas McGuire, Ph. D., Department of Economics, Boston University, Boston, MA (July 1993).

Nonfinancial Barriers to Access to Health Care

Paper prepared under contract to OTA by Joanne Lukomnik& M. D., New York, NY (in preparation for October 1993).

Other Contractor Papers to be Available from OTA or GPO

Insurance Status and Health Care Utilization: Analysis of Four Data Bases and Cost Implications for Universal Coverage&Background Paper

Paper in preparation under contract to OTA and CRS, by Steven long and M. Susan Marquis, Rand Corporation, Washington, DC (in preparation).

This background paper is scheduled to be available in January 1994; plans for distribution are not yet final.

Lasers in Health Care: Coverage Decisions

The results of this survey, being conducted under contract to OTA by Neil Powe, M. D., M. B.A., M. P. H., and Claudia Steiner, M.D., M. P. H., Johns Hopkins University, are scheduled to be available in September 1994. Plans for distribution of the results are not yet final.

Appendix B: Method of the Study

This background paper, *Benefit Design in Health Care Reform: Background Paper—Patient Cost-Sharing* is one of a series of the Office of Technology Assessment (OTA) publications on *benefit design in health care reform* **that are** being issued as part of OTA's assessment, *Technology, Insurance, and the Health Care System. The* paper addresses the available evidence on how patient cost-sharing affects the use of health care services, expenditures, and, ultimately, health outcomes. This appendix summarizes the method used for this report.

OTA contracted with Thomas Rice for an initial review of the health services research and economics literature. The focus of the review was on basic physician and hospital care for services not typically related to mental and substance abuse disorders. The first draft of this literature review underwent extensive review by members of the Advisory Panel for the overall OTA assessment, as well as by individuals from the health insurance industry, the academic community, health care professionals, representatives of patients, research organizations, businesses, and Federal agencies. Dr. Rice submitted a final draft to OTA in February 1993.

A further revision of the background paper was prepared by OTA after considering all reviewer comments and further research. This draft was sent out for additional review to approximately 30 outside experts. OTA bears all responsibility for the content of this background paper.

Appendix C: Acknowledgments

OTA wishes to thank the Technology, Insurance, and the Health Care System Advisory Panel and the individuals and organizations listed below for their assistance with this report, These individuals and organizations do not necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its content.

Judy Arnold
Lewin VHI
Fairfax, VA

David Blumenthal
Massachusetts General Hospital
Boston, MA

Daniel Cherkin
Center for Health Studies
Group Health Cooperative of Puget Sound
Seattle, WA

Bill Custer
Employee Benefit Research Institute
Washington, DC

Eva Eagle
Kaiser Foundation Health Plan
Oakland, CA

Marianne C. Fahs
Mt. Sinai Medical Center
New York, NY

Marilyn Field
Institute of Medicine
Washington, DC

Jon Gabel
KPMG Peat Marwick
Washington, DC

Karen Ignagni
AFL-CIO
Washington, DC

Diana Jest
Blue Cross Blue Shield Association
Washington, DC

Clare Komisky
Health Insurance Association of America
Washington, DC

Kathryn Langwell
Congressional Budget Office
Washington, DC

Kathleen N. Lohr
Institute of Medicine
National Academy of Sciences
Washington, DC

Willard Manning
School of Public Health
University of Minnesota
Minneapolis, MN

Marianne Miller
Health Insurance Association of America
Washington, DC

Alan Monheit
Agency for Health Care Policy and Research
Rockville, MD

Michael Morrisey
University of Alabama
School of Public Health
Birmingham, AL

Edward Neuschler
Health Insurance Association of America
Washington, DC

Joseph Newhouse
Division of Health Policy Research and Education
Harvard University
Boston, MA

Michael O'Grady
Congressional Research Service
Library of Congress
Washington, DC

Janet O'Keefe
American Psychologhl Association
Washington, DC

Sue Palsbo
Group Health Association of America
Washington, DC

Charles E. Phelps
Department of Community and Preventive Medicine
University of Rochester School of Medicine
Rochester, NY

Edie Rasell
Economic Policy Institute
Washington, DC

Tom Rice
UCLA School of Public Health
Department of Health Services
Ims Angeles, CA

Sirneon Rubenstein
Group Health Cooperative of Puget Sound
Seattle, WA

Gordon Schiff
Cook County Hospital
Chicago, IL

Ann Scitovs@
Palo Alto Medical Foundation Research Institute
Palo Alto, CA

Barbara Starfield
Division of Health Policy
School of Hygiene and Public Health
Johns Hopkins University
Baltimore, MD

Bruce Vladeck
Health Care Financing Administration
Washington, DC

Appendix D: Selected Research on the Effects of Patient Cost-Sharing on the Use and Cost of Health Care[1]

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).[2] 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 1%8 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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[1] This literature review benefited from an initial review prepared under contract to OTA by Thomas Rice.

[2] Another study of interest from that time period was one examining the imposition of copayments in the province of Saskatchewan, Canada in 1%8 (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[3] 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.[4] 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[5] (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[6] 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.[7] 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

[3] The findings reported here are adjusted for age.

