Appendix C

Conceptual Framework and General Methodological Issues

Introduction

Today's U.S. health care environment is exceedingly complex. Almost 250 million individuals live in the United States (156). Each of these individuals can have many different types of health problems or none at all. There are also many types of health care providers organized in myriad ways, providing a broad range of services and care (125a,160). Individuals' health status depends not only on the health services they receive but on their inherited characteristics, the physical environment in which they live or have lived, the social environment, their occupations, and their individual behaviors (24,174,188). In fact, there is considerable debate about the extent to which health services affect health status (15,91).

This appendix provides an overview of the conceptual framework used in developing this Background Paper, with a focus on the potential roles that insurance coverage may play in access and outcomes. It also includes a brief discussion of the conceptual and methodological limitations inherent in the types of research reviewed for OTA's assessment.

Overview of Conceptual Framework

The preliminary conceptual framework developed in this background paper is adapted from the model developed by Aday, Andersen, and others (3,6,7). Aday, Andersen, and their colleagues define access as:

> those dimensions which describe potential and actual entry **of a given population to the health care delivery system (7).**

They further define "equity of access" as:

> services [that] are distributed on the basis of people need for them. Inequity exists when one's race, **income. . .or insurance coverage. . are important predictors of realized access (7).**

A summary of the model of access used in this paper is shown in figure C-1. The model includes factors ***afflecting health*** that may not be affected by access to personal health services. These factors are not of primary consideration in this background paper, except to the extent that they have been addressed in analyses of the impact of insurance status on utilization, the process of care, or health outcomes.[1] The model focuses on indicators of potential access, realized access, and health outcomes.

Indicators of ***potential access*** **to health services are used to suggest a higher likelihood of access problems. They include characteristics that make persons** more vulnerable to health policies that may have deleterious effects on access. These characteristics are of three types: predisposing variables; need; and enabling characteristics (7). Insurance status is considered an enabling characteristic, that is, it represents a means by which individuals can gain entry to the health care system; its potential impact on entry into the system and health outcomes is discussed more fully below. *Realized access indicators* reflect actual access to care and include measures such as ***utilization*** of health services **(7). Unlike the model developed by Andersen, Aday and their** colleagues, OTA's **conceptual model** draws a distinction between mere use of services (termed utilization in much of health services research) and the way care is delivered once an individual gains access. OTA calls the latter the ***process*** of care.

OTA used a combination of its **judgment and prevailing** use in the literature to determine in which case the views of the patient or provider would prevail in order to designate an aspect of care "utilization" or "process." For example, a patient usually makes the decision to make an appointment with a health care provider for an initial assessment of a perceived health problem. Health care providers are likely to have more influence on specific ways in which the care is delivered (e.g., whether the patient is examined for breast lumps, whether an angiography [a test to detect heart muscle and valve abnormalities and atherosclerotic blockages of the coronary arteries] is used).

