

Accessibility and effectiveness of care under Medicaid

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We suggest a framework for assessing the accessibility, appropriateness, and outcomes of care to Medicaid recipients and review studies in these areas. Evidence is limited, and variation among States and the paucity of national data pose further problems. There is evidence that Medicaid recipients receive less medically necessary care (e.g., prenatal care) than the insured, but evidence

on the quality of their care is limited. Differences in payment rates between Medicaid and private insurance appear to explain only part of the variance. Studies have demonstrated major direct effects of diminished access on health status. Evaluation of program changes should focus on health outcomes rather than counts of services rendered.

Introduction

In this article, we examine what we know about the appropriateness and effectiveness of care delivered to Americans eligible for Medicaid. The issue is critical because, for the foreseeable future, we will have to make tradeoffs among using funds to increase payments for individual services, to expand who is eligible, or to expand what services are covered. If care under Medicaid is currently as appropriate and effective as that for the fully insured, then any new funds should probably be directed to expanding either eligibility or coverage. If current care under Medicaid is inappropriate or ineffective compared with that for the fully insured, then increased payments for current services may be more important.

To examine the problem, we have designed an analytic framework, conducted a series of computerized literature searches from 1980 to the present, and reviewed some unpublished reports. Rather than exhausting the literature, we sought articles that focused on salient issues, particularly prenatal care. For these reasons, as well as others described, we regard our assessment as preliminary.

Analytic framework

Our analytic framework is intended both for examining available evidence and for planning future policy research. Like other recent studies of effectiveness of care, we emphasize outcomes rather than administrative structures. However, we examine certain processes of care and intermediate outcomes as well as final outcomes. We therefore look first at problems of underservice (appropriate care that is not rendered) and the access barriers that cause it, then at the appropriateness of care rendered, and finally at outcomes. In this framework, late prenatal care and insufficient well-child care are examples of underservice; caesarean section rates and interhospital transfers raise questions of appropriateness; infant mortality and hospitalization for asthma are outcomes.

Our approach contrasts, for example, with Erdman and Wolfe's (1987) comparative evaluation of State Medicaid programs, which emphasized administrative structures (such as requirements for second surgical opinions) and payment levels. Their approach has the advantage of

leading directly to administrative remedies (an administrative structure that is not ideal should be replaced by one that is), but evidence is not strong that the structures they recommend lead to more appropriate utilization and more effective care.

Although Medicaid is strongly associated with medical care for the poor, it was designed to serve only selected groups of the poor, and many of the poor are not covered (Rosenbaum, Hughes, and Johnson, 1988; Hill, 1990). This social policy has an advantage for research: We can compare care for Medicaid recipients not only to care for the insured but also to care for the uninsured poor. We can see how far we have come as well as how far we have to go. On the other hand, we must carefully distinguish between evidence on care for Medicaid recipients and evidence on care for the poor, who may be privately insured, uninsured, or Medicaid recipients. Likewise, not all of the uninsured are poor: About 41 percent of the uninsured have incomes more than twice the poverty level (Kasper, 1986).

Interstate variation

Although Medicaid is largely financed by the Federal Government, it is largely controlled by the States, which have wide discretion in determining eligibility criteria, coverage policies, and payment levels. The difference between the least and most generous State Medicaid programs is so broad that generalizations must be very cautious. In 1986, for example, payments ranged from \$6.00 (New Hampshire) to \$28.41 (Alaska) for a brief office visit, from \$160 (New York) to \$500 (Oklahoma) for an appendectomy, and from \$214 (New Hampshire) to \$1,027 (Massachusetts) for obstetrical care. Program features, such as eligibility rules, duration of inpatient coverage, and coverage of preventive services, also vary widely from State to State (Howe and Terrell, 1987). This variation makes generalization from single State studies to the national Medicaid program quite risky.

A second important consequence of Medicaid being primarily a State program is the relative dearth of national data. Although States submit summary reports on their programs to the Federal Government, there is no national reporting requirement for the person-level data that is necessary to assess access and effectiveness. The Health Care Financing Administration has a project that secures and analyzes data from five States and is developing a voluntary multistate Medicaid Statistical Information

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System; however, data limitations will remain a serious obstacle to research and evaluation for some time to come.

