Determinants of Hospital-to-Nursing Home Placement Delays: A Pilot Study

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Estimates of hospital-to-nursing home placement delays have always been varied, and given Medicare's new Prospective Payment System (PPS) based on diagnosis-related groups (DRGs), they are likely to have changed again. Theory and previous research suggest that four patient characteristics are the main causes of delays: Medicaid as the patient's nursing home payer source; need for heavy care due to major physical or mental problems; admission to the hospital from a nursing home; and lack of social support. A pilot study of all 1,016 elderly awaiting nursing home placement in two admission cohorts (pre- and post-PPS) from the three largest hospitals in the county surrounding Charlotte, North Carolina—where nursing home beds are in short supply—indicates that other factors are more important. While most placements were delayed, delays were short. Multiple regression results show that Medicaid patients' delays were only about a day longer than those of private-pay patients. Of the many heavy-care conditions studied, only three were associated with delay. Patients without social support and patients admitted from a nursing home, discharged to a hospital-affiliated facility, or placed after PPS had shorter delays. Long delays were found among patients who had applied for Medicaid coverage but had not yet been certified as financially

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eligible. Nonwhites and males were also delayed. These findings, if replicated in other areas with perceived nursing home bed shortages, appear to have important implications not only for the usefulness of nursing home case-mix reimbursement and subacute levels of nursing home care, but for nursing home bed-need estimates, too, as well as for Medicaid eligibility determination practices and civil rights law enforcement.

Although considerable research embracing a variety of methods has shown that some patients experience delayed hospital discharge because they are awaiting nursing home placement, agreement on the nature of the problem ends there. Magnitude estimates differed widely before the implementation of Medicare's DRG-based Prospective Payment System (PPS) for hospital reimbursement. Because financial incentives under PPS now encourage earlier discharges, the prevalence and average delay of patients awaiting placement are likely to have changed.

The hospital industry has focused on the placement delay problem as evidence of the need for a new hospital-based level of nursing home care (Kane and Kennie 1984). In addition, some hospital representatives have urged their state legislatures to establish potentially expensive special funds to reimburse hospitals for that portion of elderly patients' unreimbursed hospital days which the hospitals attribute to a perceived nursing home bed shortage—particularly a Medicaid nursing home bed shortage.

A response by some Medicaid agencies has been the development of case mix-adjusted nursing home reimbursement, explicitly adjusting the amount paid to nursing homes to reflect case-mix complexity. Ten states now include some type of case-mix adjustment in their nursing home reimbursement system, and several other states have similar systems under consideration. The systems are predicated on the assumption that the primary cause of hospital-to-nursing home placement delays is the heavy care requirements of some patients (Scanlon 1980).

A typical state's Medicaid reimbursement system pays a flat per diem rate or a capped prospective or retrospective rate which does not adjust for the extra costs of caring for heavy-care patients. Liu and Palesch (1981) have argued that under such payment systems, even if the Medicaid payment rate were equal to the private-pay rate, Medicaid patients requiring heavier than average care would be least

desired by the nursing home because they would require more than average care but would generate only average reimbursement.

Weissert, Scanlon, Wan, and Skinner (1983) developed a nursing home incentive reimbursement system that paid nursing homes the estimated extra cost of caring for heavy-care patients. While the incentive payment system was found to increase nursing home heavy-care admissions, evaluation of the cost effectiveness of the payment system (Meiners, Thorburn, Roddy, and Jones 1985) showed that outlays for heavy-care incentive payments were not recouped in reduced placement delays. This raised an important question: are heavy-care patients the ones who are delayed in hospitals while awaiting nursing home placement?

This article reviews findings from the considerable amount of research undertaken on hospital discharge delays. It then presents findings from a pilot study of 1,016 hospital-to-nursing home placements, which examined the influence of a number of variables—including patient heavy-care characteristics—on the delay problem in Charlotte, North Carolina, a large southeastern metropolitan area of the United States. It concludes with implications for public policy, including case-mix nursing home reimbursement.

PREVIOUS RESEARCH

MAGNITUDE OF THE PROBLEM

Before the implementation of PPS, Medicare paid hospitals for the "extra" days spent in the hospital by patients awaiting a nursing home bed. Two national surveys produced widely differing pre-PPS estimates of the prevalence of such delays, ranging from 1 million to 7 million hospital days per year (American Professional Standards Review Organizations 1980; U.S. Department of Health and Human Services 1980).

In New York State, three pre-PPS one-day prevalence surveys showed between 3,000 and 4,000 hospital patients awaiting placement at a lower level of care each year from 1978 through 1980 (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982). More recently, a one-day survey of six Monroe County, New York, hospitals found 164 patients awaiting placement (Barker, Williams, Zimmer, et al. 1985). In Massachusetts, a statewide one-day survey of acute general hospitals showed 1,111 patients awaiting placement, a 28

percent increase from 1977 (Massachusetts Hospital Association 1979). The average wait per patient reported was typically a month or more.

Gruenberg and Willemain (1982) have suggested that such cross-sectional studies overstate the magnitude of the delay problem. Using data from a 1976 Massachusetts Department of Public Health two-wave survey, they found that 620 hospital patients were awaiting discharge to a nursing home at the time of the initial survey. About 17 percent had become ready for discharge on that same day. On resurvey, six weeks later, they showed a median waiting time of five days. But for patients already waiting, the median waiting time was 21 days. More than one-quarter of all delayed patients were placed in nursing homes within two days after the initial survey. Fewer than 12 percent of the original population remained in the hospital longer than six weeks.

Other non-cross-sectional studies have reported few placement delays. From a medical record sample of 218 Medicare- or Medicaid-covered admissions to a California hospital, a utilization review nurse coordinator determined that only 26 percent had at least one unnecessary hospital day, with an average of about four (Restuccia and Holloway 1976). Fewer than 20 percent of 363 consecutive elderly and nonelderly admissions to the medical service of a New York hospital experienced any unnecessary hospital stay (Glass, Mulvihill, Smith, et al. 1977; Glass and Weiner 1976). The average unnecessary stay was approximately two days.

Meiners and Coffey (1985) used 1980–1982 patient-level data from Maryland hospitals and the Weissert and colleagues nursing home reimbursement experiment in San Diego to examine the role of long-term care placement in DRG overstays. While the data did not distinguish between medically necessary and unnecessary overstays, the authors concluded that the 8 percent of Maryland discharges who were elderly and discharged to nursing homes represented 20 percent of all DRG outlier stays. (An outlier is a stay of at least [the lesser of] 20 days or 1.94 standard deviations beyond the anticipated average for the DRG.) For San Diego, 22 percent of placements to nursing homes were outlier cases.