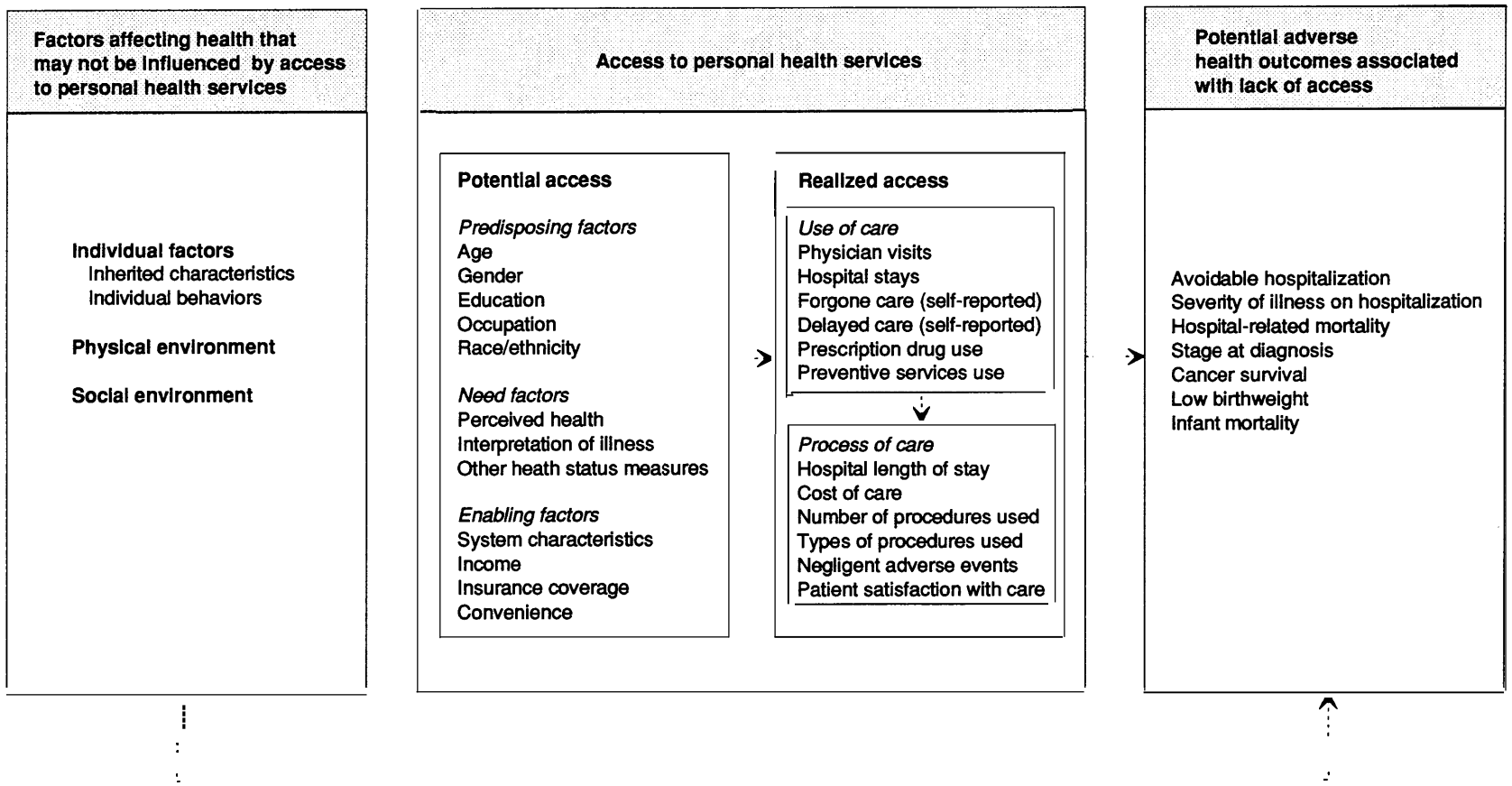
Aday, Andersen and their colleagues did not include individual ***health outcomes,*** such as improved or worsened health status, in their model of access. Health outcomes represent, perhaps, the ultimate measure of equity in access, but health outcomes maybe more likely than utilization and process to depend on factors other than access to health services.

The Potential Roles of Insurance Coverage in Utilization, Process, and Outcomes

Insurance is one of many factors in a conceptual model of potential access, utilization, process, and health (e.g., figure C-l), but in considerations of improving access and health in the contemporary United States, it has assumed an important role, and is the focus of this background

[1] **They will be considered in more detail in OTA's final report for this assessment.**

Figure C-1—An Interim Conceptual Framework for the Analysis of Relationships Among Insurance Coverage, Other Factors, Use and Process of Care, and Individual Health Outcomes



SOURCE: Office of Technology Assessment, 1992, based on Warner and Murt, 1984; Andersen, et al., various years; Weissman and Epstein, 992; Mechanic, 1979, Mechanic, 1989b; and studies reviewed for the interim report.

paper. Whether or not a **person has health insurance and the** extent of the insurance coverage can potentially affect whether or not a person gains access to care and the way that care is delivered. Common sense, clinical judgment, and much research literature suggest that the use of, and the process of, health services may in many cases affect an individual's health. Figure C-2 summarizes the progress of a person through the medical care system, and can be used to suggest all the decision points at which medical care can make a difference to health. In addition, it suggests all the decision points at which financial barriers can ***potentially*** affect utilization of health care and health status. Most basically, individuals completely lacking health insurance may delay or forgo care that has the potential to dramatically improve their health and functioning and even prevent premature death. But even when one has insurance, incentives embedded in the pattern of covered services can affect health care utilization and the process of care. These incentives can be direct or indirect, intentional or inadvertent, applied on the demand or supply side of care, positive or negative, coercive or voluntary, and provided on a one-time or a periodic basis (36,174). The demand-side/supply-side distinction is one that has been difficult to make based on existing research. In the past, many analyses assumed that insurance-based and other financial incentives were most likely to affect ***patients'*** decisionmaking (105,108); the extent to which financial factors influence providers' decisions has been hotly debated (2,44,47,187). Currently, it is becoming more generally accepted that financial incentives affect the behaviors of both patients and providers (107), but additional information is needed about the ways in which providers and patients make decisions in response to insurance-based and other incentives. In some cases, these decisions may be joint, and in other cases they may be unilateral.

