Introduction and Key Findings

INTRODUCTION

Health insurance coverage has been deemed to be an essential element of gaining access to health services. And the receipt of health services is often critical to maintaining and improving health. Yet, in 1990, an estimated 34.4 million individuals, or 15.7 percent of the U.S. population under age 65, were uninsured either all or part of the year (157,159). In addition, an unknown number of Americans were "underinsured' without adequate health insurance coverage. The large number of individuals without insurance raises two concerns: whether lack of coverage is associated with inequitable use of services; and, if so, whether such inequities result in differences in health outcomes.

This background paper reviews and evaluates the available literature linking health insurance coverage with the utilization and process of health care services and with individual health outcomes. The review was requested by the Senate Committee on Labor and Human Resources, and is part of a broader study on health insurance requested by that committee and endorsed by the Ranking Minority Member of the House Committee on Ways and Means Subcommittee on Health and by the House Committee on Energy and Commerce.[1]

In this background paper, the term *health insurance* is used broadly, to include both private health insurance coverage and public coverage (including Medicaid, the State/Federal health care financing program for low-income persons).[2] Private health insurance coverage is distinguished from public coverage whenever the data allow. *Utilization* of care is measured by counting particular health service events (e.g., a hospital stay or visit to a physician or other health care provider). *The process* of health care refers to the content and quality[3] of an episode of health care-in other words, what actually happens—when services are received. Examples include the number and types of medical procedures employed, and patient satisfaction. *Health outcomes are* defined here in terms of health status (e.g., perceived health status, stage of sickness, death).

This background paper focuses on the mainstream medical care system (e.g., care provided by physicians for the diagnosis and treatment of overtly somatic [physical] illnesses). It does not examine access to services typically provided outside the mainstream medical care system (e.g., mental health or substance abuse problems, dental or oral health care, nutrition counseling). This background paper makes no attempt to explicitly address the potential effects of insurance-related variations in utilization, process, or outcomes of care on overall national health expenditures.

The chain of events linking insurance coverage to the receipt of health care and to patients' health outcomes is long, complex, and often indirect. Many

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1 The Senate Committee onLaborandHuman Resources (Edward M. Kennedy, Chair) asked OTA to examine the issues surrounding the relationships between lack of various health insurancecoverages and 1) access to care, both preventive and therapeutic, 2) the type,location, and timing of services provided, and 3) effects on health status. The initial step in this examination was to be an interim report reviewing the scientific literature on these relationships; this background paper represents that interim report. In addition to providing their endorsement for the overall assessment, the House Committee on Ways and Means Subcommittee on Health (Bill Gradison, Rankfng Minority Member) asked OTA to examine other factors that might explain differences between the health status of those with and without insurance. The House Committee on Energy and Commerce (John Dingell, Chair) asked OTA to examine the relative cost effectiveness of certain forms ofhealth insurance in order to help address thedifficult policy question of how to fashion a minimum benefit package for the uninsured from the perspective of the cost effectiveness of coverage for certain procedures or illnesses or from the perspective of the cost effectiveness of general categories of benefits. Senator Grassley, a member of the Technology Assessment Board, also endorsed the request and asked for an examination of the medical tests used by insurance companies to screen individual applicants. Issues not addressed in this background paper will be examined in other reports associated with this assessment.

2 This background paper focuses on individuals without insurance and on the population underage 65, and so does not examine the impact of various levels of Medicare coverage. Most individuals in the United States aged 65 and over are covered by Medicare, the Federal program for the aged and certain disabled persons. In 1990, almost all individuals age 65 and older (29.8 million individuals [138], of an estimated 30.1 million individuals in the United States [157]) were covered for most hospital care under Part A of Medicare, the hospital insurance program. Only slightly fewer (29.4 million individuals) were covered by Part B, the supplementary medical insurance program that covers physician,outpatient, and other medical and health services (138). In addition, approximately 10 percent (9.9 percent; 3,380,000 individuals in 1991) of the population covered by Medicare is younger than 65 and covered because they are disabled (138). (See appendix D in this background paper for an overview of sources of health care coverage in the United States.)