In short, studies of the magnitude of the hospital discharge delay problem have produced widely differing estimates. These estimates often are biased upward by their cross-sectional nature, and primarily have been the results of studies limited to the northeastern United States. Studies that have captured the total stay experience appear to suggest that unnecessary stays are less frequent and shorter than had previously been indicated.

DETERMINANTS OF DISCHARGE DELAYS

Role of Patient Case Mix

Using data from the 1973–1974 National Nursing Home Survey and the 1973 Master Facility Inventory, Scanlon (1980) modeled the nursing home market and concluded that excess demand existed for nursing home beds, a finding of importance to the placement delay issue. He showed that beds available was a significant factor in explaining nursing home use among all patients, but not among private-pay patients alone. This suggests that overall nursing home utilization was constrained by bed availability, but that for private-pay patients a bed was made available on demand. He also showed that state Medicaid eligibility policy variations were not significant in explaining total or private utilization. This he interpreted as further evidence of excess Medicaid demand. That is, if Medicaid eligibility were expanded, utilization would be likely to increase, unless too few beds were available to meet the increased demand. He concluded that nursing homes would choose private-pay patients over Medicaid patients, and light-care over heavy-care Medicaid patients.

Empirical evidence that patient heavy-care conditions or Medicaid coverage are in fact the principal cause of hospital-to-nursing home placement delays is limited, however. Among the studies reviewed for this article few actually used data on specific patients. Of these, a number found various patient heavy-care characteristics to be associated with placement delays (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Massachusetts Hospital Association 1979; Gruenberg and Willemain 1982; Glass, Mulvihill, Smith, et al. 1977; Glass and Weiner 1976; Meiners and Coffey 1985; Fields, MacKenzie, Charlson, and Sax 1986; Sloane, Redding, and Wittlin 1981; Massachusetts Department of Public Welfare 1980; Beattie and Jordan 1975). The Massachusetts Hospital Association (1979) concluded that heavy-care patients were experiencing delays because nursing home operators faced a seller's market and could pick and choose whom they admitted—choosing not to admit Medicaid or heavy-care patients. But the same state's Medicaid agency concluded that patient characteristics played a minor role in placement delays compared to inadequate placement efforts by hospital staff, and other factors (Massachusetts Department of Public Welfare 1980).

In Gruenberg and Willemain's (1982) study of Massachusetts hospital patients in 1976, fewer than 15 percent of patients awaiting nursing home placement were considered by the authors to be hard to place due to heavy-care characteristics. This same group of patients also had

been admitted to the hospital from a nursing home and were expected to be covered by Medicaid for their ensuing nursing home stay. While that made them Medicaid eligible in most cases, it is likely that had the study been conducted at a later time, the patients would have been guaranteed a nursing home bed under a Medicaid bed-hold or hospital-nursing home transfer agreement, devices now used by most Medicaid programs and hospitals to guarantee nursing home readmission.

Findings of more recent studies (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Barker, Williams, Zimmer, et al. 1985; Glass, Mulvihill, Smith, et al. 1977; Glass and Weiner 1976; Meiners and Coffey 1985) have indicated that patients admitted from nursing homes to hospitals are less likely to be delayed at discharge and are likely to have shorter-than-average delays.

Gruenberg and Willemain (1982) concluded that the largest group of patients who had difficulty finding a nursing home bed were Medicaid patients *from the community* seeking a permanent stay. However, the authors' analysis of payment-source effects was complicated by the lumping together of two important groups of patients heretofore considered equivalent but now understood to be quite different: those who were actually Medicaid eligible versus those who had only *applied for Medicaid eligibility but had not yet been verified as eligible.* In Gruenberg and Willemain's study, as in other studies using patient-level data (Massachusetts Hospital Association 1979; Massachusetts Department of Public Welfare 1980; Beattie and Jordan 1975), many "Medicaid" patients actually may have been "Medicaid-pending" patients.

To the nursing home operator this distinction is critical. Medicaid eligibles have a guaranteed source of payment—albeit low—while patients whose eligibility is pending represent quite the reverse: they are poor, but have no guarantee that they will pass the Byzantine eligibility screens set up by federal, state, and county Medicaid eligibility rules. If a nursing home admits Medicaid-pending patients, and their eligibility for Medicaid is subsequently denied, the home must absorb their charges as bad debt or acquire payment from the patients. Since these patients are poor, getting payment from them is a risk that most homes are unwilling to take.

Many nursing home applicants can fall into this category because hospital or nursing home admission may mark the first time in their lives that they have needed Medicaid coverage. Since Medicare pays most health care charges (except nursing home charges) that would qualify an elderly person for Medicaid (Rice and Gabel 1986), the Medicare hospital deductible may be the first occasion on which the

poor or medically needy elderly person faces sufficiently large uncovered medical care charges to merit seeking Medicaid coverage under the so-called Medicaid "buy-in" provision. This provision permits states to pay Medicare hospital deductibles and coinsurance through their Medicaid programs on behalf of patients whose income qualifies them for Medicaid. Four to six weeks typically pass, from application to actual verification of eligibility by the county social services office, which processes and confirms the financial eligibility of the applicant. In the interim, such a patient faces some risk of being denied by Medicaid for lack of information, unwillingness to liquidate an asset, or other reasons. If the nursing home admits the patient during this period of uncertainty, it may not be able to recoup its charges in the event that the patient is ultimately denied Medicaid eligibility.

One recent study listed delays in processing Medicaid eligibility as one of several barriers to timely hospital discharge (Barker, Williams, Zimmer, et al. 1985).

Supply Factors

Many studies have examined the role of the supply of hospital, nursing home, or community-based services in hospital discharge delays. Of these, three explored the role of hospital occupancy. Markson, Steel, and Kane (1983) found high occupancy rates to be associated with discharge delays while the Office of the U.S. Inspector General (1980) and Varricchio (1980) found the opposite.

High nursing home occupancy rates may be another contributing factor (U.S. Department of Health and Human Services 1980; Gruenberg and Willemain 1982). Additional indicators of "inadequate" nursing home supply—such as little turnover in skilled nursing facilities, low ratio of skilled to acute beds (Varricchio 1980), shortage of beds (U.S. Department of Health and Human Services 1980; Massachusetts Hospital Association 1979; Sloane, Redding, and Wittlin 1981; Rosenfeld, Goldman, and Kaprio 1957) and improper utilization of available beds (Beattie and Jordan 1975)—also have been found to be associated with discharge delays.