A third consequence of interstate diversity is a series of potentially informative natural experiments. By comparing a significant number of States, we could see the effect of differences in payment, eligibility, and coverage policy on access to care and outcomes of care. Interstate differences provide cross-sectional comparisons, and some States can be used as controls for others in longitudinal studies of innovations and policy changes. We believe that the data problems cited earlier largely explain why such studies (Soumerai et al., 1987; Soumerai et al., 1990; Freeman et al., 1990) are rare.

Underservice and access to care

Although the phrase access to care is often used to describe whether potential patients can get care when they want it, we believe that the critical issue is whether barriers to access result in underservice, which we define as the failure to receive medically necessary services. The distinction between securing care when wanted and receiving needed care is important because comparing unadjusted rates of service between populations takes no account of differences in patient need or whether the average level of service received is appropriate.

- In 1986, the number of physician visits per capita for the poor was roughly equal to the number for the nonpoor. If, however, we adjust for the worse health status of the poor, this apparent equality seems to have masked continued inequality (Kasper, 1986).
- Medicaid patients have lower caesarean rates than the insured, but we do not know whether Medicaid is an access barrier or private health insurance is an incentive for overservice.

We will be able to assess service levels against a clearer standard if we can define an "appropriate" level of service, such as prenatal care in the first trimester, a certain number of well-child visits for all infants, or a target caesarean section rate. Ideally, of course, we would evaluate adequacy of service through risk-adjusted outcomes. Realistically, however, we rarely even have standards for appropriate levels of service, and those that we have are usually minimum rather than maximum.

Discontinuities in eligibility

Medicaid pays for care for selected large groups of the poor; but less than one-half of the Nation's poor and near-poor are enrolled, and one-half of children in poor and near-poor families are uninsured for some part of the year (Rosenbaum, Hughes, and Johnson, 1988). Medicaid eligibility depends on characteristics that are often transient, such as pregnancy, marital status, and the size of medical bills compared with income (Ruther et al., 1990). As a result, Medicaid recipients become eligible and subsequently ineligible with disruptive frequency. For example, a woman who is not receiving Aid to Families with Dependent Children is usually ineligible until she becomes pregnant. Then, unless she lives in 1 of the 23

Table 1
Total and uninsured births
by household income: 1985

Item	Total births	Uninsured
Medicaid eligibles	630,000	0
Household Income		
Below 100 percent of poverty	991,000	131,000
100-185 percent of poverty	1,543,000	421,000
Above 185 percent of poverty	—	585,000

SOURCE: (Torres and Kenney) 1989).

States (National Governors' Association, 1989) with "presumptive eligibility"¹, her first step must be to establish eligibility and become enrolled, which may take persistence and some time. Lack of sophistication, motivation, or persistence may delay her enrollment until hospitalization for delivery, when the hospital will take steps to enroll her. Many women who do not qualify for Aid to Families with Dependent Children become ineligible again soon after delivery. Eligibility rules vary from State to State in complex ways, but discontinuity in eligibility is a common feature (Ellwood and Adams, 1990; Hill, 1990; Torres and Kenney, 1989).

About 555,000 women who delivered in 1984 had neither private nor Medicaid funding for prenatal care (Singh, Gold, and Kenney, 1987). Table 1 shows that many of these women will be covered under the recent Federal legislation, which requires States to cover pregnant women and newborns below the poverty level and allows Medicaid coverage up to 185 percent of poverty (Hill, 1990). Although these expansions are likely to improve the accessibility of prenatal care, they may actually intensify the discontinuity problem because so many women will be eligible only in connection with pregnancy.

Prenatal care

Table 2 shows that the site of prenatal care is closely related to the source of payment. The simplest interpretation of this table is that Medicaid recipients have more access to physician-office care than do the poor without Medicaid but that Medicaid recipients are still far short of the access to physician-office care enjoyed by the average American. Orr and Forrest found that in 1983 only 56 percent of the physicians who provided obstetrical services would accept Medicaid. We must, however, interpret these data with care.

Table 2 does not show that the care available to Medicaid patients is medically inferior to that available to the average American. We suspect that most Americans prefer physician-office care, and that the care received by Medicaid enrollees therefore may be inferior in terms of patient preferences. However, we do not know of

¹Presumptive eligibility guarantees that Medicaid will pay a provider for certain services to a person who is likely to be eligible for Medicaid even if eligibility is not ultimately established.

Table 2
Percent distribution of Medicaid and non-Medicaid prenatal care, by principle site: 1986-87

Principle site	All deliveries	Percent distribution	
		Medicaid	Poor non-Medicaid
Physician's office	76	39	22
Hospital clinic	14	28	21
Health department	10	23	47
Other		9	10

SOURCES: Data for all deliveries: (Singh, Forrest, and Torres, 1989). Data for Medicaid and poor non-Medicaid: (U.S. General Accounting Office, 1987.)