3 OTA defines quality of health care as the "evaluation of the performance of health care providers according to the degree to which the process of care increases the probability of outcomes desired by the patients and reduces the probability of undesired outcomes, given the state of medical knowledge" (148).

factors other than insurance status have important effects on patterns of care and on health (figure 1). Even if insurance does lead to greater use of health services, the impact of the services on health status may be minimal relative to other factors. For example, many have raised questions about the appropriateness of, or need for, a substantial portion of the health care delivered in the United States (e.g.,19,43,117), [4] On the other hand, timely and effective health services can save, and improve the quality of, lives. Almost none of the available research on access and effectiveness analyzes the entire linkage from insurance coverage to utilization to health outcomes. Thus, this literature review had to rely upon building several bridges among available literatures. These literatures focus on relationships:

- between health insurance coverage and utilization of care;
- between health insurance coverage and the process of care when it is received; and
- between health insurance coverage and health outcomes.

The literature review in this background paper is limited to studies published since 1980 that addressed the topics of possible relationships between insurance coverage (or lack of it) and the use, process, or health outcomes of care. The focus is on studies that made some attempt to adjust methodologically for at least some potential alternative explanations for findings (e.g., patient's preexisting health status, income level, site of care). The literature synthesis focused frost on whether studies found a relationship between insurance coverage and access to health care or between insurance coverage and health outcomes; then a subset of studies with the most recent data was used to examine the magnitude of the relationships.

KEY FINDINGS

Does health insurance make a difference? Research conducted in the last decade supports the common-sense notion that having or lacking health insurance coverage is related to gaining access to services, to the types, quality and intensity of the care that is delivered, and, logically, to patient health. Although the findings are not completely consistent, the research suggests the following:

- *Uninsured Americans* may be up to 3 times more likely than *privately insured individuals* to experience a lower health care utilization rate, potentially inadequate health care, and adverse health outcomes (figure 2).
- Publicly funded programs such as Medicaid have been developed to improve access to care for those individuals who do not have private coverage, and the available evidence suggests that *individuals with public coverage* may be slightly better off than those who are *uninsured.*[5] When the health experiences of uninsured individuals have been compared with those of publicly covered individuals, uninsured Americans have been found to be up to 1.3 times more likely than publicly insured individuals to experience a lower health care utilization rate, and 1.5 times more likely to experience potentially inadequate health care (figure 3).
- Publicly covered patients may be worse off than privately insured patients. *Publicly covered patients are* up to 2.5 times more likely than *privately insured patients to* experience potentially inadequate health services, and up to 4 times more likely to experience an adverse health outcome (figure 4).

