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A Preliminary Analysis of Beneficiary Discharge Status and Post-Hospital Placement Before and After the Implementation of Medicare's Prospective Payment System

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**A PRELIMINARY ANALYSIS OF BENEFICIARY
DISCHARGE STATUS AND POST-HOSPITAL PLACEMENT
BEFORE AND AFTER THE IMPLEMENTATION OF MEDICARE'S
PROSPECTIVE PAYMENT SYSTEM**

by

ANNE MARGUERITE WILKINSON

**A dissertation submitted in partial fulfillment of the
requirements for the degree of**

**DOCTOR OF PHILOSOPHY
in
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**Portland State University
1989**

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This dissertation is dedicated in loving memory to Bill Lewin; my husband, my best friend, and my mentor.

The accomplishments I have achieved are a result of his insight, his encouragement and his challenge to me to be more than I could conceive of being and to be better than I thought I could be.

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AN ABSTRACT OF THE DISSERTATION OF Anne Marguerite Wilkinson for the
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The introduction of Medicare and Medicaid in 1965 dramatically increased the utilization of health care services, especially hospital care, and, at the same time, increased the costs of health care to the Federal government. By the 1970s, health care cost inflation and an imminent deficit in the Medicare Trust Fund prompted the adoption of a number of regulatory (health planning, Professional Review Standards Organizations, health care fee freezes) and

competitive (HMO development) strategies designed to contain costs. None of these public policy initiatives worked, however, as the portion of GNP devoted to health care continued to escalate to 10.7% by 1983.

The health care cost battle shifted to new ground with the election of Ronald Reagan in 1980. In recognition of the inherently inflationary nature of retrospective reimbursement, the Reagan Administration enacted legislation that substantially changed Medicare's hospital reimbursement system. The Prospective Payment System (PPS) mandated paying hospitals a fixed payment, set in advance, based on the patient's diagnosis rather than retrospectively paying for all services delivered to a patient. Critics of the program contend that PPS introduces incentives for hospitals to conserve resources during the hospital stay (e.g., provide fewer ancillary services, shorten length of stay) and to shift care to less costly settings (e.g., community-based care, outpatient settings); both potentially affecting quality of care to the elderly. The question addressed by this dissertation concerned the issue of "quicker and sicker"; that is, whether there were changes in the discharge health status and post-hospital placement of Medicare beneficiaries as a result of the implementation of PPS.

Using a quasi-experimental time-series PRE/POST design, data was collected from the medical records of 2,619 Medicare beneficiaries (1,258 in the PRE-PPS period; 1,361 in the POST-PPS period) hospitalized between 1981 and 1986. Two large (300+ beds) and two medium-sized (100-300 beds) hospitals, similar in organization and type of services provided and representative of hospitals in the Portland metropolitan area, served as data collection sites. Medical records were selected from five Diagnosis Related Groups (DRGs):

three medical DRGs (stroke, heart failure, and pneumonia) and two surgical DRGs (hip replacement and major joint pinning) in the PRE or POST periods.

Analysis of the data show that overall length of stay declined from 11.3 days in the PRE-PPS period to 8.6 days in the POST-PPS period, a reduction of 2.7 days and significant at the $p = < .001$ level. Application of the Dependency at Discharge Measurement Instrument to each medical record to derive a Dependency score showed that average Dependency for the PRE-PPS period was 8.9 while average Dependency for the POST-PPS period was 9.7, a difference significant at the $p = < .001$ level. The results also show a significant increase in Dependency between the PRE and POST periods for four of the five DRGs studies (Stroke, Pneumonia, Heart Failure, and Hip Replacement).

Finally, an analysis of differences in post-hospital placements; e.g., placements to home alone, home with another (spouse, relative, home health), group home (retirement community, adult foster care), nursing home, or transfer to another facility, were conducted. The results show a significant increase in POST-PPS placements to home alone ($p = < .05$), home health ($p = .01$), and for hospital transfers ($p = < .001$). Finally, an analysis was conducted comparing Dependency at Discharge by post-hospital placement PRE and POST-PPS. Results showed that there was a significant increase ($p = < .01$) in the level of Dependency for Medicare patients being discharged requiring home support services (home health). Though limited in its generalizability, the data presented in this dissertation supports the contention that Medicare patients are leaving the hospital sooner, in more dependent states of health than before PPS, and that greater numbers of potentially high care patients are being discharged to home and to home health.

CHAPTER I

THE AMERICAN HEALTH CARE SYSTEM IN TRANSITION

The medical care system today is balanced on a knife-edge. On the one hand, if leaders make the right moves over the next 10 years, this nation will make a marked leap forward in the quality, accessibility and efficiency of medical care and coverage received by all Americans--rich and poor, old and young. On the other hand, there is grave danger that, if leaders make the wrong moves, the quality, accessibility and efficiency of medical care and coverage in this country will be reduced sharply (McClure, 1985, p. 43).

This dissertation is a policy evaluation of one of the more controversial health care policies today: Public Law 98-21 - Medicare's Prospective Payment System (PPS). For this dissertation, policy is understood to mean measures which the government (i.e., the public sector) can adopt or has adopted to advance a given end. Ends are desired states or outcomes reflecting some degree of society's values or some sector of society's values while measures means government programs. Defined this way, policy comprises a vast realm of concerns, possibilities, commitments, actions, and outcomes. Thus, a public policy cannot be examined productively without attention being paid to the concerns, possibilities, actions and outcomes surrounding a particular policy initiative (Brown, 1988b). It is to these areas of policy evaluation that this dissertation is addressed. The evaluation which comprises this dissertation will include the following elements: the context in which the federal initiative was enacted; the relevant actors and organizations involved; the concerns raised by the policy and the resulting federal program; and finally, the policy itself will be evaluated in light of recent data concerning its impact.

This document will utilize original research and recently published national data to examine the impact of PPS on the quality of care to the Medicare beneficiary; that is, whether there have been changes in the discharge health status and post-hospital placement of Medicare beneficiaries as a result of the changes in the way Medicare pays for hospital care to the elderly.

The Medicare program enacted in 1965 to provide health insurance to the elderly and, after 1972, the disabled is in financial trouble. Part A of Medicare, the hospital insurance trust fund (or HI program), which provides insurance protection for inpatient hospital services, skilled nursing facility services, some home health care services, and hospice care, is financed by payroll taxes. A Congressional report in 1983 estimated that the HI program would go bankrupt by 1990 and would produce a deficit of between \$200 to \$300 billion by 1995 (Demkovich, 1983a). In addition, Part B, the supplementary medical insurance trust, which provides voluntary supplementary insurance to cover the costs of most physician's services, including hospital outpatient services, laboratory services, and certain other services not covered in Part A, was also under cost pressures. However, because Part B is funded by premiums and revenues from the general treasury, it was in less danger of bankruptcy. In 1983, Congress estimated that it would have to appropriate \$31.9 billion in 1988, compared to \$14.2 billion in 1983, to cover SMI's costs (Demkovich, 1983a). Thus, the crux of Medicare's financing problem appeared to be the hospital insurance fund.

Since the beginning of the program, the hospital insurance fund spent as much as it took in. Outlays grew at an average annual rate of 17.7% (Demkovich, 1983a). An aging population and rising health care costs, especially the higher cost of hospital care, have been identified as the source of

Medicare's fiscal problems. Although Medicare had historically been protected from budget cuts in previous years, the Reagan Administration was able to get Congress to cut \$1.4 billion from the Medicare budget in 1981 by raising beneficiaries' contributions to the program and again in 1982 when another \$2.4 billion was "saved" by imposing stringent limits on how much the government would reimburse hospitals for costs exceeding a norm set by the Health Care Financing Administration (HCFA), the agency that runs the Medicare program (Demkovich, 1983a). Even with these expenditure limitations, costs continued to rise. By 1983, Medicare's projected deficit prompted Congress to initiate legislation overhauling the program's hospital payment system, converting the HI payment system from a retrospective to a prospective system.

Under the old system, the government reimbursed hospitals for their costs of treating the elderly after the services were delivered. This system, in effect, encouraged wastefulness and the over-servicing of Medicare patients since the more services delivered, the more money the hospital or physician would make. Under the new system, the government, i.e., the Health Care Financing Administration, set payment rates in advance based on the average cost of treating 467 Diagnosis Related Groups (DRGs). Hospitals that could deliver services for less than the established reimbursement rate were to be allowed to keep the difference whereas hospitals whose costs exceeded the rate would have to absorb the loss. The new system was expected to save \$1.5 billion in fiscal 1984 and \$20.2 billion over five years (Demkovich, 1983a).

The current situation is one in which the shift in federal health care policy in the Medicare program has created a tension between a medical care system geared toward expansion and the state requiring control over expenditures

(Starr, 1982). It is this transition period between expansion and cost-containment that current federal health policy is being implemented. However, there is a dearth of information and very little theory to guide research concerning the myriad changes occurring in the health care sector. For example, PPS has been implemented in a "vacuum" of knowledge and experience in national prospective payment systems. Though several states had introduced prospective hospital rate setting programs before PPS, they were all substantially different in design from the national program and none had been adequately evaluated for impacts on the quality of care (Wagner, 1986).

Furthermore, the methods for measuring quality of care are not well developed and the data are not readily available even for existing measures (GAO, 1986; OTA, 1985). One reason for the lack of information about the quality of care provided to Medicare beneficiaries is that there is little agreement about what is meant by quality of care. Quality can be viewed from the provider's perspective, the patient's perspective, and the payer's perspective and these may be divergent. In addition, measures of quality have been limited to somewhat ambiguous proxy measures that are often difficult to interpret on an individual or group level. Finally, the effects of PPS on the quality of care are likely to emerge gradually and the more serious effects may not appear for a number of years. That is, PPS impacts on quality may be small initially because of the gradual transition from cost-based reimbursement to PPS and the ability of hospitals to achieve savings through management and clinical efficiencies that have little effect on outcomes. Over time, PPS could force economies that are inconsistent with maintaining quality of care.

Consequently, this dissertation is presented with the following caveats: one, it is a preliminary examination of a new area of research in health care,

that is, quality of care. Given the absence of information and/or theory regarding the changes occurring in the health care system, this dissertation is a critical first step in a long-term process of data generation and theory building regarding quality of care in a new health care market. Two, the local focus of the original research utilized in this dissertation limits its generalizability to the larger Medicare population while the use of five Diagnosis Related Groups (DRGs) to assess beneficiary impact limits its generalizability to the full DRG system. And three, this dissertation presents the historical development of the American health care system as a basis for understanding the current changes occurring in the health care sector and presents original data as well as recently published national data as a means of identifying patterns of response to a revolutionary change in federal health care policy, the Prospective Payment System.

Chapter I begins the analysis by describing the historical evolution of the medical profession and the role of the federal government on health care policy. Specifically, Chapter I examines the influence of the medical profession and the federal government on the organization and delivery of health care and on health care costs. Information concerning how physicians came to dominate the American health care system and how federal health care policy since World War II (especially the Medicare and Medicaid programs) has reinforced the system established by the medical profession, provides a more comprehensive understanding of the contemporary American health care system; a system that focuses on curing illness rather than preventing disease, is highly technological, is biased toward institutional versus other forms of care, and is very expensive.

Chapter II examines the response to escalating health care costs by the federal government and presents a description of the current situation in the health care sector. A number of regulatory (PSROs, health planning) and competitive (HMO legislation) were passed during the 1970s in an attempt to contain rising costs. However, none of these public policy initiatives worked. A new approach to health care costs was instituted by the Reagan Administration in 1983: Medicare's Prospective Payment System (PPS). PPS pays hospitals a fixed payment rather than retrospectively paying for all services delivered to a patient. PPS radically alters the financial incentives for the amount and mix of inpatient services provided to the elderly and encourages early discharge of the patient to community-based care providers. At issue, then, is whether quality of care to the Medicare beneficiary has been adversely affected under PPS.

Chapter III presents a discussion of the methodological issues surrounding an evaluation of this major public policy initiative and delineates the original research conducted for this dissertation. Chapter IV presents the data generated from the research design and presents recently published data (national and local) on the impact of PPS for hospitals, physicians, the Medicare beneficiary, and other health care providers, particularly community-based providers (e.g., Home Health, Nursing Homes). Finally, Chapter V presents a discussion of the significance and policy implications of the data presented and identifies a number of areas of needed research for a more comprehensive understanding of the impact of PPS on the quality of care provided to the Medicare beneficiary.

HOSPITALS, PHYSICIANS AND THE FEDERAL GOVERNMENT IN THE U.S. HEALTH CARE SYSTEM

The post-nineteenth century health care system in the United States has been shaped by two equally important forces: a powerful medical profession and, since World War II, by the federal government. Since the turn of the century, American physicians have acquired broad cultural authority, social privilege, economic power, and wide political influence. American physicians have been able to maintain professional independence, control access to their profession and institutionalize their authority to a degree of social and economic power unknown to any other occupational group in the United States (Starr, 1982). In addition, the federal government has increasingly influenced the planning, direction, and financing of health services since 1945. While government's role has been limited to financing care for needy groups, this role has grown to the point where publicly financed health programs account for approximately 40 percent of the nation's personal health care expenditures. Furthermore, almost 65 percent of all health research and development funds are provided by the government and most non-profit community and university hospitals have been built or modernized with government aid (Torrens, 1988).

Physician Dominance of American Health Care Delivery

Four developments, largely occurring between 1870 and 1910, laid the foundation for physician control of the American health care system. The first development was the public acceptance of the hospital as the best place to receive medical care. Up to that time, hospitals had been formed mainly to take care of people who did not fit into the traditional system of family care in the home. The second and third developments enhancing the importance of

physicians in the health care delivery system were the incorporation of professional nurses as the primary care giver within the hospital and scientific and technological advances in medicine (such as the development of antiseptic surgery which drastically reduced infectious diseases). As a result of these two developments, hospitals moved from the periphery of medical care to the center of medical education and practice. The last major contributors to the dominance of physicians were the reform of medical education and the resulting licensure of physicians. The institutionalization of uniform educational standards began to improve care and state licensure for physicians began to limit access to the profession. All these factors increased the efficacy of medical treatment, institutionalized much of medical practice within hospitals, and aided in establishing physicians as the most effective health care practitioners.

The Acceptance of Hospitals. From their origins in pre-industrial society, hospitals had been primarily religious and charitable institutions for tending, rather than curing, the sick, dying or helpless. Hospitals in the United States emerged from this same religious and charitable tradition, performing as almshouses and serving the general welfare function of housing the homeless poor, the aged, the disabled, the chronically ill, the mentally incompetent, and orphans. Caring for the sick was a secondary function in the almshouse and treatment was often provided in infirmaries isolated from the rest of the facility. It was not until the late 1700s that the infirmaries of city poorhouses broke away to become medical care institutions in their own right (Haglund & Dowling, 1988; Knowles, 1973; Rosen, 1963; Rosenberg, 1987; Starr, 1982).

Starr (1982) divided the evolution of the American hospital system into three fairly coherent phases. In the first phase, roughly between 1751 and 1850,

two kinds of institutions developed: public and voluntary hospitals. Public hospitals evolved from the almshouses. They were operated by municipalities, by counties, or, in the case of merchant marine hospitals, by the federal government. The second phase of hospital development, beginning around 1850, saw the emergence of religious and ethnic institutions and specialty hospitals, such as children's hospitals, as a consequence of the discrimination non-elite physicians and ethnic groups faced in the established public and voluntary hospitals. This discrimination forced immigrants to build facilities of their own and to staff them with their own physicians. The growing importance of hospitals and the control over them by a few, elite physicians led to the third phase of hospital development, beginning around 1890 and ending around 1920, which saw the emergence of the modern profit-making hospital. These hospitals were primarily operated by physicians who had been excluded from existing general hospitals or small town doctors who wanted a place to hospitalize their own patients to prevent big-city doctors from taking them.

During these phases of hospital development, the advent of professional nursing and the discovery and application of antiseptic surgery, furthered the acceptance of the hospital as part of the medical care system by the American public and helped establish the clinically-trained, licensed physician and the primary provider of acute medical care in the United States (Knowles, 1973).

Professional Nursing. Trained nurses were virtually unknown before 1870. Nursing was menial occupation for lower class women who could work nowhere else or for inmates of the almshouses. The only trained nurses were Catholic sisters or Protestant deaconesses who were dedicated to caring for patients by their religious orders. Some religious orders founded their own hospitals and

occasionally provided nursing services in public institutions (Haglund & Dowling, 1988; Knowles, 1973; Rosenberg, 1987). The professionalization of nursing has been attributed to Florence Nightingale, a middle class English woman trained as a nurse in a German Protestant religious order. In 1854, the British government sent Florence Nightingale and 38 other nurses to the Crimea to take charge of nursing wounded soldiers. The nurses instituted sanitation and dietary reforms, humane care of patients, and discipline and organization resulting in a dramatic drop in mortality. Back in England, Florence Nightingale wrote of the contributions sanitation and formal treatment routines made to the recovery of the wounded. In 1860 she founded the Nightingale School for Nursing.

Impressed by the example of Florence Nightingale, President Lincoln called upon the Catholic sisterhood to nurse wounded soldiers during the Civil War. However, more nurses were needed than were available. He appointed Dorothea Dix to be Superintendent of Nursing for the Union Army. She began recruiting and training new nurses and, by the end of the war, there were 2,000 lay nurses in the country (Haglund & Dowling, 1988). Although opposed by physicians and hospital administrators, nurse training was established in three professional nursing schools by 1873 and was soon incorporated into more and more hospitals as student nurses became the unpaid mainstay of the hospital's labor force (Rosenberg, 1987). By 1883, there were 22 nursing schools and 600 graduates; by 1898, there were 400 schools and 10,000 graduates (Haglund & Dowling, 1988).

Nursing contributed to the public's acceptance and use of hospitals by increasing the efficacy of treatment, cleanliness, nutrition, and formal treatment routines of patients, all of which contributed to the patient's

recovery. In addition, nurses' considerate, skilled personal care made hospitals more pleasant and more acceptable to all classes of patient, not just the poor. Both factors contributed to the general acceptance of hospitals as an appropriate place to receive medical care (Haglund & Dowling, 1988; Rosenberg, 1987).

Antiseptic Surgery. The second medical care development was the incorporation of antiseptic and sterilization procedures in hospital care, which drastically reduced infectious diseases and death during surgery. Very little surgery was done before the advent of anesthesia because of the high death toll from infections (Rosenberg, 1987). "Surgery had a small repertoire and it stood far behind medicine in the therapeutic arsenal" (Starr, 1982, p. 156). While enough was known about anatomy and physiology to do surgery, the inability to deaden pain and the probable development of a life-threatening infection meant that what surgery was done had to be done with extreme speed and skill. Ether was first used as an anesthetic in surgery in 1842 and its use spread rapidly afterward. With advances in anesthesia, followed by antiseptics (1867, but not generally applied until the 1880s), and asepsis (1884), surgeons began to be able to control infections and, combined with advances in diagnostic techniques (e.g., the x-ray and microscope), the amount, scope and success of surgery vastly increased.

Surgeons began to operate earlier, more often and for a larger variety of ills, many of which, like appendicitis and stomach ulcers, had been considered medical rather than surgical cases (Starr, 1982). By the late 1800s, successes in surgery promoted a new emphasis on surgery and the relief of acute illness in the hospital and specialization in the medical profession (Rosenberg, 1987). By

1900, 40 percent of all hospitalizations were for surgery (Haglund & Dowling, 1988). The shift in emphasis in medical care altered the function of the hospital from social welfare to acute medical care as the sick began to use the hospital, not for the "entire siege of illness, but only during its acute phase to have some work performed upon them" (Starr, 1982, p. 146).

In addition, medical technology began to proliferate during the late 1800s. The first hospital laboratory opened in 1889 and the first x-ray films were used for medical diagnosis in 1896. The discovery of blood types in 1901 made blood transfusions safe; the electrocardiogram (EKG) was first used in 1903; and the electroencephalogram (EEG) was first used in 1929 (Haglund & Dowling, 1988). In addition to increasing the efficiency of medical care, these technological advances influenced the site and organization of medical care. Hospitals became the central resource where the equipment, facilities and personnel required by modern medicine were housed. Consequently, as scientific medicine advanced, it tended to be concentrated in the hospital with the result that patients and physicians alike used the hospitals for the technology to be found there and no where else (Rosenberg, 1987; Torrens, 1988).

As hospitals became central to the care of curable, short-term illnesses which responded quickly to medical intervention, control over access to them became a strategic basis of power within the medical community. Although hospitals had not been particularly important to medical practice before, access to them became vital after the advances in diagnosis and surgery. Exclusion from a hospital position seriously handicapped a physician and, since only a few elite practitioners had hospital appointments, this caused great discord within the profession (Rosenberg, 1987). Starr (1982) reported that in 1907 only

10 percent of all physicians in the Bronx and Manhattan areas held hospital positions and that in Cleveland, 25 percent of the medical profession controlled 80 percent of all the hospital beds. Blacks and ethnic groups were almost completely unrepresented on hospital staffs at this time. Furthermore, there was intense competition for patients as hospital staff physicians were seen to steal private practitioners' patients once they entered a hospital.

Physicians were interested in building hospitals in order to develop medical education and to increase the prestige of their private practices. "The status and influence (physicians) derived from hospital positions were of such value to them that they gave their services to the hospitals without pay" (Starr, 1982, p. 152). Although physicians derived enormous advantage from hospitals, they were unable to establish them under their own control, partly for lack of money but also because the public mistrusted the medical profession. The poor feared being used for medical experiments while the middle and upper classes associated hospitals with the almshouse and death. Under these circumstances, most hospitals had to be built with philanthropic funds and were managed by boards of trustees, governors, or commissioners, rather than by the physicians who practiced in them. Physicians did retain control of two important aspects of hospital operations; one, they controlled who gained admitting privileges to the hospital (that is, which physicians) and two, they controlled who was admitted (that is, what type of patient). This arrangement set the stage for the division of power within the developing hospital, a division between the administrators of the hospital and the physicians practicing within it and one that continues to exist today (Rosenberg, 1987).

The Reform of Medical Education. The second major factor that enabled the medical profession to dominate the U.S. health care system occurred after

the turn of the Century. Medical care in the United States was largely a cottage industry until the 20th century (Renn, 1987). While physicians succeeded in organizing medical schools and, in some fields such as obstetrics and surgery, gained distinction over rival practitioners during the 1700 and 1800s, prior to 1900, doctors were just one of many competing health care practitioners (Starr, 1982). Strong democratic ideals and the fact that professional medicine could offer no more successful diagnosis or treatment than lay practitioners impeded physicians from establishing themselves as an exclusive and privileged profession until very late in the 1900s.

The final step in the transformation of professional medicine from a competing to a dominating profession, and its corresponding influence on the shape and character of the American health care system, came about as a result of advances in medical science and technology, which identified successful therapies, made the hospital a safe place to receive treatment and paved the way for medical specialization. The institutionalization of uniform educational standards began to improve medical care and state licensure for physicians began to limit access to the profession. The result was physician dominance of health care by 1900.

The social structure of medicine in eighteenth century England reflected the hierarchical nature of society. Physicians, as members of a learned profession, formed a small elite, distinct from the lower orders of surgeons, who practiced a craft, and from apothecaries, who followed a trade. Each of these professions had its own guild organization, which licensed its practitioners and defined their functions and privileges (Rosenberg, 1987; Starr, 1982). Licensure and education standards were consolidated under the control of the

professional elite (Rosenberg, 1987; Starr, 1982). This was the key step in the emergence of an autonomous, unified, and powerful medical profession in 18th and 19th century Great Britain and served as a model for many in the American medical profession.

However, others in the American medical system had little use for the rigid guild system that characterized British medicine. With no centralized government or aristocratic elite in America to serve as gatekeepers to the profession, "all manner of people took up the practice of medicine and appropriated the title of doctor" (Starr, 1982, p. 39). The boundaries between a trade and a profession, so well defined in 18th century Europe, were blurred in America. It was common for Colonial clergy to practice medicine; homeopathics and other medical sectarians flourished in the nineteenth century. The result was a totally informal and disconnected system of medical practice, with care provided by physicians and lay persons, all with various levels of training. By 1850, the fragmentation in service delivery had become so firmly entrenched in the structure of the U.S. health care system that unification under any government agency or structured association seemed impossible. The adoption of the boundaries that defined English medicine proved very difficult in the United States.

Professional boundaries could have been drawn in America, as they had been in Europe, in three ways: graduates versus non-graduates of medical schools; members versus non-members of medical societies; or licensed versus unlicensed practitioners (Starr, 1982). For example, proprietary medical schools were founded as early as 1815 and were intended to raise medical standards. However, only a few of the hundreds of schools that opened in the 19th and 20th centuries were affiliated with hospitals or any other clinical

setting; they had few admission requirements other than the ability to pay and rudimentary skills in reading and writing; and apprenticeship remained the primary means of obtaining a medical education.

Furthermore, there was no standardized curriculum among schools while systematic clinical instruction and medical investigation, hallmarks of a European medical education, were all but ignored in most American medical schools. The result was not a strengthening of medical education standards but rather their degradation; a proliferation of proprietary medical schools where "length of study was minimized, requirements sacrificed, and fees driven down"; and a plethora of proprietary medical school graduates who competed with clinically-trained physicians (Starr, p. 44). Thus, the boundaries that American physicians attempted to establish during the 19th century (only medical graduates could be licensed and only licensed physicians could practice) were rapidly eroded by practitioner competition, dissension among differing medical sects, and contempt for professional medicine by the general public. Under such circumstances elite medical practitioners could generate little collective organization or power.

While the need for medical education reform was recognized before the turn of the century, it was not until after 1900 that the newly consolidated medical profession could make system-wide changes in medical education (Starr, 1982). Even though some university-based medical schools, such as Johns Hopkins, upgraded their curriculum and facilities to meet the changes in medical science, most proprietary medical schools did not. Moreover, there was no central licensing authority nor accrediting institutions for medical colleges. Consequently, alternative practitioners and poorly trained physicians

continued to be a source of competition to the profession. While this situation was not so important before the revolution in medical science, by 1900, medical advances made the gap between education and practice critical.

By the turn of the century medical professionals agreed that uniform medical education standards were needed to upgrade American medical practice. The American Medical Association (AMA), which had struggled to represent the profession since its founding in 1846, had become powerful enough in 1904 to establish a Council on Medical Education with the express goal of defining the training criteria for professional physicians. Although the AMA believed that the standards (four years of high school, four years of medical training, and passage of a licensing test) were vital to upgrading the profession, they did not believe they could generate the political support necessary to implement the standards until the gap between medical education and medical practice was exposed to the general public (Starr, 1982).

The AMA had other reasons to reform medical education. Higher standards would permit physicians to control access to the field, eliminate rivals, improve the social and economic status of physicians, and help repel all threats to the profession's autonomy (e.g., corporate medicine using salaried physicians) (Fhert, 1987). The watershed between the informal medical education of the past and the twentieth century medical education came about as a result of a Carnegie Foundation study of medical education practices conducted by Abraham Flexner. Flexner's report, Bulletin 10 of the Carnegie Foundation published in 1910, revealed a large gap between advances in medical science and current medical education. Flexner found that most of the medical schools were inadequate and that most physicians were improperly and insufficiently trained. Flexner recommended that the best schools be strengthened and the

rest closed, that physician training become a university function and that medical education be based on a firm scientific foundation (Torrens, 1988).

The Flexner Report had three immediate effects on the health care system (Wolinsky, 1980). First, the number of medical schools was drastically reduced. Thirty-nine percent of the 155 schools open at the time of the Report's publication closed within five years and 45 percent closed within ten years. By 1920, there were only 107 medical schools still open and over 80 percent of those had begun to require a college degree before admission. However, medical schools affiliated with universities thrived under these new conditions as competitors closed down and demand increased (Wolinsky, 1980).

Second, there was a substantial decrease in the number of physicians and, at the same time, a corresponding increase in the quality of physicians graduated. However, the new education and licensing requirements also became effective prohibitions to the profession. Proprietary medical schools, which had admitted all social classes and groups including women, immigrants, and Blacks, were closed after the Flexner Report.

The high costs of a medical education, fewer accredited medical schools, reductions in class size and more stringent entry requirements limited the number of middle and lower class students admitted. "Admission committees became class conscious: social position became as important as grades; white, Anglo-Saxon Protestants were preferred; few women were admitted, and there were quotas established for Blacks and Jews" (Ebert, 1987, p. 150). Medical education changed into a demanding, expensive, full-time and lengthy process which deterred those who could not afford the luxury of a full-time education. As a result, minorities and the lower socioeconomic groups rapidly became

under-represented in the medical profession; a bias that continues today. For example, 11 percent of the total population is Black, yet Blacks constitute only 2.2 percent of the physician work force (Wolinsky, 1980). Consequently, medical education reform changed medicine from a democratic, egalitarian trade to an elite profession (Ebert, 1987).

A third consequence of medical education reform was the new emphasis placed on research and medical practice and their incorporation into an application-oriented, university and hospital-based curriculum (Wolinsky, 1980). Physicians were now trained by scientists and researchers rather than practicing physicians, and the values and standards of academic specialists came to dominate the profession. Eventually, these changes directed medical education away from an emphasis on private practice and toward an emphasis on science and research.

The Flexner Report also affected hospitals. Changes in medical education expanded the role of the hospital to include education and research as internships and residencies became common requirements for a medical license. By the 1920s, medical education requirements necessitated expansion of hospital facilities, services, and the addition of more equipment and personnel. Hospitals also assumed a greater responsibility in coordinating community health care activities. With these changes, the hospital became the organizational hub of the American health care system, central to patient care, to professional training, and to health related research (Haglund & Dowling, 1988).

Summary. American physicians have been able to control the environment in which they practice largely as a result of the remarkable advances in

medicine, which incorporated the hospital as the focal point for medical care delivery and to the reform of medical education, which controlled access to the medical profession. By the middle of the 20th century, physicians had become powerful, prestigious and wealthy professionals. They also succeeded in shaping the organization of health care (hospital-based) and controlling the financing mechanisms (fee-for-service) of American medicine. More recently, physicians have been successful in defeating all forms of national health insurance, save that of Medicare and Medicaid. "Nowhere else in the world have physicians been as successful in resisting national health insurance or maintaining a predominantly private and voluntary financing system" (Wolinsky, 1980, p. 6). In just the last 100 years, physicians have rid themselves of competition, created a monopoly on medical practice, and shaped the hospital system. These power relations have been reinforced since the Depression by an expansionist, yet non-interventionist, federal health policy. The next section describes the role of the federal government in health care.

The Federal Government's Role in Health Care

National health care policy since the Depression has resulted in an expanded government role in health care. What was, before the 1930's, the province of the medical profession, charitable institutions, and local government, has increasingly become the responsibility of the federal government. Although the government's role in health care has grown dramatically, the U.S. government is considerably less involved in health care than the governments of many industrialized countries (Lee & Benjamin, 1988). Whereas most of the countries of Europe established extensive hospital systems and public insurance programs by the late 1800s, the federal government's role

in health care has been, until the 20th century, primarily concerned with controlling the spread of contagious diseases. The 1798 Marine Hospital Service Act established a system of compulsory hospital insurance and a federal system of hospitals for merchant seamen (Haglund & Dowling, 1988; Shonick, 1988; Starr, 1982). The Act also established cooperative agreements with the states in enforcing state and local laws of ship quarantine. However, quarantine authority was retained by the states. In 1876, a surgeon general was appointed to head the Marine Hospital services and authorized to impose quarantine within the states. This marked the first time that the federal government assumed a public health responsibility for an economic sector previously held by the states. Nothing more was done on a federal level until after 1900 (Lee & Benjamin, 1988).