Table 3
Percent distribution of initial prenatal visit for women with uncomplicated pregnancies, by type of coverage: 1986-87

Type of coverage	Prenatal visit		
	First trimester	Second trimester	Third trimester
	Percent distribution		
Private insurance	84	14	2
Medicaid	46	45	9
Uninsured	41	44	15

NOTE: Percent distribution is based on 784 deliveries.

SOURCE: (U.S. General Accounting Office, 1987.)

evidence that clinic and health department care is less than appropriate or has worse outcomes. Indeed, some fixed-fee packages for prenatal care from private physicians or capitated systems may not provide adequate care; these packages vary considerably and some provide only three or four prenatal visits (Kenney et al., 1986).

Nor does Table 2 show that having to rely on care from hospital or health department clinics reduces use of medical services. Evidence cited later in this article suggests that raising payments tends to shift the location of pediatric and adult office visits from clinics to offices but does not increase the absolute number of visits. Thus the barrier may be to securing care at the preferred site rather than simply to securing care.

Nationally, 23.8 percent of women delivering in the United States during the period 1984-86 had late prenatal care (Singh, Forrest, and Torres, 1989): That is, their first visit occurred after the first trimester. In 1986, the U.S. General Accounting Office (1987) studied 1,157 women in 32 communities to compare prenatal care for women with private insurance, Medicaid, and no insurance. Although the study antedates the most recent Medicaid eligibility expansions for pregnant women, it provides useful evidence on the use of care by women with different sources of payment. Inadequate care was more frequent for Medicaid and uninsured patients than for the insured. Medicaid patients did only slightly better than uninsured patients. This conclusion held whether the standard of adequacy was timely care (Table 3) or 13 prenatal care visits for a normal 40-week pregnancy as set by the American College of Obstetricians and Gynecologists.

Howell et al., (1989) study of births in Los Angeles in 1983 helps to explain the similarity of the experience of

Table 4
Percent of women delivering with Medicaid payment who received any Medicaid services in each trimester and after delivery: California, Georgia, and Michigan, October 1983

Time of care	Percent		
	California	Georgia	Michigan
Prenatal			
January-March 1983, first trimester	35 (65)	36 (65)	50 (74)
April-June 1983, second trimester	57 (75)	42 (70)	66 (83)
July-September 1983, third trimester	70 (77)	66 (76)	84 (90)
Delivery	100	100	100
Post-delivery			
November 1983-January 1984	82 (86)	83 (84)	91 (94)
February-April 1984	71 (86)	73 (80)	79 (89)
May-July 1984	63 (83)	64 (76)	70 (84)
August-October 1984	59 (83)	60 (76)	66 (83)

NOTE: Parentheses used in Table 4 indicate percent of women enrolled in Medicaid during indicated trimester who received any Medicaid service in that trimester.

SOURCE: (Howell, Hertz, Brown, and Wang, 1989.)

Medicaid and uninsured women in the General Accounting Office (GAO) study. Medicaid recipients were more likely than nonrecipients living in high income census tracts to receive late care. Late prenatal care was much more frequent, however, for those enrolled in Medicaid for less than 4 months of pregnancy than for those enrolled for 4 months or more; and late enrollment was quite frequent. This finding suggests access problems associated with enrollment, and Table 4 underlines this issue. Women in California, Georgia, and Michigan who were enrolled in Medicaid during the first trimester of pregnancy were about 1.7 times as likely to receive services during that trimester as was the average woman whose delivery was paid for by Medicaid (Howell, Brown, and Reeves, 1989). Lumping together patients who were enrolled throughout pregnancy, those who enrolled late in pregnancy, and those who enrolled at delivery, gives a deceptively dismal picture of the access that Medicaid can confer: Late care is strongly related to late enrollment. In the extreme, a woman who is enrolled by the hospital at the time of delivery counts as a Medicaid delivery, but her prenatal care tells us little about the care available to those enrolled in Medicaid throughout pregnancy. Although enrollment barriers can be substantial (Hill, 1990), we have little systematic evidence on the relative importance of bureaucratic barriers and enrollee characteristics in delaying enrollment.

