

Effect of Prepaid Group Practice on Hospital Use

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A GENERATION ago students of medical care were certain that the American people were not getting enough hospital care. Today the concern is that hospital use in this country may be excessive. Whether this marks merely a change in attitudes (1a, 2a) or a change in the real conditions of hospital use (3a) is not known. Yet it is surely characteristic of the present that we search for means to limit the use of hospitals, which have become so costly.

The question is, have ways been found to reduce hospital use without impairing the public's health? One suggestion frequently encountered is that the low rate of hospital use reported by prepaid group practice plans be extended to more people.

Specifically, this paper examines the literature on the subject of prepaid group practice in relation to hospital use, reviews the findings of several studies, and appraises alternative explanations for the apparent differences in hospital use among populations.

It will help our understanding to view the matter chronologically.

The Data

Substantial data on hospital use by persons with health insurance first appeared in the 1940's. Initially the insured population had a higher admission rate than the population as a whole (table 1). Later a reversal occurred, attributable in part to the wartime expansion of military hospitals. In the late 1940's it required ingenious reasoning to reconcile avail-

able data with the common-sense expectation that in a population of given age and sex composition, the insured would have the higher admission rate (4).

In 1952 the President's Commission on the Health Needs of the Nation compiled a great deal of material on medical care, including data on hospital use. The commission noted the shorter duration of hospital stay by insured persons, especially members of prepaid group practice plans. It said nothing about the admission rates of the group practice plans, which were also low (table 2). Instead, it remarked on the closeness of the admission rates of the Blue Cross plans and the population as a whole (5).

In 1953 the Health Information Foundation (HIF) jointly conducted with the National Opinion Research Center (NORC) the first of their nationwide household surveys that inquired into the use of medical services and expenditures for medical care by individuals and families with and without health insurance. The survey found a much higher hospital admission rate for the insured than the uninsured. Although this excess was somewhat offset by

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a shorter average duration of patient's stay, the net result, expressed in hospital days per person per year, was a higher use of hospitals by the insured of the order of 30 percent (table 3, study 1). A study under the same sponsorship confirmed the findings for insured persons in the city of Boston (table 3, study 2).

A household survey in New York City under the auspices of the Health Insurance Plan of Greater New York (HIP) yielded different results. The uninsured were reported to have both the highest admission rate and the longest duration of stay. Annual patient-days for subscribers to HIP (a prepaid group practice plan that provides comprehensive physicians' services outside and inside the hospital, does not charge for specific services, and pays its physicians out of capitation) were intermediate between those reported by the insured and uninsured populations of the city (table 3, study 3).

A study in Windsor, Ont., reported much higher rates of hospital use than in the United States, but the relationships between insured and uninsured in the two countries were similar (table 3, study 4). Finally, a study by HIF-NORC in 1958 repeated the findings of the 1953 study; this time the differences between the insured and uninsured were smaller (table 3, study 5).

The findings of the 1951 HIP study for the population of New York City were obviously unreliable, since they fell well below the hospital use figures reported by the city's hospitals

Table 1. Rates of hospital use, Blue Cross plans and U.S. population, 1940-46

Year and population	Admissions per 1,000	Average length of stay (days)	Patient-days per 1,000
1940:			
Blue Cross plans ----	105	8.1	910
U.S. population ----	74	13.7	1,019
1941:			
Blue Cross plans ----	107	7.6	810
U.S. population ----	85	13.4	1,133
1942:			
Blue Cross plans ----	108	7.8	830
U.S. population ----	¹ 91	¹ 13.3	¹ 1,216
1943:			
Blue Cross plans ----	106	7.6	802
U.S. population ----	¹ 112	¹ 13.9	¹ 1,556
1944:			
Blue Cross plans ----	103	7.3	749
U.S. population ----	¹ 118	¹ 14.3	¹ 1,696
1945:			
Blue Cross plans ----	107	8.1	862
U.S. population ----	¹ 120	¹ 16.5	¹ 1,987
1946:			
Blue Cross plans ----	111	8.3	923
U.S. population ----	106	13.4	1,412

¹ Includes military hospitals.

SOURCES:

Blue Cross plans—Louis S. Reed: Blue Cross and medical service plans. U.S. Government Printing Office, Washington, D.C., 1947, p. 113.

U.S. population—U.S. Department of Health, Education, and Welfare: Trends. 1962 ed. U.S. Government Printing Office, Washington, D.C., 1962, p. 29.