[4] Phelps and Newhouse also make this point in their reanalysis of the Scitovsky and Snyder data (57).

[5] 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.

[6] Inflating by the consumer price index, this would be equivalent to about $16.00 in 1992 dollars.

[7] 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,[8] 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).[9]

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.[10]

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[11] for the first two physician visits per month.[12] Several reports analyzing the effects of 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).[13] 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.[14] Inpatient care, immunizations, injections, laboratory tests, and radiology remained exempt from copayments. In contrast, Federal employees enrolled in the GHC continued to have

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

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

10 The Rand Health Insurance Experiment (HIE) included individuals who had been Medicaid beneficiaries before enrolling in the experiment but they made up onty 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.)

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

12 Physician visits during hospital stays were exempted from the copayment requirements.

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

14 The copayment applied t. all visits t. 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),

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[15] (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[16] 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.

15 Primary care visits were defied as those provided by family physicians, pediatricians, internists, physician assistants, and family nurse practitioners.

16 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.

Appendix E: Abbreviations and Glossary of Terms

Abbreviations

FFS —Fee-for-service
GHC -Group Health Cooperative of Puget Sound
HIE —Health Insurance Experiment (Rand Corporation)
HMO —Health maintenance organization
IPA —Independent Practice Association
OTA -Office of Technology Assessment
PAMC —Palo Alto Medical Clinic
POS —Point of service plan
PPO —Preferred provider organization
UMWA —United Mine Workers of America

Terms

Access **to services:** Potential and actual entry of a population into the health care delivery system. Elements of access include availability, affordability, and approachability.

Balance billing: In fee-for-service health insurance, refers to the practice of billing patients in excess of the amount approved by the health plan.

Benefit design: The determination of the terms of the benefit package.

Benefit package: In this report, benefit package refers primarily to the services and providers that are covered by a health insurance plan, and to the financial and other terms of such coverage (e.g., patient cost-sharing, limitations on amounts and numbers of visits or days). However, a benefit package can be said to consist in total of the terms of the contract between the subscriber or enrollee and the insurer. The terms of payment to health care providers may also be part of the terms of a benefit package.

Benefits: The covered health care services and the amount payable by a health insurance plan to a beneficiary under the terms of the plan.

Chronic condition: A problem or disease that is lingering and lasting, as opposed to acute. For purposes of DHHS's *National Health Interview* **Survey, a** condition is considered "chronic" if: 1) the respondent indicates it was first noticed more than 3 months before the reference date of the interview and it exists at the time of the interview, or 2) it is a type of condition that ordinarily has a duration of more than 3 months. Examples of conditions that are considered chronic regardless of their time of onset are Alzheimer's disease, osteoarthritis, diabetes, heart conditions, emphysema, and arthritis.

Clinical Preventive **Services:** Interventions comprising medical procedures, tests, or visits with health care providers that are undertaken for the purpose of promoting health or preventing disease or unwanted health conditions (e.g., pregnancy), not for responding to patient signs, symptoms, or complaints.

Coinsurance: A requirement that insured individuals pay a fried percentage of covered expenses usually after any deductible has been met. For example, an 80-20 coinsurance arrangement means that, after the deductible is reached, 80 percent of covered expenses are paid by the plan and 20 percent are paid by the person covered by the plan. Compare copayment.

Congenital anomalies: Any abnormality, whether genetic or not, that is present at birth.

Copayment: A fixed dollar amount that a health plan enrollee is required to pay for a covered service (e.g., $10 per office visit, $3 per prescription drug).

Cost-sharing: The provisions of a health benefits plan that require the enrollee to pay a portion of the charges for services covered by the plan, typically exclusive of premium cost-sharing (i.e., sharing of the cost of a health care plan premium between a sponsor and an enrollee). Usual forms of cost-sharing include deductibles, coinsurance, and co-payments. These payments are made at the time a service is received or shortly thereafter, and are only made by those people with insurance who seek treatment.

Deductible: The amount of covered health care expenses (e.g., $200, $500, $1,000) that must be incurred by the health plan enrollee and his or her dependents before any health benefits become payable by the health plan. Deductible requirements apply to each individual in a family for a specific time period (usually a year). Some plans specify family deductibles after which no additional individual deductibles are reqiuired; family deductibles are typically equivalent to two or three times the individual deductible.

Federal poverty level: The official U.S. Government definition of poverty based on cash income levels for families of different sizes. Responsibility for changing poverty concepts and definitions rests with the Office of Management and Budget in the Executive Office of the President of the United States. The preliminary estimates of poverty thresholds for the continental United States in 1992 were: $7,141 for one person, $9,132 for two persons, $11,187 for three persons, and $14,343 for four persons. Alaska and Hawaii have higher thresholds.

Fee-for-service: In fee-for-semice health care, physicians and other providers bill separately for each patient encounter or service rendered. This system contrasts with salary, per capita, or other prepayment systems, where the payment to the practitioner does not change with the number of services actually rendered.

Health care provider: An individual or institution that provides medical services (e.g., a physician, hospital, laboratory, etc). This term should not be confused with an insurance company which "provides' insurance.