None of these analyses can take adequate account of variations in women's knowledge of their need for care or motivation to get what they know they need. GAO (1987) did, however, examine specific barriers reported by those receiving inadequate care. Among Medicaid recipients and the uninsured, 20 percent and 15 percent respectively, reported experiencing no barriers to access; 10 percent and 23 percent reported not having enough

money to pay for care; 14 percent and 15 percent said that care was delayed because they were not aware that they were pregnant; and 10 percent and 7 percent reported lacking transportation. The frequencies of these reported barriers were similar in large metropolitan, smaller metropolitan, and rural areas, except that lack of transportation was more frequent for rural residents. The frequencies did not vary much among patients receiving prenatal care in hospital clinics, local health departments, and physician offices. Among 458 women who tried to enroll in Medicaid because they were pregnant, 26 reported that establishing Medicaid eligibility delayed their initial visit by a median of 2 months, and another 31 poor pregnant women did not qualify.

Less than 5 percent of women who delivered on Medicaid and received insufficient care said that inability to get a physician, nurse, or midwife to provide prenatal care was an obstacle. This finding led GAO to recommend that any increase in Medicaid expenditures be directed toward covering the uninsured, rather than increasing Medicaid payments. Unfortunately, GAO's conclusions are based on a questionnaire that is sometimes ambiguous. For example, it is not clear what 10 percent of Medicaid recipients meant by saying that care was delayed by insufficient money, given that providers may not charge Medicaid recipients for care. Likewise, it is puzzling that 10 percent of Medicaid recipients reported that insufficient money was a barrier and only 5 percent reported inability to get a provider to see them. Nevertheless, the GAO evidence and analysis led to a recommendation in direct contrast with the recommendation for higher payments that Erdman and Wolfe (1987) made after examining payment levels without access to information on reported barriers.

Clearly, problems with prompt access to care would affect not only prenatal care but also diagnosis of cancer, heart attack, and other conditions in which early treatment is critical. Further study of condition-specific access problems is needed.

Pediatrics

Children under 21 years of age are the single largest group of Medicaid recipients, though not the highest cost group (Howe and Terrell, 1987). Rosenbach (1989) found in the National Medical Care Utilization and Expenditure

Table 5

Probability of physician visit and average annual visits for children under age 18, by health status and payer: 1980

Health status and payer	Probability	Annual visits
Good health		
Medicaid	0.74	2.64
Privately insured	0.70	2.60
Uninsured	0.64	2.23
Fair or poor health		
Medicaid	0.81	3.98
Privately insured	0.77	3.92
Uninsured	0.71	3.37

SOURCE: (Rosenbach, 1989.)

Survey, that low income Medicaid children had more physician-office and clinic visits than either uninsured or privately insured low-income children (Table 5). Private insurance for the poor often does not cover office visits, so some patients with private insurance are less well insured for ambulatory pediatrics than are Medicaid recipients; this makes the difference in visit rates between the privately insured and Medicaid recipients difficult to interpret. The difference between the uninsured and Medicaid suggests that receiving Medicaid does lower an access barrier, but Rosenbach reports a difference of only about 20 percent in the number of visits per year.

Hohlen et al. (1990) showed that roughly doubling Medicaid payment rates for pediatric office visits in Suffolk County, New York, increased the probability that children would receive as much office care as was recommended by the New York Child Health Assurance Program guidelines. This measure, because it substitutes a consensus standard for simply counting visits, is a more persuasive criterion. However, the increase in total visits (office and clinic) was minimally and inconsistently significant, suggesting that the increased payments move visits from clinics to offices but have little effect on overall access. This is consistent with Long, Settle, and Stuart's (1986) finding that, for all recipients across all States, lower payment levels shifted the probable site of service from office to clinic but did not decrease the probability of visits. They did not find that decreased payments increased the likelihood of emergency room use.

A child may have a better chance of getting adequate preventive services in an office setting, but this is unproven. Preventive services delivered through Early Prevention, Screening, Detection, and Treatment programs are counted in Rosenbach's and Long's data but not in Hohlen's.

Section 6402 of the Omnibus Budget Reconciliation Act of 1989 (Public Law 101-239) requires that payments for obstetrical and pediatric services be sufficient to assure that care and services are available to Medicaid enrollees at least to the extent that such care and services are available to the general population in that geographic area. Hohlen, Long, and Rosenbach show that, at most, there may only be a modest overall impact of payment on level of service, raising a question as to whether increasing payments is the efficient way to achieve the goals of the law, if use of services is the measure of success. As Hill (1990) points out, there are other and perhaps more efficient ways to increase service.