Local health departments were formally organized by municipalities after the Civil War to deal with broader public health issues such as sanitation, communicable disease control, collection and analysis of vital statistics, and public health laboratory maintenance. By 1909, public health agencies were established in all the states. In 1912, the Marine Hospital Service was renamed the U.S. Public Health Service but continued to focus primarily on medical care for seamen and on foreign quarantine. Between 1915 and 1935, two other sources of federal influence over state and local public health activities were put in place: grants for venereal disease control and maternal and child hygiene. For the period up to 1935, the role of the federal government was limited to support and technical assistance to the states. The federal government worked with the states to perform quarantine services at major ports, providing modest amounts of aid to localities, and providing hospital and quarantine services to merchant seamen (Shonick, 1988).

During the Depression, however, the role of the federal government shifted to one providing a strong federal presence that took precedence, for the first time, over the states (Lee & Benjamin, 1988). The Social Security Act of 1935 exemplified this new role and was surely the most significant domestic social legislation ever passed by Congress. The Social Security Act established the principle of federal aid to the states for a variety of programs, including public health and welfare assistance. Title V of the 1935 legislation gave grants to the states for maternal and child health programs and crippled children's services while Title VI funded general public health programs. The Act also provided cash assistance for the aged, blind, and destitute families with dependent children.

The Depression so significantly reduced health care utilization that hospital revenues and physicians' incomes were affected. Due to most people's economic plight, health care was either postponed or medical bills went unpaid. This created a crisis in hospital financing (Richardson, 1988; Torrens, 1988). According to one study, average hospital receipts per person fell from \$236 to \$59 and average hospital deficits rose from 15.2 percent to 20.6 percent just one year after the Crash (Starr, 1982). Moreover, a study of non-profit hospitals in 1935 showed that total income was 3 percent less than total expenses and that the total number of hospitals had dropped from 6,852 in 1928 to 6,189 by 1937 (Haglund & Dowling, 1988).

Hospitals began offering prepaid contracts to employers to cover the hospital expenses of their employees on a group basis as a way to fill empty beds (Starr, 1982). This contractual arrangement between individual hospitals formed the basis for the first Blue Cross hospital insurance plans. With the

success of the first hospital insurance plans, commercial carriers began emulating Blue Cross and, by 1940, both commercial insurers and Blue Cross had extended hospital and surgical insurance coverage to over 10 million subscribers (Starr, 1982).

After World War II, the federal government encouraged expansion of health care in three major ways: (1) by favorable tax and other policies, it encouraged the purchase of increasingly comprehensive private health insurance; (2) by financing biomedical research programs and building hospital facilities, and after 1963, by funding medical education, the federal government expanded the supply of physicians and medical professionals; and (3) by legislating and financing national health insurance programs, the federal government provided direct health coverage to the elderly, veterans, and large numbers of the poor and indigent (Starr, 1982).

Government Encouraged Health Insurance. As a result of judicial interpretations of the National Labor Relations Act, known as the Wagner Act, the federal government began encouraging the spread of private health insurance and other employee benefits through collective bargaining. Passed the same year as Social Security, the Wagner Act included a provision stating that "wages and conditions of employment" were subject to bargaining but it left unclear whether conditions of employment included such benefits as health and welfare (Starr, 1982, p. 312). In a landmark 1948 case involving Inland Steel the Supreme Court ruled that benefit plans did, indeed, come under conditions of employment and were therefore subject to collective bargaining (Renn, 1988; Sapolosky, 1986). In the next few years after the Inland Steel decision, most of the major unions concluded agreements for greatly expanded health benefits. Between 1948 and 1950, the number of workers covered by negotiated health

plans jumped from 2.7 million to more than 7 million. Over 12 million workers and 17 million dependents were enrolled in collectively bargained plans as of 1954 (Starr, 1982). By the mid-fifties, health insurance, particularly hospital insurance, was widely used and, due to federal support, became a significant factor in wage/benefit negotiations (Feigenbaum, 1988).

The favorable tax treatment that employee health benefits received ensured its widespread acceptance by both employees and employers. The Internal Revenue Code of 1954 exempted employer paid health insurance benefits from the employee's taxable income and from earnings subject to payroll taxes. In effect, this exemption constituted a massive subsidy to people who had private health insurance (Starr, 1982). As Meyer (1983b) explains it:

Employers 'duty to bargain' interacted with the favorable tax treatment of business outlays for employee health insurance to stimulate the enrichment of group health insurance purchased through the workplace. Additionally, under the Internal Revenue Code of 1954, employees were permitted to exclude the full amount of their employer's contributions, without limit, from their own incomes for federal tax purposes (p. 9).

Collective bargaining for health services expanded the scope of coverage as well. By 1954, over 60 percent of the population had some type of hospital insurance, 50 percent had some type of surgical insurance, and 25 percent had medical insurance (Starr, 1982). By 1982, three-quarters of the U.S. population was covered by private health insurance for hospital care, compared to one-half in 1950, an increase of 14 percent per year (Senate Finance Committee, 1986).

Today, almost 80 percent of the population under 65 have some form of voluntary health insurance and about 80 percent of employees in the U.S. work for firms where they are eligible for health insurance (Koch, 1988). In 1986, the National Center for Health Services Research (NCHSR) reported that 97.7

percent of the population under 65 who had private health insurance were covered for hospital room and board; 97 percent had coverage for surgeon's costs; 95.7 percent for physician and inpatient medical services; 93 percent for outpatient diagnostic services; 83.3 percent for physician's office visits; 81.3 percent for prescription drugs; 80.9 percent for emergency outpatient services; 71.4 percent for mental health/outpatient physician services; 48.7 percent had coverage for nursing facility services; 25.4 percent for dental services; and 24.2 percent had coverage for home health care services (Koch, 1988).

Biomedical Research. Expansion in the health sector was also encouraged by federal support of biomedical research. In recognition of the advances being made in medical research, Congress transformed the old Public Health Service Hygiene Laboratory, established in 1901, into the National Institutes of Health (NIH) with broad authority to conduct basic research. During World War II, the development of radar, the atomic bomb, and penicillin, as well as other dramatic advances in medical treatment produced by science and technology, demonstrated that support of science and medicine was in the national interest (Starr, 1982). Whereas, before the War, the primary sources of financing for medical research had been private foundations and pharmaceutical companies (only \$180,000 in federal funds were allocated to biomedical research); over \$4 million in federal funds were dedicated to research in 1947.

After World War II, NIH established new institutes focused on specific classes of diseases such as cancer, heart disease, and arthritis. Appropriations to biomedical research had increased to \$46 million by 1950 and to \$400 million by 1960 (Sorkin, 1986). "In the 15 years immediately after World War II, NIH grew from a small government laboratory into the most significant biomedical

research institute in the world" (Lee & Benjamin, 1987, p. 469). From 1975 to 1985, funding for basic research increased steadily, from \$4.7 billion to \$12.8 billion. However, due to financial pressures, health research and development spending as a percentage of health expenditures have actually decreased in recent years. In 1984, health research accounted for 3.1 percent of health care expenditures, versus 3.9 percent in 1972, a 21 percent drop (Luce, 1988).

The Hill-Burton Act. Similarly, the government sought to increase the supply of health services available to the consumer through a variety of federal health programs. The Public Health Service Act of 1944 revised and brought together in one statute all existing legislation concerning the public health, including Title VI of the Social Security Act which provided grants to the states for public health programs (Wilson & Neuhauser, 1982).

In 1946, Congress passed the Hospital Survey and Construction Act (Hill-Burton Act) to address the huge post-war demand for hospital construction and to meet the growing demand for health care services caused by the return of millions of veterans, the rise in personal incomes and the rapid spread of health insurance. Among the most important amendments to the Public Health Services Act, Hill-Burton's purpose was to pay for hospital construction to overcome a perceived shortage of hospital beds (Lee & Benjamin, 1988). Through grants and loans for hospital construction, the program aimed at increasing bed capacity from the national rate of 3.2 beds per 1,000 population to a ceiling of 4.5 beds for each state (Alpha Center, 1986). The legislation, supported by virtually every health care lobby in the country, stimulated a massive hospital construction program with federal and state subsidies going primarily to community, nonprofit and voluntary hospitals. Public hospitals,

supported largely by local tax funds to provide care for the poor, received little federal support.

Hill-Burton became a model of federal-state-private sector cooperation in the distribution of federal resources (Rohrer, 1987). Between 1946 and 1958, approximately 600 hospitals were built in communities that previously had not had one. In addition, 250 projects had been completed in communities with an inadequate supply of beds prior to Hill-Burton. Testimony before Congress estimated that only 59 percent of the hospital beds needed were available in 1948 but that the figure had increased to 75 percent by 1958 (Rohrer, 1987). Between 1947 and 1971, \$3.7 billion was disbursed under the program and accounted for an average of about 10 percent of the annual cost of hospital construction. The Act also generated an estimated \$9.1 billion in local and matching funds, contributing to over 30 percent of all hospital projects during that period (Morris, 1984). Total Hill-Burton expenditures had reached an estimated \$6.5 billion in government grants and loans by 1986 (Dowell, 1987).

After the mid-1950s, the emphasis shifted from rural hospital construction to modernizing larger, existing institutions. The assumption that more medical care was desirable was now being challenged, primarily because Hill-Burton had been so successful in expanding hospital beds. Largely because of Hill-Burton, the supply of hospital beds nationwide approached the stated goal of 4.5 beds per 1,000 by the mid-1970s.

Although Hill-Burton did offer funding for outpatient clinics and public health centers, political pressure led the Department of Health, Education and Welfare (DHEW) to release these funds so they could be used for hospital projects (Dowell, 1987). In effect, Hill-Burton put the power of public finance

behind hospitals rather than other medical services, such as primary care, or other types of providers, such as community-based nurses, and reinforced the historical bias in the American health care system toward the most costly form of health care delivery, physician-based inpatient hospital care (Davis, 1985). By the 1970s, most Hill-Burton funds were being expended for additions, alterations, and replacements of existing facilities (Rohrer, 1987).

New priorities for Hill-Burton had been identified during its reauthorization in the early 1970s. In keeping with the government's emphasis on access to health care, the new priority of Hill-Burton was to develop "equity" in the delivery of health care services (Rohrer, 1987). While the stated focus of the second phase of Hill-Burton was to provide equal access to hospital and physician care to those who could not afford it, the goal has largely remained an illusion (Dowell, 1987). Hospitals receiving grants-in-aid for construction under the Act were required to make a "reasonable volume of free or reduced cost care" to people unable to pay (uncompensated care) and to make their services "available to all" (Dowell, 1987, p. 155). Nearly 60 percent of all hospitals have received Hill-Burton funds and are governed by its regulations concerning the provision of care to the poor and uninsured. However, the Hill-Burton legislation did not define how much uncompensated care hospitals were required to provide and did not designate how hospitals were to ensure their services would be made available to all. Further, although states were required to designate a single agency responsible for the administration, monitoring and enforcement of Hill-Burton regulations, no state had an active program for monitoring facility compliance prior to the the 1970s. It was assumed that hospitals were meeting their obligations (Dowell, 1987).

Advocates for the indigent brought a series of lawsuits against the government intended to force DHEW to spell out hospital uncompensated care regulations. In 1972, DHEW issued the first administrative standards and procedures for quantifying "reasonable volume" of free care as a person's inability to pay equal to 3 percent of the facilities annual operating budget or 10 percent of total federal assistance to pay for services to the poor. Some hospitals had an "open-door" option; that is, they could accept anyone coming to the hospital for care. However, volume of uncompensated care did not increase. State agencies failed to establish eligibility criteria or procedural guidelines and neglected to monitor facility observance of the provisions (Dowell, 1987).

Subsequent litigation prompted further revisions in the regulations. A General Accounting Office (GAO) report in 1974 criticized the government's enforcement of Hill-Burton, and in 1975 revised regulations were issued that strengthened the requirements for hospitals (Dowell, 1987). Still, volume of uncompensated care did not increase. Additional court cases and Congressional hearings were needed before further revisions to the regulations finally became specific. In 1979, revisions to the law went into effect eliminating the "open door" option and requiring a specific amount of dollars of uncompensated care to be delivered annually for 20 years from the opening date of the facility or receipt of federal funds under the Act (Dowell, 1987).

Although nearly 5,000 general hospitals have received Hill-Burton funds, many of these hospitals no longer fit into the regulations, due to the 20-year-from-opening-date provision, and others only have a few years left to go. The result has been a dwindling availability of uncompensated care. Barely 2,500

hospitals still have Hill-Burton obligations as of 1985. By 1990, only 1,000 will still be under the Act and by 1995, only 400 hospitals will have any Hill-Burton uncompensated care obligations (Dowell, 1987). Moreover, enforcement of Hill-Burton obligations has been lax at best. The major problem with the enforcement of the Hill-Burton regulations is that there is no incentive for hospitals to comply and no incentive for HHS to enforce compliance. "Without fear of statutory or regulatory punitive measures, hospitals may cut as many corners as they wish. If they are caught, they will merely be reprimanded and told to do better next time" (Dowell, 1987, p. 167). With increasing cost-containment pressures, hospitals may choose to limit even more stringently the amount of uncompensated care they provide.

Physician Supply. The government also moved to increase the supply of physicians and other health professionals through large scale subsidies for the creation of medical schools, the education of doctors, and support of medical research. The first federal legislation specifically addressed to health manpower was The Health Amendments Act of 1956 (Wilson & Neuhauser, 1982). The law authorized traineeships for professional public health personnel and for advanced training of professional nurses under Title III of the Public Health Service Act. Formula grants to schools of public health were established in 1958 and, in 1960, a program of project grants to schools of public health and schools of nursing funded graduate public health training.

The Health Professions Educational Assistance Amendments of 1965 and the Allied Health Professions Personnel Training Act of 1966 added more support, including support for physicians (Sorkin, 1986). Finally, the Comprehensive Health Manpower Training Act and the Nurse Training Act, both

passed in 1971, extended previous legislation designed to expand the pool of health manpower (Wilson & Neuhauser, 1982). The program reached its peak in the early 1970s and accounted for approximately 55 percent of the total revenues of medical schools (Muscovice, 1988).

By the mid-1970s, it was clear that this policy of supporting health manpower education had worked. In 1965, when the funding of health professionals began to see results, there were 145.5 physicians per 100,000 population. By 1975, the ratio had climbed to 171 per 100,000 (Morris, 1984). By 1982, there had been a 62 percent increase in the supply of physicians and by 1985, the number of medical school graduates had more than doubled in the intervening 20 years (Muscovice, 1988). Surveys of medical schools regarding enrollment indicated that there no longer was a shortage of health professionals and that there would soon be a surplus of doctors.

The Health Manpower Act of 1976 removed a number of federal incentives to medical schools and began restricting the inflow of foreign medical graduates into the U.S. as a means of reversing the trend set by previous health manpower legislation. Both the Carter and Reagan Administrations have recommended curtailment of federal support for health manpower training and, by 1979, the percentage of total medical school revenues accounted for by federal funds had been reduced to 29 percent (Ginzberg, 1985). The Health Manpower Amendments, contained within the Omnibus Budget Reconciliation Act of 1981, substantially cut federal expenditures for health manpower training and by 1983, federal support of health training had largely been dismantled. In spite of these cutbacks, the physician ratio is expected to jump to 220 per 100,000 population by 1990, and if the trend continues, it could reach 245 physicians per 100,000 population by the year 2000 (Morris, 1984).

Medicare and Medicaid. The implementation of Medicare and Medicaid, perhaps two of the most important programmatic breakthroughs of the 1960s, epitomize the federal emphasis on expanding access within the health care sector. Medicare is comprised of two parts. Part A, the Hospital Insurance Program (HI), provides insurance protection for inpatient hospital services, skilled nursing facility services, some home health care services, and hospice care required by beneficiaries. Part B, Supplementary Medical Insurance (SMI), provides voluntary supplementary insurance to cover the costs of most physician's services, including hospital outpatient services, laboratory services, and certain other services not covered in Part A. The program does not cover out-patient drugs, long-term nursing home care, dental care, routine eye examinations, or preventive services.

The 1972 Social Security Amendments expanded Medicare to cover, beginning July 1, 1973, disabled persons receiving Social Security and persons suffering from end-stage renal disease (Gornick, et al., 1985). Over 95 percent of the aged population in the U.S. are enrolled in Part A of Medicare (HI) and 97 percent of Part A beneficiaries are enrolled in Part B (SMI). Furthermore, about 70 percent of all medicare beneficiaries also purchase private medicare supplemental insurance policies (i.e., Medigap policies) designed to reimburse the deductibles and coinsurance associated with Medicare coverage (Koch, 1988).

Medicare is financed in part by payroll taxes on both employees and employers, in part by premiums paid by the beneficiaries, and in part by contributions from the general revenues of the U.S. Treasury. The HI program is funded 100 percent from a trust fund established for that purpose. Under

current law, general revenues cannot be used to make up for any short fall between outlays required to pay benefits and the balance in the HI trust fund. In contrast, SMI revenues are obtained from premiums and general revenues with the premium amount increased by law every year and general revenues making up any difference between premium income and outlay (Sorkin, 1986). Of the funds for SMI, 74 percent are derived from the general treasury and 24 percent come from beneficiaries who elect to enroll in Part B (Koch, 1988).

Under the HI program, the patient is required to pay an inpatient hospital deductible in each benefit period. The deductible approximates the cost of one day of hospital care; over \$500 in 1986 (Sorkin, 1986). Coinsurance based on the inpatient hospital deductible is required for the 61st to 90th day of hospitalization (one-fourth of the deductible); for the 21st to 100th day of skilled nursing facility (SNF) care (one-eighth of the deductible); and for the 60 lifetime reserve days for inpatient hospital care (one-half of the deductible). Under the SMI program, in addition to paying a monthly premium (currently \$15.50 per month versus \$3.00 in 1967) the beneficiary must meet a deductible of \$75 per year.

In contrast to Medicare, Medicaid is a grant program in which the federal government shares the cost of health care services with the states for certain welfare recipients, such as those who receive cash assistance under existing Social Security welfare programs including Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI). States run the program, within the guidelines set by the federal government, paying those who provide the care directly. The Medicaid program replaced several other health programs for the poor (e.g., the Kerr-Mills bill of 1960) and became the primary

device by which the federal government sought to ensure that the poor got adequate medical care (Ginzberg, 1985). Medicaid provides health financing for over 27 million low-income people, including nearly 4 million elderly poor. Medicaid fills two roles for the elderly: for the 3 million elderly poor living outside of institutions, Medicaid supplements Medicare's acute care benefits and pays for the cost-sharing required by the program and for the 1 million elderly in nursing homes, Medicaid pays for care once personal assets and income are depleted (Rowland, 1987).

Medicaid is financed by a federal contribution from the general treasury, ranging from 50 to 77 percent and averaging 55 percent, and from state treasuries, with an average contribution of 45 percent (Koch, 1988; Renn, 1987). Like Medicare, the Medicaid program paid providers on a cost-based, fee-for-service basis. Unlike Medicare, Medicaid is a means-tested program. To be eligible, an individual's income and assets must be below state determined eligibility levels, which are roughly 75 percent of the federal poverty level (Rowland, 1987). The Medicare and Medicaid programs are the closest this country has come to a comprehensive, national health insurance program.

Summary. By 1953, the federal government's role in the national health care system was firmly established with the creation of the Department of Health, Education and Welfare (DHEW), now the Department of Health and Human Services (DHHS). Designed to support programs and services in the private sector, biomedical research, health professionals training and hospital construction, DHEW's role in direct medical care was limited to military personnel, veterans, merchant seamen and Native Americans. In the early 1960s, new health initiatives for the elderly and poor gained widespread

political support and resulted in the legislation establishing the Medicare and Medicaid programs (Lee and Benjamin, 1988). The introduction of all of these federal initiatives in health care not only expanded health care services, they increased the cost of care. Federal funding accounted for 22 percent of all personal health care spending in 1965; by 1980, that figure had increased to 40 percent. The next section examines the impact federal programs have had on health care costs.

HEALTH CARE COSTS

The rise in health care costs had been acknowledged as early as the Progressive Era (late 1880s-1920s) and attempts to control it discussed on the national political arena since the early 1900s, cost was not a major federal concern until the 1970s. On the contrary, as government and private employers sought to encourage the development and use of health care services, concern focused on the availability of medical care, quality of care, and to some extent, on access to care. However, the last twenty years have seen below average economic growth combined with increases in federal spending and tax cuts, slow productivity gains and rapid inflation, and mounting federal budget deficits. All of these factors contributed to rapid increases in health care expenditures. It was not until the enactment of national health programs, specifically the Medicare and Medicaid programs in the mid-1960s, that inflation really took off in the health care sector and caused serious political concern.

Since 1940, national health expenditures have grown at a rate substantially outpacing the GNP. Table I shows the progression of aggregate and per capita national health expenditures for the United States since 1940. Prior to World

War II, only 4.0 percent of the GNP was devoted to health care; by 1985, the proportion of the GNP expended for health care almost tripled, increasing to 10.8 percent of the GNP (Koch, 1988).

TABLE I
AGGREGATE AND PER CAPITA NATIONAL HEALTH EXPENDITURES,
UNITED STATES, SELECTED YEARS*

<u>Year</u>	<u>Total Billion</u>	<u>Per Capita</u>	<u>GNP (Billion \$)</u>	<u>Percent of GNP</u>
1940	4.0	30	100	4.0
1950	12.7	82	287	4.4
1960	26.9	146	507	5.3
1970	75.0	350	1015	7.4
1980	247.5	1049	2632	9.4
1985	425.0	1721	3989	10.8

*Source: Koch, 1988. Adapted from Waldo, D.R., Levit, K.R., Lazenby, H.: National health expenditures, 1985. Health Care Financing Review, 1986, 8:1-21.

Another way to look at costs is that between the end of World War II and 1966, public outlays for health averaged approximately 25 percent of the total dollar amount spent for health care. While expenditures in both the public and private sectors increased during this period, the rate of increase was approximately the same in both sectors. With Medicare and Medicaid programs, public expenditures for health services rose, as expected, but at a rate far greater than anticipated (Haglund & Dowling, 1988). In 1965, 22 percent of all personal health care spending was publicly financed; yet the figure grew to 34 percent in just two years (Gibson, et al., 1984). Similarly, total national health expenditures increased an average of 12.6 percent between 1965 and 1983, fueled by a steady inflation in the hospital sector, which grew 14 percent per year during that period versus 7 to 8 percent annual inflation for the rest of the economy (Crozier, 1984). In addition, between 1975 and 1983, the federal

government paid for slightly more than two-thirds of all public expenditures for health and medical care (Sorkin, 1986).

Health care expenditures reached \$355.4 billion by 1983, 10.8 percent of the GNP and 10.3 percent more than in 1982 (Gibson, et al., 1984). If health care spending were allowed to continue at this rate, expenditures could reach as much as \$690 billion (12 percent of GNP) by 1990 and \$1.9 trillion (14 percent of GNP) by the year 2000 (Freeland & Schendler, 1983). Of the total amount spent in 1983, \$313 billion was spent on personal health care services such as hospital care, physicians' services, nursing home care, drugs and medical sundries, and other personal health care goods and services) (Gibson, et al., 1984). Public sources paid for 42¢ of every dollar spent on health care in 1983; federal payments amounted to \$102.7 billion while \$46.1 billion came from state and local governments. Outlays for health care benefits paid by Medicare and Medicaid totaled \$91 billion or 29 percent of all personal health care expenditures in 1983 (Gibson, et al., 1984).

Although health care spending increased dramatically overall, hospital care led the way. Today, there are just under 5,800 community hospitals containing nearly 1 million beds, or about 4.2 beds per 1,000 persons (Ebert, 1987). Hospital care accounted for 47 percent of all personal health care spending in 1983 in contrast to 33 percent in 1960. On a per capita basis, hospital expenditures increased from \$50 per person in 1960 to over \$1,459 by 1983 and was double the per capita spending for physician's services, more than five times what was spent for drugs or nursing home care, and more than six times what was spent for dental services (Sapolsky, 1987). Federal programs paid for 41.1 percent of hospital care while private health insurance paid for 38.2

percent and state and local governments paid for 12.1 percent, leaving just 7.5 percent to be paid by the patient directly (Gibson, et al., 1984).

Physician's services, which make up the second largest segment of personal health care expenditures, accounted for 22 percent, or \$69 billion of the personal health care bill in 1983 (Gibson, et al., 1984). Together, physicians and hospitals account for over 60 percent of health care expenditures and, as a result, have been the target of most cost-containment initiatives proposed over the past few years (Renn, 1987). Of other health care services, almost \$29 billion (8.1%) went to nursing home care. Over \$23 billion was spent for prescription drugs, over-the-counter drugs and medical sundries. Finally, expenditures for all other types of health care goods and services amounted to \$44.5 billion in 1983 (Gibson, et al., 1984).

Overall, public programs financed almost 40 percent of all health care services in 1983 (Gibson, et al., 1984). While it is difficult to determine just how much is "too much", there is a growing consensus in the U.S. that health care costs are too high. More recently, increased federal spending on a wide variety of domestic and military programs, coupled with low economic growth and tax cuts, have contributed to huge federal budget deficits. The deficit has grown from \$79 billion in 1981 to a projected \$220 billion by 1986 (Haglund & Dowling, 1984). The specter of ever-growing budget deficits, cost inflation, and the election of conservative political leaders on the national level in 1980 resulted in a distinct modification in government's perception of its role in health care. The government moved from viewing health care as a social problem to health care as a budget deficit problem (Thurow, 1985).

FACTORS ASSOCIATED WITH HIGH HEALTH CARE COSTS

Relatively high rates of growth in health care expenditures are not unique to the United States. Economy-wide inflation, growth in real income, demographic shifts, and rapid technological change, to name just a few, have been associated with rising health care costs in all western industrialized societies. However, many health care economists agree that a number of factors, unique to the U.S., explain the rapid increases in U.S. health care costs. These factors fall into two major categories: economy-wide factors and health care specific factors (Abel-Smith, 1970; Enthoven, 1980; Freedland & Schendler, 1984; GAO, 1985; Meyer, 1983a).

Economy-wide Factors

Economy-wide factors include general price inflation and aggregate population growth. Economy-wide general inflation, which is caused by many factors, plays a major role in total health care expenditure increases. General inflation accounted for almost 58 percent of the health care expenditure growth with health care specific factors accounting for only about 35 percent of the increase between 1972 and 1982 (GAO, 1985). In 1983, a full 44 percent of the increase in health expenditures was accounted for by general inflation alone (Crozier, 1984). In addition, while the health care system has influenced aggregate population growth through decreases in infant mortality and increased life expectancy, aggregate population growth accounted for less than 8 percent of the expenditure increases between 1972 and 1982 (Gibson, et al., 1984). Economy-wide factors cannot be controlled and are, to some degree, external to the health care sector. However, health care specific factors relate to forces within the medical market itself and, thus, may be amenable to

control. The next section examines the contribution of health-care specific factors to health care cost inflation.

Health Care Specific Factors

The major economic factors within the health care specific component include: (1) medical care price increases in excess of general price inflation, (2) the development and dissemination of new medical technology, (3) population aging, (4) market imperfections that prevent the competitive market from achieving efficient service delivery (including the wide-spread use of health insurance) and (5) public financing of health care services.

Medical Care Price Inflation. During the 1950s, medical care price increases averaged only 4 percent annually but that was nearly twice the rate of consumer price increases as a whole. During the first half of the 1960s, consumer prices increased at an average rate of 1.3 percent per year while medical care prices increased 2.5 percent per year. From 1965 to 1970, prices for goods and services in general rose at an average rate of 4.2 percent per year while medical care prices increased 6.1 percent (Crozier, 1984). Part of the reason for these large increases had to do with the implementation of various federally funded health care programs, including Medicare and Medicaid, which sharply increased the demand for health services.

From 1974, when the Nixon Administration's Economic Stabilization Program price controls were lifted from the health care industry, through 1982, the medical care component of the consumer price index rose at an average annual rate of 10.2 percent versus 9.1 percent for the economy as a whole (Morris, 1984). However, both sets of prices reflected periods of rapid inflation

in the economy generally. Despite the fact that the utilization of health services has increased continuously, the major element associated with higher expenditures has been rising prices, both on an economy-wide basis and on a medical care specific basis (Evans, 1986). From 1965 to 1983, three-fifths of the rise in personal health care expenditures was accounted for by price increases (Gibson, et al., 1984).

New Medical Technology. The development and adoption of new medical technology have expanded the treatment of disease but also contributed to greater consumption of health care and to increased costs. While new technology often benefits patients and can increase hospital productivity, new technology usually becomes an additional service rather than a replacement for existing services. This can result in increased utilization and consequently increased costs. For example, a fairly recent innovation, coronary by-pass operations, costs approximately \$10,000 (Sorkin, 1986). The spread of technology has also resulted in changes in the mix of services delivered and consumption of more health care per capita, and thereby has stimulated price inflation as consumers and providers use the most modern facilities and equipment available.

Growth in the Elderly Population. Another important factor is the shift in demographics. Although the rate of population growth as a whole has been fairly stable, the percentage of elderly in the population is increasing. The Census Bureau estimates that there were 27 million elderly, or 11.7 percent of the total population, in 1983 compared with 23 million (10.8%) in 1977 (Waldo & Lazenby, 1985). This older group is expected to more than double by the year 2030 when the baby boom cohort reaches 65. This is a 160 percent increase

versus a projected 41 percent increase for the population as a whole (Rice, 1986). The aged are also living longer. While there were large increases in the number of "recently aged"; that is, those people 65 to 69, the median age of the elderly population as a whole rose from 71.6 years in 1977 to 71.9 years in 1983, reflecting lower death rates for people over 85 years of age (Waldo & Lazenby, 1985). In fact, by 2030, those 85 and above are projected to increase to 14 percent of the elderly population (Rice & Feldman, 1983).

While each age group is healthier and living longer than its predecessors, one consequence of more older people is the need for more health care since older people require more hospital and nursing home care than do younger people. The elderly represent only about 12 percent of the current population; however, they account for over 30 percent of all health care expenditures including 31 percent of hospital admissions and 41 percent of total days of care (Gornick, et al., 1985; Fiori et al., 1984). The elderly spend about two and one-half times the amount on health care as do people under age 65 (Freedland & Schendler, 1983). In 1980, per capita expenditures for the under 65 population were \$308 compared to \$1,087 for those over 65 and the hospitalization rate for those over 65 was two and one-half times that of the under 65 age group (Scitovsky, 1984).

The health problems faced by the elderly are also very different from those of younger persons. They often require more extensive and more expensive services. When hospitalized, the elderly utilize as much as five times more inpatient care services than do younger people (Ginzberg, 1985). Previous studies of acute care hospitalizations have found that high cost users of medical

care are more likely to be persons with chronic problems who are repeatedly admitted to the hospital than those with single, cost-intensive hospital stays (Scitovsky, 1984). As a consequence of more people living into old age, spending on the direct provision of health goods and services for the elderly has nearly tripled since 1977; rising from \$43 billion to \$120 billion in 1984. This growth in utilization is due not only to the increase in absolute numbers of the elderly (the growth rate for this age group is 2.3 percent annually), but also to an increase in the amount of per capita expenditures devoted to them. Spending per capita for the elderly rose from \$1,785 in 1977 to almost \$4,202 by 1984, averaging a 13 percent annual growth rate (Waldo & Lazenby, 1985).