(the admission rates were 74 and 105 per 1,000 respectively, after adjustment for nonresidents) (6). Although HIP was barred by law from providing insurance for hospital care, the organization was interested in ascertaining the

Table 2. Rates of hospital use, group practice plans, Blue Cross plans, and U.S. population, 1950

Prepayment plan or population group	Admissions per 1,000	Average length of stay (days)	Patient-days per 1,000
Kaiser Foundation ¹ ----	104	6.6	685
Group Health Association, Washington, D.C. ² ----	89	6.4	568
Group Health Cooperative, Seattle, Wash ¹ ----	80	6.2	500
Labor Health Institute, St. Louis, Mo ¹ ----	70	7.0	490
Blue Cross plans ¹ ----	122	7.4	888
U.S. population ³ ----	110	10.6	1,165
Blue Cross plan, Washington, D.C. ² ----	120	6.1	735

SOURCES:

¹ President's Commission on the Health Needs of the Nation: Building America's health. U.S. Government Printing Office, Washington, D.C., 1952, vol. 3, p. 278.

² Reference 20.

³ U.S. Department of Health, Education, and Welfare: Trends. 1962 ed. U.S. Government Printing Office, Washington, D.C., 1962, p. 29.

volume of hospital services used by its subscribers. Having once found the household survey method unsatisfactory, it proceeded to employ what then seemed to be a more foolproof method, one not subject to sampling variations and the bias of nonresponse. The procedure was to devise a series of studies which would compare the hospitalization records of two groups, one consisting of HIP members and the other of a matched employee group with the same type of hospital care insurance but with a different form of medical care insurance.

In the 1955 HIP study (table 4, study 1) Blue Cross members of HIP were compared with Blue Cross members of Blue Shield whose medical care insurance was limited to the hospital. In a 1957 HIP study (table 4, study 3) Blue Cross members of HIP were compared with Blue Cross members of Group Health Insurance (GHI). Members of GHI are insured

for medical care outside the hospital, as well as inside, and services are performed by solo practitioners who are paid fee for service, as under Blue Shield.

During this period HIF and NORC conducted a household survey of members of three trade unions in New York City who subscribed to HIP and GHI under conditions of dual choice (table 4, study 2). Falk studied hospital use by steelworkers in several parts of the country who were insured by Blue Cross-Blue Shield, commercial insurance, and the Kaiser Foundation Health Plan (table 4, study 4).

The four studies had one finding in common. Subscribers to prepaid group practice plans consistently showed the lowest hospital use, owing chiefly to differences in the admission rate. The difference in hospital use between HIP and other insured populations has come to be expressed as a saving of 20 percent (7a, 8).

Table 3. Rates of hospital use, insured and uninsured populations in five household surveys, data for 1951-58

Study number, sponsor, and year of data	Prepayment plan or population group	Admission rate per 1,000	Average length of stay (days)	Patient-days per 1,000
1. HIF-NORC, 1953	{ U.S., all persons	120	7.4	900
	{ U.S., insured	140	7.0	1,000
	{ U.S., uninsured	90	8.3	700
2. HIF-NORC, 1953	{ Birmingham, Blue Cross-Blue Shield	120	¹ 6.3	750
	{ Boston, Blue Cross-Blue Shield	140	¹ 8.3	1,160
	{ Boston, commercial insurance (Aetna)	130	¹ 7.8	1,020
3. HIP, 1951	{ New York City, all persons	67	11.6	¹ 780
	{ New York City, insured	62	8.6	¹ 540
	{ New York City, uninsured	75	14.0	¹ 1,050
	{ HIP	74	10.6	¹ 780
4. University of Michigan, 1954	{ Windsor Medical Service, Ont.	186	8.6	1,595
	{ Windsor, Ont., other insured	192	8.6	1,650
	{ Windsor, Ont., uninsured	65	¹ 11.7	762
5. HIF-NORC, 1958	{ U.S., all persons	120	7.7	940
	{ U.S., insured	130	7.3	950
	{ U.S., uninsured	100	8.7	910

¹ Calculated by author.

SOURCES:

1. Odin W. Anderson and Jacob J. Feldman: Family medical costs and voluntary health insurance: A nationwide survey. McGraw-Hill, New York, 1956, pp. 180, 185, 187.
2. Odin W. Anderson: Voluntary health insurance in two cities. Harvard University Press, Cambridge, Mass., 1957, pp. 22-23.
3. Reference 6, pp. 147, 149, 160, 163.
4. Benjamin J. Darsky, Nathan Sinai, and Solomon J. Axelrod: Comprehensive medical services under voluntary health insurance. Harvard University Press, Cambridge, Mass., 1962, pp. 106-107.
5. Health Information Foundation: Unpublished data from 1958 nationwide survey, mimeographed tables E-IV-b, E-IV-b3, E-IV-b4.