Shapiro, Roos, and Kavanaugh (1980) and Shapiro and Roos (1981) found hospital discharge delays in Manitoba, Canada over a five-year (1972–1976) period unchanged despite implementation of several policies intended to alleviate them. Policies included increasing the number of nursing home beds, rehabilitation beds, and home care programs, and expanding the public insurance coverage of medical

services to include these services. Despite these changes, hospital lengths of stay increased, especially among the elderly.

Placement Coordinators' Perceptions

Discharge planners surveyed at 49 acute care hospitals in Boston, Massachusetts frequently cited patient Medicaid eligibility determination, incontinence, inability to perform activities of daily living, and mental confusion as reasons for placement delays (Markson, Steel, and Kane 1983).

A utilization review nurse-coordinator concluded that the most frequent reason for an unnecessary day among a sample of Medicare or Medicaid admissions to a California hospital was the unavailability of a skilled nursing facility (SNF) bed with the appropriate amount of nursing services (Restuccia and Holloway 1976).

Toseland and Newman (1984) mailed questionnaires to 539 SNFs in New York State. More than 91 percent of those responding (61 percent) reported area hospital-to-nursing home placement delays. From 15 criteria, more than half of the respondents chose as their first or second criterion for admitting a patient the amount of physical care required. Another important factor was what bed was open, three-fourths indicating that their facility had a policy of matching residents living in the same room: an "applicant for a semi-private room may or may not be admitted depending on who else is already residing in that room" (Toseland and Newman 1984, 7). Also cited were "delays of several months in receiving Medicaid approval," and lack of community care alternatives.

Price

Given that the underlying model of nursing home use most frequently applied to placement delay problems is an economic one, the role of price would seem to be important. Yet few studies have included a price variable. Scanlon (1980) used mean price charged private-pay patients in his analysis of excess demand. Others have generally ignored the variable despite Scanlon's view that it is the difference between public and private payment rates that makes nursing homes favor private patients.

Summary of Determinants

Table 1 summarizes factors found to be related to hospital discharge and placement delays in the studies reviewed. Most studies did not use

Table 1: Factors Associated with Hospital Discharge Delays in Studies Reviewed

Patient or Family

Young old (Meiners and Coffey 1985)
Old old (U.S. Department of Health and Human Services 1980; Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Massachusetts Hospital Association 1979; Glass, Mulvihill, Smith, et al. 1977; Glass and Weiner 1976)
Old old, change of residence after discharge and chronic disorientation (Glass, Mulvihill, Smith, et al. 1977; Glass and Weiner 1976)
Male (Meiners and Coffey 1985)
Female (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Barker, Williams, Zimmer, et al. 1985)
Widowed (Barker, Williams, Zimmer, et al. 1985)
No family or family ambivalence (Sloan, Redding, and Wittlin 1981)
Disagreement between a family seeking a nursing home placement for a family member who refused (Glass and Weiner 1976)
Patient or family insistence on remaining in hospital until a bed in nursing home of choice available or for other reason (Massachusetts Hospital Association 1979; Restuccia and Holloway 1976; Shapiro, Roos, and Kavanaugh 1980; Shapiro and Roos 1981)
Inability or unwillingness of family to care for patient at home (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Restuccia and Holloway 1976; Rosenfeld, Goldman, and Kaprio 1957)
Admission through hospital emergency department (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Barker, Williams, Zimmer, et al. 1985)
Admission from home or from other than a nursing home (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Barker, Williams, Zimmer, et al. 1985; Meiners and Coffey 1985)
Admission from home, Medicaid, and unlikely to return to the community (Gruenberg and Willemain 1982)
Admission from nursing home, Medicaid, and dependency in activities of daily living (Gruenberg and Willemain 1982)
Change of residence after discharge (Glass, Mulvihill, Smith, et al. 1977; Glass and Weiner 1976)
Delay in determining Medicaid eligibility (Barker, Williams, Zimmer, et al. 1985; Massachusetts Hospital Association 1979; Markson, Steel, and Kane 1983; Toseland and Newman 1984)
Problem securing adequate commitments for third party payments prior to extended care facility placement (Glass and Weiner 1976)
Medicaid (U.S. Department of Health and Human Services 1980; Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Barker, Williams, Zimmer, et al. 1985; Massachusetts Hospital Association 1979; Beattie and Jordan 1975; Markson, Steel, and Kane 1983)

Continued

Table 1: Continued

Patient or Family (continued)

Medicaid or high physical care needs (Massachusetts Hospital Association 1979)
Limited or no private funds (Markson, Steel, and Kane 1983)
Multiple diagnoses (Massachusetts Hospital Association 1979; Meiners and Coffey 1985)
Primary diagnosis of circulatory disease or fracture (Massachusetts Hospital Association 1979)
No mental disorder (Glass and Weiner 1976)
Multiple hospital procedures (Meiners and Coffey 1985)
Cognitive impairment (Fields, MacKenzie, Charlson, and Sax 1986)
Behavioral problems (Meiners and Coffey 1985)
Mental confusion (Markson, Steel, and Kane 1983)
History of alcoholism (Markson, Steel, and Kane 1983)
Aggressive behavior (Sloan, Redding, and Wittlin 1981)
Psychiatric disorder (Shapiro, Roos, and Kavanaugh 1980; Shapiro and Roos 1981)
Behavioral disorder (Massachusetts Hospital Association 1979)
Chronic disorientation (Glass, Mulvihill, Smith, et al. 1977; Glass and Weiner 1976)
Dependency in activities of daily living (Meiners and Coffey 1985; Markson, Steel, and Kane 1983)
High physical care needs (U.S. Department of Health and Human Services 1980; Massachusetts Hospital Association 1979; Toseland and Newman 1984)
Incontinence (Markson, Steel, and Kane 1983)
Long-term nursing home need (Meiners and Coffey 1985)
Need for a skilled nursing facility bed (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Massachusetts Hospital Association 1979; Beattie and Jordan 1975)
Need for skilled nursing facility for less than 72 hours (Restuccia and Holloway 1976)

Hospital

Large percentage of patients aged 60 and over placed in long-term care (Markson, Steel, and Kane 1983)
Large percentage of patients placed in rest homes (Markson, Steel, and Kane 1983)
Small percentage of patients placed in intensive nursing care (Markson, Steel, and Kane 1983)