Market Imperfections. Although a number of factors are identified as contributing to high health care costs, many economic theorists believe that one of the primary factors is the role of third-party payers in the health care marketplace (Evans, 1986; Koch, 1988; Renn, 1987). Standard economic theory suggests that in competitive markets, options for consumers increases and leads producers to minimize production costs and to maximize economic efficiency--all in pursuit of profit. The result, at least in theory, is that individual self-interest (utility maximization for consumers and profit maximization for producers) coincides with the maximization of social welfare. Application of this model to health care suggests that health services of a standard quality would be provided at the lowest cost to society. However, the necessary conditions for competition to function have not been met in the health care market and the ability of competition to optimize price, quantity, and quality may not hold (Weisbrod, 1983).

First of all, unlike other goods or services for which the consumer pays the provider directly, health care payments often are handled by a financial agent -

a third party. Thus, the patient does not, in most cases, purchase care directly but instead purchases access to the health care system by buying health insurance. It is this triangle of patient, physician, and insurance company paying for care that insulates the consumer from knowing the true cost of care, encourages over-consumption, and largely nullifies the traditional competitive forces of the market (Morris, 1984). For example, once hospitalization has occurred, the consumer with insurance will directly pay less than the full costs of the care. In such a situation, the consumer has the incentive for excess consumption and little incentive for cost containment (Renn, 1987).

Moreover, the favorable tax treatment of health insurance premiums and out-of-pocket payments for health care have also contributed to costs (Renn, 1987). Under current law, employer contributions for health insurance policies (more than three-quarters of the premiums earned by insurance companies in 1983) are excluded from employees' taxable income and from earnings subject to payroll taxes (Sorkin, 1986). In addition, until 1983, up to \$150 of an employee's share of health insurance premiums could be deducted directly from taxable income. The tax treatment of premiums alone cost the federal government \$26 billion in foregone revenue in fiscal year 1983 (Congressional Budget Office, 1983).

Certain changes in the current tax laws have confined the exemption, which is tax deductible, to only that part of health insurance premiums and other consumer medical expenses exceeding 5 percent of adjusted gross income. Still, the tax-exempt status of health insurance premiums encourages employees and does not discourage employers, to substitute more comprehensive insurance coverage (e.g., expanded coverage to include mental

health, eyeglasses, dental coverage) for higher money wages than they might purchase themselves with after-tax dollars (Renn, 1987; Sorkin, 1986).

A second major distortion of the medical market is the consumer's lack of information. Unlike most other markets, the consumers of health care lack full information when making health care decisions, not only of their own medical care needs but of the value, quality, and effectiveness of services provided (Renn, 1987; Weisbrod, 1983; Greenberg, 1983). The standard economic model assumes that consumers are well informed or that they can learn needed information quickly and at a low cost. Further, the market model assumes that the consumer is able to judge the effect of a particular purchase; "that is, able to compare his/her utility level with and without the specific purchase" (Weisbrod, 1983, p. 62). It is this judgment that determines the consumer's willingness to pay for the service/product.

While this may be true for many purchases, it is not true for medical care. The uncertainty inherent in many medical decisions and the complex nature of treatment often result in a limited ability on the part of consumers to make informed decisions regarding the appropriate delivery of medical care. In the medical market, physicians act as purchasing agents for consumers and are delegated virtually full decision-making authority for medical decisions. The use of an agent, however, carries with it the risk that the agent may have a conflict of interest -- that is, self-interest over the interest of the patient.

The current system places physicians in a position of dual and conflicting responsibility: acting as the agent for ill-informed patients and doing what they would do if they possessed sufficient medical knowledge while at the same time

acting as their own agent -- given the low private cost of medical care sometimes acting in a privately rational (profit-making) but socially inefficient (health care costs) manner (Weisbrod, 1983). The doctor-patient relationship can be described as a simple "social contract between a physician and patient...for the care of the patient (by the physician) in exchange for a fee" (Ebert, 1987, p. 164). It can also be extremely complex as when the relationship is placed within the medical world, where knowledge is specialized and the patient must depend upon the medical expertise of the physician for life and death matters. Because of this unique relationship between provider and patient, it is claimed that physicians have been able to create their own demand since consumer leverage is extremely limited (Brown, 1986; Langwell, 1982; Starr, 1982).

Cost-based insurance plans constitute a third factor distorting the medical market. While insurance plans, especially the Blue Cross plans, reduced the hospital's financial risk and allowed participating hospitals to gain dominance in their communities, they also promoted over-utilization of expensive services by providers and patients since they guaranteed reimbursement. Private insurers sought to overcome the tendency toward over-utilization by levying copayments and deductibles on beneficiaries, and made patients liable for the financial risk that exceeded the indemnity benefit. However, rather than establishing a fixed fee schedule in which the purchaser (the insurance company) would have had control of costs, insurance companies reimbursed doctors and hospitals according to their customary fees or, lacking a community standard, reasonable costs. The guiding principle behind this form of payment in the physician-established fee-for-service medical market has been the acceptance of the

usual and customary fees as the standard of payment. This acceptance extends throughout the system to all payers, acceptance by patients, by industry, and later, by the federal government (Ebert, 1987).

On the one hand, third-party, retrospective reimbursement provides little incentive for consumers to be cost conscious and seek out efficient providers since they do not pay directly for their care. On the other hand, reimbursement has encouraged providers to deliver all possible care since the more services delivered, the greater the payment. Similarly, the structure of insurance benefits has tended to encourage the use of inpatient rather than outpatient facilities as well as the overuse of tests and procedures, and encouraged more doctors to enter high-return specialties like surgery (Starr, 1982). Thus, while insurance provides easy access to hospitals and physicians and covers treatment of major illnesses and disabilities, it distances the consumer from the costs of care and reimburses on a basis that encourages consumption without regard to cost or benefit. The financial incentives embedded in the cost-based reimbursement structure of traditional insurance appears to enhance access and encourage effective medical care, but not necessarily efficiently or at the lowest cost. In this way, cost-based reimbursement by third-party payers has increased service intensity, utilization, and may have even increased provider charges (Starr, 1982). Under such a system, neither the consumer nor the provider need make any effort to keep costs down (Morris, 1984).

However, many analysts believe it has been the combination of retrospective reimbursement and third-party payment, specifically the government funded health insurance programs of Medicare and Medicaid, that

are the root cause of health care cost inflation (e.g., Ebert, 1987; Brown, 1985; Lave, 1984; Renn, 1987). As Weisbrod (1983) points out:

With 90 percent or more of the U.S. population having some form of health insurance, the price to the patient of additional medical care is often zero, even though the social cost is far higher. Moreover, because employer-financed health insurance is not subject to income taxation, the purchase of health insurance is subsidized. Finally, the health care coverage under governmental Medicare and Medicaid programs acts further to drive a wedge between the real cost of medical care and the price to the consumer. Whenever consumers of any good confront a price that is below social cost, excessive consumption is likely (p. 65).

Any examination of the effect of federal health programs on health care costs must include an understanding of the "character and evolution" of the program; that is, the trade-offs made in the development and passage of the legislation (Brown, 1985, p. 580). To secure passage of Medicare and Medicaid, supporters conceded control of the programs to providers through cost-based reimbursement and to fiscal intermediaries by delegating major tasks of oversight and review (Brown, 1985). This created a payment structure that encouraged beneficiaries and providers to over-utilize services and that offered no reward for cost-effective patient management (Feigenbaum, 1987). Three and a half years after Medicare and Medicaid began operating, a study by the Senate Finance Committee found the programs already "in serious financial trouble...and adversely affecting health care costs and financing for the general population" (Morris, 1984). It became clear that the total cost of providing Medicare and, to a lesser extent, Medicaid services had been underestimated. For example, Medicare costs increased from approximately \$1 billion in 1966 to \$62.9 billion in 1984, primarily reflecting greater utilization of hospitals by the

aged (Gornick, et al., 1985; Sorkin, 1986). What was originally seen as an easily managed set of programs turned into a nightmare of escalating costs (Cohen, 1985). How this came about and the impact on health care costs of the structure of the reimbursement process of the programs, particularly Medicare, is delineated in the next section.

MEDICARE, MEDICAID, AND HEALTH CARE COST INFLATION

Although national health insurance, a major agenda item for Progressives since the early 1900s, had been contemplated in the development of the Social Security Act of 1935, vociferous opposition by the AMA, which opposed any form of publicly-funded health insurance as "socialized medicine," and conservatives in Congress, who feared the monumental administrative and management problems involved in such a plan, forced the removal of the health provision before it reached Congress (Cohen, 1985; Koch, 1988; Morris, 1984; Starr, 1982). Called the "orphan of the New Deal," Truman made national health insurance a major component of his "Fair Deal" by actively supporting the Wagner, Murray, Dingell National Health Insurance Bill in 1945 (Beyer & Callahan, 1985). However, government-sponsored health insurance remained blocked in Congress as a result of bitter opposition on the part of organized medicine and conservative politicians. By 1949, the movement for national health insurance was "moribund" (Bayer & Callahan, 1985; Koch, 1988).

Frustrated by the failure to achieve their goal of universal medical insurance coverage, advocates for the elderly sought a strategy to capture broad public support and overcome Congressional resistance. "On June 25,

1951, Oscar Ewing, Federal Security Administrator, announced a hospitalization coverage plan for Social Security pensioners and the widows and children of pensioners. Thus began a fourteen year struggle to pass the Medicare hospital insurance legislation (Bayer & Callahan, 1985). For the most part, the debate over Medicare centered less on its programmatic details than on whether the circumstances of the aged warranted a governmental or private sector response (Marmor, 1986). These efforts were seen at the outset as the first step toward a comprehensive and universal national health insurance program (Cohen, 1985).

The use of the elderly as a class to provide federal health insurance was a "unique" approach to universal health coverage (Bayer & Callahan, 1985). Unlike the governments of Europe, which had adopted universal coverage before the turn of the century and who had focused on low-income workers initially but later expanded coverage to all groups, the proposed amendments focused on the elderly as a group in order to "grease the skids" for a more comprehensive form of national health insurance in the future (Cohen, 1985). The elderly were seen as a desirable vehicle for presenting a national health insurance program since they were more likely to be poor but their poverty was "undeserved" (Bayer & Callahan, 1985, p. 537). Moreover, the private insurance system, just expanding from the employed to the entire middle class, did not protect the elderly and their families were often burdened by their medical expenses. Furthermore, the attachment of a health insurance component to the popular Social Security program, allowed advocates to tap into a program with almost universal appeal. And, finally, the elderly themselves were lobbying for an age-based social insurance program rather than a means-tested welfare approach (Bayer & Callahan, 1985; Brown, 1985; Cohen, 1985; Koch, 1988).

Opposition from the AMA stalled the Medicare legislation until the Kennedy and Johnson Administrations (Cohen, 1985). A national study conducted in the early 1960s showed that about three-fourths of all adults under age 65 had hospital insurance but only 56 percent of those over 65 did. Yet the aged were shown to be the most at risk for hospitalization, to have the highest rates of illness and to have the lowest average income (Gornick, et al., 1985). Opinion polls from 1960 to 1965 showed dramatic support for Medicare-type proposals. At the same time, there were a number of ideological and political issues surrounding the Medicare and Medicaid legislation that threatened its passage.

There was heated debate over the inclusion of the beneficiary deductibles and co-insurance provisions. Most Congressional members wanted a deductible on the hospital insurance portion of Medicare as a means of controlling over-utilization, considered a major probability in the debates over the legislation (Cohen, 1985; Gornick et al., 1985). Another big issue concerned who should administer the hospital insurance program. Administration officials felt the Social Security Administration could do a more effective, efficient, and responsible job than the many diverse private insurance plans but political leaders worried whether the program could be satisfactorily administered. These ideological and political issues were so hotly contested that they "precluded consideration of issues such as reimbursement alternatives and efficiency options" (Cohen, 1985, p. 8).

The decisive victory of Lyndon Johnson in 1964 pushed the Johnson agenda, including Medicare and Medicaid, to the forefront in Congress. Sensing a

change in the political climate, the AMA and conservative legislators made counter proposals to the Medicare program. The proposals had one element in common, they were broader than hospital care and provided for physician's services (Cohen, 1985). By 1965, public hearings were being held on the programs and compromises had been worked out concerning the hospital insurance deductible and who would administer the program. In addition, Medicare and Medicaid included statutes covering physician and other services. Cognizant of the opposition to the original proposals by the AMA and conservative legislators, Congressional leaders inserted language into the Medicare law that expanded coverage to include physicians but ensured that the program in no way altered "the traditional practice of medicine" (Ebert, 1987, p.170).

Consequently, Medicare and Medicaid utilizes an "indirect pattern of finance and delivery", in which the federal government contracts with independent providers to act as the fiscal intermediaries who administer the program (Koch, 1988). The tasks of paying and auditing hospitals and physicians were delegated to Blue Cross and commercial insurers as the fiscal intermediaries. To get providers to enroll in the program, the reimbursement system adopted to pay for Medicare and Medicaid services was borrowed from the system established by Blue Cross. It offered retrospective, cost-based payment and virtual 'first-dollar' coverage beyond the first day of care for a fixed number of hospital days and paid physicians their "reasonable," "customary," and "prevailing" fees (Brown, 1988b; Cohen, 1985; Koch, 1988; Renn, 1987). The legislation established a reimbursement rate of 80 percent of the "reasonable" and "customary" charges for covered services with the

beneficiary making up the difference between what Medicare paid and what a physician might charge, unless the physician agreed to accept "assignment" (Sorkin, 1986).

Furthermore, Section 1801 of the Medicare law provided that "Nothing in this title shall authorize any Federal officer or employee to exercise any supervision or control over the practice of medicine or the manner in which medical services are provided..." (Cohen, 1985, p. 8). This section was included in the legislation to offset the criticism, made by the medical profession and conservative opponents of the bill, that Medicare/Medicaid would give the government the right to interfere in the medical diagnosis and treatment of the individual. The bill was supported by the medical profession since it left control of service delivery decisions in the hands of physicians and kept the government at arms length from any cost-control potential.

Cost-based Reimbursement. The principle of "reasonable cost" for in-patient hospital services was "never seriously debated...opposed...or criticized" during the debates over the program. The legislation prescribed that the "principles generally applied by national organizations or established prepayment organizations" would be accepted by the Congress and the providers (Cohen, 1985, p. 8). An author of the Medicare/Medicaid legislation stated that retrospective, cost-based reimbursement was accepted not only because no other alternative was proposed but also because conventional practice at the time accepted reasonable cost as a "reasonable principle" (Cohen, 1985, p. 8). Supporters argued that payment of comparable reasonable costs in the Medicare/Medicaid programs would assist in reducing barriers to the health care system for economically disadvantaged people throughout the nation and

promote equality in their medical treatment. Congress accepted "reasonable costs" and amended the Social Security Act (PL 89-97) on July 30, 1965 to establish the national health insurance programs for the aged, known as Medicare (Title XVIII) and a federal-state insurance plan for the poor known as Medicaid (Title XIX). The legislation went into effect on July 1, 1966 (Cohen, 1985).

Medicare's Financial Problems. By almost every measure, the introduction of Medicare and Medicaid has had a dramatic impact on the availability and accessibility of health care to the poor and elderly. At their peak, the programs resulted in over 97 percent of all elderly and 22.9 million poor people in the U.S. being covered by health insurance (Gornick, et al., 1985). The number of aged enrollees increased from 19.1 million in 1966 to 26.8 million by 1983 (Congressional Quarterly, 1984). In addition, the volume of health care services nearly doubled with the addition Medicare and Medicaid (Renn, 1987). Although there had been a general upward trend in hospital use by the elderly, beginning in 1950, the number of hospital stays and the average length of stay for the aged increased 48 percent during Medicare's first year alone (Gornick et al., 1985). Between 1966 and 1982, hospital reimbursements, which represent about 95 percent of Part A expenditures and 71 percent of total Medicare expenditures, increased at an annual rate of about 20 percent (Gornick, et al., 1985).

Table II and Table III present data on total reimbursements and reimbursements for the Hospital Insurance (Part A) program and for the Supplementary Medical Insurance Program (Part B) for the period 1966 to 1984.

Total Medicare payments grew from \$4.6 billion in 1967 to \$62.9 billion in 1984. Medical costs rose overall 192 percent between 1970 and 1983 compared to a 157 percent rise in the Consumer Price Index (CPI) (Wehr, 1984). From the program's inception, Part A expenditures have been substantially greater than Part B, although Part B outlays have been a growing proportion of total medical expenditures. In 1967, Part A represented 74 percent of benefit payments and Part B 26 percent; by 1984, Part A had declined to 69 percent and Part B expenditures had grown to 31 percent (Gornick, et al., 1985).

TABLE II
MEDICARE BENEFIT PAYMENTS AND ANNUAL PERCENT CHANGE:
1966-1984

Year	Total	Hospital insurance	Supplementary medical insurance	Annual percent change for total
	Amount in billions			
1966	\$1.0	\$0.9	\$0.1	—
1967	4.6	3.4	1.2	346.5
1968	5.7	4.2	1.5	25.2
1969	6.6	4.7	1.9	15.9
1970	7.1	5.1	2.0	7.5
1971	7.9	5.8	2.1	10.8
1972	8.6	6.3	2.3	9.9
1973	9.6	7.1	2.5	10.9
1974	12.4	9.1	3.3	29.6
1975	15.6	11.3	4.3	25.5
1976	18.4	13.3	5.1	18.2
1977	21.8	15.7	6.0	18.2
1978	24.9	17.7	7.3	14.5
1979	29.3	20.6	8.7	17.6
1980	35.7	25.1	10.6	21.7
1981	43.5	30.3	13.1	21.7
1982	51.1	35.6	15.5	17.6
1983	57.4	39.3	18.1	12.4
1984	62.9	43.3	19.7	9.5
	Percent			
ACRG ¹	16.6	16.1	17.9	—
ACRRG ²	9.1	8.6	10.3	—

SOURCE: Health Care Financing Administration, Office of the Actuary: 1985 Annual Report of the Board of Trustees of the Federal Hospital Insurance and Supplementary Medical Insurance Trust Funds.

¹Annual compound rate of growth 1967-84.

²Annual compound real rate of growth 1967-84, adjusted for changes in Consumer Price Index 1967-84.

TABLE III

**DISTRIBUTION OF MEDICARE HOSPITAL INSURANCE AND SUPPLEMENTARY
MEDICAL INSURANCE REIMBURSEMENT FOR AGED AND DISABLED
BENEFICIARIES BY TYPE OF SERVICE, 1967 and 1983**

Type of service	1967		1983		Annual compound rate of growth in percent
	Amount in millions	Percent	Amount in millions	Percent	
Total	\$4,239	100.0	\$53,438	100.0	17.2
Inpatient hospital	2,659	62.7	34,519	64.6	17.4
Physicians and related services	1,224	28.9	13,661	25.6	16.3
Skilled nursing facility	274	6.5	428	0.8	2.8
Home health agency	43	1.0	1,388	2.6	24.1
Outpatient	38	0.9	3,442	6.4	32.5

NOTE: Figures do not include final settlements.

SOURCES: (Social Security Administration, 1971); Health Care Financing Administration, Bureau of Data Management and Strategy; Data from the Medicare Statistical System.

The dramatic increase in utilization and costs is attributed to several factors: a growth in the eligible categories of beneficiaries (e.g., the expansion of entitlement to previously uncovered populations), an expansion of the numbers of previously entitled over-65 population, and to some increase in utilization. Nevertheless, most of the increase has been attributed to increases in the unit-cost of care; namely, the cost of a hospital day (Gornick, et al., 1985; Congressional Quarterly, 1984).

Although policy-makers believed that retrospective, cost-based reimbursement was necessary to encourage providers to participate in the program, critics of the program contend that Medicare has contributed to healthcare cost inflation in three ways. One, Medicare's indulgent "entitlement ethic," they claim, has triggered a financial crisis and encouraged the elderly to consume larger and larger proportions of the welfare pie; two, Medicare's reimbursement system incentives encouraged over-consumption and overuse; and three, the program over-emphasized the most expensive form of care,

acute inpatient hospital care while neglecting prevention and long-term care (Brown, 1985). As the 20th anniversary of the programs approached, policymakers began to question how well the programs provide access to care for the most needy, the equitable distribution of services, the appropriateness of the covered services, and the effectiveness and efficiency of the system in which the services are delivered and financed (Gornick, et al., 1985).

Indeed, Medicare is in financial trouble. According to the Congressional Budget Office (CBO), the hospital insurance trust fund (Part A of Medicare), which is financed by payroll taxes, will be bankrupt before the end of the decade. Given the historical trends, the year-end balances of Part A are projected to decline after 1987 and will total from \$200 to \$300 billion by 1995 (Demkovich, 1983b; Ginsberg & Moon, 1984). In addition, outlays under the Supplementary Medical Insurance Fund (SMI), which are paid out of general revenues and premiums levied on beneficiaries, are projected to increase by one percent per year through 1988. General revenue contributions to the SMI Fund would have to rise to \$31.9 billion by 1988, compared to \$14.2 billion in 1983, just to pay for this increased use (Ginsberg & Moon, 1984; Demkovich, 1983b). With the number of beneficiaries rising, the volume of services per beneficiary increasing, and the units of costs for services going up, it is clear that the conflict between the medical needs of the aged population and a growing federal deficit is destined to be one of the nation's most pressing policy dilemmas (Etheridge, 1984).

CONCLUSION

Health care was a shared function of private providers, local government and charitable institutions before the turn of the century. By the 1930s,

advances in medical science and technology and the monopoly on medical practice attained by the medical profession made health care a valuable commodity. The American medical establishment had made enormous strides in discovering and applying effective diagnostic and treatment procedures and, as a result, physicians attained unprecedented autonomy and power. Federal intervention in health care; such as federal aid for hospital construction, liberal tax laws regarding insurance coverage, and support of educating health professionals, did not change the status quo constructed by the medical profession. Health insurance, with its potential to alter the power relationships of physicians and hospitals to society, left the health care market and its payment mechanisms intact. The result has been spiraling health care costs. A number of factors contribute to the rise in costs, such as general inflation, medical care cost increases, increases in utilization, aging of the population). However, analysts believe that it has been the combination of federal health care programs (Medicare and Medicaid) and retrospective, cost-based reimbursement by third-parties that has contributed most to health care cost inflation. The next chapter examines the response of the federal government to health care costs and poses the research question addressed in this dissertation.

CHAPTER II

THE ERA OF COST-CONTAINMENT IN FEDERAL HEALTH POLICY

The principal problem in health care today is the need for a workable mechanism to achieve a proper balance between acceptable cost and an ensured level of quality. At the core of the trade-off between cost and quality faced by consumers, employers, and state and federal governments is the question of how to pay the providers of health care enough to get them to supply services, but to do so in a way that is affordable for those paying the bill (Meyer, 1983, p. 3).

The American health care system is the nation's second largest industry, employing 7.2 million and with a payroll of \$360 billion in 1984 (Gibson, et al., 1984). Consuming 10.7% of GNP (\$425 billion in 1985), it ranks third behind defense and education, in terms of general public expenditures (Koch, 1988). Prior to the Depression, the U.S. health care system was a shared function of the voluntary sector, responsible for establishing and operating hospitals, and state and local governments, responsible for educating and training health care personnel, public health, and medical care for the poor. Significant social legislation enacted during the Depression, such as unemployment insurance and federal aid for health care for mothers and children, altered this historical situation. Federal initiatives after World War II expanded the number of hospital beds and health care personnel, encouraged the spread of health insurance to the middle class, and funded programs that provided greater access to health care by disenfranchised groups; specifically the poor and elderly. However, while these activities broadened access to health care, they also fueled inflation in health care costs. This chapter examines the federal

government's retreat from the previous expansionary phase of national health care policy (1945-1970) and the subsequent emphasis on regulation and market-based competition for health care cost control. Specifically, this chapter examines the most revolutionary change in health care policy since the enactment of the Medicare and Medicaid programs; that is, on Medicare's Prospective Payment System (PPS).

REGULATION AND COMPETITION IN HEALTH CARE COST CONTROL

The high and persistently climbing cost of health care, especially hospital care during the 1970s, made the search for ways to slow this trend a key national policy issue. In addition, the growing emphasis on cost containment by the government, as well as by third-party payers, has sparked a national debate regarding the direction of health care and forced providers and insurers to reconfigure their operations in an attempt to protect their patient bases and marketshares (Iglehart, 1985). Two national policy approaches to the cost issue can be identified: regulating providers and introducing competition into the medical marketplace. These national policy actions have reshaped the American health care system in ways that greatly diverge from the pattern developed over the last 100 years.

Regulation Strategies

It was clear by the 1970s that the massive post-war infusion of federal funds into the health care system not only failed to produce an adequate supply or distribution of health resources, but also contributed to cost increases. As Judith Lave (1984) pointed out:

Retrospective cost-based third-party reimbursement, in a world with little cost-sharing for patients and an open-ended entitlement, is now considered to have been the major factor contributing to the cost explosion (p. 67).

Pressure for national regulatory reform of retrospective reimbursement increased during the 1970s as public policy sought ways of changing the incentives within the health care system (Brown, 1986). Chief among the policy initiatives during the seventies included a wage and price freeze; controls on Medicare reimbursement; peer review organizations, consumer involvement in health planning and an attempt by the Carter Administration to control hospital costs nation-wide.

Economic Stabilization Act. Most cost-containment proposals have focused on controlling increases in costs for physician and hospital care. The Economic Stabilization Act of 1971 authorized President Nixon to freeze wages and prices. Although applied to the whole economy for only 90 days, controls were applied to the health care sector for over three years, from 1971 through 1974 (Morris, 1984). The program limited doctors' fees to an annual increase of 2.5 percent and hospital charges to 6 percent, or about half the inflation rate in medical care preceding the freeze (Starr, 1982). Health care prices began to rise, however, when controls were lifted.

The 1972 Social Security Amendments. A second attempt to control costs was made with the Social Security Amendments of 1972 (PL 92-603). The Amendments enacted important changes in the Social Security Act and represented the first attempt to reduce program costs. Most of the Act's amendments dealt with controlling costs, including limitations on payments for capital expenditures, increased cost-sharing for Medicare beneficiaries, encouragement of Health Maintenance Organization (HMO) demonstration projects and Part B (Medicare physician services program) deductible increases.

While the amendments expanded coverage to the disabled and those with renal failure, the bill also included two significant cost-containment provisions. Section 222 directed the Secretary of the then Department of Health, Education and Welfare (DHEW) to establish demonstration projects to determine the advantages and disadvantages of utilizing a prospective payment system in which fixed payment rates determined in advance of the provision of care for Medicare hospital reimbursement would be used and to grant waivers from the Medicare program to states wanting to experiment with prospective reimbursement prior to a national system implementation. Several states, including Maryland and Washington, requested such waivers. Section 223 set limits, for the first time, on the 'reasonable' cost to be paid under the Medicare program (Gornick, et al., 1985; Spiegel & Kavalier, 1986). The rate was capped at 112 percent of the average for similar institutions (Demkovich, 1981).

PSROs. With the 1972 Amendments, Congress established 190 Professional Standard Review Organizations (PSROs), made up of groups of physicians who were to independently review Medicare utilization, to guard against unnecessary hospitalizations and procedures that would add to the cost of the Medicare program. AMA opposition modified much of the original legislation (for example, community norms rather than national norms became the basis of the assessments) and weakened the authority of the PSROs. In the final legislation, PSROs were to review: 1) whether Medicare services were medically necessary; 2) whether admissions and lengths of stay were appropriate; 3) whether care met professionally recognized standards; and 4) whether services should be delivered in an inpatient or less expensive outpatient setting (Senate Finance Committee, 1986). Over the years, the program fell

into disfavor as costs continued to rise faster than the cost of living. Congress particularly grew impatient with the program after the Congressional Budget Office (CBO) reported that the program was costing about as much as it was saving and was causing hospitals to make up lost Medicare dollars by charging privately insured patients more (i.e., cost shifting) (Demkovich, 1983b; Spiegel & Kavalier, 1986). From 1972 through 1981, a gradual tightening of rules reduced Medicare's growth somewhat but cost containment hopes in Medicare were waiting for the development of legislation that would reform the payment system (Demkovich, 1981; 1982).

Health Planning. Another regulatory approach to the cost problem involved consumer participation in health services development. Congress passed the Health Planning and Resources Development Act (PL 93-641) in 1974. The bill authorized spending \$1 billion over three years to establish a national network of some 200 local Health Systems Agencies (HSAs), run by boards with consumer majorities representative of their areas and fifty State Health Planning and Development Agencies (SHPDAs). The goal was to give states, local communities and consumers a say in planning for health resources as a way to limit duplication of facilities and services and containing costs. The centerpiece of the legislation was the Certificate of Need (CON) provision requiring health care institutions (hospitals, nursing homes) to get prior state approval for capital expenditures and acquisition of major medical equipment (Havighurst, 1986).

The original proposals for health planning placed responsibility in local, independent, consumer controlled boards accountable only to the federal government. The boards were to review proposals for new projects, focus on

the development of three year health plans, and close down hospitals and nursing home beds they decided were unnecessary. HSAs were not given authority to implement their decisions in the final legislation however. Instead, they had to send their recommendations to the State Health Planning and Development Agencies for final decisions. The state agencies were then free to follow the suggestions or reverse them. State agencies rarely refused certificate of need applications and, when they did, the hospitals mounted legal challenges of their authority that eventually led to out of court settlements in favor of the hospitals. Thus, HSAs had review responsibility but no authority.

The whole effort was doomed to failure due to the fact that certificate of need laws, like PSRO laws were based on the assumption that the cost problem was one of spending on facilities and services with marginal returns versus perverse incentives within the payment systems. Additionally, Congress's refusal to give the agencies any control over physicians' office practices, the allocation of health care capital or the reimbursement system that determined the flow of revenues hampered the HSA's efforts to control duplication of services and costs (Havighurst, 1986).

The Carter Hospital Bill. Regulatory strategies for cost containment culminated in 1977. The Carter Administration, recognizing the limits of the Nixon Administration's decentralized HMO approach, proposed new and far-reaching legislation that would impose a fixed limit on the annual growth of hospital costs (the overall rate of hospital cost inflation plus one percent) (Morris, 1984). The Carter proposal contained an important tenet: controls on costs should not adversely affect quality and quantity of care making equity for beneficiaries a dominant goal in Carter's plan (Morris, 1984). The formula-

based Carter proposal differed significantly from previous cost-containment efforts that had relied on public determination of the appropriateness of capital spending, as in the health planning certificate of need legislation, or of treatment costs, as in cost-based reimbursement founded in "reasonable charges" (Morris, 1984). The uniqueness of the Carter bill lay in the arbitrary nature of the proposed constraint; i.e., across the board controls on hospital costs and thus, the hospital's bottom line. Effective political and special interest group opposition defeated the bill in 1979.

With the election of Ronald Reagan in 1980, the health care cost debate shifted to new ground. The defeat of the Carter hospital cost containment bill in 1979 put an end to federal efforts to solve cost problems system-wide. The federal government now concentrated on controlling costs in its own health programs, specifically Medicare and Medicaid. The major reforms of this period were the introduction of competition in the medical market through the encouragement of Health Maintenance Organizations, stricter enforcement of the anti-trust laws, tax-based incentives for health insurance coverage, and the Prospective Payment System (PPS) of Medicare.

Competition Strategies

The emergence of competition strategies in health care can be traced back to the early 1970s with the passage of the HMO legislation and antitrust decisions that gradually changed the American health care system (Brown, 1986; Havighurst, 1986). Although there had always been competition in health care, such as competition among physicians for patients, it never conformed to the economic market ideal nor was it based on price (Sapolsky, 1986; Havighurst, 1986; Starr, 1982).