In January 1962 HIP issued the report of a study that compared hospital use in 1958 by two groups of members of the same union (table 4, study 5). One group had medical care insurance with HIP and the other had it with the union's self-insured fund, which pays physician's fee for service. Unlike its two predecessors, this study found no difference in hospital use between the members of HIP and the other insured group.

In November 1962 Columbia University published a study in which hospital use, among other items, is compared for three union groups in several parts of the country with different forms of comprehensive health insurance (table 4, study 6). The data, derived from samples of households, show little difference in hospital use.

Proposed Explanations

Before discussing the details of the two studies published in 1962, it is helpful to try to recapture the climate of opinion that prevailed prior to their appearance. At the close of 1961 there was little doubt that subscribers to prepaid group practice plans experienced lower hospital use than other insured populations. The question was how does this come about?

It should be noted that the reports on the HIP studies were written with care and modesty and made no claims that group practice was a superior way of organizing resources to provide medical services. Densen and associates considered a number of possible explanations for their findings in the 1955 and 1957 studies and reached no firm conclusions.

Range of insurance benefits. The 1955 study seemed to support the common-sense expectation that hospital use would be higher when health insurance benefits were limited to care in the hospital. Not only did the findings show a difference in hospital use between HIP and Blue Shield, but within the Blue Shield population patients with both surgical and medical coverage in the hospital had a higher admission rate for nonsurgical conditions than patients whose Blue Shield coverage was limited to surgical benefits (9a). The 1957 study seemed to rule out the extent of medical care coverage as

the responsible factor since the populations under study had the same coverage in their insurance contracts (10a). The findings of the study of HIP and GHI conducted independently by the Health Information Foundation supported this conclusion (11a). The HIF study was also interpreted to signify that the mechanism of dual choice was not a factor in hospital use (10b).

It would seem almost self-evident that medical care benefits outside the hospital would tend to reduce hospital use. However, evidence for members of a labor union insured for outpatient services does not show a reduction in hospital use (personal communication from William H. Ford, president, Hospital Service Association of Western Pennsylvania, Pittsburgh, Pa.). In any case it is reasonable to suppose that the differential effect of medical care insurance on hospital use would be lessened if hospital admissions for diagnostic purposes were controlled by other means. In New York City the Associated Hospital Service has long exercised careful scrutiny over claims that may possibly represent diagnostic admissions. In their concern for the financial position of Blue Cross, most hospitals have cooperated. These facts are consistent with the finding that the difference in admission rates between HIP and Blue Shield is somewhat greater than the difference between HIP and GHI, 17 percent compared with 12 percent after adjustment (12a).

Services for ambulatory patients. Availability of services for ambulatory patients was mentioned in both the 1955 and 1957 reports, but emphases differed. In the report on the earlier study the emphasis was on the absence of financial pressures to hospitalize HIP subscribers for diagnostic services when medical services outside the hospital were insured (9a). In the report on the later study the emphasis was on the availability of facilities and consultation in the group medical center, which would presumably reduce the need to hospitalize patients for diagnostic purposes (10c). Each of these explanations needs to be tested.

In the literature on hospital use the provision of medical services to ambulatory patients receives a great deal of attention. In his study of the steelworkers Falk pointed to the presence

Table 4. Rates of hospital use, insured populations in 6 studies of matched populations, data for 1955-58

Study number, sponsor (source), and year of data	Prepayment plan or population group	Admission rate per 1,000	Average length of stay (days)	Patient-days per 1,000
1. HIP (Blue Cross) 1955.....	{HIP-Blue Cross.....	77	7.6	588
	{Blue Shield-Blue Cross.....	96	7.2	688
2. HIF-NORC (household survey) 1957.	{HIP-Blue Cross.....	¹ 63	¹ 6.5	¹ 410
	{Group Health Insurance-Blue Cross.....	¹ 110	¹ 8.0	¹ 870
3. HIP (Blue Cross) 1957.....	{HIP-Blue Cross.....	¹ 70	¹ 10.4	¹ 744
	{Group Health Insurance-Blue Cross.....	¹ 88	¹ 10.8	¹ 955
4. Steelworkers (insurance plans) 1958.	{Kaiser Foundation.....	² 90	² 6.3	² 570
	{Blue Cross-Blue Shield.....	135	7.6	1,032
	{Commercial insurance.....	150	7.8	1,167
5. HIP (District 65) 1958.....	{HIP-District 65.....	¹ 64	¹ 8.3	¹ 535
	{District 65.....	¹ 64	¹ 8.4	¹ 534
6. Columbia University (household survey) 1958.	{New Jersey Blue Cross-Blue Shield.....	76	³ 7.6	580
	{General Electric major medical.....	71	³ 8.6	610
	{Kaiser Foundation.....	79	³ 7.7	610

¹ Adjusted for age and sex composition.