Conceptual and Methodological Limitations in Available Research

A variety of conceptual and methodological limitations plague studies designed to assess the impact of insurance coverages on the timing, location, sources, and outcomes of care. These include a lack of effectiveness data for many procedures and services; problems in defining and measuring outcomes; lack of baseline information to reliably and validly measure preexisting health status; the cross-sectional nature of much of the data; measurement problems associated with survey, claims and discharge **data;** lack of prospective studies; and the broad variety of insurance coverages. In addition, research in this area is impeded conceptually because fully satisfactory theoretical models of the way in which financial factors affect health-related behaviors are not available.

Effectiveness **Data**

While almost all covered services may be beneficial to some extent for at least some people, analyses of the true impacts of insurance coverage on health are limited because efficacy[2] information is lacking for many health services (148) and appropriateness[3] and effectiveness information is lacking for even more health services (19,43). For many procedures and services, then, it becomes difficult to say whether variations in the process of care associated with different levels of insurance coverage are important to patients' health.

According to an earlier estimate by Kerr White, only 10 to 20 percent of medical and surgical ***procedures in*** use have been evaluated for their efficacy through controlled trials (144). Although with increasing amounts of funding for clinical trials and technology assessment since 1980, the percentage of evaluated medical technologies may have increased somewhat, the number of technologies has also increased, and Kerr White's estimate may still be accurate.

Problems in Defining and Measuring Outcomes

It is perhaps surprising that health services research using health outcomes as an endpoint of analysis is a relatively new endeavor. Even now, such research is typically costly, cumbersome, time consuming, and hard to manage, in part because of the difficulties of defining appropriate outcomes, collecting reliable and valid data, and relating apparent outcomes to variations in care (97,131,137,148).

There are few, if any, health outcomes that are indisputable measures of differences in the provision of care based on ability to pay. The health outcome measures used in research on the relationships among insurance, access, and patient health outcomes are all imperfect, both in concept and calibration. Some measures (e.g., adverse birth outcomes, in-hospital mortality) maybe used because they are the only measures available on the large databases that are generally used in the absence of prospective experimental research. Other measures that may be specially constructed for studies (e.g., "avoidable

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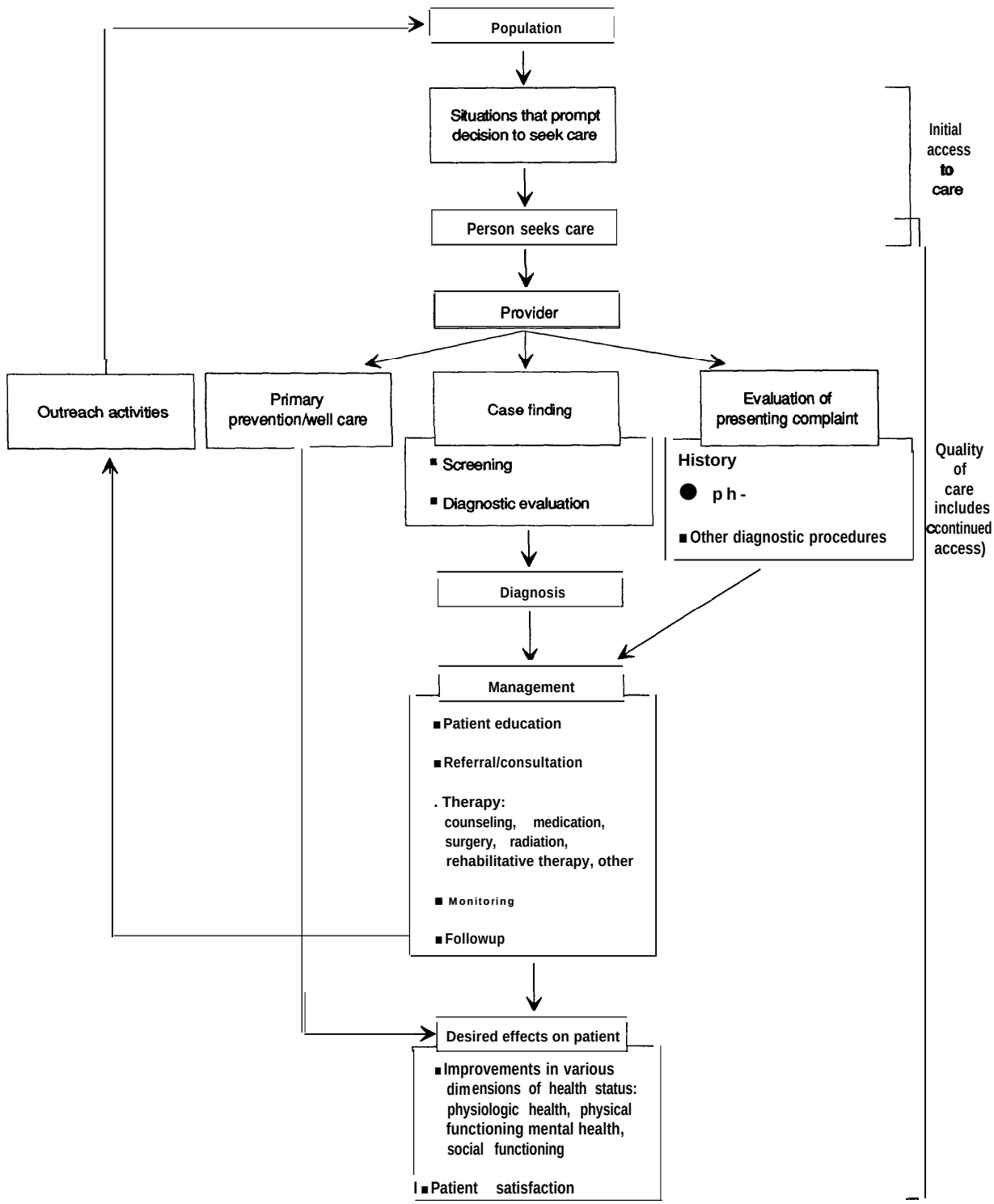
2 Efficacy has been defined by OTA as the probability of benefit to individuals in a defined population from a medical technology applied to a given medical problem under ideal conditions of use.