While competition-based health care proposals differ in detail, they also share several common elements including: (1) the requirement that employers offer, and equally contribute to, multiple 'choice of plan' insurance options as a means of providing cost-conscious choices for consumers and prudent buyer concepts for bill payers, including HMO options; (2) placement of a cap on the dollar value of employer contributions to employee health insurance plans that are excluded from the taxable income of the employee; (3) the design of health insurance plans that provide for cost sharing, in the form of co-payments and deductibles, by the insured; and (4) the development of Medicare voucher systems under which elderly and disabled persons would receive a fixed value voucher to purchase a qualified health insurance plan (Brown, 1986; Demkovich, 1982; Greenberg, 1983; Koch, 1988; Lee & Benjamin, 1987; Meyer, 1983b; Shapiro, 1983; Starr, 1982).

Competition-based cost containment strategies have always intended to create a more efficient health care market to reduce costs (Greenberg, 1983). In the view of competition advocates, regulatory strategies overlook the fundamental forces driving spending in health care: that is, open-ended federal tax subsidies supporting the purchase of increasingly comprehensive insurance; retrospective cost-based reimbursement systems that reward inefficiency; and regulation itself, which protects profligate providers and impedes innovation. In contrast, greater reliance on market-oriented incentives would encourage health care providers to deliver services of acceptable quality at a lower cost and encourage consumers to select more efficient providers (Meyer, 1983b).

The common denominator of these competition strategies is that insurer-based competition; that is, competition among third-party payers, alternative

delivery systems, preferred provider groups (PPOs) and health maintenance organizations (HMOs), is the most viable form of competition in health care (Greenberg, 1983). Consequently, competition proposals focus on strengthening consumer cost-consciousness, eliminating regulation, and enforcing antitrust laws (Havighurst, 1983a). Federally-sponsored competition initiatives of the early 1970s focused on the development of HMOs.

HMOs - The New Health Strategy. Partly in response to a national health insurance bill to be introduced by Senator Edward Kennedy and partly in response to increased federal expenditures in health care, President Nixon announced "a new national health strategy" in February, 1971, in which health maintenance organizations (HMOs) were the major innovations proposed for medical care. The key feature of an HMO, or prepaid health plan, is the combination of insurance and health care delivery in one organization. HMOs would give a fairly comprehensive range of health care services in return for a fixed annual or monthly payment that was to be independent of the enrollee's use of services. Due to this assumption of financial risk, HMOs are theoretically motivated to discourage the inappropriate use of services and encourage alternatives to costly hospitalization, such as primary and home health care and wellness or prevention services. HMOs provided the Nixon Administration with a policy option that "reduced no one's benefits, took no steps toward national health insurance and was non-regulatory" (Brown, 1986, p. 575).

In 1970 there were some 100 HMOs, enrolling about 2 percent of the population. The Administration's goal was to help create 1,700 HMOs by 1976,

enrolling 40 million people. By 1980, it was hoped that 90 percent of the population would have HMOs available to them (Brown, 1986). By 1973, Nixon's Health Maintenance Organization Act was passed. It established financial assistance to promote federally qualified HMO development. Although HMOs had been around for 50 years, public acceptance of them had been slow due to physician reluctance to participate and the public perception of substandard quality of care. The HMO Act attempted to enhance HMO acceptability by establishing mechanisms for certifying federally qualified HMOs. Between 1973 and 1983, the federal government pumped \$145 million into grants and \$219 million in loans for HMO development. The private sector invested \$348 million. Even with this infusion of funds, public acceptance has remained slow. By 1980, some 235 HMOs served only 5 to 6 percent of the total population.

HMOs have grown slowly in the face of immense structural and political barriers within the health industry, and until recently, have been a small, geographically localized phenomenon (Evans, 1986). While federal subsidies to HMOs represented government sponsored expansion of consumer choice, pressure from the medical profession kept many of the existing barriers to HMO competition, such as professional norms as the "standard of practice", in the 1973 legislation. HMOs were heavily regulated as a condition of government support and were therefore handicapped when competing with traditional insurers and providers. Nevertheless, HMOs have been able to demonstrate an ability to contain costs (Havighurst, 1986). Since 1980, however, HMO growth has been occurring at more than 20 percent per year. By 1986 some 500 HMOs served 15 million people, or about 8 percent of the population, with approximately 875,000 elderly in Medicare-sponsored HMOs (Brown, 1986;

Cohodes, 1987; Renn, 1987; Spiegel & Kavalier, 1986). A New York Times business and health column painted a rosy future for HMOs, noting that HMO growth "displays vigor" (Friedman, 1985).

Enforcement of the Sherman Anti-trust Act. The success of the competition strategies advocated by competition advocates depended upon the application of antitrust laws in order to inhibit the medical professions' long established restraints of trade. Thus, along with the rise in interest in competition in health care was an interest in broadening the definition of antitrust laws, since "only when the antitrust laws began to be applied to provider conduct" did competition become a realistic policy option in health care (Havighurst, 1983b 295).

For the first eighty-five years after the enactment of the Sherman Anti-Trust Act of 1890 there was little application of antitrust principles to the medical profession (Havighurst, 1983b; Kopit, 1983). In only one case (the U.S. versus the American Medical Association and the District of Columbia Medical Society) had the law been applied. The Supreme Court held that the defendants had violated the Sherman Act by conspiring against a prepaid health plan (Kopit, 1983). The inactivity by the Federal Trade Commission has often been explained away as a result of a implied exemption, based on a 1952 decision (U.S. versus Oregon State Medical Society), that existed for the learned professions (Havighurst, 1983b; Kopit, 1983). In this case, the Supreme Court stated:

Since no concerted refusal to deal with private health associations has been proved, we need not decide whether it would violate the antitrust laws. We might observe in passing, however, that there are ethical considerations where the historic direct relationship

between patient and physician is involved which are quite different from the usual considerations prevailing in ordinary commercial matters. This court has recognized that forms of competition usual in the business world may be demoralizing to the ethical standards of a profession (Kopit, 1983, p. 323).

The perception that physicians were not engaged in trade or commerce thus became the norm. Furthermore, the Court went out of its way to indicate a tolerant disposition toward the professional sponsorship of boycott if undertaken by professional bodies. Havighurst (1983b) points out, however, that the medical profession's de facto antitrust immunity probably owed less to judicial belief in professional standards than to the inability of federal law to reach localized conduct not affecting interstate commerce. The medical profession enjoyed a virtual exemption from the antitrust laws until the mid-1970s.

A crucial event in the establishment of market-oriented policy in health care was the Supreme Court's 1975 Goldfarb decision (Havighurst, 1983b; Kopit, 1983). In *Goldfarb versus Virginia State Bar*, the Court decisively rejected the idea that the "learned professions" were exempt from antitrust scrutiny, rejected any claim by the medical profession to a "professional" exemption, and interpreted federal antitrust laws to mandate competition in the provision of professional services (Havighurst, 1986; 1983b; Kopit, 1983). With *Goldfarb*, and with subsequent cases involving both hospital and professional services, the Court made jurisdictional requirements substantially easier to satisfy in cases involving health care and, as a result, changed de facto federal policy toward the health care sector. These decisions by the Court and subsequent Federal Trade Commission actions in the enforcement of the Sherman Act undermined numerous industry-sponsored barriers to competition (Havighurst, 1986).

The Omnibus Budget Reconciliation Act. Under Reagan, federal Medicare and Medicaid policies changed significantly. Foremost among the changes were cuts in the Medicaid program and changes in the method of payment to hospitals for Medicare inpatient services. The Omnibus Reconciliation Act of 1981 (OBRA) incorporated extensive budget reductions in Medicaid with new flexibility in hospital reimbursement policies, both designed to reduce the number of persons eligible for Medicaid. The bill also consolidated 19 categorical health programs into four block grants, including preventive health and health services, alcohol and drug abuse, mental health programs, primary care and maternal health (Davis, 1985). Changes in Medicare involved trimming \$1.4 billion from expenditures, primarily by increasing the Medicare deductible to \$75 which was more than 12 percent higher than that scheduled under the automatic adjustment procedures set by previous legislation (Brown, 1986; Demkovich, 1983b).

Tax-Based Competition Proposals. In addition to cutting the budget, the Reagan Administration set about deregulating industries (i.e., the communications industry, interstate commerce, aviation). Health care was no exception. Having stated in his inaugural address that he would propose sweeping pro-competitive legislation in the health care sector as a way of containing soaring medical care costs, Reagan's appointee of Health and Human Services (HHS), Richard Schweiker, set up a task force in 1981 to examine the problem of rising costs and to draw up specific proposals to combat it (Demkovich, 1982a,b). The task force drew heavily upon proposals already before Congress (e.g., the Gebhardt-Stockman pro-competition bill of 1980) and presented the President with a list of options that has served as the basis for the Administration's "pro-competition" health care legislative proposals.

To stimulate competition in the private sector, the Administration considered a number of tax-based proposals while, in the public sector, the Administration recommended converting Medicare to a "voucher" system (Demkovich, 1982a,b). The private sector proposals used tax mechanisms to achieve cost controls. One part of the tax-cap proposal would limit the ability of employees to exclude the full amount of employer contributions to their health insurance premiums from their taxable income. The second part would put a ceiling on the amount of such contributions that employers can deduct as business expenses. Both parts were designed to have employees paying for some of the insurance they received free and, in that way, become more aware of how much health care they were using and how much it cost. While a part of most competition bills introduced thus far had a cap on employee deductions, HHS added a new twist. Instead of just proposing a cap on employees, HHS added a cap to the deductible made by employers on their contributions to health care coverage (Demkovich, 1982a). In addition, the Administration proposed having employers offer multiple health plans, including at least one HMO option, for employees to choose from.

The tax-cap proposals were based on the assumptions that (1) most firms would continue paying health premiums instead of shifting to other fringe or cash benefits; (2) that premium costs would escalate more rapidly than inflation; and (3) that other cash paid to employees would be taxable, adding to federal revenues. In the long run, HHS believed that pressure on employers and employees to reduce costs would lead to pressure on insurance companies to offer more cost-efficient insurance policies. However, the insurance industry viewed the proposal as the result of political considerations; i.e., not wanting to

raise taxes in an election year. The insurance industry feared the real outcome would lead to reduced insurance sales and thus opposed the plans (Demkovich, 1982a).

Another major criticism of the tax-cap proposals was that they leave out a sizeable segment of the population; that is, those that work for governments and non-profit institutions. The proposal would thus have less of an impact on consumers behavior than anticipated. Further, the proposals had the potential of alienating big corporations, including private insurers, by raising the question of what constitutes a legitimate business expense and thus threatened the whole range of corporate benefits (e.g., pensions, vacations, etc.). Moreover, there was a question of the propriety of using the tax code to determine health policy (Demkovich, 1982a). Yet most health policy analysts agreed that the tax subsidy to employers significantly contributed to the over-purchasing of insurance.

The proposals to have employers offer multiple insurance options have been criticised by industry as adding significantly to their administrative costs and that requiring such options through legislation constituted "regulation in disguise" (Demkovich, 1982a, p. 195). Further, critics argued, multiple choice options merely shifts controls from doctors and hospitals to employers and insurers and would, in reality, do little to slow the rate of health care cost increases which were seen as being physician driven. Effective opposition to the tax-cap plans has kept the proposals in Congressional committees since they were introduced.

Of more immediate concern to the Reagan Administration, however, was getting control of government spending for health care, specifically slowing the growth of the Medicare and Medicaid programs. Specifically, the Reagan Administration "competition" proposals have focused on two approaches to the cost issue: one, a voucher program and two, the adoption of a prospective payment system for health care providers.

Vouchers for Medicare. Under the proposed voucher system, the government would pay a percentage (e.g., 95% under the 1982 Reagan Administration plan) of the average annual Medicare payment to those eligible beneficiaries who voluntarily enroll in a private plan; either a traditional fee-for-service plan or an HMO. If the private plans cost less than the voucher payment, the beneficiaries could keep the difference; if they cost more, the beneficiary would have to make up the difference. Additionally, vouchers would result in the development of efficient health insurance plans by encouraging private insurers to compete for their "share" of the \$32 billion Medicare market (Demkovich, 1981; 1982a,b).

The major concern with the voucher proposals, as well as with the tax-cap proposals, was with adverse selection; that is, sicker people choosing higher cost but more comprehensive plans and healthier people choosing less costly but also less comprehensive ones. Some critics of the system contend that adverse selection could be a major problem if physicians and hospitals encourage chronic Medicare patients to enroll in the higher reimbursement private plans. "Government could suffer financial losses...if private insurers attract better-than-average risks to voluntarily leave the Medicare program" (Demkovich, 1982a, p. 196).

Although a potentially lucrative market, commercial insurers have been the most outspoken opponents of vouchers. In addition to the issue of adverse selection, commercial insurers argue that they can't compete with the federal government which benefits from an average 17 percent "discount" negotiated with Medicare participating hospitals and which would have little or no marketing costs (Demkovich, 1981, 1982a,b).

Senior citizen advocates have been extremely skeptical of the voucher plan and see it as a "backdoor way to limit benefits and, more fundamentally, to undermine the link between benefits and services" on which the Medicare program was built (Demkovich, 1981, p. 1616). Furthermore, advocates for the elderly are concerned that if the voucher amount isn't tied to increases in health care costs, the elderly will end up paying a greater share of their medical bills out-of-pocket. This could result in more elderly ending up as Medicaid patients or as medically indigent "bad debt" for the hospitals (Demkovich, 1981). Critics also argue that it is unlikely that a voucher system, by itself, would check the inflation driving Medicare and believe it merely shifts the burden of health care costs to private payers (Demkovich, 1981). Opposition to the voucher plan from labor, senior citizen groups, insurance companies and a Congress reluctant to adopt vouchers after making substantial cuts in the program under OBRA have effectively kept the plan in check and the Reagan Administration was only able to implement demonstration projects of the plan (Demkovich, 1982a). Finally, the HHS task force also urged the President to limit the growth of Medicare by implementing a prospective payment system. The next section describes the two pieces of legislation, enacted by the Reagan Administration that have radically altered the face of the American health care system.

The Tax Equity and Fiscal Responsibility Act. The Tax Equity and Fiscal Responsibility Act of 1982, P.L. 97-248 (TEFRA) substantially changed Medicare's hospital reimbursement system. TEFRA was the first legislation since the 1972 Amendments to Social Security designed to actually reduce Medicare costs and not just the rate of growth (Long et al., 1982). Previously, Medicare paid hospitals for inpatient services on the principle of "reasonable and necessary costs" (OTA, 1985, p. 23). Hospitals submitted annual cost reports detailing expenses incurred by Medicare patients. Medicare's fiscal intermediaries (e.g., Blue Cross) audited them to arrive at the allowable costs for final reimbursement (which included operating and capital cost factors). Prior to TEFRA, the only limit to reimbursement was a cap on inpatient operating costs known as Section 223 limits, established in 1972. Nonroutine costs, such as ancillary services and capital costs, were exempted from the Section 223 limits.

TEFRA set a three year ceiling (or target rate) on the annual rate of increase in operating costs per discharge for inpatient hospital services. The target represented the hospital's own cost per Medicare discharge, adjusted for inflation. TEFRA also provided for a small incentive payment to hospitals that operated below the specific cost target. Under this provision, hospitals could keep up to half the difference between their target amount and their actual costs. The incentive payment, however, was capped at five percent of the target cost per discharge. TEFRA set no limits on capital costs, direct costs of medical education, or outpatient services which remained "pass-through" items (Arthur Young, 1983; Demkovich, 1981; Ernst & Whinney, 1983; OTA, 1985). TEFRA was expected to reduce Medicare reimbursement by 4.5 percent over a three year period by imposing a progressively tighter ceiling on reimbursement

for routine room and board costs as well as the costs of ancillary services (i.e., laboratory tests, x-rays, etc.), it fixed 'target rates' based on a hospital's actual operating costs, and it provided the first incentive system for hospitals to lower costs (Demkovich, 1982b; Koch, 1988).

TEFRA also included a provision requiring the Department of Health and Human Services (DHHS) to develop legislative proposals for a prospective payment system for Medicare's hospital insurance trust (HI) to replace the retrospective cost reimbursement system. The proposals were to be to Congress no later than December 31, 1982 (Demkovich, 1982b; Ernst & Whinney, 1983; OTA, 1985; Arthur Young, 1983). This new payment system was intended to establish the federal government as a prudent purchaser of health care services, reduce Medicare's outlays for inpatient hospital care and maintain an acceptable level of quality and access to care for beneficiaries (Arthur Young, 1983; Guterman & Dobson, 1986).

TEFRA was a significant change in the reimbursement mechanism for Medicare and introduced the use of Diagnosis-Related Groups (DRGs) (a system of 467 mutually exclusive categories of illnesses or combinations of medical problems) as the basis for computing a hospital's case mix index to determine operating cost limitations. With TEFRA, the basis of reimbursement was shifted from an implicit per-diem system to an explicit per case system; that is, case mix was incorporated into the payment system and the rate of allowable increase in costs per case was capped. While reimbursement continued to be retrospective and based on reasonable costs, the application of explicit per-case reimbursement radically altered the concept of Medicare reimbursement.

TEFRA cut a total of \$2.4 billion from Medicare expenditures although these savings were primarily the result of reductions in payments to hospitals and large increases in beneficiary cost sharing (Demkovich, 1983b; Major Legislation of the Congress, 1983).

While TEFRA profoundly changed Medicare's hospital reimbursement methods, it provided few financial incentives for hospitals to reduce their cost per discharge below the limit set by the rules. Other weaknesses in the TEFRA legislation included the fact that the system was still retrospective, which meant that the costs to the government for Medicare still couldn't be predicted "in advance;" providers (e.g., hospitals) lacked sufficient incentive to spend below the target costs set by the government, and finally, hospital's were faced with cost reporting systems that were confusing, complicated and hard to monitor (Arthur Young, 1983; Guterman & Dobson, 1986). Despite TEFRA, hospital costs continued to grow and Congress, faced with the forecast that Medicare could be bankrupt within as little as four years, moved with "unusual speed" to change the cost-based reimbursement system of Medicare (Demkovich, 1983a; Wehr, 1983a,b).

The 1983 Social Security Amendments. By 1983, almost all policy makers and providers had agreed that a prospective reimbursement system would be superior to the retrospective system then in place. The "hitch" was that no one appeared ready to agree on which version of a fixed price system to implement (Demkovich, 1982b). For example, the American Hospital Association (AHA) had outlined its version of a fixed-price system with payments based on each hospital's 1982 cost per case. Inflation and the increased cost of technology were built into the formula as were expansion and renovation costs. However,

critics argued that this formula would just continue to reward inefficient behavior. Alternatively, the Health Security Action Council proposed a plan that would cover hospital costs in the private sector as well as Medicare and Medicaid costs, and would extend cost controls to nursing home charges, doctors fees and "other health care costs" (Demkovich, 1982b, p. 1981). However, as with the Carter Administration's national hospital cost-control bill, it did not appear likely that such a broad plan would be politically feasible.

The Health Care Financing Administration (HCFA), the agency in charge of the Medicare program, was also developing its own prospective payment plan. HCFA's goal was to establish a payment system that addressed two major issues: one, concerning the unit of care on which to base the payment while the second concerned the mechanism for setting rates. In its deliberations on fixed-price systems, HCFA rejected proposals that advocated paying per day (such as the existing reimbursement system) since per day payment had the incentive to keep patients longer. HCFA also rejected schemes based on payment for each service, which encouraged overuse and payment based on paying per case due to the fact that this could lead hospitals to skim off the most profitable patients and reject sicker ones who might require longer hospitalizations.

Other payment proposals considered by HCFA included negotiating hospital budgets in advance, which had been experimented with in Rhode Island under the waiver program. However, with almost 7,000 hospitals in the nation, it was considered too complex and cumbersome a plan. The Budget Review System, utilized in another Medicare waiver state, New Jersey, was rejected for the same reasons. HCFA also seriously considered a "competitive bidding scheme"

but rejected the plan based on the concern that under competitive bidding, if the proposals came in too high, "they would throw the Administration's budget figures out of whack". A capitation scheme was also considered but rejected because there had been "too little experience" with the HMO option to implement it on a national level (Demkovich, 1982b, p. 1982).

The Health Care Financing Administration finally decided to go with a predetermined reimbursement rate plan that would pay hospitals per diagnosis since this method allowed the government to more accurately predict costs and the system took into account the fact that some hospitals treat patients who need more care than others, an element missing in most other PPS proposals (Demkovich, 1982b).

MEDICARE'S PROSPECTIVE PAYMENT SYSTEM

The prospective payment plan proposed by the Reagan Administration, based on HCFA proposals, was outlined in the fall of 1982. The plan advocated replacing the existing Medicare hospitalization (Part A) cost reimbursement system with one that paid a standardized price for the treatment of each of 467 medical conditions or combination of conditions referred to as Diagnostic-Related Groups (DRGs). Each price reflected the national average costs for treating that condition based on the 1981 average inpatient operating costs per case for each DRG, based on a 20 percent sampling of all Medicare claims. The Administration's proposal recommended conversion to the plan within one year of implementation and that DRG prices would be updated periodically at the discretion of the Secretary of Health and Human Services (Wehr, 1983b). In contrast to most fixed-rate proposals advocated at the time, the Administration's bill would apply only to the Medicare program

and would vary payment rates according to the type of diagnosis based on a single rate for all hospitals in the country (although adjustments would be made for teaching expenses, capital costs and wage variations). Both the AHA and Administration's versions of PPS would exempt hospitals with fewer than 100 beds (Demkovich, 1982b; Wehr, 1983b).

The proposal submitted by HHS resembled a hospital payment plan already implemented in New Jersey. The plan, begun in 1980 and phased in over two years, represented the culmination of many years of cost-containment efforts by New Jersey policy makers. Since the 1960s, New Jersey had a number of legislative actions implemented in order to control health care costs including a cap on Blue Cross payments to certain types of hospitals; a prospective budget review system, and the Standard Hospital Accounting and Rate Evaluation (SHARE) project. In an extensive review of the SHARE Project, Rosko (1984) suggests that the SHARE program did help to contain hospital costs but at the same time threatened the financial viability of some inner city hospitals. Rosko concluded that suburban hospitals were able to shift costs while inner city hospitals were not. By the mid-1970s, however, SHARE was abandoned because it failed to encourage cost containment by hospitals enough (Spiegel & Kavalier, 1986). After the SHARE program, New Jersey received a \$3 million grant from HCFA to develop a prospective reimbursement system using DRGs. In 1978, New Jersey passed a law mandating the gradual implementation of a per case payment system covering all payers. A hospital rate setting commission was given power to tie payment rates directly to the patient's DRG and in 1980, the plan began being phased in. By 1982, all New Jersey hospitals were covered under the system.

Unlike the Reagan plan, the New Jersey DRG average costs per case were developed from data on each hospital's own costs as well as those of all other similar major teaching, minor teaching, and non-teaching hospitals in the state and included direct patient care costs, indirect costs (overhead), allowances for capital facilities replacement, bad debt and charity care, and working capital costs. The Reagan plan was based on a single, fixed cost versus a rate based partly on a state-wide average and partly on each individual hospital's costs and would not allow for exemptions from the standard price except for patients with longer than average hospital stays (outliers), regional variations in labor costs, and for hospitals which were the sole source of hospital care in a community. Uncompensated care, bad debt and charity care, and indirect costs were not figured into the Administration's proposal.

Nor did the Reagan plan cover all payers of hospital bills (e.g., Blue Cross/Blue Shield, private insurers, businesses, Medicaid) as did the New Jersey plan. Psychiatric, children's, and long-term care hospitals were exempted from the proposal. Further, those covered under the plan would no longer be able to appeal the new fixed prices judicially as they could under the existing law. Their only recourse was to either convince HCFA that the rates were insufficient or to stop treating Medicare patients (Wehr, 1983b). However, since hospital incomes from Medicare ranged from 30 to 60 percent of revenues, HHS had an upper hand in the battle over PPS provisions.

The Administration's proposal was based on two assumptions: one, that some care delivered in hospitals is unnecessary or produced inefficiently (OTA, 1985) and, two, that hospital cases can be categorized into "clinically coherent groups that are reasonably similar in resource consumption", either in terms of

cost or length of stay (Iglehart, 1982, p. 1289). If the assumption about inefficient hospital care was correct, then cost savings would be achieved under PPS without sacrificing the patient's health or welfare, provided the incentive inherent in the payment system led to appropriate changes in hospital and physician behavior (Fessler & Wehr, 1983a,b; OTA, 1985; Wehr, 1983b).

Thus, instead of paying for the cost of all services that are delivered to a patient, Medicare would now pay hospitals a fixed payment, set in advance, and based on the patient's diagnosis. The amount of reimbursement would be determined by the diagnosis (DRG) under which the patient is classified instead of paying the costs of all services delivered to a patient who is hospitalized. To encourage hospital efficiency, PPS allowed the hospital to keep the difference between the Medicare payment rate and the actual patient costs as a profit. However, the hospital must absorb the loss if its costs are higher than the payment rate (Arthur Young, 1983; Demkovich, 1982, 1983a; Ernst & Whinney, 1983; Fessler & Wehr, 1983a,b; GAO, 1986; Grimaldi & Micheletti, 1983; OTA, 1985; Wehr, 1983a).

Provisions of the Prospective Payment System. The prospective payment idea was not new. Congress had debated the idea of changing Medicare to a prospective reimbursement system; that is, negotiating a flat amount for services and rewarding lower-cost institutions by letting them keep whatever surplus their efficiencies yielded, as early as 1970. But Congress was reluctant to tamper with the system's basic structure and balked at what amounted to a bonus for efficiency. These factors, combined with fierce opposition to prospective payment by the health care industry, blocked any serious consideration of the plan at the time (Demkovich, 1981).

When HHS originally outlined its PPS plan, it was expected that it would provoke a long, thorough debate since it was believed that Congress would want to examine the proposals carefully and consider alternatives before coming to any conclusions and taking specific courses of action. In addition, it was believed that the Administration faced a monumental task in selling the plan, not only to Congress but to hospitals, doctors and insurers (Demkovich, 1982b). Furthermore, the mandatory nature of the plan was seen to be similar to the one the Carter Administration had advocated in its 1977 hospital cost-containment bill and was considered to be a potential sticking point in the deliberations over the proposal. For example, health policy experts argued that the Reagan Administration had abandoned its so-called competitive approach in favor of a regulatory one. Joseph Califano, President Carter's Secretary of Health, Education, and Welfare until 1979, stated in a New York Times editorial (October 20, 1982) that HHS's "proposed cap...is in some respects tougher than the Carter plan" and that the Reagan Administration had "rightly abandoned free-market competition as the way to hold down inflation in health care."

The Administration countered that the reimbursement strategy was very pro-competitive, especially in its potential to eliminate duplication of services as hospitals begin to specialize in different treatments thus eliminating the need for duplication of expensive staff and equipment. Proponents also argued that the proposal would encourage other payers to utilize fixed price systems using Medicare as an example of prudent purchasing of health care services (Demkovich, 1982a). Still, it was expected that the magnitude of the change proposed for Medicare would provoke a great deal of controversy and require much time and political finesse to get through Congress. However, this turned out not to be the case as speed became of the essence (Demkovich, 1983a).

The Administration's bill was introduced into the Senate in January, 1983 and into the House in February (Major Legislation of the Congress, 1984). The bill was hurriedly sent to the House Ways and Means Committee. The Committee basically endorsed the proposal but amended it to ease the impact on hospitals, to give state hospital cost control programs more independence and to restrict the Administration's authority to expand the new payment system until a number of mandated studies of the effects of the system could be evaluated.

The amendments to the Administration's proposal included: (1) to ease the transition to the new system, Ways and Means decided that DRGs should be phased in over a three year period as opposed to the Administration's plan to impose the new rates immediately. During the transition period from TEFRA to PPS, a declining portion of the total prospective rate was to be based on a hospital's historical costs in a given base year and a gradually increasing portion was to be based on a blend of federally determined regional and national DRG rates. Starting October 1, 1986, the PPS rates were to be based solely on national averages; (2) while the Administration's plan allowed for only a few adjustments to the national payment rates, Ways and Means added adjustments for urban and rural hospitals and adjusted the payment formula to account for teaching costs and capital expenses; (3) while initial rates in the Administration's plan were based on 1981 data and provided for updates in the DRGs to reflect changing technology and physician practice patterns at the discretion of the Secretary of HHS, the panel set rates on 1983 data and required annual updates for fiscal 1984 and 1985, to be based on changes in the hospital goods and services index plus 1 percent. Ways and Means also set up a panel of experts, called the Prospective Payment Assessment Commission

(ProPAC), to recommend updates after 1986 and every four years thereafter; (4) Ways and Means also exempted psychiatric, children's, rehabilitation and long-term care hospitals from the plan unless Congress, and not the Secretary, decided to include them; (5) the revised plan also flatly excluded capital costs from the system whereas the Administration's proposal had recommended including them in the payment formula (thus capping them); and (6) while the Administration's plan attempted to encourage state-wide hospital cost-control demonstration projects to adopt DRGs as the payment formula, Ways and Means reinforced state flexibility in deciding which payment formula to choose but added new criteria to meet "Medicare Waiver" status.

Other subcommittee amendments included retaining most of the existing authority for administrative and judicial review of Medicare payment decisions, which the Administration had wanted to eliminate, but excluded DRG payment rates from the review process. The Committee also required HHS to monitor hospital admission patterns through a revised Peer Review program (PROs) and, as a condition of eligibility for Medicare participation, required hospitals to contract for such review. Further, the revised PPS plan required HHS/HCFA to deny Medicare payments or to take other corrective action against hospitals that manipulated the system with inappropriate changes in admission practices. Finally, the Committee required HHS to conduct a number of studies on the impact of PPS, including the appropriateness of different DRG rates for urban and rural hospitals, the treatment of exceptionally expensive medical cases, the inclusion of hospital capital costs in DRGs and the impact of the new system on individual hospitals, classes of hospitals and "third-party" insurers and Medicaid (Demkovich, 1983a; Fessler & Wehr, 1983a,b; Guterman & Dobson, 1986; OTA, 1985; Wehr, 1983a,b).

PPS Receives Speedy Approval. Very little was known about the way the DRG-based Prospective Payment System actually worked; that is, (1) it was being used by only one state (New Jersey), (2) the differences in the national and state systems were pronounced (e.g., it was applied to all payers in New Jersey versus just Medicare in the national program), and (3) there were very little data available on the impact of the New Jersey system at the time the Medicare system was being debated (analyses of how individual hospitals would fare under the program were not available due to a two to three year lag in cost reporting to HHS concerning the demonstration project). Yet, given these uncertainties and the magnitude of the change the system implied, the DRG-based Prospective Payment plan moved through Congress with remarkable speed and little opposition (Demkovich, 1983a; Fessler & Wehr, 1983a,b; Wehr, 1983a,b).

Action on the legislation by the Ways and Means Committee came just two months after it was outlined by the Administration and amendments to the plan were approved by the Committee just two days after the Administration produced its detailed legislative proposal. By contrast, the Carter cost control plan was acrimoniously debated for three years before being "amended into oblivion" (Wehr, 1983b, p. 456). Most conspicuous was the absence of strong opposition by hospitals, doctors, Congressional Republicans, and the insurance industry. In fact, the Federation of American Hospitals and the American Hospital Association supported the legislation. Opposition to the plan was also diluted because some groups were preoccupied with other health proposals (e.g., Blue Cross/Blue Shield were concerned about the tax-cap plans on employment-related health insurance) (Wehr, 1983b). By February, 1983, the U.S. Senate Subcommittee on Health was holding public hearings on the PPS system.