² Excluding group with large proportion of retirees.

³ Calculated by author.

SOURCES:

1. Reference 9, p. 34.
2. Reference 11, p. 36.
3. Reference 10e.
4. Reference 13, p. 89.
5. Reference 12, pp. 62-68.
6. Reference 3, p. 152.

of large, well-equipped clinics at the Kaiser Foundation Health Plan, which reduce the need to send patients to the hospital (13). Roemer and Shain observed that the solo practitioner is unable to perform all necessary services in his office. By admitting a patient to the hospital, he can sometimes obtain help without losing the patient (14); in group practice such help can be obtained without hospitalization.

However, Roemer has challenged the view that the availability of prepaid preventive services to ambulatory patients will reduce hospital use. He expects increased contacts between patients and physicians to lead to the detection and treatment of more disease (15a). For some of these conditions hospitalization will be required.

Access to hospital beds. Each of the HIP studies considered the question of access to hospital beds, a matter that also concerned reviewers and critics (11b, 15b).

In the 1955 study Densen and associates

argued that if lack of access to hospital beds were a factor in the lower hospital use by HIP subscribers, it would be reflected in uniform, across-the-board differences in admission rates for the several diagnostic categories, not in varying differences (9b). Upon reflection it seems that this argument establishes too severe a criterion of proof.

In the 1957 study the authors introduced data showing that a higher proportion of general practitioners in HIP than in the city as a whole had hospital staff appointments (10d). Data pertaining to specialists would probably be more relevant. It is general knowledge that some well-qualified specialists with HIP medical groups lack hospital staff appointments (16).

Perhaps most relevant would be data on hospital use by patients of the several HIP medical groups in relation to the known opportunities of their physicians to admit them to a hospital. Unpublished data on this score show a differ-

ence of 9 per 100 in nonobstetrical admissions between medical groups that are judged to have no special problems in securing hospital beds and all other HIP medical groups. This is one-half of the difference between the two matched populations in the 1955 study.

The data on hospital use by steelworkers show similar differences between the Kaiser Foundation Health Plan subscribers and members of other insurance plans. The Kaiser Health Plan has its own hospitals; this rules out physicians' staff appointments as a factor. However, the ratio of beds in the system per 1,000 population is low. The hospitals operate at a high rate of occupancy for their size class (personal communication from Arthur Weissman, statistician, Kaiser Foundation Health Plan), and the admission of nonsubscriber patients to the hospital may compete with the admission of subscribers.

Possible failure to diagnose or treat illness. Both HIP studies raised the question whether low hospital use may not signify a failure to diagnose or treat medical conditions when they existed (9b, 10c). Admittedly this possibility could not be ruled out. However, Densen and associates thought that failure to diagnose or treat such a variety of conditions was difficult to believe (10c), partly because the proportion of board-certified physicians in HIP to the total physicians is much higher than in the general population. The low rate of tonsillectomy operations in HIP was cited as an example of conservative medical thinking and practice concerning the need for tonsillectomy, which could prevail in the absence of financial incentives to the contrary (9b).

It goes without saying that the ultimate criterion of the quality of care provided is the health status of patients. The HIP reports do not pretend to know whether low hospital use is good or bad for the health of a population (9b, 10c), and further research is recommended.

Attention should, however, be invited to the companion HIP studies on perinatal mortality, which indicate that at least one group of HIP subscribers receives superior care (17). More recently, reporting on the qualifications of surgeons (which may be taken as an index of the conditions under which one type of medical service is rendered), Trussell and van Dyke

have shown that a very high proportion of operations on HIP subscribers are performed by certified diplomates (84 percent) and by other full-time specialists (11 percent) (18). These figures are much higher than those of any of the other New York insurance plans studied.

As for the incidence of tonsillectomy, it has been declining in this country but still is twice as high as in England (1b). Many students have questioned the desirability of the operation on medical grounds (1b, 2b), and a low rate is seen as the outcome of conservative medical practice. (This is also the view of Leslie Falk, draft of handbook for Group Health Association of America, p. 17.) Roemer associates the difference between the rates reported by prepaid group practice plans and other insurance plans with the absence or presence of fee for service payments to physicians (15a). A later study indicates that the out-of-pocket cost to the patient cannot account for the observed difference in tonsillectomy rates between prepaid group practice and other forms of comprehensive medical insurance (3b).