3 "Appropriate" health care has been defined as "care for which the expected health benefit exceeds the expected negative consequences by a wide enough margin to justify treatment" (5).

4 Effectiveness is a particular application of *efficacy*, that is, it reflects the performance of an intervention under ordinary conditions by the average practitioner for the typical patient.

Figure C-2—Progression of a Person Through the Spectrum of Medical Care



SOURCE: U.S. Congress, Office of Technology Assessment, *The Quality of Medical Care: Information for Consumer's, OTA-H-386* (Washington, DC: U.S. Government Printing Office, June 1988).

hospitalizations"[5] rely heavily on clinical judgment, which is itself highly variable (148). Few studies have the resources to collect the kinds of patient health information that have been developed and validated in such studies as the RAND Health Insurance Experiment (86a, 87).

For example, information about in-hospital mortality (a patient's death in the hospital) is relatively easy to collect, but questionable to use as an indicator that variations in the quality of care are associated with different sources of payment (or no payment). The inadequacy of measures of patient health on admission-probably the most likely predictor of an in-hospital death—presents a significant problem because poorly insured or uninsured patients may be more likely to be sicker on admission. In fact, measures of relative severity of illness on admission have themselves been used as indicators of poor pre-hospital (ambulatory) care.

"Avoidable hospitalizations" are used as indicators of a lack of timely and effective ambulatory care (14,179), yet there can be many nonfinancial sources of avoidable hospitalizations that are not measured, including variations in physician practice patterns, patient preferences, and, of course, patients' health status. It may be difficult to disentangle the financial from the nonfinancial sources of variation.

Problems in Defining and Measuring Insurance Status

Studies differ markedly in the ways in which groups of insured and uninsured individuals are defined. For example, some studies include individuals covered by Blue Cross and Blue Shield plans as part of a privately insured group (95), and others exclude Blue Cross and Blue Shield plans from their definitions of private coverage and include only patients with "commercial" (private, for-profit) insurance (54). One study equated "the uninsured" with individuals living in low-income areas and not covered by Medicaid, and compared information on them with information from individuals living in high-income areas and not covered by Medicaid, assuming that the latter are covered by private insurance (72). Some studies combine those covered by Medicaid with uninsured individuals to form a group (for study purposes) of "poorly insured" individuals (62). Some studies aggregate data at the hospital level, comparing outcomes at hospitals with varying proportions of insured and uninsured or "poorly insured" patients (62). These variations make comparisons across studies, and make syntheses of the studies difficult to interpret in terms of the effects of specific financial incentives. Finally, a source of payment (e.g., Blue Cross) recorded from patients' self-reports at the time of admission may turnout to be invalid. Different providers and facilities may have different capabilities to validate whether a source of third party payment exists.

Definitions of "uninsured" are similarly difficult to construct. The concern about the financial impact of being uninsured on patients' health is that health care providers and facilities will not be reimbursed for care delivered; therefore, they may provide less care and attention. The terms "self-pay" and "no charge" are the terms most frequently interpreted as "uninsured," but no one appears to have tested the extent to which providers and hospitals remain unpaid by those whose expected source of payment is "self-pay" or "no charge." These terms are recorded at a particular point in the patients' episode of care and not investigated for their long term validity. For example, Medicaid coverage may be pending at the time of -admission, or an application for Medicaid may be submitted during the episode of care.