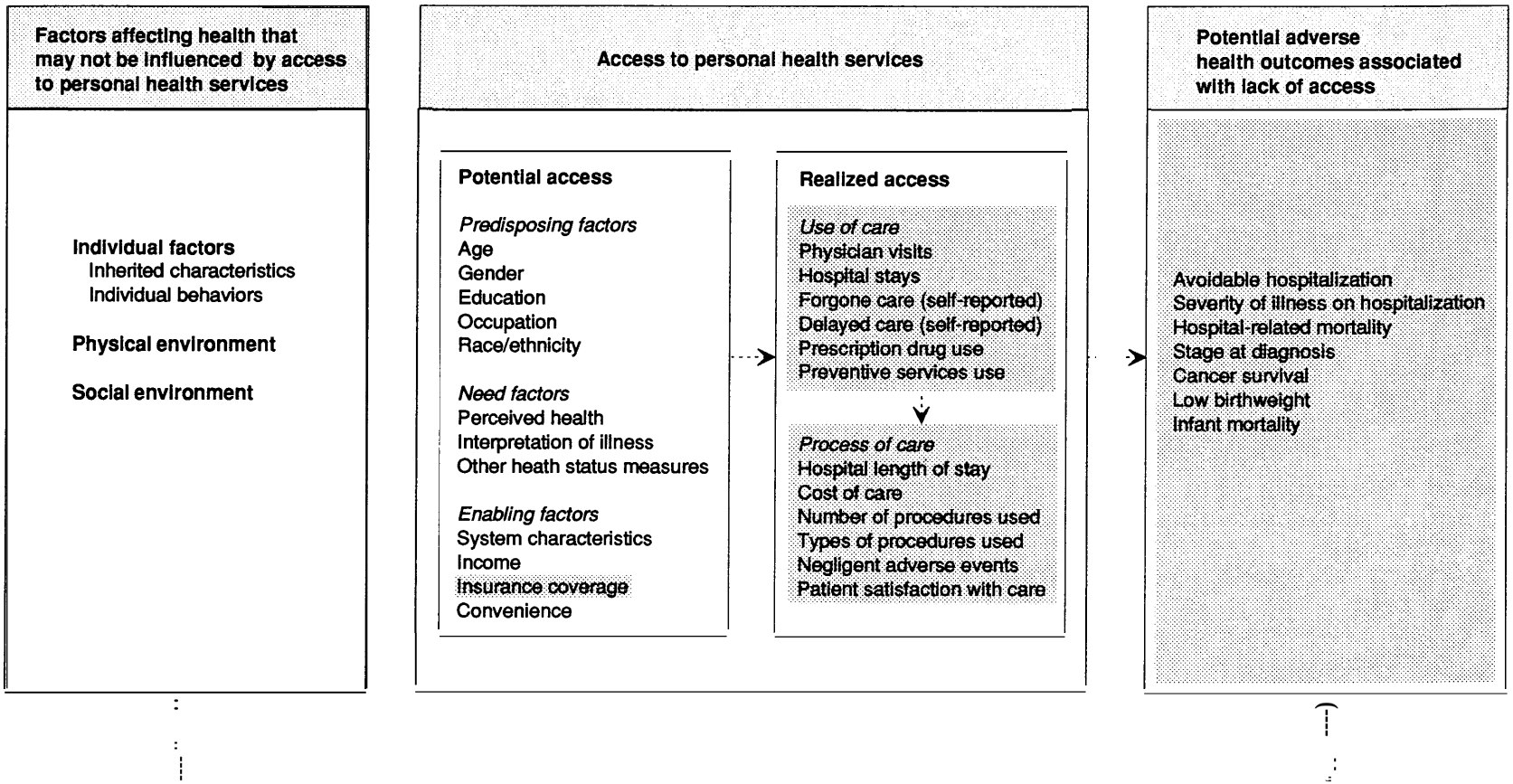
Specific studies reviewed by OTA fmd that:

- Lack of insurance coverage may prevent individuals from seeking care. Studies show that uninsured individuals are less likely than privately insured individuals to have a usual source of care (64,73,118), use preventive services (124,189), visit a physician (99), and be hospitalized (31,99). Uninsured individuals are more likely to report that they have not received needed care (3,64).
- Consistent with individuals' self-reports about delaying the receipt of needed care, uninsured patients have been found to be up to 4 times as likely as insured patients to require both avoidable hospitalizations and emergency hospital care (e.g., 61,179). Some evidence suggests that uninsured patients may be up to twice

[4] This issue is addressed in appendix C, and will be addressed more fully in the final report from this assessment.