Long-term care

Long-term care shows us another face of underservice and access. If we look at nursing home care, the gaps between the non-Medicaid poor, Medicaid recipients, and those with considerable financial resources are potentially substantial. Essentially all nursing home residents are Medicare beneficiaries through either age or disability. However, Medicare does not pay for either semiskilled care or long-term skilled care, pays only for 100 days of skilled nursing care per episode of illness, and after 20 days charges coinsurance that is often higher than the private payment rate.

Medicaid pays for most of these long-term care costs. Sixty-two percent of patients in nursing homes in 1987 were Medicaid recipients, with a range from 80 percent in the District of Columbia to 47 percent in Kansas (unpublished HCFA data). Many Medicaid recipients in nursing homes are eligible because they have "spent down"; that is, they have been impoverished, either by the illness that led to entry into the nursing home or by the costs of the nursing home itself (Burwell, Adams, and Meiners, 1990; Rivlin and Wiener, 1988; Kennell et al., 1990). In practice, Medicaid is virtually the only third party that pays for long-term care. Without Medicaid, the poor and most of the middle class have little likelihood of obtaining long-term care, because almost all nonrecipients must pay for long-term care with personal funds.

In many States, providers enjoy a seller's market because certificate-of-need rules have limited the supply of long-term beds. In such a market, any difference between payments that can be demanded from self-pay patients and those from Medicaid patients could become an important access issue. If a nursing home finds Medicaid payments insufficient, it may limit access not only for Medicaid recipients but also for nonrecipients who are expected by a nursing home to spend down to Medicaid eligibility. Although hospitals are expected, and often required by law, to accept patients without regard to payment and to treat them until stable, neither law nor popular expectation imposes such a duty on nursing homes. The pressure on States to limit payments to nursing homes is substantial because 37 percent of Medicaid dollars goes to nursing home care.

Evidence on the access of Medicaid recipients to nursing home beds is, however, mixed. Although private patients seem to have preference in admissions (Scanlon, 1980a, 1980b; Nyman, 1989), Liu, Coughlin, and McBride (1989) analyzed the National Long-Term Care Survey and found that, across all States, neither Medicaid status nor income influenced the likelihood that a community resident with a functional impairment would enter a nursing home during a fixed period of observation. Nyman (1990), on the other hand, has shown that discrimination against Medicaid patients appears to be more prevalent in States with limited nursing home beds, and this suggests that access problems might occur selectively in certain States.

A complementary perspective to Nyman's work is Schlenker's (1988) report that adjusting long-term care payments for differences in severity of illness improved access to long-term care for Medicaid recipients. This suggests that one reason nursing homes may discriminate against Medicaid patients is that they are sicker in proportion to level of payments than are self-pay patients.

Pharmaceuticals

A number of States seek to control Medicaid outlays for drugs through some combination of drug utilization review, formularies, limits on numbers of prescriptions per month, and copayments. These strategies are intended to create access barriers that will reduce use without

causing underservice². Information on how these policies affect the use of necessary drugs is limited, but there is evidence that strategies with similar impacts on program costs can have different effects on access. Soumerai et al. (1987) found that, when New Hampshire limited recipients to three prescriptions per month, some Medicaid patients stopped getting apparently necessary drugs such as insulin and diuretics. They also found that copayments effected equal program savings without such interruptions.

Appropriateness of care

We define appropriate care as the care that best medical judgment would prescribe, although we recognize that conclusive evidence is unavailable on many issues of appropriateness. In our analytic framework, appropriateness becomes an issue only after the utilization and access barrier is crossed, which is why we discuss late prenatal care as an underservice and access problem and caesarean section as an appropriateness problem. There are three important ways in which Medicaid recipients might receive less appropriate care than fully-insured patients:

- Inappropriate transfers to other providers.
- Service discrimination (inappropriate care compared with other patients of the same provider).
- Access discrimination (inferior providers, resulting from diminished access to better providers).

Transfers

The problem of inappropriate transfers between hospitals has received some publicity and scrutiny (Ansell and Schiff, 1987; Kellermann and Ackerman, 1988). Such transfers clearly take place, and available evidence suggests that Medicaid recipients are more likely than the privately insured, but less likely than the uninsured, to be victims. Inappropriate transfers are a special problem for the medically unstable, including patients in labor, but the magnitude of the problem has become even more difficult to assess since Federal and State laws have made transfers of unstable patients illegal (United States Code). Transfer of stable patients remains legal; the impact on care and outcomes has not been measured, but the effect seems unlikely to be good.