While there wasn't nearly as much controversy over the proposal as had been feared, the plan was far from universally accepted. The private health insurance industry argued that using prospective payment only for Medicare would allow hospitals to make up lost dollars by shifting the costs to their privately insured patients. They suggested that HHS encourage states to develop individual all-payers cost-control systems (Demkovich, 1982a, p. 705).

The American Medical Association and the American Nurses Association urged Congress to move slowly; to take time to test the impact of PPS on costs and on the quality of care before implementing on a national scale. Physicians feared that PPS would institute policies in the hospital that would interfere with their independent patient care decisions; specifically in the areas of admissions, process of care, and length of stay. As a result, quality of care would be threatened. They also feared they would be liable for more malpractice suits under these practice constraints. Health professionals were also concerned about the limitations of the DRG-coding system itself. For example, they argued that there were only 467 codes, the DRG reimbursement schedule favored surgical versus medical treatment, and that nursing factors were not included in the payment formulas. Finally, health professionals, especially physicians, were concerned that if PPS came to pass, the next logical step would be to extend the system to cover physician's services (GAO, 1986; Spiegel & Kavalier, 1986).

Although acknowledging the need for reimbursement reform, senior advocates were concerned about the impact of the program on Medicare beneficiaries. The American Association of Retired Persons (AARP), which represents millions of retired individuals, had been a long-time supporter of

prospective payment for Medicare. In testimony before the U.S. Senate Subcommittee on Health, AARP representatives stated that to avoid problems of cost-shifting and quality, DRGs should: (1) cover all payers, all services, and all hospitals; (2) include a severity of illness index; (3) establish strong utilization review guidelines, including consumer representation; (4) promote state plans for cost containment programs; and (5) physician assignment should be mandated in the plan (that is, physicians accepting what Medicare pays as payment in full). Finally, to stagger implementation of the system to allow for adequate evaluation of the impacts of the program (Wehr, 1983a).

Jacob Clayman, president of the National Council of Senior Citizens (NCSC), which represented over 4 1/2 million senior citizens, stated in testimony before the same committee that the Administration's plan should "not be rushed through...We cannot afford to harshly impose a national, largely untested, plan that will affect...the health of vulnerable citizens. If the system goes through, however, the Council would expect it to apply to all payers" (Demkovich, 1983a, p. 705). NCSC believed that applying prospective payment toward the entire health care system would benefit all purchasers of health care, including the federal government and Medicare beneficiaries (Senate Subcommittee on Health, 1983).

Organized labor, which supported prospective pricing, agreed with the senior advocates that any such system "ought to apply to all payers and include all providers, including physicians" (Senate Subcommittee on Health, 1983). However, the AFL-CIO had serious reservations about the suitability of DRGs as the basis for prospective payment. Although labor viewed DRGs as an improvement over retrospective reimbursement, they were also concerned that

there was little hard evidence regarding the system's use in New Jersey to warrant its adoption for the Medicare program. As Robert McGlotten, a representative from the AFL-CIO, stated in testimony before the Senate Subcommittee on Health, "We believe the jury is still out on the New Jersey system, which has been the model for this proposal. We do not know enough about the effectiveness of this approach to adopt it immediately for Medicare" (Senate Subcommittee on Health, 1983, p. 263). Labor was concerned over the cost of implementing the plan, the possibility of cost-shifting, the financial difficulties of public and inner city hospitals, the control of teaching and capital costs and the exemption of HMOs from the plan. In addition, the AFL-CIO and the United Auto Workers joined with AARP to recommend the extension of PPS to physician's services.

Business leaders, as represented by the Washington Business Group on Health, while indifferent to DRGs per se, supported prospective payment in the abstract but were concerned about the exemption of capital costs from the plan and joined with labor to recommend that health planning be continued as a means of controlling capital cost increases (Senate Subcommittee on Health, 1983).

Hospitals were also concerned, especially the larger, urban institutions that cared for a large proportion of elderly and poor. Already in financial straits under the cost-cutting effects of TEFRA, they criticized HHS for failing to provide adequate information about the proposal for them to evaluate the provisions prior to the bill's introduction to Congress. However, there were two larger issues that concerned the hospitals. One, the House's amendments

concerning capital costs, i.e., the money hospitals need to build and buy equipment. Under the old system, Medicare reimbursed hospitals for a share of their capital costs. The Ways and Means bill would reimburse hospitals differently, and presumably less generously. A second issue concerned 'return on equity' payments under PPS. This issue, complex and esoteric to all except the hospitals, pitted the for-profits against the not-for-profits.

Since 1966, Medicare had paid the for-profit hospitals an amount tied to their net equity (capital minus debt) as a way of compensating investors for their risk and to theoretically offset the not-for-profit sector hospital's tax exempt status that enabled them greater access to the tax exempt bond market. With inflation, interest rates soared and voluntary hospitals complained that it put them at a disadvantage in the capital markets. They had been attempting to get HCFA to give them equity payments as well. The Administration's bill proposed no change in return on equity until HHS could figure out how to include capital in the reimbursement formula. The not-for-profit hospitals argued that it would be "disastrous" if Congress "perpetuated the inequity" of the old system. The House amended the bill to phase out return on equity payments over three years. The Senate Finance Committee, in its version, voted to continue Medicare's capital and return-on-equity payments through October, 1986.

The stakes for hospitals concerning this issue were high. Medicare's return-on-equity payments totaled \$300 million in 1983 and about \$3.2 billion for capital costs. Under the existing law, payments for capital costs averaged \$3,360 per bed to the not-for-profits and \$3,760 to the for-profits. When return-on-equity was added, the per bed payments totaled \$7,170. Despite

efforts to get the Senate's version adopted, a compromise was struck between the Committees in which return-on-equity payments would continue to be made through fiscal 1986 but their size was to be reduced and the provision on capital costs was dropped altogether. In the end, all sides seemed satisfied with the results (Demkovich, 1983a).

Thus, the final PPS provisions did not call for a precipitous leap into prospective payment; there would be a phase-in of the system over three years and payments would combine the hospital's costs with national rates. The DRG rates were to be adjusted for numerous contingencies and were to be updated annually. Although far different from the one envisioned by the Administration, PPS appeared well on the way to passage almost as soon as it got to the Congress. Even so, members of the House and Senate were nervous about the bill's passage since the plan still needed the support of hospitals and physicians.

To speed approval of the plan, Ways and Means attached it to its legislation to overhaul the Social Security System. Members believed that an unusually favorable opportunity for passage had been created by the popularity of the Social Security rescue bill (HR 1900), by the open support of the bill by the two major hospital groups (the American Hospital Association and the Federation of American Hospitals), and by the absence of strenuous opposition by the AMA and other critics of the program (Wehr, 1983a). Once it had become part of the Social Security package and had won approval in the House, its supporters reasoned that the Senate would have no choice but to do the same. And, since the Social Security bill seemed veto-proof, the PPS plan would become law before the hospital industry had time to change its mind (Demkovich, 1983a).

A number of factors combined to provide uncharacteristic momentum for the bill, including: (1) the fear that, given time, the AMA, the hospital associations, and some members of Congress would mount the same vehement opposition to the PPS plan that was mounted against the Carter Administration's cost control proposal, which had resulted in months of debate, dissention, and futile attempts at compromise; (2) the almost universal recognition, even by senior citizen advocates, that Medicare urgently needed reimbursement reform; and (3) the fact that even the hospital industry supported the idea of prospective payment, since they saw the new plan as "better" for them than the progressively harsher 1982 Medicare payment limits set under TEFRA (Demkovich, 1982, 1983a; Spiegel & Kavalier, 1986; Wehr, 1983). The Congressional committees with oversight of Medicare spread the word that nothing was to be done to "derail the speeding train". They believed if any of the interest groups had time to consider the plan more fully "the rosy glow of optimism would fade" and the window of opportunity would close. It might take "months before Congress would get another chance to consider Medicare reform again" (Demkovich, 1983a, p. 704).

The House passed HR 1900 by a vote of 243 to 102 on March 24, 1983. The Senate Finance Committee approved a similar measure (SB 1) on March 10, 1983 by a vote of 18 to 1 and sent the bill to the floor. Debate began on March 16 but Congressional leaders were optimistic that a package would be sent to President Reagan before the March 26th Easter break. The Senate approved the bill on March 25, 1983 by a vote of 58 to 14 and it was signed into law (P.L. 98-21) on April 20, 1983 (Major Legislation of the Congress, 1984). One of the biggest overhauls of the Social Security System, the bill also included a fundamental change in hospital reimbursement; that is, the DRG-based PPS.

The Problem With The Solution

Medicare's DRG-based Prospective Payment System (PPS) has the potential to fundamentally change the character of the American health care system; especially federally-financed health care programs. The reform of Medicare's payment mechanism placed control in the hands of the price setter and radically altered the relationship between hospital management, physicians and the Medicare beneficiary. Although a DRG-based prospective payment system was implemented in New Jersey and experience from this program provided the basis for the national model, the new payment system, and the assumptions behind it, were largely untested prior to the passage of the Social Security Amendments of 1983. Research conducted on state-initiated rate-setting programs, such as New Jersey's, provided some information relevant to the national system, but the data were fragmented, contradictory, and much of the available information did not directly apply to a national system (e.g., many applied to all-payers of hospital costs; some were mandatory, others voluntary) (Bankhead, 1985; Eby & Cohodes, 1985; Hsiao & Dunn, 1987; OTA, 1983; Rosko & Broyles, 1986). Four states received waivers from the Medicare program during the 1970s to institute variations on state-wide rate-regulation of hospital care costs; the New Jersey program, Massachusetts, New York, and Maryland. However, it has been the New Jersey program that HHS and legislators relied on in creating the Medicare PPS system.

New Jersey's All-Payers System. New Jersey has had a history of activities related to controlling the high cost of hospital care. Under the state's Commissioner of Insurance, a cap was placed on Blue Cross payments to some hospitals. This was followed by a prospective budget review system

operated by the state health department. The next attempt at cost control came under the Standard Hospital Accounting and Rate Evaluation (SHARE) program, a more stringent mandatory budget review program applied to Blue Cross and Medicaid patients and based on a reasonable cost per day. Rosko (1984) analyzed the SHARE program between 1972 and 1982 and concluded that SHARE did contain hospital costs but at the same time, the program threatened the viability of many of the state's inner-city hospitals. Rosko found that suburban hospitals were able to shift costs under the program while inner-city hospitals could not.

Shaffer (1983) also analyzed the SHARE program and suggested that although the program saved money, it was "abandoned because it failed to introduce sufficiently powerful cost containment encouragement" (p. 390). In the mid-1970s, New Jersey received a \$3 million grant from the Health Care Financing Administration to develop a prospective reimbursement system using DRGs. In 1978, New Jersey passed a law mandating the gradual implementation of a per case payment system covering all payers. A Hospital Rate Setting Commission was established to monitor rates and the implementation of the system, and in May, 1980, 26 New Jersey hospitals began billing under the new system. By October, 1982, all New Jersey hospitals were under the program.

The first national conference focusing on DRGs occurred in November of 1983. The conference, titled "Diagnosis-Related Groups: The Effect in New Jersey: The Potential for the Nation," had participants reporting on the impact of DRGs on a variety of topics, including financial departments, medical records, quality assurance, data processing, nursing, payers, utilization review,

teaching hospitals, inner-city hospitals, etc. Overall, the results were "mixed" (Spiegler & Kavalier, 1986). Some analysts suggested that New Jersey's plan caused the state's hospitals to inflate costs instead of reducing them. According to a New York Times editorial (April 2, 1984), hospitals covered by the program received \$2.3 million more, on average, than they would have under the old system. New Jersey's health commissioner, J. Richard Goldstein, argued that the conclusion that the DRG system had failed were "premature" in that the program had been in full operation for only one year, that the plan covered the uninsured, helped inner-city hospitals maintain solvency, shortened the time a person stayed in the hospital, eliminated cost-shifting and that start-up costs of the program amounted to only one-half of one percent of a hospital's total budget. Goldstein (1984) cited AHA data from 1980 to 1982 that showed New Jersey had dropped from the eighteenth most expensive health care state to the thirty-second and suggested that critics give the program more time to prove itself.

The first comprehensive evaluation of the program, produced by researchers for the Health Research and Educational Trust of New Jersey (HRET), produced a five volume report with topics ranging from the economic impact (May & Wasserman, 1984) to the political development of the DRG system (Dunham & Morone, 1983). In terms of the economic impact, May and Wasserman (1984) found no definitive answer concerning cost-savings under the program. They state that:

Even though some of the hospitals in New Jersey have been reimbursed by DRGs for almost 4 years, it is still not possible to state unequivocally that the system has been a complete success or failure (p. 559).

J. Joel May, HRET President, stated "It is still not possible at this point (February, 1984) to pass final judgment" on the DRG program (HRET, 1984, p. xi). And Jeffrey Wasserman, HRET Vice President for Research, stated that:

While there is no proof that the DRG system has saved money...it is possible that the system has caused more money to be spent than would otherwise have been spent (Smith, 1983, p. 3).

In contrast, New Jersey's health commissioner claimed that the state saved \$299 million in 1983. The figure was later revised to \$149 million to account for a 13.5 percent increase (\$80 million) in payments to hospitals (Spiegel & Kavaler, 1986). And a Medical Economics editorial (Medical Economics, 1985) analyzing the program declared that the entire \$3 billion hospital industry in New Jersey showed a \$3 million profit in 1983 and, while that was hardly more than break-even, it was the first taste of profit for the state's hospitals since DRGs began. Finally, an analysis of the state's hospitals by the New Jersey Hospital Association (Spiegel & Kavaler, 1986) presented data that showed New Jersey hospitals charged \$386 less for a hospital stay than other hospitals across the nation and \$623 less than other northeastern hospitals. Association officials attributed the savings to the DRG-plan.

Analysis of other state rate-setting programs also provides some relevant information regarding the impact of PPS-systems. Eby & Cohodes (1985) evaluated a number of studies and concluded that the one common finding among the studies was that, while most data were contradictory and specific to each program or setting, it was clear that programs with mandatory participation and compliance have, in fact, controlled the rate of increase in hospital costs. This finding should be interpreted cautiously, however. Those states with strict payment systems actually had higher overall costs than the

national average and it was only the rates of cost increases that were lower in PPS states than in states without PPS. Moreover, the effects on costs became apparent only after the programs were in place for a few years. And, finally, the comparability between rate setting programs and Medicare's PPS is highly questionable (Anderson & Lave, 1984; Bankhead, 1985; Coelen & Sullivan, 1981; Cromwell & Kanak, 1982; Dunham & Morone, 1983; Goldstein, 1984; HRET, 1984; Jaskow, 1981; May & Wasserman, 1984; Melnick et al., 1981; OTA, 1985; Rosko, 1984; Shaffer, 1983; Sloan, 1983, 1981; Worthington & Piro, 1982).

There was no clear cut impact of the DRG program in New Jersey when the national program was being considered. In addition, there were a number of differences between the New Jersey program and the DRG-based PPS proposal before Congress. For instance, (1) the New Jersey plan covered all-payers versus the Medicare-only PPS plan; (2) each hospital in New Jersey had a separate and individualized set of rates for all 467 DRGs based on hospital plus state-wide average costs not just the average national rates proposed by the Reagan Administration; (3) uncompensated care, bad debts, and charity care were all fully reimbursed under the New Jersey system and are not under Medicare PPS; (4) outpatient services in New Jersey are paid at a flat rate, with no association to DRGs; (5) the Reagan Administration's proposal attempted to extend DRGs to outpatient care in the near future while New Jersey's covered outpatient care; and, (6) while in New Jersey, payer discounts (i.e., percentage discounts) were awarded to insurers for economically providing care, there are no similar benefits under PPS other than the savings that could be made by early discharge (Demkovich, 1983a,b; Fessler & Wehr, 1983a,b; Spiegel & Kavalier, 1986).

Other differences include the fact that New Jersey reimburses capital costs on a pass-through basis and considers educational and teaching costs. The Medicare plan proposed by Reagan attempted to include capital costs under the DRG system. Furthermore, New Jersey's hospital population is relatively homogeneous versus the diversity of patients nation-wide. May and Wasserman (1984) state, however, that the most important difference between the New Jersey plan and the Medicare DRG-based PPS plan is that the New Jersey plan covers all payers and that fact alone will prohibit cost-shifting among payers.

The Prospective Payment System (PPS) of Medicare is intended to provide strong financial incentives for hospitals to conserve, rather than expend, resources in caring for Medicare patients and to shift care to less costly settings. However, the uncertainties surrounding the direction and pace of the impact of PPS have sparked widespread concern that the system poses a substantial threat to the health care system. A number of concerns have been raised by this change in hospital financing; concerns which focus not only on the basis for the payment structure (i.e., the DRG system itself) but also on the new payment system's effect on providers in the health care system (e.g., hospitals, physicians), the Medicare beneficiary and on quality of care.

Diagnosis Related Groups (DRGs)

DRGs were first designed and compiled at Yale University's Center for Health Studies in the late 1960s. This effort consolidated previous work by attempting to create a usable, effective framework to monitor utilization review and quality of care in hospitals (HCFA, 1983). In order to accomplish this, it was necessary to develop a uniform definition of what constitutes a

"case" in an inpatient setting. Prior to DRGs, case costs were not precisely defined due to the fact of inadequate technologies for cost accounting as well as the fact that, with retrospective reimbursement, costs had not been a source of major concern to the majority of hospitals or payers. But, as Jack Owen, Executive Vice President of the American Hospital Association (AHA), has stated, "Of all the new management challenges hospitals face due to PPS...case mix management looms as one of the most important" (Owen, 1984).

Case- Mix Classification. As the country began facing rapidly increasing complexity in medical care (i.e., increasingly sophisticated medical technology) and sharply rising costs, improved methods for analyzing and monitoring institution performance became necessary. Interest in hospital "case-mix" and the resulting hospital output became a major topic of research (e.g., Bayes, 1977; Feldstein, 1965; Fetter, et al., 1980; Lave, et al., 1971; Lee, et al., 1972; Lee, et. al., 1973; Shin, 1977a; Shin, 1977b; Thompson, et al., 1975). Initial attempts to explain cost variation among hospitals were developed in the early 1960s focusing on institutional characteristics (such as bed size, average length of stay, existence of residency program, proportion of board certified medical staff, presence of medical school affiliation). Later attempts at case-mix classification were directed at describing more precisely the attributes of patients (OTA, 1983). The critical issue was to determine patient characteristics that accurately describe case-mix (such as the diagnoses of patients and the procedures performed) as a proxy for costs (Spiegel & Kavalier, 1986). However, it was generally agreed that hospital costs and case mix were positively correlated as numerous studies confirmed the direct relation between case-mix measures and cost (Ament, 1976; Bentley, 1981; Klastorin & Watts, 1980; Lave et al., 1972; Young, et al., 1980).

Two principal methodologies were used to approach the problem of case-mix definition; one, the Single Diagnosis Method, is a definition of case-mix based on the patient's primary diagnosis. The primary diagnoses are based on some variant of the International Classification of Diseases (ICD-CM codes). These schemes were intended to provide a classification of conditions of morbidity and mortality for statistical reporting and information retrieval. Because this scheme is based on diagnosis alone, it was determined to be insufficient for defining cases by resource consumption (HCFA, 1983).

The second widely used patient classification scheme was developed by the Professional Activity Study (PAS) of the Commission of Professional and Hospital Activities. It published tables of length-of-stay (LOS) gathered from participating hospitals using primary diagnosis, presence of any additional diagnoses, presence of any surgeries, and age to classify patients into 349 distinct groups. While many of the diagnoses were homogeneous, the system resulted in nearly 7,000 patient classes. The fundamental problem with the PAS method was that in cases where age is not important, the method overspecified the case type. In those cases where type of surgery was important, the method underspecified the resource requirements (HCFA, 1983).

In order to describe case mix, it was necessary to develop a patient classification scheme that was manageable in terms of the number of case types defined and was reasonable in describing the variation in resources needed for treatment. DRGs were developed as an alternative patient classification scheme to the problems of the ICD-CM codes and the PAS scheme (HCFA, 1983). Given the fact that diagnostic procedures are a key function of the

patient's condition, treatment modalities and services are generally prescribed on the basis of diagnosis. Likewise, the length of time a patient is hospitalized is linked to the diagnosis assigned by the physician. Given these factors, DRGs were designed to account for the type and amount of hospital resources required to provide care; presupposing that groups can be defined based on similar patterns of resource consumption for cases within each group.

DRGs are a patient classification system designed to reflect differences in predicted resource use among different kinds of patients. Although each patient admitted to a hospital is unique, the DRG system classifies cases (patients) according to certain demographic, diagnostic and therapeutic attributes. The similarities and differences emerging from such groupings profoundly affect which treatment protocols are utilized and the level of resources consumed in treating a patient. Thus, resource consumption became the pivotal point on which the DRG system was built (HCFA, 1983).

The DRG, and other related utilization schemes, assume that certain patient characteristics can be considered common in terms of the use of diagnosis and treatment procedures, enabling the administrator to analyze institutional effectiveness in terms of the patient products under care as well as the resources a patient consumes and their related costs. The DRG system is built upon clinically coherent patterns of care in which diagnoses are collapsed into 23 Major Diagnostic Categories (MDCs) which represent major body organs. Once assigned to an MDC, the case is further assigned to one of 467 DRGs based on the presence or absence of certain procedures (e.g., surgery or not), age of the patient, specific principal diagnosis, presence or absence of a

significant co-morbidity or complication, treatment procedures, and discharge status. These attributes then provided a way of explaining variations in length of stay and cost of care. For reimbursement purposes, a monetary value was assigned to each diagnostic category. Once the diagnosis was determined, the payment was also determined regardless of the length of time the patient stayed in the hospital (Bromberg, 1986; Ernst & Whinney, 1983; Grimaldi & Micheletti, 1983; Health Care Financing Administration, 1983, 1982; Spiegel & Kavalier, 1986; Arthur Young, 1983).

Goran (1981) pointed out that linking case mix to DRGs defined a hospital's product based upon a case-mix reimbursement system and warned of the possibility of clinicians' inflating the complexity of cases resulting in "case mix creep". Simborg (1981), echoing Goran's point about DRGs and case mix, called "DRG-Creep" the new hospital-acquired disease. As Simbourg (1981) stated, "Today, the use of DRGs is virtually synonymous with case mix measurement and it has become the standard method to describe hospital outputs for any use" (p. 1603). For example, case mix can also be used for regulation (i.e., in terms of budget review to determine the appropriate rate level; change setting to determine the appropriate rate structure; public disclosure; capital expenditure review; utilization review; and epidemiological studies (Cohen & Atkinson, 1982).

DRGs became the center of discussion among regulators, hospital associations, third-party payers, and academicians as soon as they were developed. Concern over the limitations of the system increased when they were used as the basis for the New Jersey rate-payers system and, even more

intensely, when the system was adopted by HHS as the basis for their new prospective payment system for Medicare hospital reimbursement. Critics argued that the DRG system was not well tested, needed more study before they were used on a national level, and that the DRGs themselves are flawed (Grimaldi & Michelletti, 1980, 1982). In the first place, DRGs were originally designed by Yale University researchers as a means of improving utilization review by providing a medically meaningful explanation of differences in patient length of stay and not as a resource consumption scheme (Arthur Young, 1983).

Moreover, the DRG system is not strictly clinically coherent. For example, it was pointed out that DRGs contain cases which, from a medical perspective, are quite different. That is, the DRG classification system does not distinguish among patients with different severity or intensity levels within the same DRG. Alternatively, some broad diagnostic areas, such as acute myocardial infarction (AMI), are not subdivided into discrete DRGs (OTA, 1985, 1983; Smits et al., 1984; Arthur Young, 1983). Furthermore, analysis of the DRG system suggests that some DRGs could be statistically homogeneous but not economically homogeneous; that is, medically meaningful but economically heterogeneous (Grimaldi & Micheletti, 1982). Experience under DRGs have shown that there are wide-ranging variations within specific DRGs related to the patient's severity of illness. This could mean that the facility could lose financially since the DRG payment remained the same regardless of the severity not compensated for by outliers, direct or indirect adjustments. Smits et al. (1984) identified eight sources of DRG instability in terms of severity: (1) error in discharge or cost data; (2) true outlier cases; (3) physician

practice patterns; (4) a small number of rare DRGs; (5) Uniform Hospital Discharge Set (UHDDS) data limitations; (6) ICD-9-CM limitations; (7) nursing severity data is lacking; and (8) medical severity descriptions are vague. Smits et al. (1984) concluded that severity discussions were often confounded by the inclusion of cases that were erroneously identified as an inaccurate classification, by the assumption that eliminating outliers is a desirable goal or by the belief that high levels of sickness and high levels of cost are synonymous. An effective severity index should also identify less costly subgroups of patients as well as more costly ones. DRGs, in their present configuration, do neither.

In addition, there are limitations in the data base and in the variables used to describe and measure hospital case mix; that is, the reporting systems used as the basis for DRGs are troublesome (Smits et al., 1984). For example, DRGs are criticized because they rely on patient abstract information which is often not reliable (Arthur Young, 1984; HCFA, 1983; Demkovich, 1982). The creators of the DRGs respond that, due to increased cost-consciousness on the part of payers and hospitals, hospital abstract information is becoming increasingly more precise and accurate and that the level of aggregation in the DRG system reduces the effect of reporting errors (Spiegel & Kavalier, 1986).

Other criticisms include: one, DRGs are not nationally representative. Critics point out that a study by the Institute of Medicine in 1977, before the New Jersey plan was implemented, found an error rate of 30 percent in the state's Medicare records (Demkovich, 1982). Supporters of the system concede that while the initial DRG system was developed from a 20 percent sample of 1981 Medicare hospital records as the basis for setting rates, the system is

reliable. In addition, with the focus on more accurate coding of information and Congressionally-mandated updates of the reimbursement formulas, the system will prove itself over time. The response to this criticism has been that there is going to be some trade-off between the number of groups and clinical homogeneity in all patient classification systems and that this trade-off is most reasonable in the DRG system. Furthermore, because the system is to be refined, inconsistencies and discrepancies will be eliminated (HCFA, 1983).

Critics of the system also argue that the DRGs do not reflect the current state of medical practice (Arthur Young, 1983; HCFA, 1983). The response to this criticism is that the DRGs are mandated by law to be up-dated periodically and that this continual refinement will reflect the changes occurring in medicine. It has also been argued that other variables, such as socio-economic status or type of admission, should have been included in the DRG system (Arthur Young, 1984). The response has been that this type of information was not available nationally at the time of the DRG development but that as more comprehensive and reliable patient information is generated by the hospitals, it will be incorporated into the DRG calculations (HCFA, 1983).

Finally, critics have stated that just having a prospective rate is not enough. It is important to control the right unit of costs and, for a hospital, that means controlling admissions. HCFA promised to keep close watch on admissions through peer review but also through cost increases to the beneficiary for hospitalization. As of January 1, 1983, beneficiaries were paying over \$300 for the first day of hospital care, which increased to over

\$500 by 1986. It was believed that higher costs to the beneficiary would contribute to lowering unnecessary admissions.

POTENTIAL IMPACT OF PROSPECTIVE PAYMENT

The way in which hospitals will respond to the PPS challenge is by no means understood and will vary by institution, depending upon such characteristics as bed size, location, teaching status, ownership/control, payer mix (i.e., dependency on Medicare), financial status, and case mix complexity of patient populations served (OTA, 1985). Consequently, the magnitude and direction of the effects cannot be predicted with confidence. In addition, PPS alters hospital incentives in ways that conflict with one another, leading to unintended and possibly undesirable consequences (OTA, 1985).

Table IV presents the expected impact of PPS as identified by Guterman and Dobson (1986). PPS introduces a variety of incentives and affects not only hospitals but other payers for inpatient hospital services, other providers of care, Medicare beneficiaries, and costs. The effects of PPS most relevant to the performance of the health care system are its effects on the cost of providing medical care and the effects on the health benefits received from that care such as quality of care; access to care; technological change, and clinical research (OTA, 1985). On the one hand, PPS introduces incentives for hospitals to be more cost-conscious and to increase quality of care. For instance, PPS encourages hospitals to reduce length of stay and unnecessary services, thus reducing patient exposure to the risk of complications, hospital accidents, nosocomial infections and other iatrogenic events. In addition, DRG-based PPS offers incentives for hospitals to specialize, thus reducing the

TABLE IV
EXPECTED IMPACT OF THE PROSPECTIVE PAYMENT SYSTEM

Impact measures	Providers and payers		
	Hospitals	Other payers for inpatient hospital services	Other providers of health care
Economic			
Anticipated benefits	<p>Shorter hospital stays. Fewer unnecessary tests and services. Specialization—economies of scale. Adoption of cost-reducing technology. Improvements in hospital management. Improvements in hospital administrative data systems. Reduction of excess hospital capacity. Vertical integration of health care services.</p>	<p>Rapid diffusion of prospective payment and other innovative payment systems. Cost savings for all payers, with resulting reductions in health insurance premiums.</p>	<p>Increased provision of health care services in non-hospital settings. Increased number of discharges from inpatient to cheaper post-hospital care. Hospital acquisition of or contracting with other providers, leading to smoother provision of a continuum of patient care.</p>
Unintended consequences	<p>Increases in unnecessary admissions, readmissions, and transfers. Increases in hospital case-mix, due to changes in coding procedures—"DRG creep." Separate provision of services which previously were considered part of routine inpatient care—"unbundling." Increase in "outlier" cases. Higher expenditures on "pass-through" cost categories—capital, direct medical education, kidney acquisition. Excessive rate of hospital closings.</p>	<p>Potential shifting of cost burden to other payers for hospital services, with resulting increases in health insurance premiums or reductions in benefits. Increase in uncompensated care.</p>	<p>Pressure on physicians to change their practice patterns. Fewer in-hospital physician consultations. Increased frequency of minor surgical procedures. More severely ill patients discharged from inpatient to post-hospital care. Obstacles to providing a continuum of patient care, due to certificate-of-need restrictions, contracting prohibitions, etc.</p>
Quality of care			
Anticipated benefits	<p>Specialization—increase in efficiency and proficiency. Fewer unnecessary tests and services. More selective use of new technology.</p>	<p>Better coordination of health care treatment, payment, and coverage.</p>	<p>More efficient management of patient care. Increased skill levels for post-hospital provider personnel.</p>
Unintended consequences	<p>Increase in unnecessary admissions. Tendency toward premature discharges. Decreases in necessary testing and other ancillary services. Reluctance to adopt quality-enhancing (but expensive in the short run) technology.</p>	<p>Competing incentives to health care providers, depending on the type of coverage.</p>	<p>Fewer in-hospital physician consultations. More severely ill patients discharged from inpatient to post-hospital care.</p>
Access to care			
Anticipated benefits	<p>Availability of more services on a regional level. Shifting of services to more appropriate (and inexpensive) settings.</p>	<p>Reduced health care charges and insurance premiums. Better coordination of health care treatment, payment, and coverage. Increased sponsorship of health maintenance organizations and preferred provider organizations.</p>	<p>Increased availability of services in nonhospital settings.</p>
Unintended consequences	<p>"Dumping" of high-cost cases. Reluctance of hospitals to accept cases in DRG's which are not profitable.</p>	<p>Decrease in coverage for poor patients, due to uncompensated care issue.</p>	<p>Longer backlogs of patients waiting for post-hospital care.</p>

TABLE IV
EXPECTED IMPACT OF THE PROSPECTIVE PAYMENT SYSTEM
(continued)

Impact measures	Medicare beneficiaries	Cost control	
		Hospital expenditures	Medicare program expenditures
Economic			
Anticipated benefits	Part A liability limited to legal deductibles and coinsurance.	Budget neutrality in the short run. Slower rate of growth in expenditures for the longer run. More predictable outlays.	Slower rate of growth in program expenditures.
Unintended consequences	Higher out-of-pocket costs, if Part B utilization increases.	Increased growth in "pass-through" costs.	Increased growth in expenditures for substitutes for inpatient care, to the extent that they are not offset by a decline in inpatient hospital expenditures. Increased growth in expenditures for post-hospital care, to the extent that they are not offset by a decline in acute care expenditures.
Quality of care			
Anticipated benefits	Shorter hospital stays. Lower rates of nosocomial infection. Fewer in-hospital complications and deaths. Fewer unnecessary tests and services. Reductions in iatrogenic care. Specialization—Increase in efficiency and proficiency.	More efficient provision of hospital care.	More efficient provision of overall health care.
Unintended consequences	Tendency toward premature discharges. Decrease in necessary tests and services. Decrease in necessary physician consultations.	Replacement of quality with financial considerations as the objective of hospitals.	Replacement of quality with financial considerations as the objective of health care providers.
Access to care			
Anticipated benefits	Decrease in overall cost of services provided. Shift in treatment to more appropriate settings. Regional availability of broad range of services.	Reduction in the cost of hospital care. Promotion of the success of efficient hospitals.	Reduction in the total cost of health care. Encouragement of efficiency in the management of health care providers.
Unintended consequences	Selective exclusion of high-cost case types. "Dumping" of "unprofitable" types of patients.	Widespread hospital closings, particularly in underserved or poorer areas.	Reduction in acceptance of Medicare patients.