Hospital (continued)

High hospital occupancy rate (Markson, Steel, and Kane 1983)
Low hospital occupancy rate (U.S. Department of Health and Human Services 1980; Varricchio 1980)
Inadequate discharge planning (Barker, Williams, Zimmer, et al. 1985; Restuccia and Holloway 1976)
Physician delay of transfer to observe patient's condition (Restuccia and Holloway 1976)
Late date of physician order for transfer (Restuccia and Holloway 1976)
Physician refusal of skilled nursing facility use because of belief that intermediary will expect all patients with same diagnosis to be transferred (Restuccia and Holloway 1976)
Terminal patient not transferred because of humanitarian reasons (Restuccia and Holloway 1976)
Research purposes (Rosenfeld, Goldman, and Kaprio 1957)

Environmental

What nursing home bed is open (Toseland and Newman 1984)
Lack of community or alternative services (U.S. Department of Health and Human Services 1980; Toseland and Newman 1984)
Lack of coordination between acute facilities, long-term institutions and home care services (Barker, Williams, Zimmer, et al. 1985; Shapiro and Roos 1981)
High nursing home occupancy rate (U.S. Department of Health and Human Services 1980; Gruenberg and Willemain 1982)
Payment rates assigned for each level of care produce incentives for nursing homes to give preference to the lightest care patients at a particular level (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Shapiro and Roos 1981)
Selective admission practices among nursing homes (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Massachusetts Hospital Association 1979; Shapiro, Roos, and Kavanaugh 1980; Shapiro and Roos 1981)
Ambiguities in payment system (Sloan, Redding, and Wittlin 1981)
Unavailability of intermediate nursing home bed (Sloan, Redding, and Wittlin 1981)
Low turnover in skilled nursing facilities (Varricchio 1980)
Low ratio of skilled beds to acute (Varricchio 1980)
Shortage of nursing home beds (U.S. Department of Health and Human Services 1980; Massachusetts Hospital Association 1979)
Unavailability of skilled nursing facility bed with necessary type or amount of nursing services (Restuccia and Holloway 1976)
Improper utilization of available nursing home beds (Beattie and Jordan 1975)
Lack of suitable facilities in the community (Rosenfeld, Goldman, and Kaprio 1957)

multivariate statistical controls, so few were able to determine the separate contributions of the factors studied. Consequently, characteristics such as "admitted from emergency room," "widowed or unmarried," "long-term nursing home need," "old old," and many other traits actually may not be associated with discharge and placement delays, but rather may be correlated with other traits which are associated with delays.

PILOT STUDY

Data were collected in a pilot study to permit validation of the role of some of these findings in placement delays, especially those relating to patient heavy-care requirements, Medicaid coverage, and admission from a nursing home. The study also explored the impacts of "new" variables, such as Medicaid-pending status, PPS, discharge to a hospital-affiliated nursing home and, for Medicaid-eligible patients in the sample, price.

STUDY DESIGN

Admissions to all three large general hospitals in the Charlotte area were sampled. From admissions, the study sample included all elderly patients discharged to nursing or rest homes, or who died awaiting placement, during two six-month admission periods—one before and one after implementation of Medicare's DRG-based PPS in each hospital. Since the implementation date of PPS varied by the hospitals' fiscal year, sampling periods varied slightly by hospital. To control for seasonality, the post-PPS sample was drawn from the six months corresponding to the pre-PPS six-month period one year earlier. A 100 percent sample was used, since estimates suggested that such a large sampling rate would be needed to produce sufficiently large subsamples for subgroup analysis.

Sampling of admissions placed in nursing or rest homes drew from the hospital's management information system, which was computer assisted in two of the three hospitals, and which, in each case, included a variable on discharge location. For patients who died awaiting placement, hospital social workers' logs were the sampling frame, since the management information systems made no mention of nursing homes for such patients.

More than 80 data items were drawn from the patients' hospital records by a team of medical records technicians trained and super-

vised by a nurse instructed in research methods. Data completeness and quality checks were performed. Rater-specific validity checks were made on ten items selected from as many domains, and an overall validity check was conducted on a 20 percent reabstraction by the nurse team leader.

Interviews were conducted with discharge planning staff at the three hospitals, representatives of the state hospital and nursing home associations, and admissions clerks at each nursing home in the area. Interview data are not reported in this article, but were drawn upon in interpreting the patient-record data.

Facility-specific Medicaid per diem reimbursement rates were obtained from the state Medicaid agency for each nursing home to which sampled Medicaid-eligible patients placed within the state were discharged. Private-pay basic daily charges were obtained from published licensure application data (North Carolina Department of Human Resources 1986, 1985, 1984, 1983).

FINDINGS

Magnitude of the Problem

The dependent variable in the study was the number of "unnecessary hospital days" defined as the days between the date on which the physician ordered the patient medically ready for transfer to a nursing or rest home and the date of actual transfer or death. The sample used for analysis in this article was limited to patients who were placed alive (944), since the stays of those who died awaiting placement, although somewhat lengthy, were truncated by death.

Deaths Awaiting Placement. Seventy-two (7 percent) of the 1,016 discharges in the study sample died while awaiting placement. Most died before they were medically ready for transfer, however. Only 24 experienced some unnecessary hospital stay. The average unnecessary stay for these deceased patients ranged from 1 to 26 days, averaging 10.4 (± 7.1) days. Sensitivity analyses were conducted by including those who died, and their inclusion did not affect the findings.

Live Placements. Sixty-four percent of nursing or rest home placements experienced at least one unnecessary hospital day, accumulating among them a total of about 3,500 unnecessary days in 12 months, at a hospital semiprivate room-and-board cost that would have approximated half a million dollars paid had the beds been filled by other patients—which would not always have happened. The average placement delay lasted 5.9 (± 9.3) days for these patients.

Lengths of delay ranged from 0 days to 66 days:

Unnecessary Days	*Percent of Placements*
0	36
1–3	40
4–7	11
8–14	7
15+	6
	100%

Computed for all placements (whether delayed or not), the average delay lasted 3.7 days (± 7.9) of an average overall hospital stay of 15.2 days.

Determinants of Placement Delays

Tables 2 and 3 present definitions, means, and standard deviations for variables used in an ordinary least-squares (OLS) regression analysis of unnecessary hospital days on a number of independent variables. The model explained 26 percent of the variance in placement delays (Table 4). Multicollinearity was assessed using a variety of standard formal methods (following Neter, Wasserman, and Kutner 1985; Belsley, Kuh, and Welsch 1980). None of the methods yielded results that indicated the presence of multicollinearity.