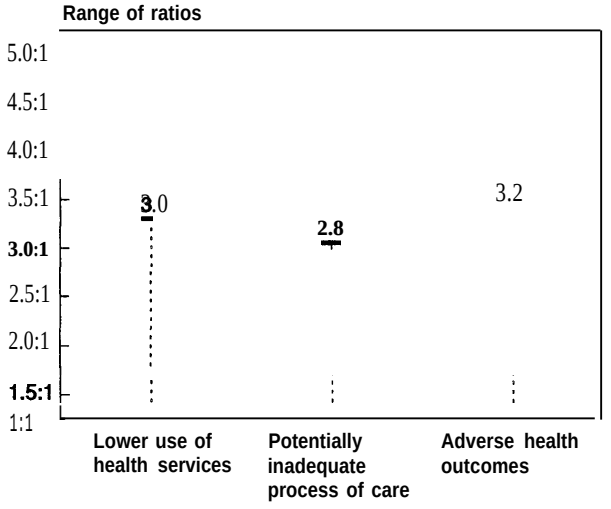
[5] OTA uses phrases such as 'may be. . better off' and "potentially worse off' for two reasons: 1) the study findings must be regarded as somewhat tentative; and 2) in some cases it is not clear whether the endpoint measure is in fact a "better" or "worse' outcome for the more poorly insured (e.g., greater use of certain procedures).

Figure 1—Basic Framework for Effects of Health Insurance on Use of Care, Process of Care, and Patient Health



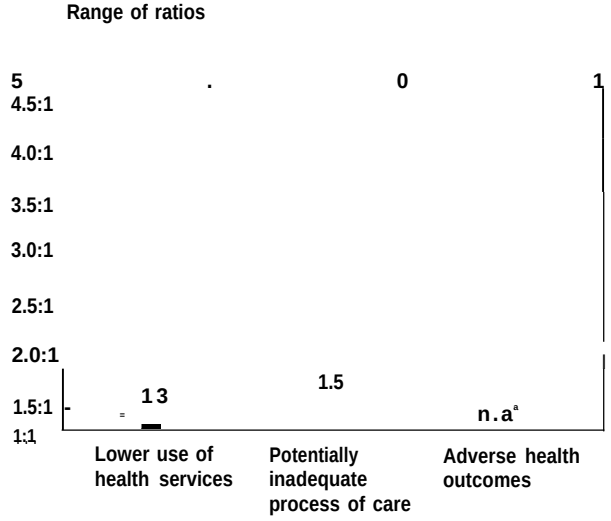
SOURCE: Office of Technology Assessment, 1992.

Figure 2—Observed Variation in Research Findings in the Magnitude of Relationships Between Health Insurance Coverage, Use of Health Services, Process of Care, and Health Outcomes: Ratios of Uninsured to Privately Insured Patients



SOURCE: Office of Technology Assessment, 1992, based on studies included in this Background Paper.

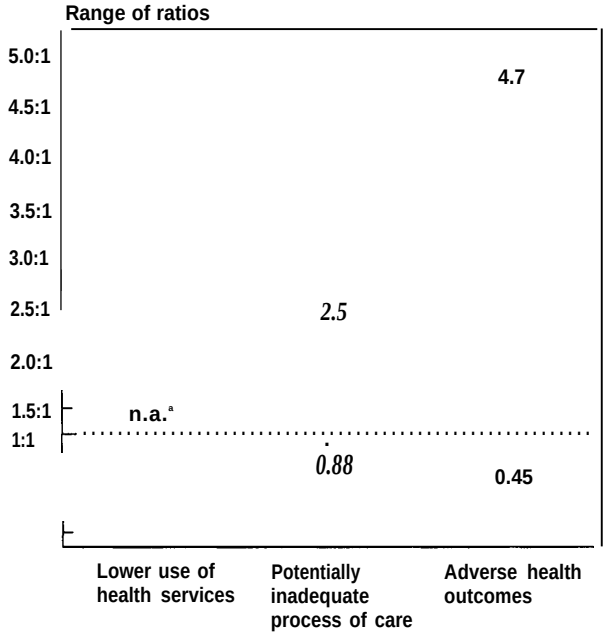
Figure 3-Observed Variation in Research Findings on the Magnitude of Relationships Between Health Insurance Coverage, Use of Health Services, Process of Care, and Health Outcomes: Ratios of Uninsured to Publicly Covered Patients



[a]No studies meeting criteria for inclusion in this review examined differences in health outcomes between uninsured and publicly covered patients.

SOURCE: Office of Technology Assessment, 1992, based on studies included in this Background Paper.