Method of paying physicians. In the 1957 study, though not explicitly in the 1955 study, there was speculation that the method of paying physicians may contribute to the observed difference in hospital use (10e). The suggestion is that physicians paid fee for service are more likely to hospitalize patients than physicians paid a salary by the medical group out of capitation payments received from HIP.

Roemer directed his criticism of the 1955 HIP study mainly at its failure to deal with the method of paying physicians (15b). After analyzing data for the Canadian Province of Saskatchewan, he concluded that, in the absence of group practice, the fee-for-service method of paying physicians results in a greater use of hospitals than the salaried or capitation form of paying physicians. He added that this is especially true in surgery. Roemer has also observed that in Europe, where hospital doctors receive a salary, there is no need for hospital tissue committees to inquire into unnecessary surgery (19). Nevertheless, there are reports of patients in hospitals in England who do not belong there on medical grounds (2c).

In general, it is not a simple research task to disentangle the effects on hospital use of the

method of paying physicians from those of the form of organization of medical practice, since the two frequently vary together.

Other Possible Explanations

Control by physician. Other observers have also pointed to the important role played by the physician. Brewster has noted the controls over hospital admission exercised by the physicians of the Group Health Association of Washington, D.C. (20). In the group practice setting, it is stated, the physician, not the patient, controls the use of hospitals (7b). The specialty status of physicians has also been cited as a possible explanatory factor for differences in hospital use (21). However, it is not clear from the literature whether the decisive person is the specialist or the general practitioner.

Central role for specialist. In a comparison of medical care in three countries Peterson expresses approval of the control over hospital use exercised in England and Sweden by full-time specialists. Admission to the hospital should be selective, and the act of selection is best performed by a physician who is not biased by the possibility of earning a fee. In Sweden the hospital admission rate is the same as in the United States and the duration of stay is longer, but this is offset by a lower use of physicians' services—2.5 visits per person per year compared with 5.3 in the United States. More important, control of the nursing unit by one person permits a high rate of hospital occupancy and a low ratio of personnel to patients (40 percent below the United States), thereby reducing the cost of hospital care (1c).

Central role for general practitioner. In an English study Forsyth and Logan state that the general practitioner determines the caseload of hospitals. It is possible to do with fewer hospital beds if the general practitioner, who is supposed to be the cardinal figure in the National Health Service, is willing to provide home care. To fulfill this goal the general practitioner cannot remain outside the hospital, but must be brought into it (2d).

However, it is not clear what steps to take in order to reduce hospital use to the ratio of 2.3 to 2.5 beds per 1,000 population. Forsyth and Logan were unable to find any discernible relationship between the volume of hospital use

by a general practitioner's list and certain variables, such as the size of his list, location of his practice, frequency and cost of prescribing, or use of hospital laboratory and X-ray diagnostic services (2e).

Duration of patient stay. Because the average durations of patient stay reported in the HIP studies were close, they escaped adequate notice. In fact, an equal average stay for two insured populations is likely to signify a difference in stay (shorter for HIP subscribers) for a given diagnostic category, since the Blue Shield or GHI plan admits to the hospital relatively larger numbers of patients in the short-stay diagnostic categories than does HIP (9c).

The question arises why do HIP patients have shorter hospital stays? One factor may be their greater use of proprietary hospitals (18) which have shorter stays than other hospitals in New York City for almost every diagnostic category (22). Another possibility is that HIP patients may be discharged earlier because they had a complete workup in the group center prior to hospital admission. If so, the preoperative stay of surgical patients would be shorter for HIP than for the other groups, while the postoperative stays would be equal. At this time there are no data on these points.

The closer look at duration of stay has yielded an extra dividend. The hospital use rates reported for the matched groups of subscribers to insurance plans may be valid, but they need not be representative of the larger populations from which they are drawn. Based on data developed for the Hospital Council's study of hospital care in New York City (23), it is estimated that the findings of the 1955 HIP study understate hospital use by Blue Cross subscribers in New York City, as follows: admission rate, 5 percent; length of stay, 25 percent; and patient-days, 33 percent.

In light of these considerations it seems that in the late 1950's and into the 1960's the proposition gained wide currency and increasing acceptance that prepaid group practice plans had lower hospital use than other insurance plans. Thus, the Rockefeller Brothers Report endorsed prepaid group practice, giving among other reasons the incentive to minimize hospital admissions (24). Whether the difference in

hospital use reflected differences in accessibility of hospital beds remained a moot question. The range of medical care benefits in health insurance plans seemed to have been ruled out as a factor. However, it was not known whether the important factor was the organization of the medical group and the operation of group practice facilities or the salaried form of payment for physicians. In either case there was a question of possible failure to diagnose and treat existing illness.