Twelve variables were found to be statistically significant at the 5 percent significance level, and one at the 10 percent significance level (using a two-tailed *t*-test). Among them, seven had positive coefficient estimates, which means that the other six—with negative coefficient estimates—were associated with shorter-than-average placement delays. The six characteristics with positive coefficient estimates were family involvement in the discharge, Medicaid, Medicaid-pending status, mental disorder, surgery during the hospital stay, comatose or semicomatose condition, and PPS.

Characteristics associated with shorter-than-average placement delays were being female, being white, living alone, being admitted from an institution, requiring intravenous feedings, and being discharged to a hospital-affiliated facility.

Sex and Race. Patient demographic characteristics were related to lengths of delay. Female patients stayed an average of about one and one-half fewer unnecessary days than male patients. White patients stayed about three fewer unnecessary days than nonwhite patients.

Table 2: Definitions of Independent Variables

Variable	*Definition*
Demographics	
Age*	Age of patient (in years) at hospital admission minus 80.98155 (the mean age for the study sample)
Female†	Female patient
White†	Caucasian patient
Resident of county†	Patient lived in the hospital's county prior to hospital admission
Social Support	
Currently married†	Patient married at hospital admission
Family involved in discharge plan†	Member(s) of patient's family involved in patient discharge plan
Usual living arrangement Prior to hospital admission	
Alone in community†	Patient lived alone in the community
In institution†	Patient lived in nursing home, rest home, or other hospital
With others in community‡	Patient lived with a relative, friend, or other person(s) in the community
Expected Payer Source for Nursing Home Care	
Medicaid†	Medicaid
Medicaid pending†	Patient or someone in her or his behalf had made or was planning to make application for Medicaid coverage
Medicare†	Medicare
Payer unknown†	Unknown
Private pay/Other insurance‡	Patient, family member, or other insurance
Diagnoses and Related Conditions	
Primary Diagnosis	Patient's primary diagnosis
Neoplasms†	
Endocrine/Metabolic†	
Genitourinary disease†	
Nervous system disease†	
Respiratory disease†	
Digestive system disease†	
Injury†	
Mental disorder†	
Other disease†	
Circulatory disease‡	
Number of secondary diagnoses*	Number of patient's secondary diagnoses
Surgery during hospital stay†	Patient underwent surgical procedure(s) during hospital stay
Hospitalized during year prior to admission†	Patient hospitalized during year before hospital admission

Continued

Table 2: Continued

Variable	*Definition*
Heavy-Care Conditions	
Mentally disoriented†	Patient not oriented to person, place, or time
Behavior problem†	Patient abusive, destructive, agitated, or wandering
Ventilator†	Patient on a ventilator
Turning and positioning†	Patient required turning and positioning
Decubiti/Skin ulcers†	Patient had decubiti or other skin ulcers
Sterile dressings†	Patient required sterile dressings
Tracheostomy†	Patient had a tracheostomy
Restraints†	Patient required restraints
Comatose/Semicomatose†	Patient comatose or semicomatose
Oxygen dependent†	Patient oxygen dependent
Intravenous feedings†	Patient required intravenous feedings
Intramuscular injections†	Patient required intramuscular injections
On medication requiring monitoring†	Patient on medication requiring close monitoring
Dialysis†	Patient required dialysis
Rehabilitation therapy†	Patient had physical or speech therapy postdischarge order
Incontinent of bowel or bladder†	Patient incontinent of bowel or bladder
Help eating	
Spoon fed†	Patient spoon fed by another person
Tube fed†	Patient tube fed
Other fed‡	Patient required minimal or no help from another person with feeding
Hospital Characteristics	
Discharged to hospital-affiliated nursing home†	Patient discharged to a hospital-nursing home facility closely affiliated with one of the study hospitals
Hospital	Patient's admitting hospital
1†	
2†	
3‡	
Post-PPS†	Patient discharged from admitting hospital after Medicare's DRG-based Prospective Payment System was implemented

*Continuous variable.
†Dichotomous variable. Characteristic described in the above table set to the value of 1. All others set equal to 0.
‡Reference (i.e., omitted) category.

Table 3: Means and Standard Deviations of Independent Variables (N = 808)

Independent Variables	*Mean*	*Standard Deviation*
Demographics		
Age*	0.000	7.166
Female	0.731	0.444
White	0.864	0.343
Resident of county	0.900	0.301
Social Support		
Currently married	0.197	0.398
Family involved in discharge plan	0.578	0.494
Usual living arrangement prior to hospital admission		
Alone in community	0.149	0.356
In institution	0.582	0.494
Expected Payer Source		
Medicaid	0.274	0.446
Medicaid pending	0.152	0.360
Medicare	0.128	0.334
Payer unknown	0.158	0.365
Diagnoses and Related Conditions		
Primary diagnosis		
Neoplasms	0.068	0.252
Endocrine/Metabolic	0.050	0.217
Genitourinary disease	0.055	0.227
Nervous system disease	0.041	0.198
Respiratory disease	0.097	0.296
Digestive system disease	0.106	0.309
Injury	0.157	0.364
Mental disorder	0.059	0.237
Other disease	0.131	0.338
Number of secondary diagnoses	3.340	2.138
Surgery during hospital stay	0.391	0.488
Hospitalized during year prior to admission	0.477	0.500
Heavy-Care Conditions		
Mentally disoriented	0.360	0.480
Behavior problem	0.204	0.403
Ventilator	0.004	0.061
Turning and positioning	0.505	0.500
Decubiti/Skin ulcers	0.168	0.374
Sterile dressings	0.182	0.386
Tracheostomy	0.004	0.061
Restraints	0.198	0.399
Comatose/Semicomatose	0.022	0.148
Oxygen dependent	0.078	0.268

Continued

Table 3: Continued

Independent Variables	*Mean*	*Standard Deviation*
Intravenous feedings	0.120	0.325
Intramuscular injections	0.036	0.186
On medication requiring close monitoring	0.279	0.449
Dialysis	0.005	0.070
Rehabilitation therapy	0.187	0.390
Incontinent of bowel or bladder	0.494	0.500
Help eating		
Spoon fed	0.068	0.252
Tube fed	0.141	0.348
Hospital Characteristics		
Discharged to hospital-affiliated nursing home	0.156	0.363
Hospital		
1	0.423	0.494
2	0.293	0.456
Post-PPS	0.529	0.500

*Age is defined as the patient's age minus the mean age for the study sample.