Source: Stuart Guterman and Allen Dobson. "Special Report: Impact of the Medicare prospective payment system for hospitals." Health Care Financing Review, Vol.7(1):97-114 (Spring, 1986).

risk of adverse outcomes and potentially improving the quality of care. Finally, it provides hospitals with the incentive to reduce unnecessary tests and procedures, thus encouraging the provision of appropriate care (Senate Finance Committee, 1986).

On the other hand, PPS also introduces negative incentives. That is, while the intended consequences of PPS are the elimination of care that "offers little or nothing in the way of patient benefits" and "the organization of hospital operations to provide the necessary care in the least expensive manner," PPS introduces incentives for "hospitals to conserve resources during the hospital stay" and to "shift care to less costly settings, both with potential negative consequences for quality, access, and cost" (OTA, 1985, pp. 24-25).

Prospective payment using DRGs emphasizes the business of hospital care. Administrators must be capable of running an institution without falling into a negative cash balance. Hospital managers are thus faced with three basic incentives under PPS (OTA, 1985):

1. to reduce the cost per admission;
2. to selectively increase DRG revenues; and
3. to develop new sources of profit or surplus by offering services not subject to payment restrictions.

Hospitals will attempt to reduce costs in a number of ways, including: adopting business management techniques, e.g., long-range strategic planning, joint ventures, enhanced productivity, etc. (Morris, 1984; Spiegel & Kavalier, 1986); reducing lengths of stay (Berki, 1985; Demkovich, 1983a; Fedorowicz, 1983); reducing rates of use of ancillary services (Berki, 1985; Kuntz, 1984;

Nathanson, 1984; OTA, 1985); reducing the total ratios of personnel to patients (Berki, 1985; Bromberg, 1984; Kuntz, 1984; Richards, 1984; Washington Report, 1984); providing services formerly provided during hospitalization before or after the inpatient hospital stay (i.e., unbundling) (Bromberg, 1984; Lave, 1984); increasing preadmission screening (Lave, 1984; Spiegel & Kavalier, 1986); reducing rates of increase in employee wages and fringe benefits (OTA, 1985); purchasing hospital supplies more prudently (Allen, 1984; Bromberg, 1984); reducing discretionary activities (e.g., continuing education; clinical research) (Coelen & Sullivan, 1981); and, finally, the new financial arrangements are likely to further stimulate restructuring of the health care system (i.e., horizontal & vertical integration) (Berki, 1985; Gray & McNerney, 1986; Starr, 1982).

For example, hospitals are likely to approach decisions regarding the introduction of new medical technology under PPS differently than under cost-based reimbursement. Before PPS, the additional costs of new technologies were fully covered; thus, hospitals had no reason to refrain from adopting them. Between 1977 and 1982, medical costs increased 107 percent and, according to the Office of Technology Assessment, approximately 28 percent of this increase was related to overuse of medical technology (American Medical News, 1984). Under PPS, new technologies that raise the cost of treating a case will have to compete with alternative (e.g., established) treatments and with alternative uses of funds (e.g., employee wage increases). It has been hypothesized that new medical technology may be at a disadvantage under PPS in that it offers uncertain benefits in the early stages of diffusion (Romeo et al., 1984). Others have argued that DRG-based PPS offers the opportunity to slow the flow of new

technology into the health care sector and thus moderate costs as well as more effectively evaluate new technology in terms of its impact on both the extension and quality of life (Lave, 1984). Although it has not been suggested that PPS will halt the adoption of new technology, it is suggested that hospitals, with their limited resources, will now need to assess new technology more closely and to ration resources more carefully (Berki, 1985; OTA, 1985).

Strategies to selectively increase DRG revenues include: increasing admissions by treating patients as inpatients who might otherwise be treated on an ambulatory basis (Enthoven & Noll, 1984); breaking up of hospital stays into multiple admissions or readmitting patients for the same DRGs (Anderson & Steinberg, 1984); identifying and attracting relatively healthy patients within any given DRG by encouraging services associated with those patients (Berki, 1985; Frye, 1984; Stern & Epstein, 1985); expanding medical staffs in profitable DRG specialties and reducing them in others (Bromberg, 1984; Omenn & Conrad, 1984); adopting marketing practices aimed at relatively healthy patients (Seymour, 1984); and encouraging physicians to refer patients posing an expected financial burden to other hospitals, particularly to the VA and other public hospitals (Berki, 1985; OTA, 1985).

In an attempt to increase revenues, for example, hospitals may assign patients to DRGs that will provide the greatest possible return. This is called "DRG Creep" (Lave, 1984; Simbourg, 1981; Stern & Epstein, 1985). Hospitals may encourage physicians to consciously consider the payment implications of their medical record keeping and the assignment of principal diagnosis upon discharge. In the past, accurate diagnosis and procedural coding were not as

critical to the payment process and many errors in coding, particularly omission of surgeries, appear to have occurred. Now hospitals are motivated to improve the accuracy of coding and to report codes that will maximize payment levels. While "upcoding" or "gaming the system" may be limited due to review processes in the system, it is still in the best interest of the hospital to obtain the most favorable DRG possible (Demkovich, 1983a; OTA, 1985; Wehr, 1983a).

A third option for hospitals is to expand services to less financially constrained or more profitable areas (e.g., satellite clinics, chemical dependency treatment, laboratory or other ancillary services, home health, outpatient surgery) or to phase out unprofitable cross-subsidized services (e.g., health promotion, social services) (Koch, 1988; Lave, 1984). Under such circumstances, the hospital is at a particular advantage in marketing pre-and-post hospital services to its still hospitalized patients. This largely captive market for post-hospital home services, for instance, has led many hospitals to set up their own skilled nursing, rehabilitation and home health services (Caldwell, 1982; Koch, 1988; Lundberg, 1982; OTA, 1985). Likewise, because Medicare still pays hospitals for outpatient surgery on a cost basis, many expect this area to substantially expand as a result of PPS (Koch, 1988). Moreover, PPS could increase expenditures for privately insured patients (Aaron, 1984; OTA, 1985; Sheingold, 1986). Because the PPS policy only affects Medicare patients, hospitals will have greater incentive to cost-shift their losses to private-charge payers, such as commercial insurers, some Blue Cross plans, and self-paying patients (Demkovich, 1983a). Thus, to the degree that a hospital is pressed by reduced reimbursements per Medicare case, it will have the incentive to shift these costs to non-Medicare patients to increase revenues from private sources.

Other Consequences

Other anticipated consequences of PPS for the Medicare program include shifts in financing, from Part A to Part B, as PPS encourages changes in health care delivery from the inpatient hospital setting to the outpatient setting. Medicare expenditures for home health services and skilled nursing care are also likely to increase. While it is unclear how PPS will affect expenditures for other federal health programs, it is hypothesized that reductions in Part A payments may increase demand for VA medical care and Medicaid nursing home beds. In addition, the incentive for stays and reduced services under PPS may reduce physician visits to hospitalized patients and increase outpatient visits or visits to the physician's office (OTA, 1985).

Urban/Rural Differences. In terms of the overall hospital system, PPS's nationally-based payment rates will redistribute surpluses among hospitals, with some losing and some gaining (Vladeck, 1985). The federal government designated lower DRG reimbursement rates on the assumption that labor and supplies cost less in rural versus urban areas. In the development of the reimbursement rates, HHS established 9 geographic regions within the United States and designated labor-related and non-labor-related DRG rates based on them. In each case, the rural reimbursement was lower. With the inception of the urban/rural classification, the American Hospital Association warned that geographic anomalies would result in unfair treatment of many hospitals (Mickel, 1984). The chairman of the American Small and Rural Hospital Association stated, "Something is wrong with the idea that just because we're in a rural setting we should get less money" (Wallace, 1984, p. 48).

Concern was expressed by many critics of the system that the arbitrary discrimination against rural hospitals would force many of them to close

(Spiegel & Kavalier, 1986). Although part of this redistribution was intended to reduce inefficiencies in management and patient care, at least part of the redistribution may be caused by the pricing mechanism itself (i.e., the DRG reimbursement rate) and thus, is beyond the hospital's control (Ashby & Palmer, 1985). Furthermore, because DRGs are used as a proxy for the kind of care provided, hospitals are concerned that some DRGs, including the numerous catchall categories in which a variety of low-volume, high-intensity cases have been dumped, do not adequately account for the patient's severity of illness (Stanley, 1984). Both factors could mean major financial losses for some hospitals.

Inefficient hospitals may not be able to adjust to PPS and therefore close, potentially leaving some communities without hospital services. Hospitals with high ratios of poor and/or indigent patients may be extremely vulnerable under the system. Moreover, because of the enormous variation in patient mix and cost patterns, some hospitals may be severely or unfairly penalized by the payment system whereas some hospitals will receive an unmerited windfall (Ashby & Palmer, 1985). The resulting redistribution generated by PPS may not produce any net savings to the Trust Fund (Vladeck, 1985).

Physician/Hospital Relations. The physician-hospital relationship will also be affected by PPS. Hospital managers under PPS have powerful incentives to alter the practice patterns of physicians, specifically in ways that minimize costs (Berki, 1985; Spiegel & Kavalier, 1986). While physicians make the major decisions regarding placement of patients and ordering of services once the patient is hospitalized, management will attempt to limit length of stay and service intensity. Although physicians may be disposed to cooperate with

management's cost control efforts out of loyalty to the hospital, there may be limits to this cooperation (Berki, 1985). For example, physicians fear subtle and overt pressures from management to alter practice styles, to selectively admit people who could be taken care of on an out-patient basis or not admit complex or high cost cases, and to shorten length of stay and reduce services to Medicare beneficiaries.

Medical decision-making processes that show different patterns from peer practices will now be critical elements under PPS utilization review incentives. Areas for which physicians will be evaluated include: alternatives for care; efficiency in the process of care delivery; increased morbidity and mortality; readmissions; post-hospital experiences; readmissions; post-hospital mortality and inter-institutional transfers. HHS believes that medical ethical standards and fear of malpractice suits will inhibit poor care. Physicians, however, see the potential for increased malpractice suits if patients begin to believe they are receiving less than optimal care, if they believe they have had incomplete workups or treatments, or if they have unfavorable outcomes (Spiegel & Kavalier, 1986).

For example, defensive medicine operates to an unknown extent in this decision-making process. The incentive to protect oneself from possible litigation may counter-balance the incentive to reduce the intensity of services delivered. Hospitalization is an important source of income for physicians. In 1981, 64 percent of physicians' Medicare services were provided in the inpatient setting, although only 24 percent of Medicare beneficiaries were hospitalized in that year (OTA, 1985). With so much income derived from hospitalization, physicians may be reluctant to cooperate with strategies designed to reduce it.

However, the most important concern about PPS in relation to health benefits is its impact on the quality of care. Although there is potential for the system to result in more "judicious" clinical decision-making, PPS could also diminish quality of care. As John Thompson, professor of Public Health at Yale University and one of the developers of the DRG classification system, has stated: "Quality assurance under prospective pricing is the most serious ethical question raised by DRGs" (Friedman, 1985, p. 30).

PPS AND THE QUALITY OF CARE

Deterioration in the quality of care is anticipated under systems of financing that emphasize productivity and efficiency rather than patient needs or satisfaction. As Spiegel and Kavalier (1986) point out:

Under PPS, management is rewarded for decisions by physicians and clinicians who react to pressures from utilization review committees, discharge planners, and complex computer analysis of peer profiles, rather than for diagnostic accuracy, therapeutic triumphs, and salubrious outcomes of the patient's episode of illness (p. 427).

Hospitals are expected to limit their financial liabilities by altering their service capabilities, such as specialization in high yield DRGs; elimination of high cost, low yield services; cuts in staff or curtailed acquisition of new medical technology, as a means of cost savings. The shift from "more is better" to "less is more" emphasizes cost containment rather than attention to health care access and quality of care (Pointer & Ross, 1984).

Quality of In-patient Care

Hospitals may curtail certain expensive services in favor of more profitable areas of care. This could limit the range of services available in a

community or region (Mahoney, 1982). Yet others argue that concentrating certain diagnostic and therapeutic abilities in select institutions can actually heighten quality of care since staff expertise and experience have been shown to affect morbidity and mortality outcomes (Spiegel & Kavalier, 1986). However, Ed Mihalski (1984, staff member of the Senate Finance Committee, is concerned that:

Reducing costs and potentially maximizing profits...creates a real worry that hospitals would also reduce the amount of care and therefore, the quality of care provided to their patients...Hospitals could do that through early discharges, inappropriate admissions, or by simply providing less care than a patient would need (p. 45).

The ability to order tests or to do procedures may be impeded as physician's practice patterns come under peer review. This may also hinder full diagnostic workups or limit treatment options for patients as physicians who do not "conform" may be denied access for their patients and may be barred from hospital privileges. The final consequence of PPS on quality of care may be to end the era of a physician's freedom to offer a patient anything that might help and the beginning of an era of rationing care (Boyle, 1984).

Restructuring staffing patterns under PPS in order to reduce costs and increase efficiency, i.e., through layoffs, hiring freezes, flexible staffing (e.g., using per diems, on-calls), changing staff mix or consolidating jobs, is a by-product of reduced length of stay, shifts to outpatient services and general pressures to reduce costs. These actions will have definite implications for quality of care. Inadequate staffing ratios and changing the mix of professional and ancillary personnel does save money, but also affects all direct patient contact services, may delay or hamper recuperation, and may even increase changes in hospital-based morbidity or mortality (Spiegler & Kavalier, 1986).

Physicians are now having to confront the cost impact of their decision-making as the once passive institutional managers become more aggressive in their actions to maintain hospital solvency and prosperity. For example, utilization review committees were predicted to be given broad responsibility and stringent authority to monitor physician/hospital behavior for compliance to DRG programmatic goals. These committees are charged with keeping readmissions under scrutiny and to reduce unnecessary admissions.

Data are now being collected and systematically analyzed in order to develop local practice patterns for each DRG, which can be used to measure physician behavior. From the data, physician "winners" and "losers" are identified and administrative pressure is being applied to losers to alter their practice patterns (Hardwick, 1983). Such analyses can reduce repetitive orders for expensive lab tests, eliminate standing orders, encourage prompt consultation with specialists, evaluate the efficacy of therapeutic procedures, eliminate ineffective treatments, and avoid weekend admissions for elective procedures (Spiegel & Kavalier, 1986). However, while the effects of these pressures on physician's treatment patterns and on quality of care are not easily measured, it has been predicted that these pressures could result in tension between physicians and management over treatment (i.e., cookbook medicine) and the replacement of careful clinical judgment by tests and procedures that are easy to administer but may cost more in the long run (Rucker, 1984; Vladeck, 1984).

Access to care may also be inhibited. While the responsibility for admitting a patient lies primarily with the physician; under DRGs, the admitting diagnosis will be scrutinized. If it does not meet certain criteria

(e.g., can the patient be treated elsewhere, winner or loser DRG, can patient pay, does admission conform to rules, etc.), access to care may be denied. Specifically affected in these cases would be the poor, elderly, and uninsured; that is, those with existing access limitations and who most often have extensive, expensive multiple diseases and need acute medical care (Kinzer, 1984; Relman, 1985; Spiegel & Kavalier, 1986).

Perverse admitting practices might also evolve since "there will be no incentive whatever in such a system to care for healthier patients in less costly outpatient settings" (Anderson, 1983). There will be strong incentives to increase readmissions due to reduced length of stay and concern over premature discharge. Early discharge patients may get sick again or deteriorate in post-hospital care settings. Prompt readmission, called "churning", is a possible result. In these cases, hospitals will be paid twice for the "same" illness/injury resulting in a "gaming" of the DRG system (Spiegel & Kavalier, 1986).

Quality of Post-Hospital Care

Some policy analysts, senior advocates, physicians and critics of PPS fear that the new reimbursement system will alter the locus of care for Medicare beneficiaries since the incentives focus on shortening hospital stay and reducing services. It is hypothesized that shorter stays will shift care previously delivered in the hospital to nursing homes and home care settings. Sicker patients could be discharged, possibly before their medical problem is resolved, increasing their risk of readmission, extended recuperation, or death. This is especially true for those elderly patients with certain diagnoses or multiple and/or chronic health problems. There is concern that attempts to save money by early discharge of patients will have an adverse impact on the outcomes of care.

Cure rates will be much lower and patients are likely to have multiple admissions if they are discharged prematurely. Although this may be better economically for the hospital, it is certainly not in keeping with good medical practice (Farber, 1985, p. 18)

Although the shift in care to settings outside the hospital may be appropriate for some DRGs, it may not be for others. Moreover, the savings in hospital costs may be more than offset by equal or greater costs in other delivery systems (OTA, 1985).

There are other potential problems with PPS. There is a limit to the extent that hospitals can reduce utilization. Other than shortening stays, it is unclear how physicians and hospitals will actually alter their basic care methods. Further, the impact of shortened stays on the post-hospital care system is not known. It is not clear whether post-hospital care providers, including nursing homes, home health agencies and community service organizations are equipped to handle "sicker" patients or if beds/services are even available.

Moreover, because of the high intensity care needed by these patients and/or the limited coverage for a skilled nursing facility under Medicare, nursing homes may avoid accepting too many Medicare patients. In addition, since Medicaid reimbursement rates for skilled care often are insufficient to cover costs, nursing homes may limit the number of Medicaid patients as well. These issues are particularly important to certain groups within the Medicare population, such as the aged disabled, the very old, and the aged poor, all of whom have special health and socio-economic characteristics that make them particularly vulnerable to the PPS incentives. These groups are likely to be most affected because they require more intensive (and, thus, more expensive)

care for a given type of illness episode. Hospitals might tend to view these patients as potential money losers under PPS and choose not to serve them.

Furthermore, as a result of a growing older population (i.e., 75+), the number of chronic care patients, in both hospitals and the community, has increased. Shortages of nursing home beds and available community-based services have pointed out the need for a coordinated, comprehensive long-term care service system. Some have argued that hospitals should begin to provide long term care (e.g., Champion et al., 1983) to address this growing problem. However, the implementation of DRGs is expected to compound the problem by discharging patients with high intensity, sub-acute care needs to community care, traditionally the place where chronic care patients are cared for.

The potential is there for the sub-acute care patients to push chronic care patients out of community care settings and back onto their families. Burdens are being placed on families, home health agencies and nursing homes as a result of early discharge of patients in need of high levels of care. A great deal of anecdotal evidence suggests that the elderly are being forced out of the hospital "early", often by being told that their Medicare benefits have "run out" (Davis, 1985). Many elderly with serious health problems, especially the frail elderly, appear to be having trouble caring for themselves at home following discharge, particularly if there is no one at home to help them (Senate Finance Committee, 1986).

Quality Assurance Under PPS

Federal mechanisms were mandated in the PPS legislation to monitor and assure quality of care under the DRG system. Utilization and quality control

Peer Review Organizations (PROs) were established as the designated medical review entities responsible for determining a variety of quality issues for Medicare beneficiaries; e.g., medical necessity, appropriateness, etc. PROs also have the responsibility to validate DRG classifications. Furthermore, the Health Care Financing Administration (HCFA) was required by the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982 to establish an admissions monitoring system independent of the PROs. In addition to the utilization review activities of HCFA and the PROs, P.L. 98-21 of the Social Security Amendments of 1983 established an independent organization, called the SuperPro, to review the work of the state PROs. Thus, if HCFA or a PRO determines that a hospital is engaged in unacceptable admissions, medical or other practices, HCFA may deny Medicare payments to the hospital or may require the hospital to take corrective action. Finally, Congress set up an independent commission, called the Prospective Payment Assessment Commission (ProPAC), to monitor DRG payment rates and make recommendations to the Secretary of HHS regarding changes in the DRG system.

PROs. Congress was also concerned about the impact of PPS on the quality of care. The Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) had replaced some 190 Professional Standards Review Organizations (PSROs), established in 1972 to guard against unnecessary hospital admissions and procedures that added to the cost of Medicare and to monitor quality of care, with a utilization and quality control peer review program called Professional Review Organizations (PROs). Although PSROs had survived for more than a decade, they were continually surrounded in controversy until, in 1981, the

Reagan Administration proposed terminating them. Congress, however, believed the concept of peer review was important enough to salvage the program, especially in light of the potential for abuse with the new reimbursement system being implemented under Medicare.

PROs were mandated to review (1) admissions, for medical necessity and appropriateness; (2) procedure review, to screen operating room procedures for necessity; (3) admission pattern monitoring, to determine the appropriateness of admissions and discharges; (4) outlier review, to determine if the stay contained non-covered, medically unnecessary or inappropriate days or services; (5) DRG validation, to assure that the DRG assigned is proper; and (6) coverage review, to assure application of all technical and medical coverage rules to the claims made for covered services (Demkovich, 1982a,b; Fessler & Wehr, 1983a,b; Spiegler & Kavalier, 1986; Wehr, 1983a,b). Although the aims of the two organizations were essentially the same, the new programs had more specific objectives to meet and fewer federal rules telling them how to meet them. However, critics of the program charged that the cost-cutting component of the mandate could jeopardize the quality of care the organizations were trying to monitor if the rules were overly restrictive (Demkovich, 1985, 1983c).

To avoid some of the problems that plagued the old PSRO program, Congress simplified the rules. For example, there would only be one PRO per state. In addition, Congress directed the new peer review groups to specify objectives or goals so that there would be some basis for judging their performance, a serious problem with PSROs. But the PRO system got off to a shaky start with the Health Care Financing Administration (HCFA) balking at publishing final rules for the program. This delayed the contracting process for

well over a year. Thus, "quality" under PPS, in effect, went unmonitored as PROs and the Health Care Financing Administration (HCFA) battled over technicalities in the final rules. Adding to the controversy were the cost objectives established by HCFA, which some critics characterized as "quotas" on care, which HCFA negotiated with the PROs for reducing unnecessary admissions and procedures (Demkovich, 1985).

The American Hospital Association (AHA) stated that HCFA could have expressed the cost objectives in ranges, (i.e., reducing admissions from 1 to 5 percent), instead of setting specific numerical goals, but did not (Vladeck, 1984). If the PROs meet the contractual requirements over the first two years of the program, more than one million hospital admissions will be eliminated; including some 595,000 inpatient surgeries (which will be shifted to outpatient settings), the elimination of more than 425,000 admissions, and the elimination of more than 290,000 unnecessary or inappropriate admissions or procedures. In addition, the goals call for 32,000 complications and 6,000 deaths to be averted under the program (Spiegel & Kavalier, 1986).

Physicians argued that the arbitrary nature of the numerical goals for reduction of hospital mortality and morbidity, as set between PROs, HCFA, and hospitals created an atmosphere where physicians believed they must send patients home to die rather than allowing them to die in the hospital and relegates physicians to the status of assembly line workers who are expected to meet production figures (Speer, 1984). Dr. Thomas Devlin, vice president of the American Peer Review Association, said that PRO objectives, though laudable, have several medical liability implications and "are politically volatile with its presumption of widespread negligence" (American Medical News, 1984, p. 4).

Another problem with the PRO is that when an administrative error has been made, the government can deny payment even if it is later determined that the care the hospital provided was necessary and appropriate. Hospitals fear that they will have no avenue of appeal. A related problem concerns the "waiver of liability" in which hospitals that provide services in good faith were, under the old Medicare rules, able to obtain a waiver protecting them for 2.5 percent of erroneous claims, even if questions arose later about the necessity of the procedure or whether Medicare would cover it. Under PPS, PROs have been given authority to revoke the waiver and deny payment retroactively. That threat could have dire consequences for some hospitals (Spiegler & Kavalier, 1986).

Moreover, the PROs themselves were concerned about the final rules of the program. Specifically, they were concerned that the government did not put enough money into the program to make it successful. The \$300 million over a two year contract period is only 1/3 of one percent of the amount Medicare will pay hospitals over the same period. PROs contend that there will not be enough money to ensure fulfillment of the goals set by HCFA.

PROs were also concerned that the review component outlined by HCFA is not comprehensive enough to ensure quality and cost control. For example, PROs do not have authority to review outpatient services, which are expected to increase under PPS. Furthermore, PROs feel that some of the categories they must review are unnecessary; such as reducing unavoidable deaths which hospitals have enough incentive to do under PPS anyway. American Medical Association (AMA) officials have voiced reservations about the review

component of the program also. In some cases, says the AMA, the government does not have reliable data to back up the numerical objectives it has negotiated with the PROs. Having been burned under PSROs, it appeared to the AMA that HCFA was trying to tighten all loopholes (Spiegel & Kavalier, 1986).

Senior advocates have taken a cautious view of PROs. The major concerns for the elderly were that patients might be billed by the hospital for their care if a PRO review resulted in a denial of payment. This contingency was outlawed under the PPS legislation. Another concern was that hospitals would begin shifting some elderly patients to outpatient settings, not because such treatment is more appropriate, but because outpatient clinics would be under less intense scrutiny by the PROs.

Despite the reservations about PROs, most observers seemed to agree that the PROs had a better chance of succeeding than the old PSROs but cautioned that while the PROs are the "great hope" for beneficiaries' quality assurance, the government's fixation on numerical standards, and thereby costs, has overshadowed what should be the primary goal of peer review; that is, assuring that the elderly receive quality care.

SuperPRO. A second quality assurance capability in the PPS legislation involved the establishment of a program to monitor the 54 designated PRO programs; one for each state, the District of Columbia, Puerto Rico and Guam and Samoa. The objectives of the SuperPRO, as the monitoring organization came to be labeled, provisions were to ensure that the PROs were in compliance with the negotiated performance-based goals contracted with

the Health Care Financing Administration (HCFA). The program was designed to oversee all PRO activities and would evaluate and monitor the progress of the Prospective Payment System as a whole (American Medical News, 1985a).

The SuperPro is to provide quarterly evaluation and monthly reports on the appropriateness of the medical review decision-processes of the PROs and to verify PRO physician's determinations of denials. Problems with the PRO system surfaced early in the SuperPro reviews as PRO agencies which were not formerly PSROs were having difficulties in start-up, development of data bases, staffing, and review delays. By July, 1986, three of the original 54 PRO contracts had been cancelled (Spiegel & Kavalier, 1986).

Critics of the PPS legislation contend that the SuperPRO is merely a watchdog for HCFA and that the focus of the SuperPRO is to keep the PROs in line with the cost-cutting focus of the Health Care Financing Administration. Quality assurance for the elderly beneficiary, in or out of the hospital, is not a primary concern of this organization.

The Prospective Payment Assessment Commission. A third quality review element in the PPS legislation was the establishment of an independent commission to review DRG rate increases proposed by the Secretary of HHS and monitor the implementation of the PPS system. P.L. 98-21 required the Director of the Congressional Office of Technology Assessment (OTA) to appoint, by April 1, 1984, a commission of 15 independent health care experts to a Prospective Payment Assessment Commission (ProPAC). The Commission is required to (1) review the percentage increase used to update the DRG payment rates for FY 1984 and 1985 and to make recommendations to the

Secretary on the appropriate percentage change for fiscal years beginning with FY 1986; (2) consult with and make recommendations to the Secretary concerning the need for adjustments to the DRG classifications and the methodology for classifying specific hospital discharges with the DRGs; and (3) report to Congress its evaluation of any adjustments which the Secretary makes (Grimaldi & Micheletti, 1983; Spiegel & Kavalier, 1986).

Members of the Commission have included representatives from hospital administration, nursing, state rate setting agencies, insurance companies, private practice physicians, proprietary hospitals, organized labor, medical schools, and hospital supply firms. In an interview in *Hospitals* (1984), Dr. Stuart Altman, Chairman of ProPAC, stated that ProPAC had no final authority and could only make recommendations to the Secretary although, since ProPAC was essentially an extension of Congress and under the jurisdiction of the Office of Technology Assessment (OTA), the Secretary would "weigh ProPAC's advice carefully." The most important thing ProPAC has to do, according to Altman, is "be a truly honest broker" to all constituencies and "to operate as a surrogate for the competitive marketplace" by reacting appropriately to the ups and downs of the health care system (*Hospitals*, 1984, p. 11). Thus, the focus of the Commission was on DRG price revisions and not quality of care.

The Commission established three working subcommittees covering the following areas: (1) Data Development and Research; (2) Hospital Productivity and Cost Effectiveness; and (3) Diagnostic and Therapeutic Practices. However, with an extremely limited budget and a mandated staff level of only

25, it is clear that ProPAC had a difficult task facing them if they were to evaluate the "safety, efficiency and cost effectiveness of new and existing medical and surgical procedures" in order to make recommendations to Congress (Hospitals, 1984, p. 11).

ProPAC met for the first time on December 19, 1983, and met seven times in 1984. The focus of the Commission that year was the "workings of the DRG system in the real world" and to suggest adjustments that needed to be made (Iglehart, 1984, p. 20). However, Dr. David Banta, a physician and staff person at the Office of Technology Assessment, characterized the Commission as only "a tool for considering social goals and use of technology" (Lesparre, 1984, p. 29). The first ProPAC report, sent to Congress on April 1, 1985, had 21 recommendations; 16 of them concerned the updating factor for hospital rates while the remainder addressed adjustments of DRG classifications and weights (Spiegel & Kavalier, 1986). Action was also recommended on improving labor market area definitions and on hospitals serving a disproportionate share of low-income patients. ProPAC did not recommend the development of a severity of illness index to the DRGs, a provision the hospitals wanted. However, the hospitals saw the recommendations as better than the no increase payment freeze advocated by the Reagan Administration (Medical World News, 1985a).

The second report by ProPAC, presented to Congress on April 1, 1986, had 33 recommendations, most of them concerned with update factors; revising the formula for inpatient deductible contributions; phasing capital payments into PPS by FY 1987; incorporating technological change into the DRG rates; and

recommendations concerning adjustments for labor markets in urban and rural areas. In addition, the Commission recommendations included two related to quality of care issues, one, a recommendation on the kind of information to be given to a Medicare beneficiary about PPS and length of stay and two, a recommendation that PROs review the entire episode of care as well as selected outpatient surgery procedures to assess quality in other than inpatient settings.