Two Recent Reports

Two studies that appeared in 1962 occasioned surprise, for they raised anew questions that had apparently been settled concerning the differential effect of prepaid group practice on hospital use.

The 1962 HIP study. In January 1962 the third study by HIP appeared. It compares two groups in a labor union (District 65 of the Retail, Wholesale, and Department Store Union), one receiving physicians' services from HIP and the other from solo practitioners paid fee for service. For hospital care both groups are covered by the union's self-insurance fund. The study found that in the year 1958 the two groups had identical admission rates, durations of stay, and, therefore, hospital days per member per year.

It will be recalled that in the 1955 HIP study the two matched groups differed in the extent of insurance for physicians' services; the form of organization under which they received such services; and the method of paying physicians. In the 1957 study the range of physician benefits was the same for the two groups but the other two differences persisted. A new element in the 1957 study was dual choice, the opportunity afforded to subscribers periodically to transfer from one insurance plan to another. In the study published in 1962 (based on 1958 data) the two differences and dual choice persisted. The new element, which is offered by Densen and associates as the chief explanatory factor of the very low rate of hospital use in the union plan, is self-insurance for hospital care, coupled with an active union program of expenditures control and education of members (12b).

One finding of this study of the members of District 65 is that HIP subscribers had the higher proportion of nonwhite members. The authors were unable to interpret it (12a). In light of a recent report that nonwhites in New York City use more hospital care than the rest of the population (25), it may be that the white members of HIP use slightly less hospital care than do their counterparts in the self-insured fund.

The Columbia University study. The study by Columbia University published in November 1962 found almost identical hospital use among machinists and members of similar unions who subscribe to three comprehensive health insurance plans in several parts of the country. The insurance plans are Blue Cross-Blue Shield of New Jersey, the General Electric Company major medical plan in three cities (Utica, N.Y., Milwaukee, Wis., and Cincinnati, Ohio), and the Kaiser Foundation Health Plan in California. It is recognized that small sample size (the number of cases ranged from 168 to 184) would preclude the finding of differences in hospital use of a magnitude comparable to those found in the earlier HIP studies, even if they existed.

Some differences in hospital use were found by age group. Lower use by children in the Kaiser Plan is balanced by lower use by adults in the General Electric Plan. The lower rates by children are most likely caused by differences in admission rates for tonsillectomy. The lower use by adults may possibly reflect the deterrent effect of a deductible provision (3c).

It is reported that the findings on hospital use are those that would be expected if the hospital use rates of the National Health Survey were applied to the age and sex composition of the populations studied (3d). The writer's calculations show that the conclusion is valid for admissions, but not for patient-days. The calculated admission rate is 76 per 1,000 (26), compared with 75 per 1,000 found for all three plans in the study (table 4, study 6). The calculated rate for hospital days is 767 per 1,000 (27) compared with 600 per 1,000 for the three study groups; this difference is statistically significant.

In order to reconcile hospital use data from a household survey with data compiled from

hospital records, at least two adjustments are required. One adjusts for a tendency by households to under-report hospital use. The other adjusts for the exclusion of persons who died during the survey year, some of whom used hospital care. On the basis of National Health Survey studies the combined adjustment factor is estimated at approximately 20 percent, both for admissions and for hospital days (27, 28). In this light the findings of the 1962 HIP study, which do not require adjustment for these reasons, are very low indeed.

Other prepaid group practice plans have continued to report low hospital use (table 5). This is true whether a plan owns its hospitals or purchases care for its members from community hospitals. A declining trend was reported for the Group Health Association of Washington, D.C., where stringent efforts have been exerted to control hospital use (20). This is consistent with the chief explanation proposed in the 1962 HIP study. Self-insurance, which was formerly advocated as a source of savings on administrative and other retention costs of insurance (29), may now be viewed also as a restraining influence on hospital use.

Summary

HIP and other prepaid group practice plans have reported low hospital use by members. HIP's use of hospitals was found to be lower than Blue Shield's and lower than Group

Health Insurance Plan's. It is not lower, however, than that of the self-insured members of District 65 of the Retail, Wholesale, and Department Store Union. Another prepaid group practice plan, the Kaiser Foundation Health Plan, has reported low hospital use for its subscribers. A comparison of steelworkers insured under Blue Cross-Blue Shield, commercial insurance, and the Kaiser Health Plan showed the lowest hospital use under the Kaiser plan. However, a Columbia University study of machinists and members of similar unions has found no difference in hospital use among subscribers to the Kaiser Health Plan and two other comprehensive health insurance plans, Blue Cross-Blue Shield of New Jersey and General Electric major medical, which provide medical services through private practitioners paid fee for service. The last finding is contrary to the experience in Saskatchewan Province, where fee-for-service payment to physicians was associated with higher rates of hospital use than physician payment by salary or capitation.