Social Support. Two social support indicators—family involvement in hospital discharge planning and living with another person in the community prior to hospital admission—appeared to slow down nursing home placement. Patients whose families participated in their discharge plan had an average of about a day-and-a-half longer unnecessary hospital stay than those whose families did not. Those who lived alone or in an institution prior to admission stayed an average of about three fewer unnecessary days than those who lived with another person in the community (F (2,759) = 9.27; $p < .001$).

Expected Payer Source. Expected source of payment for nursing home care was significantly associated with number of unnecessary days (F (4,759) = 11.09; $p < .001$). In particular, those who had applied for Medicaid eligibility at the time of readiness for placement but whose application had not yet been approved—the Medicaid-pending group—stayed an average of over five more unnecessary days than their private-pay counterparts. Medicaid-eligible patients also experienced slightly longer delays than private-pay patients, averaging about a day more.

Diagnosis and Other Heavy-Care Indicators. Patients in most of the primary diagnosis groups were not any harder to place relative to their reference group, patients with circulatory disease. Although the overall primary diagnosis variable was not significantly associated with

Table 4: Unstandardized OLS Coefficients for Regression of Unnecessary Hospital Days on Independent Variables ($N = 808$)

Variable	*Unstandardized Coefficient*	*Standard Error*	p-*Level*
Demographics			
Age	-0.019	0.037	.608
Female	-1.466	0.611	.017*
White	-3.276	0.830	.000*
Resident of county	0.626	0.849	.461
Social Support			
Currently married	0.026	0.703	.971
Family involved in discharge plan	1.675	0.641	.009*
Usual living arrangement prior to hospital admission	-3.262	0.845	.000*
Alone in community	-2.705	0.782	.001*
In institution			
Expected Payer Source			
Medicaid	1.325	0.746	.076†
Medicaid pending	5.115	0.829	.000*
Medicare	-0.401	0.863	.642
Payer unknown	0.279	0.820	.734
Diagnoses and Related Conditions			
Primary diagnosis			
Neoplasms	-1.176	1.122	.295
Endocrine/Metabolic	-0.515	1.256	.682
Genitourinary disease	-0.847	1.238	.494
Nervous system disease	-2.988	1.363	.029*
Respiratory disease	-0.886	0.959	.356
Digestive system disease	-0.782	0.970	.421
Injury	-1.182	0.906	.192
Mental disorder	2.835	1.188	.017*
Other disease	-1.351	0.870	.121
Number of secondary diagnoses	-0.190	0.121	.117
Surgery during hospital stay	2.051	0.604	.001*
Hospitalized during year prior to admission	-0.389	0.508	.443
Heavy-Care Conditions			
Mentally disoriented	-0.846	0.612	.167
Behavior problem	0.274	0.704	.698
Ventilator	-1.023	4.393	.816
Turning and positioning	-0.149	0.604	.805
Decubiti/Skin ulcers	0.374	0.725	.606
Sterile dressings	0.319	0.782	.684
Tracheostomy	-2.519	4.352	.563
Restraints	0.393	0.711	.580
Comatose/Semicomatose	3.414	1.775	.055*

Continued

Table 4: Continued

Variable	Unstandardized Coefficient	Standard Error	p-Level
Heavy-Care Conditions (continued)			
Oxygen dependent	-1.227	0.995	.218
Intravenous feedings	-2.748	1.041	.008*
Intramuscular injections	1.044	1.365	.445
On medication requiring close monitoring	-0.165	0.573	.774
Dialysis	-5.266	3.584	.142
Rehabilitation therapy	-0.972	0.674	.150
Incontinent of bowel or bladder	0.147	0.564	.794
Help eating			
Spoon fed	0.738	1.065	.488
Tube fed	1.443	1.026	.160
Hospital Characteristics			
Discharged to hospital-affiliated nursing home	-2.610	0.867	.003*
Hospital‡			
1	-3.989	0.985	.000
2	-3.414	1.087	.002
Post-PPS‡	-4.156	1.010	.000
Hospital 1 × post-PPS‡	4.332	1.274	.001
Hospital 2 × post-PPS‡	4.980	1.361	.000
Intercept	11.604	1.898	.000*
R^2 = .257			
F = 5.455			
P = .000*			

*Significant at the 5 percent significance level, using a two-tailed t-test.
†Significant at the 10 percent significance level, using a two-tailed t-test.
‡The effect of Medicare's DRG-based PPS on unnecessary hospital days varied by hospital; the coefficients associated with the hospital, post-PPS, and interaction variables should be interpreted with caution. Table 5 presents the hospital-specific effects of PPS in a more interpretable form following Marsden (1982).

Table 5: Hospital-Specific Effects of Medicare's DRG-Based PPS on Unnecessary Hospital Days†

Hospital	Effect of PPS on Unnecessary Hospital Days	Standard Error	p-Level
1	0.176	0.768	.818
2	0.824	0.930	.376
3	-4.156	1.010	.000*

*Significant at the 5 percent level, using a two-tailed t-test.
†Hospital-specific effects were calculated following Marsden (1982).

number of unnecessary days (F (9,759) = 1.85; p = .057), there appeared to be good a priori reasons to explore the mental disorder subgroup in particular, given the perceived importance of this variable in the long-term care literature. t-Test results showed that patients with a mental disorder were harder to place than those with circulatory problems, averaging almost three more unnecessary days.

Few heavy-care indicators were significantly associated with longer placement delays. Two exceptions were surgery during the hospital stay (two extra days compared to nonsurgery patients) and being comatose or semicomatose (three more days than other patients).

To test the possibility that multiple heavy-care traits might be important, three separate regression analyses were conducted in which the individual trait variables were replaced with alternative measures of heavy care. The first, a cumulative count, included mental disorientation, behavior problems, ventilator, turning and positioning, decubiti/skin ulcers, sterile dressings, tracheostomy, restraints, comatose/semicomatose, oxygen dependent, intravenous feedings, on medications requiring close monitoring, dialysis, rehabilitation therapy, incontinent of bowel or bladder, and spoon or tube feeding. The average number of traits in this cumulative count was 3.05 ($\pm$ 2.15). The second analysis used the natural log of the count (x = 1.23 $\pm$ 0.62). The third analysis used a binary variable indicating the presence of more than four traits (x = 0.26 $\pm$ 0.44). In none of these analyses was "cumulative" heavy care found to be significantly associated with unnecessary days.