Figure 4-Observed Variation in Research Findings on the Magnitude of Relationships Between Health Insurance Coverage, Use of Health Services, Process of Care, and Health Outcomes: Ratios of Publicly Covered to Privately Insured Patients



[a]No studies meeting criteria for inclusion in this review examined differences in utilization between publicly covered and privately insured patients.

SOURCE: Office of Technology Assessment, 1992, based on studies included in this Background Paper.

as likely to be at risk of dying when they reach the hospital door (17,61).

- Even if the seeking or receipt of care is not delayed, uninsured patients who are hospitalized have been found to be half as likely as insured patients to receive certain high-cost (but not necessarily more appropriate and effective) procedures (61,129,177,183).

IMPORTANT CAVEATS AND OVERALL CONCLUSIONS

Despite the preponderance of findings showing an association among health insurance, access to care, and health status, some analyses have found no evidence of an independent relationship between insurance coverage and specific aspects of access and health (e.g., 27,60,1 19,177). Other analyses find that relationships among insurance coverage, access, and health vary by illness and medical procedure (179,183,189), by age, sex, or racial grouping (61),

or by hospital *(46)*. There is still considerable question about the nature of the measures used to gauge use, process, and outcomes of health care. Thus, the vertical lines in figures 2, 3, and 4 are shown as dashes to indicate that there is considerable variability in study results.[6] A range of results is not what would be expected if: insurance coverage was the sole determinant of health care delivery (and health); if public programs typically provided poorer financial coverage (or health care) than private coverage; if uninsured, privately insured, and publicly covered populations were homogeneous[7]; and if measures were perfect. "Noncoverage" factors undoubtedly play some part in access to care and in patient health (e.g., 120,152,153,154,155).

Researchers typically acknowledge that alternative explanations for observed findings cannot be ruled out, and they continue to caution that results of existing studies cannot be viewed as definitive, given existing research approaches (e.g., 61,107,179). Use of prospective designs and better controls could make future studies more informative. Such studies may become more feasible as the health insurance environment continues to change. Given the variation and limitations in methods and data, and the lack of a complete theoretical model to explain the relationships, however, the level of consistent results is impressive. For now, existing research supports common-sense notions and anecdotal evidence that availability of third party payment for health care can be important, in particular to gaining access to care and to the way care is delivered.

ORGANIZATION OF THE BACKGROUND PAPER

The next section of this background paper provides supporting details from the literature review and synthesis conducted by OTA and its contractors. A variety of appendices, prepared by OTA, provide background information. Appendix A lists outside experts who contributed to the development of this background paper. Appendix B is a glossary of terms and abbreviations. Appendix C provides a conceptual framework for viewing the interrelationships among insurance coverage, access to and utilization of health services, the process of care, and individual health outcomes, and discusses general methodological issues in research on insurance status, access, and outcomes. Appendix D provides background information on the characteristics of individuals with and without insurance and information about what insurance coverage provides. Appendix E lists important methodological details on the multivariate research studies examined in this review. Appendix F consists of a brief overview of findings from the RAND Health Insurance Experiment.

The contractor paper which served as the basis for the review of the empirical literature on relationships among insurance coverage, utilization, process, and health outcomes (178) is available from OTA.

6 As shown in figure 2, for example, study results ranged from no statistically significant differences between uninsured and privately insured individuals (shown as 1:1 ratios) to differences of about 3 times. In figure 4 the numbers below the line marked "1:1" indicate that publicly covered patients had longer hospital stays (46) and potentially better outcomes from outpatient care (179) than did privately insured patients. The ratios derived from specific study results are depicted in the section "Detailed Findings" below.

7 Individual patients who are grouped (in studies and in real life) as being "uninsured," "publicly insured," or "privately insured" constitute a highly diverse set of individuals in terms of income, race, family living arrangements, health status, and other factors. See appendix E in this background paper, "Health Insurance in the United States: Who Is Covered, Who Is Not Covered, and What Coverage Provides."