Even with the provisions for quality of care assessment contained in the PPS legislation, there are critics who believe that the Medicare hospital reimbursement changes were enacted without sufficient examination of the potential impact. Nor was there any evaluation whether the New Jersey program, which served as the basis for the Medicare program, had been sufficiently tested to determine if it were suitable as a model for the nationwide program. Even supporters of the PPS system have raised questions about its impact. Will the system achieve sufficient savings? Others are concerned about the impact on the hospital system (e.g., whether the DRG payment rates are large enough to adequately pay hospitals for their services).

Finally, the impact of the program on elderly beneficiaries has been of concern. For example, will quality of care change under PPS? What does the implementation of a DRG-based prospective payment system mean for the patient/consumer? Will medical care differ? Will the patient be able to recognize any differences? In testimony before a U. S. Senate Subcommittee on Health hearing on PPS, Plunkett (Senate Subcommittee on Health, 1983), cautioned:

A prospective payment system, especially one based on DRGs, would do nothing to alleviate the problem for the consumer of health services. It would not make services more available, it would not encourage alternative services, and in all likelihood, would make services for many types of illnesses, injuries and diseases more difficult to access (p. 344).

While a number of studies on the impact of PPS on the health care system were mandated by Congress in the legislation, most of the emphasis of this research has been on hospitals or the DRGs themselves. In addition, the review processes established by Congress for quality of care oversight (e.g., PROs, ProPAC) have serious flaws regarding their focus and their ability to carry out beneficiary related quality of care evaluations. This emphasis on providers obscures the potential consequences of PPS for consumers of health care (Rosenblum, 1985).

Much remains unknown about the PPS's effects on the Medicare patient. It is presumed that the primary method hospitals will use to remain profitable within the PPS system will be shortening length of stay and reducing ancillary services. It is possible that, for certain DRGs, shorter lengths of stay will have little or no effect on the discharge status and/or follow-up care needs. For other, more complex diagnoses, shorter stays may mean a different and/or more intensive mix of follow-up services. Thus, the question as to whether the patient "looks" different or has different "treatment needs" at discharge than similar patients discharged prior to the PPS system's implementation is an important one. Has the DRG-based Prospective Payment System changed the pattern of post-hospital placements (e.g., more needing home health services or going into nursing homes than before PPS)? As Meiners and Coffey (1983) point out:

It is important to know about the characteristics of patients most subject to increased pressure for earlier

discharge for two reasons. First, successful discharge planning will depend on early identification of the patients most likely to have unreimbursed days. Second, a successful discharge program requires planning and development of the necessary extended care services (p. 10).

RESEARCH ISSUES

The uncertainties surrounding the direction, strength and pace of the impacts of Medicare's prospective payment system have sparked widespread concern that PPS poses a substantial threat to the health care system and argues for the provision of valid and timely data on its actual impacts (OTA, 1985). Two Congressional committees concerned about the impacts of PPS (Senate Aging Committee, Senate Finance Committee) commissioned the Office of Technology Assessment (OTA) in 1984, after the implementation of the DRG-based system, to identify the types of economic, technological and health-related effects that might result from the implementation of PPS and to develop a series of strategies that would provide a framework for the evaluation of the most important effects of PPS. The first in a series of reports was published in October, 1985. It identified five important dimensions of health system performance that should be considered when evaluating PPS impacts including: expenditures and costs, quality of care, access to care, technological change and clinical research (OTA, 1985). A key issue is that PPS has intensified the concern with the complex relationship between cost and quality of medical care.

Assessing PPS impacts on quality of care is critical for several reasons. First, if PPS succeeds in containing expenditure growth for the Medicare

program, its effect on the quality of care will be a deciding factor on the program's continued survival. Second, PPS incentives for the amount and mix of inpatient services provided to the elderly differ markedly from the incentives of cost-based payment, yet the limited research on such prospective payment systems has provided equivocal results. Third, widespread concern among professional groups, including physicians, nurses, and hospital associations as well as advocates for the elderly, that PPS might pose a substantial threat to quality of care has made quality a central issue in any discussion of PPS (Select Committee on Aging, 1985; Senate Finance Committee, 1986; Stern & Epstein, 1985; Washington Report, 1985).

A factor complicating the evaluation of PPS's impact on quality of care, however, is that there is no accepted universal standard of quality. Further, changes due to PPS will vary in terms of their seriousness, their timing, their measurability and their distribution among patients, payers, and providers (OTA, 1985). For example, highly visible or easily measured effects are likely to be the most serious (death, inappropriate readmission) and are likely to be concentrated among a few groups of patients, such as the very old, mentally ill, disabled, patients in specific DRGs, or those seeking care at particular kinds of hospitals. More subtle effects, such as the impact of PPS on recuperation or quality of life, are likely to be more difficult to measure and will emerge over time rather than immediately. Furthermore, the timing of all PPS effects will be extremely difficult to predict and will be mitigated as slack in the system masks their impact. "In short, although some effects of PPS on quality of care may surface relatively early, other effects that are equally or more important may take some years to be detected or documented" (OTA, 1985, p. 77).

In addition, three elements make up the PPS system: one, it is a system of expenditure control; two, it restructures financial incentives to hospitals; and three, it uses Diagnosis Related Groups (DRGs) as the basis for classifying patients for payment. These three elements will be difficult to distinguish from one another in terms of their impact. Many of the changes occurring as a result of PPS might well have come about through any system of financial controls on Medicare expenditures for hospital care. Other changes, such as reductions in length of hospital stay, can be expected under any per case payment method. In fact, decreases in lengths of stay were already occurring within the health care system prior to the implementation of PPS.

Moreover, other effects on the availability and use of medical technologies can be related to the peculiar characteristics of the DRG patient classification system itself rather than the control of expenditures (OTA, 1985). For example, the DRG system classifies hospitalized Medicare patients into a specific number of mutually exclusive and exhaustive categories. It necessarily groups patients with heterogeneous medical and surgical needs. The result is that the DRG to which a patient is assigned determines how profitable (or unprofitable) the patient may be for the hospital.

Without detailed analyses of how observed changes in the utilization and organization of services affect quality and cost of health care, little can be said about the ultimate success or failure of PPS. Certain methodological obstacles constrain the development of an accurate view of PPS including: the difficulty in operationalizing concepts such as quality, access and technological change; the lack of refined impact measures and current data bases by which to set baselines and measure changes; the limited feasibility of attributing observed

changes to PPS due to other changes in the system; and the cost and time required to measure changes and impacts (OTA, 1985). A number of changes resulting from PPS can be evaluated despite these constraints. The importance of such evaluation is that it could provide early detection of unintended consequences of PPS as well as for short-term positive results.

Research Question

The question to be addressed by this dissertation is whether a sample of Medicare patients differed from a sample of beneficiaries after the implementation of the DRG-based Prospective Payment System. Specifically, this dissertation will examine beneficiary health status and post-hospital placement as the first step in more comprehensive evaluations of the DRG-based Prospective Payment System of Medicare.

CONCLUSION

For a considerable period after the Second World War, the federal government's health care policy focused on stimulating supply to meet an increasing public demand. The United States has supported an expanding federal role in social and medical insurance over the past forty years as its major public policy tool for improving the standard of living, health and income security for the poor, elderly, and disadvantaged. In addition, tax subsidies in support of private health insurance assured adequate coverage and access to the most advanced health care system for most of the population.

As a major contributor to these costs, the federal government, facing massive budget deficits and expecting high increases in the Medicare program

(the Medicare budget was expected to double to \$110 billion by 1987), approved sweeping policy changes designed to curtail program growth and begin a process of reordering the incentives that had driven the system since the program began (Iglehart, 1985).

The legislation, the 1983 amendments to the Social Security Act, was the centerpiece of the Reagan Administration's efforts to control costs and established a national set of per-case prices in 467 diagnosis-related groups (DRGs) for care delivered to Medicare beneficiaries. The Prospective Payment System (PPS) shifts hospital reimbursement from retrospective payment to prospective rate setting. The government intended this change to create financial incentives for hospitals to deliver services in the most efficient manner by making cost a consideration in health care treatment decisions.

While these changes could improve quality of care, quality could also be compromised. Premature discharge may necessitate readmissions, illness treatable at an early stage could progress undetected to a more serious degree, or patients could be forced to acquire follow-up care in inappropriate settings. The potential is there for expenditures to be so constrained that adequate care is impossible and patient outcomes seriously compromised (OTA, 1985).

Saving money in the Medicare program is important, but so is maintaining access to medical care and the quality of care. It must be recognized that a national preoccupation with costs may adversely effect quality of care, especially for the elderly. It is vital to evaluate PPS. Specifically, what are the costs of cost containment? Are cost reductions coming at the expense of needed care for vulnerable groups through premature discharge of elderly

patients? Learning whether patients are being discharged from the hospitals "quicker" and "sicker" and whether there are changes in their placement in the community are important first steps in evaluating the broader impact of DRG-based PPS and will, when added to hospital-based information, show a more accurate picture of the changes taking place in the health care system. This dissertation addresses this very important first step in the evaluation of PPS on quality of care. The next chapter delineates the methodology used in the conduct of the dissertation.

CHAPTER III

METHODOLOGY

Given the importance of quality of care issues under PPS, this dissertation focuses on the impact PPS may be having on the Medicare beneficiary. The specific question is whether PPS may be inappropriately shifting the locus of care for Medicare beneficiaries from the hospital to the community by shortening length of stay, discharging Medicare patients "quicker and sicker", and increasing the number of Medicare beneficiaries needing subacute care from community-based care providers. There has been little systematic data published on this critical issue to date.

The research upon which this dissertation is based is derived from an original research project conducted by the staff of Northwest Oregon Health Systems (NOHS) during 1985 and 1986. The study measured the changes in Medicare beneficiary health status at hospital discharge before and after the implementation of PPS. This dissertation is unique and separate from the NOHS Dependency at Discharge (1986) study in that, while utilizing the Dependency measurement tool developed for the NOHS study, it extends this work by examining Dependency in relation to changes in the discharge disposition of Medicare patients to community-based care providers before and after the implementation of PPS.

This dissertation can also be distinguished from the NOHS study in that it identifies and describes the broader changes occurring in the health care system

besides PPS and discusses the impacts all of these changes are having on the traditional health care system. Finally, this dissertation addresses a variety of health policy implications raised by the potential shift in the locus of care of Medicare beneficiaries created by the implementation of PPS.

QUALITY OF CARE

While Medicare's PPS system is expected to impact quality of care in a variety of ways, quality remains "poorly defined" (OTA, 1985, p. 78). Two terms are frequently used in the literature of health care quality -- "quality assessment" and "quality assurance." Quality assessment refers to measurement and evaluation of the quality of care for individuals, groups, or populations. Quality assurance, in contrast, refers to integrated programs that attempt to protect or raise quality of care by monitoring medical care delivery, taking corrective action when problems are found, and following up on corrective actions. Historically, quality assurance programs have focused on changing the behavior of individual providers, such as physicians within a hospital setting. The Professional Review Organizations (PROs) within the Medicare program are the major example of quality assurance efforts. Although quality assessment and quality assurance are often used interchangeably, it is the distinctive attribute of quality assessment, in the context of evaluating the care of individuals as a result of PPS, which is the focus of this dissertation.

Measures of quality of care fall into three categories: structure, process, and outcome (Donabedian, 1966). Structure and process fall within the quality domain while outcome tends to be classified as a quality assessment function.

Structure refers to the relatively fixed and stable parts of the medical care delivery system, such as numbers, types, and qualifications of professional personnel, physical facilities, and medical technologies. Criteria for structural factors are set by professional associations, regulatory bodies, or legislation and are used for accreditation, licensing, and Medicare certification purposes (OTA, 1985). Process measures involve the care of the patient, such as the application of medical procedures, drugs, nursing care, and so forth. For the most part, the process of care is evaluated against implicit or explicit criteria that reflect professional norms of practice. Process measures are more tentative indicators of quality, although some do correlate with outcomes, such as "handwashing reduces infection," "pap smears improve the likelihood of detecting cervical cancer," "nursing care can reduce or prevent bedsores and skin ulcers" (OTA, 1985, p. 79). In most instances, developing the criteria for linking the process of care to outcome can be developed through either the consensus of experts (usually physicians), the accumulation of evidence from clinical practice, or clinical trials and research. However, for every example of a "probable process-outcome link, there is one for which the evidence is equivocal" (OTA, 1985, p. 79).

The best example of this is length of stay. A study by the Office of Technology Assessment (OTA) in 1983 concluded that variations in length of hospital stay for five diseases were not shown to be related to differences in health outcomes (Chassen, 1983). Acute myocardial infarction or elective surgery patients who were discharged "early" fared no worse than those with traditionally longer lengths of stay. In psychiatric disorders, shorter lengths of stay were shown to be beneficial. There is little consensus in the medical

profession regarding what is an "appropriate" length of stay for any given diagnosis. Thus, links between much of the process of medical care and eventual patient outcomes have not been well demonstrated. Consequently, judging quality by process measures (i.e., length of stay) is questionable, tends to give an incomplete picture and gives no clues as to likely outcomes for patients (Brook & Lohr, 1985).

Outcomes are seen as the result of patient care and are more direct reflections of patient benefits since they are measures of changes in the patient's health status. Although health status itself has many dimensions, such as the level of functioning in activities of daily living, emotional health, physiologic functioning, satisfaction with care, health status has most frequently been defined to include the physical, mental, and social well-being of individuals (OTA, 1985). Examples of such evaluation are, at a macro level, made in terms of death or presence of illness or disability and, at a more specific level, in terms of presence or absence of fever or infection, the level of functioning of a specific organ, and so forth. These measures are relatively unambiguous but they tend to be insensitive to small or incremental changes in medical practice. Furthermore, outcomes need to be evaluated over time: the patient's health status at the time of discharge from a hospital may or may not indicate his or her health status in a week, month, or a year. Another drawback is that the collection of data on outcomes may be very expensive and intrusive if, for instance, patients must be interviewed or examined directly (OTA, 1985).

Theoretically, then, measures of quality of health care should use specific measures in all three categories (structure, process, outcome). However, this

rarely has occurred. For example, the Health Care Financing Administration has used an outcome measure, in-hospital mortality rates by specific diagnosis, to evaluate the quality of hospital care. But this method does not capture all three parameters of quality and has been roundly criticized as simplifying the relationship between a complex set of variables that may result in mortality; for example, severity of illness at hospital admission or differences in physician practice patterns may influence outcomes as well as diagnosis (Vladeck, 1985). Other studies have examined frequency of procedures in relation to patient outcome (Flood, Scott, & Eury, 1984a,b; Hadley, 1982; and Wennberg, 1982, 1984a,b;) and readmission rates (e.g., Guterman & Dobson, 1986). However, these analyses have primarily been used for purposes other than comprehensive quality of care evaluations (OTA, 1985).

Current research on PPS/beneficiary impact has been limited to anecdotal reports, surveys of service providers or beneficiaries, and policy-related speculations on the impact of the PPS system on the Medicare population (GAO, 1985; Tatge, 1985; Murray, 1984). While PPS may cut costs, demographic trends along with advances in medical technology may push costs up again. With rising costs for hospitalization and falling reimbursement rates, many hospitals are likely to turn to community-based service delivery organizations to fill the gap between shortened hospital stay and the adequate recovery of the Medicare patient. However, meeting the diverse needs of the elderly patient in the most effective and efficient manner will require more information and planning to ensure the availability of appropriate levels and quality of care.

Experts in community care nursing and social work research are examining the impact of PPS on the continuing care needs of the elderly and the resources

available at the community level. Initial findings from a social work study at Mt. Sinai Medical Center indicated that patients being referred to long-term care facilities are exhibiting a much higher degree of co-morbidities (more than one illness) upon admission (Rehr, 1984). After an eight month study, Kornblatt et al. (1985) report that Medicare patients, newly referred to home health agencies, required more services, more education and a greater number of visits than those referred two years earlier. Although both authors acknowledge the possibility of cohort effects, they attribute these changes to the implementation of PPS. While these studies contribute to our understanding of the clinical impacts of the DRG system changes, more work is needed to develop a multi-disciplinary method of systematically assessing the health status of patients at each point in the health care delivery system. For example, status at hospital admission, hospital discharge, admission to community-based care, and so forth.

Specifically, data are needed that would aid in identifying how and in what ways appropriate adjustments to Medicare coverage rules and reimbursement amounts should be made. The current DRG discharge system has a number of unique characteristics; including (1) it is diagnosis specific, (2) it is time-based, and, (3) although derived from national averages, it is somewhat insensitive to the needs of special populations (e.g., the severely ill). In contrast, most clinical assessment regarding health status is situation specific, has little standardization, and focuses on special needs.

Although there is no universal quality of care measure, researchers agree that identifying changes in health status at hospital discharge in relation to

discharge disposition is an essential step in evaluating the impact of PPS on the health care system for the elderly (OTA, 1985). In addition, due to the gap between generic DRGs and specific clinical summaries, a uniform scale that comprehensively measures patient dependency at discharge relative to discharge disposition would be of benefit to policy-makers, providers, and beneficiaries themselves. Therefore, research that could empirically assess any changes in quality of care — for example, changes in length of stay; changes in beneficiary health status; changes in post-hospital placement; changes in amount and mix of services rendered the Medicare patient while in the hospital setting since the implementation of PPS — would be of significant benefit.

HYPOTHESIS OF THE DISSERTATION

The focus of this study, then, is on whether a POST-PPS sample differed from a PRE-PPS sample in terms of health status and post-hospital placement upon discharge from a hospital. The essential question to be addressed in this dissertation is whether the post-hospital placement (e.g., nursing home, home alone, hospital transfer, group home) of Medicare beneficiaries differed before and after the implementation of the PPS system. The hypothesis to be examined in this dissertation is:

HO₁: Both discharge health status, as measured on the Dependency at Discharge Classification Tool, and post-hospital placement as measured by type of placement upon discharge from the hospital, have not been significantly modified by the implementation of the DRG-based Prospective Payment System of Medicare.

It should be noted that this research is exploratory and can only begin to address some of the methodological issues identified in measuring the impact of

PPS on quality of care for the Medicare beneficiary. Data for this research are from the Dependency at Discharge research project, conducted by Northwest Oregon Health Systems (NOHS) in 1986. The NOHS study measured changes in beneficiary health status at hospital discharge before and after the implementation of Medicare's Prospective Payment System (PPS). This dissertation focuses on Medicare beneficiary discharge status in relation to post-hospital placement. The following sections describe the purpose, objectives and methods of data collection used by NOHS in the conduct of the Dependency at Discharge study (1986). National data will be used to illustrate the impacts of PPS on hospitals, physicians, and consumers of health care.

OBJECTIVES OF THE RESEARCH

Two methodological issues were addressed in the NOHS study. The first was the development of a measurement instrument for "discharge status". This new data collection instrument had to be applicable in both the PRE and POST time periods, relevant to the hospitalized population, and common across hospitals. The second was a valid sampling methodology that adequately represented the change and severity of "common" DRG classification.

Objective One: Patient Classification

The term patient classification is familiar to many hospital and nursing administrators and some health care researchers. Patient classification systems were initially developed in the late 1950s as a means of more accurately estimating nursing care resources required to care for patients in order to predict costs (Shaffer, 1986). There have been a number of

classification systems developed since then, although the ability of these systems to accomplish their goal has been somewhat mixed (e.g., Bergner, 1985; Brook, Ware, & Rogers, 1983; Ware, Brook, & Davies, 1985). These measures typically focus on the physical and mental aspects of health and are generally measured by direct examination, interview, or self-administered questionnaires.

Although many of these instruments have been shown to be highly reliable and valid, no one set of classification instruments comprehensively measures health outcomes for the Medicare population (OTA, 1985). Furthermore, the variables forming these patient classification schemes depend on their ultimate use by the specific health care organization. Yet, a measurement tool was needed that could assess changes in patient health status at the point of hospital discharge as well as identify the ultimate placement of the patient after hospitalization.

Since the NOHS study was concerned with inpatient discharge status, it was determined that the literature regarding patient classification for purposes of planning and designating resources in the inpatient as well as community-based care settings should be examined. Two systems were identified in the inpatient classification literature that had potential use for the NOHS study. One system focused on status at admission to an acute care facility (a hospital). Examples of this type of classification system include the International Classification of Diseases-ninth revision (ICD-9) codes, which are the standard patient classification codes for most American hospitals, and the Diagnosis-Related Groups (DRGs) developed by Yale University. Both of these classification systems are based on the patient's diagnosis.

However, while diagnosis is often identified as a major explanatory variable in assessing patient status in the inpatient setting, many authorities have pointed out the limitations of a diagnosis-centered approach when describing the elderly (Kane and Kane, 1981). Most recently, this caveat has been reinforced by Susan Horn (1986) in her work on severity of illness indicators; itself a diagnosis-based patient classification system. She points out that information based solely on diagnosis, expenses or hospital charges makes clinical comparisons difficult (Horn, 1986).

Another patient classification system utilized in resource identification is that of nursing care required by patients. Most classification schemes in the nursing literature have attempted to quantify the level of nursing care requirements of patients in an acute care hospital setting. These classification systems have been generally designed for a particular setting and most typically include the patient's need for assistance with Activities of Daily Living (ADLs), special procedures and treatment needs, observation needs, instructional needs, and emotional needs.

There are three basic approaches to patient classification in nursing: the prototype; the task document, and the critical indicator (Martinetto, 1986). Prototype approaches are characterized by paragraph descriptions of "typical patients" in each category level of care. However, it is generally agreed that there are no "typical" category descriptions that effectively allow reliable patient classification because too much subjectivity in classification is likely. The "task document approach" attempts to view nursing as an extensive number of discrete interventions or tasks that have precise beginnings and endings.

The premise here is that if one could list all care interventions and determine the average time required to complete each intervention, then one could quantify total time required for patient care. The critical indicator approach allows effective and efficient classification of patients through the listing of a limited number of specific care requirements or nursing interventions that are associated with a significant amount of nursing care time. No attempt is made to list all interventions or to quantify specific times per discrete task. The goal of this approach is to quickly group patients sharing similar amounts of required care time.

Only the critical indicators of nursing care are considered to effectively and efficiently categorize patient care (Martinetto, 1986). Most research on nursing workload identifies patient assessment, intervention based upon the assessment, and the evaluation of the effectiveness of all interventions as the basic work activities. The most accurate predictor of staffing needs is based upon a measurement of average amounts of nursing time required to accomplish these activities. The critical indicators most often found to predict nursing workload were patient ADL ability, medication administration, vital signs and assessments, treatments and procedures, and psycho-social support and/or teaching required (Martinetto, 1986).

In addition to nursing classification systems, many hospital social work departments have developed their own pre-screening assessment tools for the timely and efficient identification of patients who required discharge planning for post-hospital placement. However, their approach has been directed primarily towards assessing social, financial, and functional status excluding medical indicators.

According to Giovanetti (1978), hospital systems typically classify patients by counting service units such as assistance with Activities of Daily Living (ADLs), special procedures and treatments, observations, instruction, and emotional support. But, patient classification systems designed for nursing management have been criticized for their limitations as cost predictors since services are measured rather than patient characteristics indicating need for services. That is, use of services to predict services does not allow for the discrepancy of whether the service was needed.

Another well utilized set of classification tools falls into the category of screening or pre-screening tools for post-hospital placement. An extensive review of this literature identified several well-tested patient classification instruments; including the Activities of Daily Living Tool (ADLs) (Katz et al., 1963), the Older Americans Research and Service Center Instrument (OARS) (Duke University, 1978), the Instrumental Activities of Daily Living Tool (IADLs) (Lawton & Brody, 1969), the Health Status Scale (HSS) (Ballard & McNamara, 1983), the Appropriateness Evaluation Protocol (ADP) (Gertman & Restuccia, 1981), the Placement Information Base (PIB) (State of Oregon, 1982), and the Mini-Mental Scale MMS) (Folstein, Folstein, & McHugh, 1975). However, many of these instruments require direct patient observation or access to data typically not available in the patient's medical record.

Finally, studies comparing long term care placement instruments have found that the common kinds of dimensions found on these tools are self-care with ADL ability, mental and behavioral status, and need for nursing procedures (Patterson, 1987). For example, Leatt, Bay, and Stinson (1981) reviewed some

34 classification scales and studies and derived an instrument for assessing and classifying long-term care patients by type of care. They observed 585 patients using 130 measurement variables. They found that the two most important variables for discriminating between care needs were: requirements of nursing services within an institution and the need for medical assessments.

The next most important variables were: level of independence in walking, independence in grooming, and age. Their analyses showed that psychosocial variables did not emerge as important contributors for determining care requirements (Leatt, Bay & Stinson, 1981). However, Giovanetti (1978), among others, believes that age is a less universal predictor of nursing care. In addition, Foley and Schneider (1980) examined six assessment tools for long term care placement and found that most of the instruments identified the patient's ability to perform ADLs, mobility, mental and behavioral status, and degree of nursing services and treatments performed as the most salient characteristics of placement. In the home health field, researchers have found that a patient's level of functioning was more predictive than the diagnostic category for determining agency resource use (Ballard & McNamara, 1983; Brill, Schollosser & Widmer, 1978).

Thus, the findings from the research on these patient classification instruments indicated that the most salient, reliable, and valid factors defining patient status are: deficits in the ability for self care and needs for nursing assistance to maintain physiological stability. Although the focus of the NOHS research was not designed to measure nursing care output, it was decided to attempt to measure patient indicators rather than service descriptors.

Objective Two: Sample Representativeness. Because of constrained resources and time for the project, the NOHS study limited analysis of diagnosis-related groups (DRGs) to five (5) DRGs. The process of selecting which DRGs would be included involved identifying the most frequent DRG admissions for the Portland metropolitan area as well as identifying the most frequent DRGs for the participating hospitals for which data were available. Meetings were held with each of the participating hospital's discharge planning and utilization review staff in order to identify which DRGs were most common in each of the hospitals for the preceding year. In addition, hospital staff were asked to identify a list of diagnoses they considered to be the most "problematic" for their hospital in regards to placement upon discharge and reimbursement under PPS. The top ten medical and surgical DRGs from each list were then compared by hospital to obtain a final list of ten DRGs. This list would then be narrowed down to five DRGs (three medical and two surgical), by comparing the hospitals' lists to regional admission diagnoses compiled by the state's PRO.

The Oregon Medical Professional Review Organization (OMPRO), Oregon's Peer Review Organization, was asked to conduct a computer run on all Medicare discharges for the previous six months from hospitals in the Portland metropolitan area to identify the most frequent discharges. The OMPRO list and the hospitals' lists were then compared, eliminating those DRGs that would identify the hospitals, such as cancer, heart surgery. The comparison revealed the top five most frequent diagnoses as:

DRG 14: STROKE
DRG 89: PNEUMONIA
DRG 127: HEART FAILURE
DRG 209: HIP REPLACEMENT
DRG 210: MAJOR JOINT PINNING

These five DRGs were then compared to national statistics on DRG frequency which revealed that all five were within the top 10 DRGs at a national level. Selection for medical DRGs was done in four hospitals and selection of surgical DRGs was done in three hospitals. Surgical DRGs were not selected in one hospital because of the length of time needed to identify eligible cases from the hospital's records.

The sample size was determined by power tables (Fleiss, 1973). In order to test for a result greater than chance (.05), a minimum of 150 observations per DRG per time period were necessary. The desired number of medical records to be reviewed totaled 2,900. The sample distribution is illustrated in Figure 1.

<u>PRE-DRGs</u> <u>10/81 - 9/83</u>	<u>POST-DRGs</u> <u>4/84 - 7/85</u>	<u>TOTAL</u>
MEDICAL DRGs		
Hospital A:	250 250	500
Hospital B:	250 250	500
Hospital C:	250 250	500
Hospital D:	250 250	500
SURGICAL DRGs		
Hospital B:	150 150	300
Hospital C:	150 150	300
Hospital D:	150 150	300
TOTAL		<u>2,900</u>

Figure 1. Desired Sample Design.

Feasibility of Data Collection. In terms of feasibility of data collection, it was clear that interviews of patients concerning discharge status for hospitalizations one to three years in the past would be of questionable validity.

Observation of patients could not be accomplished for a PRE-PPS sample. Results from other studies indicated that a more efficient, valid and readily available data source is the patient's medical record.

Although most classification schemes are based on direct observation of the patient, secondary data have been utilized for classifying nursing home needs and patients. For example, Ballard and McNamara (1983) conducted a retrospective review of 397 home health records and reported similar findings to those of other studies which used direct observation. They found that the critical predictors of post-hospital resource use tended to be deficits in self-care for activities of daily living and for maintenance of physiological stability via nursing intervention (Ballard & McNamara, 1983). In addition, since all American Hospital Association (AHA) affiliated hospitals have uniform charting requirements, it was assumed that local area hospitals would provide comparable data from their medical records. Therefore, it was determined that information from the patient's medical record would allow for feasible, reliable, and valid data collection. Still to be determined was the selection of items which represented patient health status.

Instrument Development. The purpose of the initial instrument development was to design and test a tool that would measure an individual's level of independence and/or dependence in self-care at hospital discharge (health status). Three methods for validating the instrument were used: a literature review, medical record chart review, and an expert panel review of the prototype instrument. The instrument developed for the NOHS study builds upon the literatures reviewed and initially included the most discriminating

items identified from this review. An initial instrument consisting of twenty-one (21) items was constructed and measured the following: one group measured physical functioning (that is, ADLs, IADLs). Examples include ambulation/mobility, toileting, bathing, eating, and so forth. These items were identified in the literature as relevant to patient classification. A second group measured mental functioning, such as awareness, coping skills, emotional assessment (derived from the PIB and MMS). A third group measured treatment components, such as management of medications, special treatments, referrals for therapy and observation requirements (derived from nursing care literature). Finally, a fourth group of items measured diagnostic and referral variables, such as diagnostic category, co-morbidity (secondary diagnoses or other contributing conditions), continuing care requirements, services prescribed, pre-admission living arrangements, post-hospital placement, length of stay and age.

In order to determine whether the selected variables could be measured from data available in hospital records, the initial instrument was applied to forty-seven (47) medical records from five Portland metropolitan hospitals. This preliminary analysis revealed that sufficient medical record documentation was available on: Activities of Daily Living (ADLs), Medications, Procedures, Signs/Symptoms, and Age. Little documentation was found for items for Instrumental Activities of Daily Living (IADLs) or items from the Mini-Mental Scale (MMS). Specifically, information was found for the following items: activity/mobility information (96% of cases), bathing/hygiene information (72% of cases), medications information (100% of cases), and symptoms/procedures (87% of cases) as observed by non-nurse reviewers. Information pertaining to the patients' ability to feed themselves, mental functioning information, and detailed emotional functioning information was far less consistent.

Inconsistently documented or non-documented items were deleted from the measurement tool. Thus, the instrument was reduced to only the most discriminant items, including: (1) Activity/Mobility (ADLs); (2) Bathing/Hygiene (ADLs); (3) Signs/Symptoms (nursing care needs); (4) Number of Medications (5) Procedures (nursing treatments needed); and (6) Age. It was felt that the term that most accurately described the combination of these items was **DEPENDENCY**. The instrument was named the Dependency at Discharge Classification Tool (DepD) and measured deficits in ability for self-care. A copy of the instrument is included in the Appendix.

In addition to the medical record ratings on Dependency, other data were identified as available to be collected. This included sex, race, hospital, DRG/Diagnosis, pre-admission living arrangements, post-hospital placement, receipt of discharge planning, data collector/rater, and medical record review date.