Having large numbers of patients in a data set may compensate for some of the problems associated with the problems inherent in defining and measuring health insurance status.

Lack of Information to Reliably and Validly Measure Preexisting Health Status

Individual health outcomes following an episode of care or a specific intervention depend on a multitude of factors, not least of which is the individual's health at the beginning of the episode of care. Thus, to conclude that specific variations in insurance coverage have some effect on utilization, process, and outcomes on an aggregate basis, researchers must account for individual differences in health that precede the episode of care or change in insurance status. Unfortunately, there is no one factor or set of factors that accurately describes an individual's overall health status and his or her likelihood of becoming sicker (29,68,148). Data on available factors that would appear relevant are often collected after an episode of care or have been demonstrated to be valid only in certain areas of care (e.g., for intensive care units) (148). Attempts to make such adjustments have included rough proxies for likely health status such as various combinations of age, gender, income, and secondary diagnoses during a hospitalization (57).

Measurement Problems Associated With Survey and Archival Data

Discussions of the limitations in available data are replete in the literature reviewed for this background paper. As noted below, efficacy and effectiveness data from randomized clinical trials and other experimental studies are considered far superior to data collected in

[5] The Billings and Teicholz study [6] a measure of avoidable hospitalizations that was already being employed as a quality assurance/utilization review screen in the hospitals in their study (14).

Box *C-1-Characteristics, Advantages, and Disavantages of Selected Secondary Databases*

Administrative Databases

Administrative databases are created primarily to monitor utilization, to determine the consumption of health care resources, and to ascertain the capacity to supply services. Administrative data sets are further subdivided into claims data, data on hospitals, and data on providers. Claims data are gatherd and maintained at the level of the patient in order to report charges and monitor the use of medical services and resources. In general, claims data include demographic information concerning the patient, discharge diagnoses, charges incurred, location of the service, and provider information. Sources of claims data that have been used in health services research include Medicare data Medicaid data, State utilization databases, and private sources of claims data.

Individual provider data are gathered to characterize providers, identify human resources, and monitor utilization. The contents may include data on personaI characteristics of the provider, professional data, and licensing or specialty information. Data on providers are useful in a variety of studies, and these databases may also serve as a sampling frame.

Hospital data are gathered to characterize hospitals, identify available resources, and monitor resource utilization. The contents may include information such as size, financial reports, ownership, teaching status, and location. These data are useful in analyses employing institutional characteristics and may also prove useful as a sampling frame. To date, claims and other administrative databases have not been designed to measure medical effectiveness in terms of outcomes or the quality of care in terms of process. Factors affecting the usefulness of administrative databases for health services research, includling the analyses reviewed in this background paper, include:

* variations in the level of detail;
* lack of, or inconsistency in, common, **unique individual patient identifiers;**
. concerns about the specificity and validity of some variables;
*** limited availability of clinical information; and**
• limited availability of information on nonphysician providers.

Clinical Databases

Longitudinal, clinical databases contain detailed clinical information on individual patients. These data sets may be generated as the result of specific studies, such as clinical trials or observational studies, or they maybe collected at individual geographic sites as part of a clinic's or hospital's ongoing data collection effort.

clinical databases are unlike administrative databases in that they contain detailed clinical information on individual patients, although, as with the administrative databases, the amount and type of information may vary greatly. Clinical studies generally employ standardized definitions and collect data at definite intervals for specific

nonexperimental studies such as surveys, administrative databases and other secondary data sources.

Primary data collection may require highly skilled staff to compile information through medical chart abstraction or personal interviews (131). One alternative to traditional chart-based review is so-called "outcomes research" using large databases such as those containing insurance claims or hospital discharge abstracts (131,184). Large databases also have limitations and their usefulness in assessing effectiveness is just now being tested (131,162, 163).

Secondary data sources[6] include administrative databases, clinical databases, Federal medical and health services research databases, disease registries, and death registries (164). Most of the studies reviewed in this background paper have used one or more of these secondary data sources, with varying degrees of success. Each database has its associated flaws, and it may be necessary to link the databases to compensate for the shortcomings of any one data source in order to track specific patients' progress through the health care system. For example, only claims databases are likely to contain information about insurance coverage. Attempts at linkages (bringing together two separately recorded pieces of information concerning a particular individual or family) are not always successful (164) (box C-l).