Heavy Care–Payer Source Interactions. Interactions between expected payer source and each of the heavy-care variables and the indicators of multiple heavy-care needs were tested and found to be nonsignificant.

Affiliated Facility. Patients discharged to a facility closely affiliated with one of the study hospitals had about two and one-half fewer days of unnecessary stay than those discharged elsewhere. The affiliated facility was an acute care hospital with a large nursing home unit.

Medicare's PPS. The impact of Medicare's DRG-based PPS on unnecessary days varied by hospital (F (2,759) = 7.92; $p < .001$). Post-PPS placement delays from hospital number 3 were about four days shorter than pre-PPS delays from the same hospital (Table 5). Differences in average unnecessary stays pre- and post-PPS from the other two hospitals were not statistically significant. For hospital 3, unnecessary stays were reduced apparently as the reimbursement incentives faced by the hospital changed. Differences in the hospitals' responses to PPS may also reflect variation in their approach to and effectiveness of utilization review. A rival explanation is a small

increase in the area's nursing home bed supply. The change occurred between hospital 3's pre- and post-PPS periods. Since pre- and post-PPS periods for the three hospitals varied according to their fiscal years, the bed-supply change occurred almost entirely during the other two hospitals' pre-PPS implementation period and so could not have confounded their PPS effects.

Determinants of Placement Delays among Medicaid Patients

While the above analyses included patients of all payer sources, including Medicaid, the role of Medicaid in placement delays was further explored by a separate regression analysis on only Medicaid-eligible patients placed in North Carolina nursing homes.

Price. A price variable was included along with most of the other independent variables defined in Table 2. Payer source, of course, was not included, and the indicators of multiple heavy-care conditions were included instead of the individual traits in light of the smaller sample (N = 185). Price was defined as the difference between the facility-specific Medicaid per diem reimbursement rate and the private-pay basic daily charge of the nursing home to which each patient was discharged. From among a variety of private-pay charges used at each home, the lowest price for the patient's level of care was chosen. Patients whose level of care was unknown were assigned a price weighted by the probability of their being at one level of care versus another given their discharge to a particular home. Medicaid and private-pay differences averaged \$9.67 (± 5.61), and ranged from \$0 to \$28.

Although delay was expected to increase with size of the price difference, results (not shown in the tables) showed that price was not significantly related when the effects of other factors were controlled (p = .894, using a two-tailed t-test; b = -.015). Interaction effects of price with heavy care were also examined, and were found to be statistically nonsignificant.

Heavy Care. Given the statistical insignificance of the payer source-heavy care interaction tests from the earlier analysis of all payers, it is not surprising that results also showed that, with the exception of those who had surgery during their hospital stay, heavy-care Medicaid patients did not experience any more delay than their lighter-care counterparts. Those who had surgery were delayed about three more days than nonsurgery patients.

Summary of Findings. In short, analysis of elderly hospital admissions who were placed in nursing homes from the three study hospitals (which represent 85 percent of the hospital beds and admit over 90 percent of all elderly hospital patients in the study county) showed that about two-thirds of patients placed in nursing homes were delayed—but that most delays were short.

Medicaid patients experienced *slightly longer* unnecessary stays, and Medicaid-pending patients experienced *considerably longer* unnecessary stays than private-pay patients. Nonwhite patients and male patients also experienced *longer* placement delays than other patients. Family involvement in placement was associated with *more* unnecessary days. With the exceptions of mental disorder, surgery during the hospital stay, and comatose or semicomatose condition, most patient heavy-care characteristics were *not* associated with longer unnecessary stays. Nor were multiple heavy-care needs associated with longer stays.

Shorter delays were associated with living alone in the community or living in an institution prior to hospital admission, placement in an affiliated facility, and placement after the implementation of PPS.

Some of these findings were expected given those of the earlier studies summarized in Table 1. Other studies have found family involvement to impede timely placement (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Massachusetts Hospital Association 1979; Restuccia and Holloway 1976; Glass and Weiner 1976; Sloane, Redding, and Wittlin 1981; Toseland and Newman 1984). That Medicaid patients had slightly longer placement delays than private-pay patients was not unexpected given Scanlon's (1980) theory of the nursing home market and some of the findings reported in Table 1, although a larger magnitude of effect had been expected. Medicaid-pending status, which we found to be associated with rather longer delays, had been mentioned as a potential factor by others (Barker, Williams, Zimmer, et al. 1985; Massachusetts Hospital Association 1979; Glass and Weiner 1976; Markson, Steel, and Kane 1983; Shapiro and Roos 1981), but was never tested.

The major surprise in terms of some previous findings was that so few heavy-care requirements of the patient were associated with longer delays. Numerous studies have mentioned a relationship between one or more heavy-care traits and unnecessary hospital days. Some of these traits include: mental or psychiatric disorder (Rosenfeld, Goldman, and Kaprio 1957; Shapiro, Roos, and Kavanaugh 1980); disorientation (Glass, Mulvihill, Smith, et al. 1977; Glass and Weiner 1976; Fields, MacKenzie, Charlson, and Sax 1986; Markson, Steel, and Kane 1983); behavioral problems (Massachusetts Hospital Association

1979; Meiners and Coffey 1985; Sloane, Redding, and Wittlin 1981); dependency in activities of daily living (Gruenberg and Willemain 1982; Meiners and Coffey 1985; Markson, Steel, and Kane 1983); heavy-care needs (U.S. Department of Health and Human Services 1980; Massachusetts Hospital Association 1979; Shapiro and Roos 1981); incontinence (Markson, Steel, and Kane 1983); multiple diagnoses (Meiners and Coffey 1985); and multiple hospital procedures (Meiners and Coffey 1985). With the exception of mental disorder, surgery during the hospital stay, and being comatose or semicomatose, these heavy-care characteristics did not appear, from our results, to produce longer-than-average delays. Of course, Meiners and Coffey (1985) were studying DRG overstay, not unnecessary days per se.

Also surprising was the lack of interaction effects between various indicators of heavy care and expected payer sources. Except for those who had surgery during their hospital stay, heavy-care Medicaid patients experienced no more unnecessary days than light-care Medicaid patients.

The negative effect of "being admitted from a nursing home" was not particularly surprising. Although Gruenberg and Willemain (1982) found the opposite, Meiners and Coffey's (1985) findings, along with the findings of several other studies (Finger Lakes Health Systems Agency Back-Up Action Task Force 1982; Barker, Williams, Zimmer, et al. 1985) agree with ours. This is to be expected given that more recent studies and ours are based on data collected after widespread use of Medicaid bed hold-and-transfer agreements.