Service discrimination

Hospitals, nursing homes, and physicians may discriminate by providing different care to the uninsured, Medicaid recipients, and the fully-insured. Some folk wisdom among physicians suggests that service discrimination is rare, that providers maintain a relatively uniform standard of care for the patients they accept, and that they discriminate against Medicaid enrollees primarily by avoiding or getting rid of them. This is consistent with evidence that hospital costs and stays for Medicaid-eligible Medicare beneficiaries are similar to

²Medicaid programs also limit the payment to pharmacists for drugs, but it is not clear that this strategy has any effect on the access of beneficiaries to drugs.

those for other Medicare beneficiaries (Jencks and Kay, 1987) and that length of stay and charges are actually greater for patients with low socioeconomic status than for those with high status (Epstein, Stern, and Weissman, 1990). However, certain services requiring a second physician's willingness to accept Medicaid, such as consultations, referrals, and psychotherapy, may be less available to recipients. It is not clear whether this barrier will be evident to recipients or whether a provider will simply not suggest a form of care that is difficult to obtain because of low payment levels.

The Nation's most common surgical procedure, caesarean section, illustrates the problems of assessing appropriateness and service discrimination. Stafford (1990) found that 24.4 percent of 461,066 deliveries in California in 1986 were by caesarean section. Table 6 shows caesarean rates by payer, adjusted for population characteristics of age, race, and pregnancy-related problems. Differences among patients with different sources of payment increased rather than decreased after adjustment for previous caesarean section. These data suggest that the decision to perform a section is influenced by payment mechanism. An important feature of the Stafford analysis is the distinction between Indigent Services and self-pay patients; the lower rate for Indigent Services patients may reflect either differences between types of hospitals or the fact that the indigent are, as we have pointed out, a distinct subset of the uninsured. The results do not, in any case, tell us who is getting appropriate care.

Wenneker, Weissman, and Epstein (1990) have shown that, in Massachusetts, rates of cardiac procedures for patients admitted with circulatory disorders and chest pain are highest for the privately insured and lowest for Medicaid recipients, with the rates for the uninsured lying closer to those for Medicaid recipients. Wennberg et al. (1989) showed that hospitalization rates and costs for Medicare are much higher in Boston than in New Haven, which underlines the difficulty of determining whether the high (privately insured) or low (Medicaid) rates in Massachusetts are more appropriate.

Weissman and Epstein (1989) found that Medicaid patients had longer average hospital stays than Blue Cross patients, but the stays of uninsured patients were shorter. This finding regarding Medicaid patients is consistent with the Epstein, Stern, and Weissman (1990) findings of greater estimated severity of illness and costs for patients

with low socioeconomic status and does not suggest service discrimination. Across hospital types, Weissman and Epstein found that Medicaid patients quite consistently received more total procedures than self-pay patients and fewer than Blue Cross patients, again suggesting some service discrimination.

Access discrimination

Medicaid patients are referred to and use certain hospitals, physicians, and nursing homes; and there is controversy as to the appropriateness of care delivered by these "disproportionate share" providers. For hospitals, the best evidence comes from the Harvard Medical Practice Study Group (Medical Practice Study Group, 1990). They reviewed 30,121 hospital records in New York State and found 1,133 adverse events, of which 280 were attributed to negligence. Negligence rates were significantly higher for black and hispanic patients ($p = .007$), for hospitals serving more minorities ($p = .01$), and for Government and proprietary hospitals compared with nonprofit hospitals ($p = .004$). Differences in adverse event rates between Medicaid recipients and others were not statistically significant, but the Medicaid sample was not large. The implication is that if Medicaid recipients in New York receive worse care, access discrimination is a more likely explanation than service discrimination.

A variety of evidence indicates that nursing homes with higher percentages of Medicaid patients have characteristics associated with poor quality (Gottesman, 1974; Nyman, 1984; Weissert and Scanlon, 1985). Nyman (1990) argues that the number of nursing home accreditation violations is higher in homes with a higher concentration of Medicaid patients only in States with a shortage of nursing home beds because self-pay patients can only purchase selectively when there are surplus beds.

Outcomes

Several characteristics of Medicaid patients are closely associated with worse-than-average health: Poverty, high medical expenses relative to income, and nursing home residence. We must, therefore, be cautious in comparing outcomes for Medicaid and non-Medicaid recipients.