As implied in the review by the U.S. Department of Health and Human Service's (USDHHS's) Agency for Health CarePolicy and Research (box C-l), each database

6 Secondary & are &~ collected for some purpose other than the immediate research project. In many cases, secondary data exist prior to the beginning of the research. Primary data are data collected exclusively for a research project (164).

periods of time; these are two clear advantages in the analysis of data. However, the populations involved are often narrowly selected, the data collected are typically relevant only to the study question, and data collection generally stops at the end of the study. Therefore, the usefulness of these data sets maybe relevant only for the original purpose for which they were designed..

Data sets collected at individual geographic sites may be broader in their content, and data collection efforts are not limited by the length of the study. The population mayor may not be more representative than populations employed in some clinical studies. However, data will only be collected when an individual presents for care at that facility, standard definitions may not be employed across sites, and the data collected will depend on the clinical needs of the patient. The result is that the researcher has to deal with problems of missing data, uncertain meaning of some variables, and uneven followup of patients.

Federal Medical and Health Services Research Databases

There were 498 health, social, and demographic data projects reported for inclusion in the Fiscal Year *1988* U.S. Department of Health and Human Services Data *Inventory. These projects varied in the* purpose, scope, frequency of data collection, and analysis of the data collected The projects often involved a single collection of data however, some projects included ongoing collection of individual information and resemble clinical data sets in that respect. In most cases, individually identifiable data are not generally available; therefore, individual linkages are not possible. Their usefulness may also be limited by their design and timeliness.

Disease Registries

Disease registries are created when a disease is considered to be of sufficient importance to the publihealth to have its occurrence reported to the authorities. Disease registries, or treatment registries, may also be created when an organization or group of clinicians compile ongoing registries of patients with certain diagnoses or who receive specific treatments. These registries are compiled to increase understanding of the natural history of the *or treatment. The registries may require mandatory or voluntary reporting, and the amount of information collected and followup conducted may vary. An example of a disease registry is the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) database.

Death Registries

The Natioinal Death Index (NDI) is a computerized central file of death record information, including the cause of death. It is compiled from magnetic tapes submitted to the National Center for Health Statistics by the State vital statistics offices. In addition, States and local governments may keep their own death registries.

SOURCE: U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, *Report to Congress: The Feasibility of Linking Research-RelatedData Bases to Federal and Non-Federal Medical Administrative Data Bases* AHCPR Publication No. 91.0003 (Rockville, MD: U.S. Department of Health and Human Services, Public Health Sea'vice, Agency far Health Care Policy and Research, April 1991).

provides only a small piece of the overall patient health picture. In general, using records of claims for third-party payment can lead to undercounting of individuals' use of health services. In the use of Medicaid records to detect the number of prescriptions filled after a cap on the number of prescriptions that could be paid for by Medicaid, for example (127,128), patients could have had prescriptions filled using other sources of funding (e.g., out of pocket).

Some studies have been based on surveys that elicited from individuals the kinds of information that cannot easily be obtained from archival sources such as medical administrative records (113,1 14,136,167,180). However, surveys may focus on the reconstruction of processes that have occurred prior to the study and are thus dependent on respondents' abilities to know, recall, and relate accurately relevant events (e.g., the occurrence of a health problem, a physician or other medical visit, the existence and nature of health insurance coverage). Adult respondents may not know such facts as when their child visited a health care provider (153,154,155), or may not recall that they themselves visited a health care provider.

Research validity may be threatened by answers that respondents think are socially desirable or answers that may intentionally sabotage the research project (132). Biased responses can also be unconsciously elicited by the interviewer or question (132). For example, individuals may overstate or understate their insurance coverage, their use of health services, or their health, depending on what they perceive to be the "demand characteristics" of the survey situation. Some surveys (e.g., the National Medical Expenditure Survey [NMES] conducted by the USDHHS) try to compensate for some of the drawbacks in survey research by conducting collateral research (e.g., by surveying employers, insurers, and medical providers of the household survey respondents), and by questioning

Table C-l—Medical Care Benefits by Type of Employer: Percentage of Full-Time Participants[a] by Coverage, With Selected Cost Containment Features, Non-Health Maintenance Organization Coverage Only[b]

Cost containment feature	Medium and large firms, 1989[c]	Small establishments, 1990[d]	State and local governments, 1990*
Higher rate of payment for generic prescription drugs	14%	159'0	22%
Higher rate of payment for mail order drugs	10	6	7
No or limited reimbursement for nonemergency weekend admission to hospital	12	14	9
Separate deductible for hospital admission	10	10	20
Incentive for prehospitalization testing	42	49	46
Prehospital admission certification requirement	44	59	63
Higher rate of payment for delivery at birthing center	20	21	15
Incentive to audit hospital statement	5	7	6
Care subject to utilization review	23	27	33

[a]It is important to note that: 1) not all full-time employees participate in plans offered by employers, and 2) the U.S. Department of L.abets Bureau of Labor Statistics (BLS) distinguishes among medical care, dental *ewe,* and vision care. According to BLS, medical care benefits were provided to 92 percent of employees in medium and large firms, 69 percent of full-time employees in small firms, and 93 percent of full-time employees in State and local governments. Workers are considered participants only if they elected a pian. This table applies to cost-containment provisions affecting medical care benefits only.