Three variables found to be significant in the negative direction were unique to our study: being white, placement in a hospital-affiliated facility, and DRG-based PPS implementation. That PPS sped up placement is not surprising considering that it changed hospital discharge incentives. Nonwhites would be likely to experience delays (as would males) if nursing homes were trying to match patients in semiprivate rooms by sex or race—and survey results presented earlier suggest that many nursing homes do have such policies (Shapiro and Roos 1981). That some patients were able to shorten their placement delay by spending it in an affiliated facility with nursing home beds is not surprising.

Rejection of Rival Hypotheses

Systematic efforts were made to reject rival explanations for the findings. One possible explanation might have been that heavy-care patients did not experience more unnecessary days than light-care

patients because they could be transferred to a hospital-and-nursing-home facility closely affiliated with one of the hospitals in the study. To examine this possibility, a separate regression analysis was conducted on the discharges from the affiliated study hospital to identify determinants of discharge to the affiliated facility. Results (not shown in the tables) showed that placements with a few specific heavy-care traits were among those more likely to go to the affiliated facility: having surgery during hospital stay, requiring sterile dressings, or being comatose or semicomatose. However, heavy-care patients in general were no more likely to go there than elsewhere. Of the 212 heaviest-care patients in the study (those with more than four heavy-care conditions), 25 percent went to the affiliated facility, while 75 percent went to other long-term care facilities. Of those 101 heaviest-care patients who were admitted to the hospitals from noninstitutional living arrangements, over 60 percent went to other nursing homes. The three patients with the most heavy-care conditions—10 and 11 heavy-care conditions—also went to other nursing homes.

Another rival hypothesis would be one related to the bed supply. If the study area were one with a higher-than-average nursing home bed-to-elderly population ratio, it would be reasonable to conclude that results would not generalize well to bed-shortage areas. This was not the case, however. The bed supply—43 per 1,000 elderly—in the study county (the same as that for the study state) was actually among the tightest in the nation. Lower by 15 than the national median of 58, it fell in the lowest quartile of bed supply reported for the 50 states by the 1982 National Master Facilities Inventory Survey (NMFI) (U.S. Department of Health and Human Services 1985b). The nursing home bed supply in the study county's eight-county health service area (HSA) was also low at 37 per 1,000 elderly—the most restricted among North Carolina's six HSAs.

Although the NMFI bed-to-population ratios do not include beds in nursing home units of hospitals, when these beds (including those affiliated with Veterans Administration hospitals) were taken into account (American Hospital Association 1983), the study area's relative rankings remained low. However, to be sure that racial bias (denial of beds to nonwhites) was not a part of the explanation for apparent adequacy of supply to meet heavy-care patients' demand, we adjusted the national bed-supply rates to compare beds available with the number of white females age 65 and over. Again, the study area ranked very low nationally.

An analysis of discharge location was conducted to determine whether or not heavy-care patients were being sent to nursing homes

out of the study county or the study county's HSA. Again, this proved not to be the case. Of those 212 patients with more than four heavy-care conditions, only about 9 percent were discharged to facilities outside the county—and few to facilities outside the HSA.

Finally, the average per diem reimbursement rates paid by the Medicaid program for skilled and intermediate care in the study state do not appear to provide an explanation. In 1982, the rates fell just slightly above and below the respective mean rates for the nation (U.S. Department of Health and Human Services 1985a), and incorporated cost-center ceilings on patient care and other costs typical of most Medicaid programs.

IMPLICATIONS

If these findings were to be replicated in other areas of the country with similarly short nursing home bed supplies, it would be reasonable to ask whether or not placement delays are a problem of large enough magnitude to be tractable to cost-effective solutions. For example, would it be difficult to recoup any sizable investment in a case mix-adjusted nursing home reimbursement system? With so few cases delayed, and delays averaging such short duration, case-mix adjustments would have to be very well defined and closely monitored to avoid spending more on the solution than is now being spent on the problem. Most popular case mix-adjusted systems now being used appear to be paying admission bonuses on behalf of patients who, in the tight-bedded study area, face little difficulty in finding a bed. Findings from this pilot study indicate that even in a very tight bed-supply area, Medicaid patients, compared to private-pay patients, had some—but not much—difficulty finding a bed. While some heavy-care patients face some delays, either the delays associated with a specific condition are relatively short or the prevalence of the condition is very low. Facilities for subacute levels of care, too, should they be created to serve these few cases, would find few patients to fill their beds, at least in the study area.

Replication of this study in other market areas, particularly in New York and other areas with longstanding perceived placement delay problems, is important. Scanlon's (1980) work showed that Medicaid eligibility policy variation (which would affect demand) did not affect total nursing home utilization (because when demand expanded, it could not find a bed to make use of). But perhaps expanded demand does affect placement delays. Likewise, it is possible that high per capita incomes among the elderly in an area change the

proportion of total beds available to public-pay patients, creating longer placement delays. This possibility could be explored by replicating the present study in states with generous Medicaid eligibility policies, high per capita incomes, and low bed supplies.

It is also possible that patients who seek nursing home placements from home rather than from hospitals experience longer delays when hospital delays are as short as they were in the study area. Prior to the dissemination of preliminary results of this pilot study, hospital placement delays were regarded as a more serious problem in the study county, whereas delays at home are now being cited as a problem, possibly as a delayed result of PPS implementation. A companion study of placement delays from home would be needed to know definitively that timely access to nursing homes is not a problem for groups other than those indicated here: the Medicaid-pending population, those who have had surgery, the mentally ill, and nonwhites, among others.

In any event, efforts to speed up the process of Medicaid eligibility determination—or to mitigate its effects with presumptive screening or some form of risk pooling that would protect nursing homes from incurring financial loss on patients ultimately denied Medicaid—seem warranted to encourage further shortening of placement delays.

Finally, it appears that during the study period nonwhite patients and male patients systematically faced longer delays than other patients, perhaps as a result of nursing home policies of matching patients in semiprivate rooms on race or sex in combination with the low prevalence of nonwhites and males in the homes. While nursing homes may have accumulated experience that recommends such policy to them, it would appear to violate the laws of North Carolina and the United States relating to discrimination. Judging from results of the survey of SNFs in New York cited above (Toseland and Newman 1984) and findings of a report prepared for the Department of Health and Human Services Office of Civil Rights (Institute of Medicine 1981), such practices may not be limited to the South.

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