Many reasons have been offered to explain reported differences in hospital use among insured groups. Of increasing prominence today is the presence or absence of controls. Controls take various forms and may be carried out by salaried physicians, by subscribers confronted with financial deterrents, or by self-insured plans in which the members actively cooperate; or controls may, in effect, be imposed by lack

Table 5. Rates of hospital use, group practice plans, Blue Cross plans, and U.S. population, 1960-61

Year	Prepayment plan or population group	Admissions per 1,000	Average length of stay (days)	Patient-days per 1,000
1960.....	Kaiser Health Plan ¹	97	6.2	601
1961.....	Group Health Association, Washington, D.C. ²	89	7.3	652
1960.....	Group Health Cooperative, Seattle, Wash ³	92	5.9	544
1961-62.....	Labor Health Institute, St. Louis, Mo ⁴	103	7.1	730
1960.....	Blue Cross plans, U.S. ⁵	139	7.6	1,060
1960.....	U.S. population ⁶	136	9.3	1,265

SOURCES:

- ¹ Communication from Arthur Weissman, statistician, Kaiser Health Plan, November 5, 1962.
- ² GHA News 25:15, March 1962.
- ³ Group Health Cooperative of Puget Sound: 1960 annual report. Seattle, Wash., 1961, table 33 (calculated).
- ⁴ St. Louis Labor Health Institute: 1962 annual report. St. Louis, Mo., 1962, pp. 17, 9.
- ⁵ Blue Cross Association: Statistical Bulletin 4B (May 9, 1962) amended by 4D (May 21, 1962).
- ⁶ U.S. Department of Health, Education, and Welfare: Trends. 1962 ed. U.S. Government Printing Office, Washington, D.C., 1962, p. 29.

or inaccessibility of hospital beds. The organizational framework of group practice may constitute a source of control over hospital use, as well as a vehicle for providing ambulatory services.

Two studies of matched populations published in 1962, one reporting on data obtained from hospitalization records and the other on data obtained from a household survey, have yielded unexpected findings. They fail to confirm the findings of previous studies that subscribers to prepaid group practice plans have lower hospital use than subscribers to other insurance plans. The 1962 reports serve to raise new questions regarding the sources of variation in hospital use and point to a need for additional, large-scale research in this field. In the future more attention should be directed at duration of patient stay.