Health insurance: In this report, the term "health insurance' is used broadly to include various types of health plans that are designed to reimburse or indemnify individuals or families for the costs of medical care, or (as in HMOS) to arrange for the delivery of that care. In this report the term includes traditional private indemnity fee-for-service coverage, prepaid health plans such as HMOS, self-funded employment-based health plans, Medicaid, and Medicare.

Health maintenance organizations (HMOS): A health care organization that, in return for prospective per capita (cavitation) payments, acts as both insurer and provider of specified health care services to an enrolled population.

Independent practice association (IPA): A form of HMO in which participating physicians remain in their independent office settings, seeing both enrollees of the IPA and patients covered by other health insurance plans. Participating physicians may be reimbursed by the IPA on a fee-for-service or a cavitation basis.

Managed care: A general term applied to a range of initiatives from organized health care delivery systems (e.g., HMOS) to features of health care plans (e.g., preadmission certification programs, utilization review programs) that attempt to control or coordinate enrollees' use of (and thus to control the cost of) services.

Managed Competition: An approach to health care reform that would combine health insurance market reform with health care delivery system restructuring. The theory of Managed Competition is that the quality and efficiency of health care delivery will improve if independent groups compete with one another for consumers in a government-regulated market.

Medicaid: A joint Federal-State program of Federal matching grants to the States to provide health insurance for categories of the poor and medically indigent. States determine eligibility, payments, and benefits consistent with Federal standards.

Medicare: A federally administered health insurance program covering the cost of services for people who are 65 years of age or older, receiving Social Security Disability Insurance payments for at least

2 years, and persons with end-stage renal disease. Medicare consists of two separate but coordinated programs-hospital insurance (Part A) and supplementary medical insurance (Part B).

Nonelderly: Used generally to refer to anyone under age 65. In the Rand Health Insurance Experiment, anyone over age 61 was excluded from participating in the study.

Out-of-pocket expenses or spending: Payments made by an individual for medical services, prescription drugs, and certain medical equipment and supplies. These may include direct payments to providers for uncovered services, or by uninsured people, as well as payments for deductibles and coinsurance for covered services, for provider charges in excess of the plan's limits, and for enrollee premium payments.

Pap smear: A screening test for women for cervical cancer.

Point-of-Service (POS) Plan: A hybrid form of managed care plan based on a mixture of cavitation and fee-for-service (FFS) payment arrangements. POS plans permit health plan enrollees to choose a FFS, PPO, or HMO provider at the time he or she seeks services (rather than at the time they choose to enroll in a health plan).

Preferred provider organization (PPO): Refers to a variety of different insurance arrangements under which plan enrollees who choose to obtain medical care from a specified group of 'preferred' providers receive certain advantages, such as reduced cost-sharing charges. PPO providers typically furnish services at lower than usual fees in return for prompt payment by the health insurance plan and a certain assured volume of patients.

Premium: The price or amount which must be paid periodically (e.g., monthly, biweekly) to purchase insurance coverage or to keep an insurance policy in force. Premiums paid to health maintenance organizations or similar organizations are often called cavitation payments.

Preventive services: Services intended to prevent the occurrence of a disease or unwanted condition (e.g., pregnancy) or its consequences. Preventive health care includes health care programs aimed at warding off illnesses (e.g., immunizations), early detection of disease (e.g., Pap smears), or inhibiting further deterioration of the body (e.g., exercise or prophylactic surgery). Prevention is also concerned with general preventive measures aimed at improving the healthfulness of the environment and with the promotion of health through altering behavior, especially using health education. Preventive health services are sometimes categorized as primary, secondary, or tertiary. **Primary prevention** is aimed at reducing the incidence of a disease or health problem; **secondary prevention is** aimed at reducing the prevalence of a problem by shortening the duration among those who have the problem; and **tertiary prevention is** aimed at reducing complications.

Provider: See *health care provider,*

Randomized trial: An experiment (e.g., Rand Health Insurance Experiment) designed to test the safety and efficacy of a health technology or the effects of a financing or other intervention in which people are randomly assigned to experimental or control groups, and outcomes are compared.

Single Payer approach: An approach to health care reform that would provide tax-financed universal coverage with government as the sole purchaser of services. A single entity, usually government-run, reimburses all medical claims. Consumers typically pay a uniform tax rather than premiums. Money goes to a single health care trust fund, used only for health care expenditures.

Staff-model HMO: In this type of HMO, the majority of health plan enrollees are cared for by physicians who are typically salaried staff of the HMO.

Traditional indemnity plan: A conventional or fee-for-service health plan that typically reimburses the health care provider on a "reasonable and customary' basis or as billed.

Utilization: Use; commonly examined in terms of patterns or rates of use of a single service or type of service (e.g., hospital care, physician visits). Measures of utilization of all medical services in any given period are sometimes done in terms of dollar expenditures. Use is also expressed in rates per unit of population at risk for a given time period (e.g., number of admissions to a hospital).

Well-child **care:** Preventive health care for children, including immunizations, health education, parental guidance, physical examinations, and other tests that screen for illness or developmental problems.

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