[b]BLS did not tabulate data for health maintenance organizations because, according to BLS, HMOs have their own inherent cost containment features. BLS defines HMOs as arrangements in which a prescribed set of benefits is provided to enrollees for a fixed payment. HMOs were classified in the survey as group/staff type organizations, with services provided in central facilities, or individual practice associations (I PAs), with providers working from their own offices. Preferred provider organizations, in which participants are free to choose any provider but higher benefits are offered for services rendered by designated health care providers, were not included as HMOs. Of employees in medium and large firms participating in HMOs, 44 percent participated in group/staff organizations, 53 percent participated in IPAs, and 4 percent participated in an arrangement that combined the group/staff and IPA models. Only 14 percent of employees in small firms participated in HMOs.

[c]Medium and large firms are establishments with 100 workers or more in all private nonfarm industries, excluding (in the 1989 survey) firms in Alaska and Hawaii. According to BLS, its survey of these firms provides representative data on 32.4 million full-time employees.

[d]Small establishments are defined as those private nonfarm firms with fewer than 100 workers. According to BLS, its survey of these firms provided representative data on 40.8 million full- and part-time employees. Data shown in this table are for full-time employees only. According to BLS, insurance benefits—sickness and accident insurance, long-term disability insurance, medical care, dental care, and life insurance—were available to one-tenth or fewer part-time workers. No further details were provided on benefits available to part-time workers in BLS's report.

[e]According t· BLS, these data represent about 13 million full-time employees i„ all State and local governments in the 50 States and the District Of Columbia. Detailed data for 1.6 million part-time employees were not provided.

SOURCES: Medium and large firms: U.S. Department of Labor, Bureau of Labor Statistics, *Employee Benefits in Medium and Large Firms, 1989,* Bulletin 2363 (Washington, DC: Government Printing Office, June 1990); Small firms: U.S. Department of Labor, Bureau of Labor Statistics, *Employee Benefits in Small Private Establishments, 1990,* Bulletin 2368 (Washington, DC: Government Printing Office, June 1990); State and local governments: U.S. Department of Labor, Bureau of Labor Statistics, *Employee Benefits in State and Local Governments,* 1990 (Washington, DC: U.S. Government Printing Office, 1991).

some individuals multiple times in the course of a year (123).

Lack of Experimental Studies

In any synthesis of scientific literature, more credence is generally given to results of studies using an experimental design. Such a design would randomly assign individuals to having or not having health insurance coverage.[7] Perhaps because the idea that having health insurance coverage is essential to health has become so well-accepted in the United States, there have been no truly experimental studies to test the effects of not having insurance. Thus, all of the studies rely on non-experimental design (e.g., the use of survey and archival data). These may suffer from the serious problem of patients' self-selection, which can be only partially compensated for by making adjustments for patients' health.

Variety of Financial Incentives

An enormous variety of insurance-related and other financial incentives has been developed to either increase or decrease health care utilization, improve the process of care that is delivered, enhance health outcomes and contain health care costs (e.g. table C-l). For example, efforts to increase apparently appropriate utilization of health services have included providing care at no out-of-pocket cost to patients (e.g., for prenatal services), expanding eligibility for Medicaid (e.g., Public Law 101-508), covering preventive services under Medicare (151; Public Law 101-508), mandating that certain benefits be covered by insurance, and providing incentives for employers to provide insurance to their employees. Efforts to decrease inappropriate utilization have included the redesigning of health benefits packages, the restructuring of delivery systems (e.g., managed care initiatives), requiring of higher patient cost-sharing, increasing prices, and use of single-payer or all-payer

7 As discussed below in appendix F, the RAND Health Insurance Experiment assigned participants to varying levels of cost-sharing for health services (including no cost-sharing, or "free care") and not to being insured or uninsured (21,101,102).

prospective payment programs for hospital payment. Some of the efforts to decrease utilization have included attempts to ensure that the quality of the health services delivered does not degenerate.