Perinatal outcomes

Relatively limited information is available on birth weight and infant mortality rates for Medicaid patients because Medicaid files have rarely been linked to vital records. Table 7 shows the results from such a linkage for a small sample from California. All of the differences in low-birth-weight rates are statistically significant at least at the $p < .05$ level, but the only statistically significant difference in infant mortality is between high-income residents and Medicaid recipients who were in the program less than 4 months. Being enrolled in Medicaid for less than 4 months of pregnancy carries a bad prognosis for the infant, living in a high-income area has a good prognosis, and being a longer term enrollee has an intermediate prognosis.

Table 6
Adjusted Caesarean section rates
by payer: California 1986

Payer	Rates
Privately insured	.291
Non-Kaiser HMO	.268
Medi-Cal	.229
Kaiser-Permanente HMO	.197
Self-pay	.193
Indigent services ¹	.156

¹Largely public hospitals.

NOTES: The data base includes only hospital deliveries. HMO is health maintenance organization. Medi-Cal is the name of the Medicaid program in the State of California. Rates are adjusted for age, race, and pregnancy-related problems.

SOURCE: (Stafford 1990.)

Table 7
Rates of underweight births and infant mortality
for early and late Medicaid enrollees and non-
Medicaid residents of high income areas:
California, October 1983

Population	Total live births	Birth weight under 2,500 grams	Infant mortality
Medicaid			
First trimester	1,880	78 (6.0)	13.8 (2.7)
Second or third trimester	5,612	63 (3.0)	8.6 (1.4)
Non-Medicaid			
High income residents	1,463	42 (5.0)	6.8 (2.2)

NOTES: Enrolled means initiation of enrollment into Medicaid. Standard errors are shown in parentheses in data columns. Rates are per thousand live births.

SOURCE: (Howell, Herz, Brown, and Wang, 1989.)

Asthma

Asthma is the most prevalent pediatric chronic disease and therefore one in which the relation of treatment to outcomes might be easiest to trace. Asthma admissions are widely regarded as a marker for ineffective or inaccessible ambulatory care because many admissions appear to be avertible by adequate care. Death rates for asthma have been rising (Benatar, 1986), but these appear to be sudden deaths that do not occur in hospitals and cannot easily be associated with insurance status. By contrast, Wissow et al. (1988) showed that the population-based rate of hospital admission for asthma in Maryland from 1979 to 1982 was 3.2 times higher for Medicaid recipients than for others. The rate remains more than twice as high for recipients as for others after adjusting for race. Such data are suggestive but hardly definitive without more detailed adjustment.

Pharmaceuticals

Soumerai et al. (1990) report that rates of nursing home and hospital admissions increased for the Medicaid recipients in New Hampshire whose drugs were interrupted by a limit on the number of prescriptions per month. They compared adverse event rates to rates for similar patients in New Hampshire before the limit was put in place, after it was repealed, and also to rates for similar patients in New Jersey, where there were no changes.

General medical care

Lurie et al. (1984, 1986) have shown an increase in mortality for individuals terminated from Medi-Cal compared with those who remained enrolled. Case studies strongly suggested a causal relationship between disenrollment and death. This implies not only that Medi-Cal recipients have better access to care than the unenrolled poor but also that the better access is life-saving. Lurie (1986) made direct contact with these

patients, or their next of kin and reported that they did not succeed, over time, in finding alternative strategies for getting care.

Lurie's work emphasizes that the health consequences of diminished access are measurable; another recent study, while not focusing specifically on Medicaid patients, underlines this point. Bindman, Lurie, and Keane (1990) compared access to care for Medicaid enrollees who had been inpatients at a county hospital that subsequently closed with a similar group of Medicaid enrollees receiving inpatient care from a public hospital in another county. The closure of the county hospital resulted in lack of inpatient and pharmacy services and a decline in the number of providers who accepted Medicaid patients. In the county with the closed hospital, local private hospitals and physicians did not absorb the Medicaid population who were left without a regular care provider. There was an increase in the reporting of pain and denials of care, a decrease in compliance with prescription drug regimens, and worse social, physical, and mental health function. Diminished access was specifically associated with a higher likelihood of deterioration.