REFERENCES

- (1) Peterson, O. L.: Quantity and quality of medical care and health. Paper delivered before American Sociological Association, August 29, 1962 (a) p. 1; (b) p. 8; (c) pp. 5-9, 10.
- (2) Forsyth, G., and Logan, R. F. L.: The demand for medical care. Oxford University Press, London 1960 (a) p. 20; (b) p. 68; (c) p. 83; (d) pp. 25, 89, 104, 107-108; (e) pp. 90-91.
- (3) Williams, J. J., Trussell, R. E., and Ellinson, J.: Family medical care under three types of health insurance. Foundation on Employee Health, Medical Care, and Welfare, New York, 1962 (a) pp. 148-149; (b) p. 155; (c) pp. 154, 157; (d) p. 181.
- (4) Klarman, H. E.: Economic aspects of hospital care. *J Business* 24: 12, January 1951.
- (5) President's Commission on the Health Needs of the Nation: Building America's health. U.S. Government Printing Office, Washington, D.C., vol. 2, 1952, p. 230.
- (6) Committee for the Special Research Project in the Health Insurance Plan of Greater New York: Health and medical care in New York City. Harvard University Press, Cambridge, Mass., 1957, p. 147.
- (7) Straus, D. B.: Statement on hospital costs. Prepared for Conference on Cost and Quality of Hospital Care in Greater New York, April 4, 1961 (a) p. 1; (b) p. 3.
- (8) Somers, A. R.: Comprehensive prepayment plans as a mechanism for meeting health needs. *The Annals* 337: 85, September 1961.
- (9) Densen, P. M., Balamuth, E., and Shapiro, S.: Prepaid medical care and hospital utilization. American Hospital Association, Chicago, 1958 (a) p. 32; (b) p. 33; (c) p. 28.
- (10) Densen, P. M., Jones, E. W., Balamuth, E., and Shapiro, S.: Prepaid medical care and hospital utilization in a dual choice situation. *Amer J Public Health* 50: (a) p. 1720; (b) pp. 1721-1722; (c) p. 1724; (d) p. 1723; (e) p. 1725, November 1960.
- (11) Anderson, O. W., and Sheatsley, P. B.: Comprehensive medical insurance. Health Information Research Series No. 9. New York, 1959 (a) p. 40; (b) p. 66.
- (12) Densen, P. M., Shapiro, S., Jones, E. W., and Baldinger, I.: Prepaid medical care and hospital utilization. *Hospitals* 36: (a) p. 68; (b) p. 63, Nov. 16, 1962.
- (13) Falk, I. S., and Senturia, J.: Medical care program for steelworkers and their families. United Steelworkers of America, Pittsburgh, Pa., 1960, p. 93.
- (14) Roemer, M. I., and Shain, M.: Hospital utilization under insurance. American Hospital Association, Chicago 1959, pp. 29-30.
- (15) Roemer, M. I.: The influence of prepaid physician's service on hospital utilization. *Hospitals* 32: (a) p. 51; (b) p. 49, Oct. 16, 1958.
- (16) Chase, E. T.: The politics of medicine. *Harper's* 221: 126 (Special Supp.), October 1960.
- (17) Shapiro, S., Jacobziner, H., Densen, P. M., and Weiner, L.: Further observations on prematurity and perinatal mortality in a general population and in the population of a prepaid group practice medical care plan. *Amer J Public Health* 50: 1312-1313, September 1960.
- (18) Trussell, R. E., and van Dyke, F.: Prepayment for medical care and dental care in New York State. State of New York, Albany, 1962, p. 200.
- (19) Roemer, M. I.: On paying the doctor and the implications of different methods. *J Health and Hum Behav* 3: 6, Spring 1962.
- (20) Brewster, A. W.: Group Health Association's use of community hospitals. In Proceedings of the Tenth Annual Group Health Institute of the Group Health Association of America, Chicago, 1960, p. 119.
- (21) Division of Hospital and Medical Facilities, Public Health Service: Research in hospital use: Progress and problems. PHS Publication No. 930-E-1. U.S. Government Printing Office, Washington, D.C., 1962, pp. 26-27.
- (22) Trussell, R. E., and van Dyke, F.: Prepayment for hospital care in New York State. State of New York, Albany, 1960, p. 226.
- (23) Klarman, H. E.: Hospital care in New York City. Columbia University Press, New York, 1963, pp. 37, 133, 420, 422.
- (24) The Rockefeller Panel Reports: Prospects for America. Doubleday & Co., New York, 1961, p. 314.
- (25) Klarman, H. E.: Characteristics of patients in

- short-term hospitals in New York City. *J Health and Hum Behav* 3:49, Spring 1962.
- (26) U.S. National Health Survey: Health statistics: Hospitalization, patients discharged from short-stay hospitals, United States, July 1957-June 1958. PHS Publication No. 584-B-7. U.S. Government Printing Office, Washington, D.C., 1958, p. 32.
- (27) U.S. National Health Survey: Health statistics: Reporting of hospitalization in the health interview survey. PHS Publication No. 584-D-4. U.S. Government Printing Office, Washington, D.C., 1961, p. 8.
- (28) U.S. National Health Survey: Health statistics: Hospital utilization in the last year of life. PHS Publication No. 584-D-3. U.S. Government Printing Office, Washington, D.C., 1961, p. 26.
- (29) Rubin, D.: Self-insured welfare plans. *I.U.D. Digest* 7:101, Summer 1962.

Needs of Aged

A 3-year research project completed in 1962 by the Brookline (Mass.) Health Department implies that each community agency with responsibilities in care of the aged needs to:

- Review its programs and services for the aging to determine if it is devoting enough resources to this expanding population group.
- Define carefully the subgroups of the aging which it wishes to reach.
- Consider opinions of the aging in planning, so that programs which follow will gain their acceptance.
- Integrate treatment and preventive services more closely.
- Direct more educational programs at friends or relatives to help reinforce health messages to older persons.
- Consider building counseling services into the context of familiar organizations, since older people turn to regular agencies for help only as a last resort.
- Find new ways to translate leisure time activity into functional work equivalents.
- Study skills and talents of older persons

to see if this age group, recruited as volunteers, could help relieve agency manpower problems.

- Consider that foreign birth and culture alters the aging person's acceptance of health agencies and may affect utilization of existing resources.
- Consider using residence-type hotels, boarding homes, and foster homes to enlarge the few available middle-of-the-road facilities between completely independent living and institutional care.
- Consider locating services in neighborhoods of those to be served, since the neighborhood character of a service apparently enhances its acceptance and use.
- Conduct studies of the nonusers of services to discover weaknesses and gaps in existing programs.

The study, supported by a Public Health Service grant and described in a report entitled "The Utilization of Health and Allied Services by Older People," is based on profiles of 604 Brookline residents 65 years and over.