One difficulty in evaluating the impact of insurance coverage is that providers and consumers may face a number of different incentives simultaneously; singling out the impact of a single one can be difficult, and individual studies vary in the extent to which they take into account the particular historical, social, and cultural contexts in which patient and provider behavior is embedded. Perhaps a more important issue is that the types and levels of benefits covered by insurance plans, and the ways in which plans attempt to structure the delivery of care, can vary considerably.[8] Most studies compare only broadly defined groups of uninsured, publicly insured and/or privately insured individuals.

Medicaid, in itself, is a difficult program to interpret for a variety of reasons (e.g., coverage of participants for only short periods of time, low provider reimbursement rates (154), possibly worse health status of individuals who apply for Medicaid, wide variations in coverage policies by State, poor data) and attempts to evaluate its impact have been plagued by methodological problems (109).

Inadequate Theoretical Models of the Economics of Health-Related Behavior

While some have concluded that the effect of varying payment and coverage mechanisms on health care utilization is well understood, at least "qualitatively" (174), economic models of consumer demand for health services only go part way in explaining health care utilization and outcomes. The departures of health care from conventional economic models have been described (1,90,106), but an alternative model addressing the economics, sociology, and psychology of health and medical care has not been developed (16,94). According to Bloom:

> The problem is that economics is used almost exclusively to explain diverse phenomena and issues without drawing from other fields such as behavioral theory and without integrating unique theories **of the economics of health and medical care [and its interactions]. . .General economic theories can be pushed only so far to explain characteristics of health and medical care (16).**

Similarly, Mechanic has noted that:

> many of the problems in medical sociological research. . . result from a lack of theory about our data and their meaning (94).

The field of health psychology focuses largely on individual differences in the so-called personal health behaviors of individual patients (e.g., exercise, smoking, seat-belt use) and rarely on the financial incentives that may be driving aspects of consumers' and providers' health care behaviors (78,88).

Economic theories of health care utilization focus heavily on the "demand" for services by "consumers," and the overwhelming influence that price has on consumer demand (77). But physicians and other health care providers, as agents of the patient, have an unusual ability to influence demand (34,63,187). Because much of medical care is technical in nature, and because most patients come into contact with the health care system only infrequently and often with considerable uncertainty, there is a severe imbalance of information between patient and provider, including information about the cost of services (16,1 10,173). Taken a step further, all health care providers face uncertainty over the benefits and side-effects of certain medical procedures (12); this uncertainty is almost surely one of the factors in the observed large variations in practice patterns (50,116,1 17,181,182). Other physician-related factors that have been hypothesized to account for variations in numbers and types of procedures and services across populations and geographic areas include differences across States in malpractice laws (potentially affecting the practice of "defensive medicine"). In general, research on how individual physicians allocate health care resources has been minimal (12).

The inadequacy of theory relating economics and health care may also be attributed in part to the nature of health care. According to some observers, explicit discussion of the physician's financial interest in the doctor-patient relationship is "taboo' (47). In addition, given the nature of health care, it is likely that many patients would like to think of their own health and health care as divorced from financial considerations.[9]

Limitations of the Available Analytic Techniques

It is important to keep in mind the limitations of the available data and analytic techniques when considering the literature reviewed for this background paper. Mechanic notes, for example, that "quantitative and qualitative researchers on health issues often have divergent findings and conclusions" (91,94). For example, Mechanic reviewed some of the large-scale multivariate survey research on relationships between potential and realized access indicators conducted by Andersen and his colleagues (91,94). The research by Andersen and his colleagues had found trivial differences in utilization of health services as a function of the ways in which individuals respond to symptoms and the conditions under which they come to view them as abnormal (their "illness behavior' '), in contrast to qualitative studies that

8 Appendix D in this background paper provides an overview of what private health insurance and Medicaid coverage provide.

9 For example, Veatch notes that "It is odd that in medicine, services appear to be authorized without any discussion of prices''(173).

found enormous variability in response to comparable symptoms among patients. Mechanic suggested that large-scale survey research has been limited both conceptually and in terms of the measurement of variables (91,94).

Summary

Having the financial means to gain access to care is one factor affecting individuals' health. For some-perhaps many-Americans, health services have become so costly that a source of third party payment may be the only guarantor of financial access to many forms of health care. Personal examples of how financial problems may impede access, and how health care expenditures can lead to financial ruin, have become common in the popular press (28). However, attempts to explore systematically the breadth and depth of the problem require an understanding of the many factors affecting personal health, the complicated nature of the health care delivery system, and how components of the system respond to numerous and sundry financial incentives. In addition, clear thinking and appropriate research methods that can account for these forces are essential. As attention is drawn to reforming the health care system, support for developing appropriate conceptual models and investigative research tools may increase.