The Soumerai, Lurie, and Bindman studies represent three breakthrough efforts in evaluating program change because they show how the impact of changes affect access and how these can be measured in terms of health status and outcomes. Methodologically, they combine a before and after design with control groups in different ways. Soumerai's (1990) design is powerful because it shows the outcomes worsening after an intervention and then improving when the intervention stopped while there was no change in another State. Bindman, Lurie, and Keane's (1990) study combines a before and after design with a control group and is even more persuasive because it measures an important intervening variable (establishing a new source of care) and links it to more favorable outcomes. Lurie's (1986) study heightens its credibility with specific information on the reasons why individual patients experienced bad outcomes.

Conclusions

We believe that this article provides a perspective on three issues: Data; access, eligibility, and payments; and, methods.

Data

Securing adequate data for further evaluation and research is a major issue. Representative national data are essential to studies of Medicaid because State programs differ so much from one another, but available data are spotty to the point of being anecdotal. In addition, the most meaningful assessments of access and effectiveness under Medicaid include comparisons both with the fully insured and with the uninsured poor. Although comparative data are available from surveys such as the National Medical Expenditure Survey, they cover limited samples and short periods of time. Good longitudinal analyses and analyses of individual conditions require

linking all-payer data sets to vital records, and establishing such comprehensive data is a research priority.

Access, eligibility, and payments

Another issue is tradeoffs among increasing eligibility, coverage, and payments. Three lines of evidence suggest that low Medicaid payments are only part of the problem in access to care for eligible patients.

- Delayed enrollment rather than inaccessibility of care for Medicaid enrollees appears to explain much of the delay in prenatal care for Medicaid recipients. This suggests that aggressive outreach and expanded eligibility may be as important as higher payments.
- Increased payments for office visits seem to shift physician visits from clinics to physician offices rather than strikingly increasing total visits. Counting visits is therefore not sufficient: We must measure the impact on patient outcomes. For example, a study like Hohlen et al., (1990) might be extended to include assessment of resulting immunization rates and adverse outcomes.
- Inflexible payment methods and a restricted supply of beds may be more important than low Medicaid payments in accounting for difficulties that Medicaid patients experience in getting into nursing homes. To the extent that bed shortage shapes the nursing home market, increasing Medicaid payments might simply allow nursing homes to increase charges to the self-pay patients.

These kinds of arguments do not mean that Medicaid payments are adequate. Rather, they suggest that putting a given amount of program funds into strategies such as outreach, more nursing home beds, and faster payments may be at least as efficient as putting money into higher payments.

We must, however, qualify this conclusion in two ways: First, each of the studies we cite has significant limitations. Second, increasing payments may have become more important in the past few years because fiscal pressures have reduced the readiness of hospitals, outpatient clinics, and physicians to absorb losses on Medicaid patients.

Methods

Data and methods are now available to shift the terms of debate over the accessibility and effectiveness of care for Medicaid recipients. We can, and henceforward should, measure program performance in terms of recipients receiving critical services, such as prenatal care and immunization or in terms of outcomes, such as birth weight, infant mortality, and hospitalization and death rates. Of even greater importance, the work of Soumerai et al., (1987, 1990); Lurie et al., (1984, 1986); and Bindman, Lurie, and Keane (1990) shows that program changes that diminish access can be directly linked to health outcomes. Evaluation of this type is so much more persuasive than counting services that it becomes the standard for future work.

In particular, we need an evaluation of recent Medicaid expansions for pregnant women that will measure the

impact on outcomes. The National Maternal and Infant Health Survey, which is just finishing field data collection, will provide detailed information on mothers and their infants, the care they receive, and the outcomes they experience. This survey, however, reports only on births in 1988, and other studies and analyses will be necessary to understand changes in birth outcomes over time. In addition, we will need to study the effects of the different ways that States have implemented both the eligibility expansions and the requirement that payments be sufficient to assure access to obstetrical and pediatric services.

Both HCFA and State programs are placing increasing emphasis on outcomes in studying the Medicaid program. For example, Washington is studying the effects of its Medicaid expansions on birth outcomes, and Maryland is using outcomes data to design program changes in areas such as diabetes and cervical cancer. HCFA has supported outcomes-oriented studies of Medicare for some years and has recently committed substantial resources to related studies of Medicaid.

The research results with the most immediate implications for policy highlight the relative impact on access and effectiveness of alternative strategies for achieving a particular goal. We have reviewed the question of Medicaid payments; Soumerai's (1987) study of alternative ways to control cost of drugs provides another example; evidence regarding the importance of enrollment for pregnant women is yet a third example. The purpose of research on access and effectiveness, after all, is neither changing the services provided under Medicaid nor changing program budgets but rather improving patient outcomes..

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