A model for the instrument was then designed, using ordinal rating scales and cumulative scoring to achieve an overall classification rating for the patient's level of Dependency, or acuity at hospital discharge. The model used was based on an Apache II Acuity rating format with scores of 0 - 2 - 4 - and 6 with 6 the most "dependent" and 0 the least "dependent" scores (Knaus, Draper, and Wagner, 1984).

The overall scores for the six item scale used for rating the patient ranged from 0 to 36. Using the revised instrument with the six rating scales, ten (10) additional hospital records were reviewed to determine the availability of medical record content and feasibility of scoring patient status. This test

demonstrated that it was possible to fully rate each of the patients whose record was reviewed. Protocols for record review were then developed in order to outline decision-making steps for forming judgments about the ratings.

Expert Panel Validation. A group of nurses considered experts in hospital patient assessment for the purposes of discharge planning were convened to evaluate the instrument and protocols. The group included two hospital discharge planners, one director of a hospital-based home health agency, one adult care clinical specialist-nurse educator, and one hospital medical unit head nurse.

The evaluation process consisted of a series of independent assessments and votes in answer to the following questions:

1. Do the six items pertain to dependency at hospital discharge?
2. Are there other items you would add to the concept of dependency at hospital discharge?
3. Do the descriptions for the ratings generally pertain to (are they variations of) each tool item?
4. Using the definition for each item, is each of the ratings discrete and independent?
5. Using the definition and the protocol for each item, are the ratings discrete and independent?

Modifications were suggested by the group following each vote tally, and the revisions were incorporated into the instrument and protocols. The instrument items were then coded onto printed optical mark (op-scan) sheets designed for data collection and input onto computer tape by machine reading. The Dependency at Discharge Classification Instrument protocols for data collection were completed in July, 1985.

STUDY DESIGN

The major objective of the NOHS study was to gather and evaluate preliminary evidence on the impact of the Prospective Payment System (PPS) on the health status at hospital discharge for Medicare beneficiaries. The major objective of this dissertation was to evaluate exploratory data on differences in Medicare beneficiary discharge placement in relation to their discharge health status before and after the implementation of PPS.

The purpose of a research design is to control extraneous variance and maximize the experiment variance. Kerlinger (1973) identifies four criteria by which to judge the adequacy of research designs: one, does the design answer the research questions; that is, does the design adequately test the hypotheses? Two, does the design adequately control the independent variables? Three, does the design allow for generalizing the results of the study to other subjects, other groups, and other conditions? And, four, does the design adequately address the issues of internal and external validity (Kerlinger, 1973)? The following section will address these criteria as they relate to the NOHS study design.

In a true experiment, the researcher can manipulate at least one independent variable for optimal statistical efficiency. However, the experimental variable in the NOHS study was implemented almost simultaneously in all local hospitals, including the sample hospitals. Therefore, the research design could only approximate a true experiment. Because control of the experimental variable, that is, the Prospective Pricing System for Medicare hospital reimbursement, could not be manipulated, the NOHS study

selected a PRE/POST time series design (Campbell & Stanley, 1966). This method is considered one of the most appropriate models for tasks such as the NOHS study undertook.

Campbell and Stanley (1966) identify twelve (12) factors which may jeopardize the validity of various experimental and quasi-experimental designs: history, maturation, testing, instrumentation, statistical regression, selection, experimental mortality, selection-maturation interaction, external validity, the interaction effect of testing or unrepresentativeness, the interaction between selection and the experimental variable, reactive effects, and multiple-treatment interference. Validity in this case means the extent to which explanations other than the "program" under evaluation can be ruled out as responsible for the observed effect (internal validity) and the extent to which the findings can be generalized beyond the study sample (external validity) (Campbell & Stanley, 1966).

While true experimental designs address most of the factors that threaten validity, such a design could not be implemented for this study. Controlled (true) experiments are typically carried out prospectively and generally involve random assignment of subjects to an experimental or control group. Because both groups are exposed to whatever simultaneous influences that might occur during the experiment, differences between the groups can reasonably be attributed to the experimental variable. However, in the case of PPS, the program was implemented universally in community hospitals and left no hospitals outside the system suitable for comparison. Therefore, the PRE/POST

comparison without a control group, a quasi-experimental design, was chosen for the NOHS study. While less efficient than a true experiment, the PRE/POST comparison is the most efficient model to apply to the current PPS-impact question and does address many of the threats to validity identified by Campbell and Stanley (1966).

A quasi-experimental design does not not adhere to the strict requirements of true experiments in that it utilizes either pre/post program comparisons or comparison groups whose representativeness is not established. In order to effectively utilize this model, the researcher must have a high level of confidence that the comparison groups used in the study are indeed representative before such a design can offer much validity (OTA, 1985). The groups used in the NOHS study were randomly selected from all Medicare admissions for the selected DRGs and appropriate time periods (PRE/POST) and thus provide a basis for such confidence in the comparison groups. The process for random selection is described in a following section.

The PRE/POST time series design utilizes a measurement on each group or individual at several points in time with the introduction of an experimental change between the measurements (Campbell & Stanley, 1966). Although this design was used for the data collection, the data were clustered for analysis.

$$O_1 \dots O_2 \dots O_3 \dots X \dots O_4 \dots O_5 \dots O_6$$

While the design lacks a control group, it does control for maturation, testing, regression, selection, mortality, and the interaction of selection and maturation. However, the design does not control for history, instrumentation, the interaction of testing and X, the interaction of selection and X, reactive arrangements and multiple-X interference.

Campbell and Stanley (1966) point out that the failure to control for history is the most definite weakness of this design. That is, the rival hypothesis exists that not X but some more or less simultaneous event produced the shift. It is the "plausibly" ruling out of alternative hypotheses that is the greatest challenge to the researcher utilizing this design (Guterman & Dobson, 1986).

The design is further threatened by the fact that other, simultaneous influences are occurring in the health care system which could account for any differences found. This concern is relevant for the analysis of PPS in that other, simultaneous changes have been identified as occurring in the health system at the same time that PPS was implemented. This confounds any attempt to directly attribute many of the health system changes to PPS. However, it is possible to conduct PRE/POST analyses that provide strong evidence about the impacts of PPS. Success, however, hinges on careful a priori analysis of the likely magnitude and direction of other factors so that the "effects" of PPS may be reasonably inferred (Fleiss, 1973).

An alternative design which might have been used is the multiple time-series design, in which the researcher utilizes an equivalent control group over the same repeated measures as the experimental group (Campbell & Stanley, 1966). However, there were no "equivalent" institutions available which were not undergoing the conversion to the PPS system, nationally or in the Portland metropolitan area. Implementation of PPS began on October 1, 1983. By the end of 1984, a total of 5,405 hospitals (81%) of all Medicare participating hospitals were operating under PPS (Guterman & Dobson, 1986). Furthermore, using other hospitals in another city was not feasible.

Hospital Selection. Four Portland, Oregon, metropolitan hospitals were used as data collection sites for the NOHS study. The hospitals, similar in organization and type of patient services, included two large hospitals (300+ beds) and two medium-sized hospitals (100-300 beds). Two of the hospitals were located in suburban areas and two were located in the metropolitan core. All were private non-profit community hospitals representative of hospitals in the Portland metropolitan area.

The Prospective Payment System was mandated to go into effect at the beginning of each hospital's fiscal year during 1983 and 1984. Because each hospital had different fiscal year schedules, the conversion date to the PPS system was different for the four hospitals included in this study. The hospitals all converted to the system between October, 1983, and April, 1984.

Medical Record Selection. In order to control for possible effects of changes in management policies and staffing practices as a result of the PPS system, medical records were not eligible for inclusion in the NOHS study in the six months before and the six months after each hospital converted to the PPS reimbursement system. Allowing for the six month transition period to PPS, the eighteen (18) months prior to the conversion to PPS reimbursement was determined to be the PRE-period and involved sampling medical records from 1981, 1982, and 1983. The POST-period covered the eighteen month period after conversion to PPS reimbursement and involved sampling medical records from 1984 and 1985. The two data collection time periods thus ranged from October, 1981 through September, 1983 for the PRE-PPS sample period and April, 1984 through July, 1985 for the POST-PPS sample period.

Hospital medical records were randomly selected for inclusion in the study from master lists of all Medicare admissions for five (5) diagnosis-related groups (DRGs). Each hospital provided master lists of admissions based on the following selection criteria: Medicare beneficiary, 60 years or older, discharge date within PRE and POST time period, and diagnosis (DRG).

The NOHS study sample was randomly selected from each hospital's master list according to the following criteria: Age (60 or older), did not expire on selected admission, and had a length of stay between three (3) and twenty-two (22) days. Selected medical records were then typed onto lists for the data collectors to use in pulling and abstracting the medical records for data collection. The total sample size goal was 2,900 charts. However, due to a number of factors, 2,777 medical records were actually reviewed. The reasons for a smaller number of charts to be abstracted in two of the four sample hospitals include: the universe of cases to be sampled from did not equal or exceed the required 150 cases per DRG, per time period. All admissions within these DRGs in the two hospitals were then included in the study but the total, in some cases, still did not equal the study's goals. Further, where possible, oversampling was done for the PRE and POST time periods to ensure an adequate pool of replacement cases for charts found to be ineligible for inclusion in the study (e.g., expired; that is, the patient died in the hospital on the sampled admission).

Another problem encountered in the sample selection process was that two hospitals did not have their PRE-period Medicare admissions on an in-house computer system. Thus, a hard-copy printout of Medicare admissions, produced

by an out-of-state abstracting service, had to be used to identify eligible cases by hand. In many instances, needed identification information was not readily available from these abstract print-outs. Additionally, two hospitals did not have their PRE-period admissions listed by DRG. Thus, eligible cases had to be identified from hard-copy listings of admissions using the ICD-9 (International Classification of Diseases - Ninth Revision) codes in the appropriate DRGs. Moreover, one hospital was excluded from the sampling of surgical DRGs due to the length of time required to develop a valid list of cases eligible for selection. Finally, protocols that were developed to coordinate the pulling and re-filing of the medical records to ensure that all eligible records were available for coding were not always followed by hospital staff.

Data Collector Training. All data collectors were registered nurses. Seven nurses were hired in August, 1985, and trained to use the Dependency at Discharge Classification Instrument in two separate training sessions. The first group of three data collectors was trained in August, 1985, using records from the four study-site hospitals. A second group of four data collectors was trained in October, 1985 using charts from one of the study hospitals.

Training was the same for both groups. The data collectors assembled for several hours in a conference room near the medical records departments of one of the participating hospitals. The NOHS research team member who had developed the data collection protocols served as both trainer and data collector for the project.

The training sessions included a review of the history and purpose of the Dependency at Discharge Classification tool (DepD), the data abstraction

protocols, and rating several trial medical records for education and discussion. Agreement rates, based on the Dependency rating scale, were tallied during the sessions to monitor learning and achievement of consistency across raters. When agreement rates reached at least 70 percent, raters were asked to independently review records for reliability checks.

The data collectors were all baccalaureate-level nurses from various schools with various levels and types of nursing experience. One was recently retired after 40 years work as a medical-surgical nurse, two were recent nursing school graduates, two were nursing graduate students and one was a university faculty member. An eighth nurse began the training and data collection process in August, but soon moved out of the state. All records abstracted by this nurse were excluded from the data analysis.

Data Collection. Data collection for the NOHS study took place between September, 1985 and April, 1986. Data collection in each hospital lasted from two to three months. Problems encountered in data collection included limited hours of access to medical record departments; difficulty in scheduling data collectors to complete data collection due to conflicting schedules (e.g., school demands, job demands); one hospital had its PRE-period medical records on microfiche which made identification and abstraction of charts more difficult and time consuming; conflicts between the study versus the hospital work demand upon hospital medical record personnel time; vacation time and holidays made scheduling data collection problematic. However, these problems of scheduling, sample identification, and coordination with medical record departments were minor on the whole.

CONCLUSION

The NOHS Dependency at Discharge study (1986) was designed to measure Medicare beneficiaries' health status, as measured by the Dependency at Discharge Classification Instrument, at the point of hospital discharge. Two methodological issues were addressed in the research design: one, the development of a patient classification instrument that could be used with medical records and that would accurately provide a picture of the health status of the about-to-be discharged Medicare beneficiary; two, the issue of selection of a sample of Medicare beneficiaries in a representative sample of DRGs was addressed. A sample of Medicare beneficiaries was selected from five representative DRGs (both locally and nationally).

A PRE/POST non-control group research design was used to select medical records for analysis from PRE and POST-PPS samples in terms of Medicare beneficiary health status at the time of hospital discharge. While this research is exploratory, that is, it only used five of the top ten most frequently used DRGs and it was conducted in only four hospitals in one geographic area, it is an important first step in evaluating the impact of Medicare's PPS payment system on the quality of care of Medicare beneficiaries. In essence, the NOHS research study analyzed the question, are Medicare beneficiaries being discharged from the hospital "quicker and sicker" after the implementation of the Prospective Payment System (PPS).

The question to be addressed by this dissertation concerns changes in the post-hospital placement of Medicare beneficiaries before and after the

implementation of the Prospective Payment System. This dissertation is exploratory in nature in that it is constrained by the same strengths and weaknesses of the NOHS study from which the data are derived. This dissertation is distinct from the NOHS study and extends it to address the question of whether there have been changes in discharge placement, in relation to discharge health status (Dependency), before and after PPS.

While the data were generated from the NOHS Dependency at Discharge research study (Coe, Wilkinson, & Patterson, 1986), the analysis presented in this dissertation pertaining to the comparisons of patient status at discharge in relation to post-hospital placement is a distinct and separate analysis from the NOHS study. This dissertation focuses on changes in beneficiary status with regard to post-hospital placement and quality of care while the NOHS study examined the issue of "quicker and sicker". The unique contribution of this dissertation is its documentation of changes in beneficiary health status and discharge placement setting (i.e., more dependent patients being discharged to post-hospital care settings) and is one of the first studies in the nation to address the issue in anything but anecdotal form. Thus, this dissertation provides the basis for more comprehensive national studies which may explore the longer-term impacts of the PPS system on the post-hospital care service delivery setting.

CHAPTER IV

DATA ANALYSIS

The effects of Medicare's Prospective Payment System that are most relevant to the performance of the health care system are the effects on the cost of providing hospital care and the effects on the outcomes (benefits) of that care (OTA, 1985). However, direct measurement of health benefits is infeasible and, as a result, incomplete, imperfect and overlapping proxy measures have been used. Proxy measures for health outcomes are used here also; i.e., discharge status and post-hospital placement, as a means of assessing the impact of the DRG-based Prospective Payment System on the Medicare beneficiary. The data utilized to address this issue are from the Northwest Oregon Health Systems Dependency at Discharge research project (1986) and are presented in Section I. National data from the first three years under the PPS system; 1984, 1985, and where possible, 1986 are used to evaluate the expenditure and quality of care impact of PPS and are presented in Section II. The specific question addressed by the NOHS study was to determine if Medicare beneficiaries were being discharged "quicker and sicker" after the implementation of the Prospective Payment System. A second analysis of the data regarding post-hospital placement is the focus of this dissertation.

A great many areas of interest regarding the impact of PPS are beyond the scope of this study including such areas as the impact of PPS on access to

health care, technology adaptation, clinical research, patterns of employment in health care and related industries, the quantity and quality of health professional education, physician/patient relationship and ownership of health care businesses. Although many of the predicted effects of PPS cannot be addressed with the evidence available, this dissertation attempts to identify patterns of change occurring within the health care system coinciding with, as well as a result of, Medicare's Prospective Payment System (PPS).

SECTION I: DEPENDENCY AT DISCHARGE DATA

This section presents descriptive information on a PRE/POST sample of Medicare beneficiaries including sample distribution by sex and age, distribution of length of stay by total sample and by DRG, and an analysis of beneficiary discharge status (Dependency at Discharge) by DRG, by Dependency Class, and post-hospital placement by Dependency Class and by DRG. For tests of significance, the $p = .05$ level of probability was used. For ease of presentation, the 1981-1983 period is labeled PRE and the 1984-1985 period is labeled POST.

Data collection was based on the selection of a Medicare beneficiary's medical record, identified from a master list of all admissions within the PRE/POST time period from each hospital, using all of the following criteria:

1. Medicare patient,
2. Age 60 or over,
3. Did not expire on selected admission, and
4. Length of stay (LOS) between 2 and 23 days.

From the total potential discharges in the two study time periods, 2,777 medical records were randomly selected and reviewed. Of the 2,777 records

reviewed, 158 (6%) were excluded for the following reasons:

1. patient expired on the selected admission (N=68);
2. ineligible length of stay (N=18);
3. incorrect identification of medical record (e.g, wrong DRG, etc.) (N=29);
4. unable to locate selected record in the records department (e.g., record was on the floor or being transcribed, etc.)(N=23); and
5. the record has major sections of documentation missing (N=20).

The final sample was 2,619 records for most of this data analysis.

Sample Distribution - PRE/ POST. The total sample of 2,619 records included 1,258 (48%) in the PRE-period and 1,361 (52%) in the POST-period. Table V presents the distribution of the PRE/POST subsamples by DRG. All subjects were Medicare beneficiaries, 60 or over. A Chi Square test of the PRE/POST samples showed no significant difference at the $p < .01$ level between the PRE/POST samples based on distribution by DRG.

TABLE V
DISTRIBUTION OF SAMPLE BY DRG - PRE/POST
(N=2,619)

<u>DRG CATEGORY</u>	<u>PRE</u>	<u>POST</u>
DRG 14 - Stroke	296 (23.5%)	338 (24.8%)
DRG 89 - Pneumonia	289 (23.0%)	342 (25.1%)
DRG 127 - Heart Failure	352 (28.0%)	383 (28.1%)
DRG 209 - Hip Replacement	180 (14.3%)	191 (14.0%)
DRG 210 - Major Joint Pinning	<u>141 (11.2%)</u>	<u>107 (7.9%)</u>
TOTAL	1,258 (100%)	1,361 (100%)

Sex. Thirty-seven percent of the total sample were male (N=922) and 63% were female (N=1,697). Table VI presents the distribution of the PRE/POST

subsamples by sex. A chi square test of the difference between the PRE/POST subsamples by sex was not significant.

TABLE VI
DISTRIBUTION OF PRE AND POST SAMPLES BY SEX
(N=2,619)

<u>SEX</u>	<u>PRE</u>	<u>POST</u>	<u>TOTAL</u>
MALE	461 (36.6%)	461 (33.9%)	(N=922)
FEMALE	797 (63.4%)	900 (66.1%)	(N=1,697)
TOTAL	1,258 (100%)	1,361 (100%)	

Age. Age ranged from 61 to 104 years. Table VII presents data on the age distribution of the PRE and POST samples. For convenience, age was grouped into four age categories: 60-65; 66-75; 76-85; and 86+.

TABLE VII
AGE DISTRIBUTION BY PRE/POST
(N=2,557)

<u>AGE CATEGORY</u>	<u>PRE (n=1,228)</u>	<u>POST (n=1,329)</u>
60 - 65	2.4%	6.2%
66 - 75	23.5%	26.6%
76 - 85	38.7%	40.5%
85+	33.4%	24.6%
Missing Cases	2.0%	2.1%
TOTAL	100%	100%

Age Distribution. Table VIII presents data on age distribution by total sample and by DRG. Of specific interest is the increase in the number of "younger" Medicare beneficiaries in three DRGs: Stroke, Heart Failure, and Hip Replacement in the POST period. No such pattern is evident on Pneumonia or Major Joint Pinning.

TABLE VIII
AGE DISTRIBUTION BY PRE/POST AND DRG
(N=2,557)

<u>DRG CATEGORY</u>			
<u>Stroke</u> (DRG 14)	<u>PRE (n=285)</u>	<u>POST (n=328)</u>	<u>TOTAL (n=613)</u>
60-65	1.8%	3.0%	2.4%
66-75	20.7%	30.2%	25.8%
76-85	44.2%	45.4%	44.9%
86+	33.3%	21.3%	26.9%
<u>Pneumonia</u> (DRG 89)	<u>PRE (n=278)</u>	<u>POST (n=331)</u>	<u>TOTAL (n=609)</u>
60-65	2.2%	8.2%	5.4%
66-75	26.3%	23.0%	24.5%
76-85	35.6%	33.2%	34.3%
86+	36.0%	35.6%	35.8%
<u>Heart Failure</u> (DRG 127)	<u>PRE (n=345)</u>	<u>POST (n=372)</u>	<u>TOTAL (n=717)</u>
60-65	1.2%	3.5%	2.4%
66-75	20.3%	29.3%	25.0%
76-85	41.4%	41.7%	41.6%
86+	37.1%	25.5%	31.1%
<u>Hip Replacement</u> (DRG 209)	<u>PRE (n=180)</u>	<u>POST (n=191)</u>	<u>TOTAL (n=371)</u>
60-65	6.7%	9.9%	8.4%
66-75	36.7%	34.0%	35.3%
76-85	35.6%	46.1%	41.0%
86+	21.1%	9.9%	15.4%
<u>Major Joint Pinning</u> (DRG 210)	<u>PRE (n=140)</u>	<u>POST (n=107)</u>	<u>TOTAL (n=247)</u>
60-65	2.1%	6.5%	4.0%
66-75	23.6%	16.8%	20.6%
76-85	39.3%	39.3%	39.3%
86+	35.0%	37.4%	36.0%

Mean Age Comparison. Table IX presents data from a comparison of mean age between the PRE and POST periods. The average age of the PRE-period sample was 82.6 years and the average age for the POST-period was 80.4 years. When tested for differences using a t-test, the difference was significant at the $p < .001$ level.

TABLE IX
COMPARISON OF MEAN AGE BY PRE/POST
(N=2,552)

<u>SAMPLE</u>	<u>MEAN AGE</u>	<u>STANDARD DEVIATION</u>	<u>t-Value</u>
PRE	82.6 (1,227)	8.6	
POST	80.4 (1,325)	8.4	.000***

Key:

*** p <.001

The findings presented in Tables VIII and IX regarding the age distribution in the PRE/POST samples suggest that age could confound the PRE/POST analyses. Therefore, age was treated as a co-variate in all subsequent analyses of the data.

Length of Stay. Measurement of length of stay was constrained by the sampling methodology. In order to control for the effects of DRG "outliers" (i.e., those with extremely long lengths of stay), only discharges with a length of stay (LOS) between 2 and 22 days were included in the sample. However, this limitation did not exclude a large number of potential cases. Table X presents data on length of stay for the total sample and by DRG. The mean length of stay was 11.3 days in the PRE-period and 8.6 days in the POST-period. This represents a reduction of 2.7 days between the PRE and POST periods which is statistically significant at the .001 level. This dramatic drop in length of stay was also reflected in summary Medicare data from Multnomah County, Oregon which reported a drop of 2.4 days in length of stay between 1982 and 1984 (OMPRO, 1986). This pattern of decline in length of stay was found in each DRG category. T-tests showed that all were significant at the p <.001 level.

TABLE X
LENGTH OF STAY BY PRE & POST AND BY DRG
(N=2,528)

	<u>Mean Days</u>	<u>Standard Deviation</u>	<u>t-values</u>
<u>DRG 14 (Stroke)</u>			
PRE (227)	11.4	5.3	
POST (327)	7.7	3.3	10.10***
<u>DRG 89 (Pneumonia)</u>			
PRE (276)	9.6	4.3	
POST (336)	7.8	3.5	5.16***
<u>DRG 127 (Heart Failure)</u>			
PRE (336)	9.2	4.7	
POST (372)	7.2	3.1	6.67***
<u>DRG 209 (Hip Replacement)</u>			
PRE (177)	15.5	3.6	
POST (189)	12.3	3.6	8.27***
<u>DRG 210 (Major Joint Pinning)</u>			
PRE (134)	13.8	4.3	
POST (104)	11.5	3.8	4.45***

Key:

***p <.001

When examining length of stay by DRG TYPE (e.g., Medical vs. Surgical), the medical DRGs (DRG 14 - Stroke; DRG 89 - Pneumonia; and DRG 127 - Heart Failure) had far more variance in length of stay (as measured by standard deviation) than did the surgical DRGs (e.g., DRG 209 - Hip Replacement and DRG 210 - Major Joint Pinning). This can be explained, in part, by the similarities of procedures and acute care required in the surgical DRGs versus the medical DRGs.

The Measurement of Dependency at Discharge. The scale used to measure dependency at hospital discharge was originally developed with six items: ACTIVITY, BATHING, MEDICATIONS, PROCEDURES, SYMPTOMS and AGE. A principal axis factor analysis of the six original scale items was performed using squared multiple correlations as commonality estimates. Since only one four-item factor with an Eigenvalue greater than 1.00 was extracted, no rotations were performed. An analysis of internal consistency yielded an Alpha coefficient of .86. These analyses suggested that Dependency be viewed as a single construct. The final scale included four items: ACTIVITY, BATHING, PROCEDURES, SYMPTOMS.

The Dependency instrument used a Likert-type ordinal scaling method for rating the patient's dependency on four rating levels with increasing values from 0 - 2 - 4 - 6. Possible scores ranged from 0 (complete independence) to 24 (complete dependence). The instrument was subjected to content validation by a panel of experts and reliability checks were conducted throughout the study period. One hundred and sixty-two medical records were randomly selected from the sample pool and used to test interrater reliability during data collection. Independent ratings of the sub-sample showed the instrument had a high level of interrater reliability as measured by an Intraclass R of .88. Instrument development and reliability testing are described in detail elsewhere (Coe, Wilkinson, & Patterson, 1986).

Dependency. Table XI presents data on Dependency for the PRE/POST periods. The average Dependency score for the PRE-period was 8.9 while the average Dependency score for the POST-period was 9.7. The difference between the two scores was found to be significant at the $p < .001$ level.

TABLE XI
 DEPENDENCY SCORES BY PRE/POST
 (N=2,557)

<u>OVERALL DEPENDENCY BY PERIOD</u>	<u>PRE</u>	<u>POST</u>	<u>t VALUE</u>
	8.9	9.7	3.79***

Key: *** p < .001

Dependency By Age - PRE/POST. Figure 2 presents data on Dependency by age category. As expected, Dependency was higher in the older age groups and was higher across all age groups in the POST period.

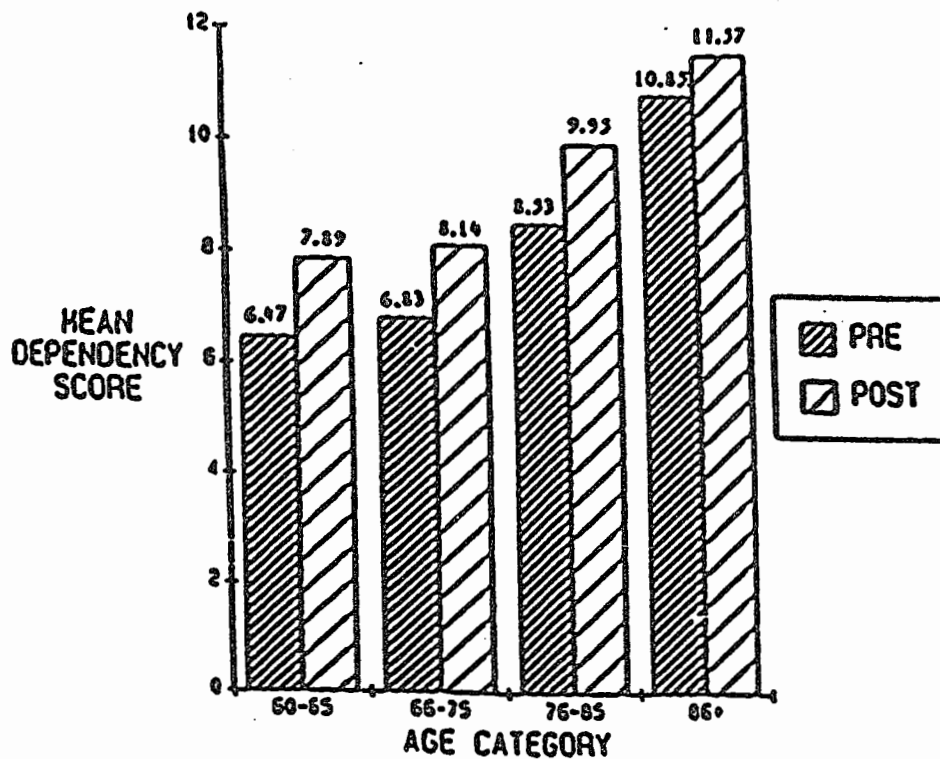


Figure 2. Mean Dependency Scores by Age Category, PRE/POST.

Dependency By DRG - PRE/POST. Since the difference in the distribution of age between the PRE and POST periods could confound the findings regarding Dependency, an analysis of covariance (ANCOVA) comparing the PRE and POST Dependency scores adjusted for age was conducted.

Interpreting the results of the analysis of covariance may be confounded by the assumption of homogeneous regression coefficients (b) across the PRE and POST periods. Therefore, an F test for homogeneity of variance was also conducted in order to assess homogeneity of variance across the DRGs. The results of the two analyses are presented in Table XII. The F test for homogeneity (Column 2) results suggested that the assumption of homogeneity was untenable in two of the five DRG categories (DRG 127 and DRG 210). This called into question the results of the covariance analysis on these two comparative tests (Pedhauser, 1982; Reichardt, 1979). In three of the DRG categories, the F test for homogeneity showed no significant difference (DRG 14, DRG 89, and DRG 209). Therefore, the covariance analysis was accepted in these DRGs.

Further analysis was conducted to explore the two cases in which the analysis of covariance results were questioned. A matched pair analysis was conducted in the two DRG categories where homogeneity of variance was not found. Cases from the PRE and POST subsamples in the two DRGs were matched on age by computer. Cases not matched were eliminated from this analysis, producing a smaller N but which was fundamentally equivalent with respect to age. Matched sample t-tests were then performed using the Dependency scores of the two subsamples. Table XII presents the results of the ANCOVA analysis with age as a covariate and the analysis of homogeneity.

Results from these analyses showed a significant increase in Dependency between PRE and POST for DRG 14 - Stroke but not for DRG 210 - Major Joint Pinning. Thus, the combined analyses suggest that Dependency increased between the PRE and POST periods in DRGs 14 - Stroke, 89 - Pneumonia, 127 - Heart Failure, and 209 - Hip Replacement but not in DRG 210 - Major Joint Pinning.

TABLE XII

**ANALYSIS OF COVARIANCE: DEPENDENCY WITH AGE AS A
COVARIATE AND ANALYSIS OF HOMOGENEITY
(N=2,619)**

<u>DRG Category</u>	<u>F (Pre/Post)</u>	<u>F (b)</u>
DRG 14 - Stroke	8.11**	.67
DRG 89 - Pneumonia	6.64**	.89
DRG 127 - Heart Failure	12.94***	5.01*
DRG 209 - Hip Replacement	24.93***	.33
DRG 210 - Major Joint Pinning	.46	4.09*

Key:

* p < .05

** p < .01

*** p < .001

Dependency by Length of Stay. For ease of interpretation and utility, Dependency scores were reduced to four classes. These classes were:

<u>SCORE:</u>	<u>DESCRIPTION:</u>
0 - 5:	Minimally Dependent
6 - 11:	Somewhat Dependent
12 - 17:	Moderately Dependent
18 - 24:	Severely Dependent

Dependency Class. Table XIII presents data on the percent distribution of the total sample by Dependency Class. A Chi Square test showed a significant difference between the PRE/POST periods at the $p < .001$ level. These results were consistent with the prior analysis concerning Dependency at Discharge PRE/POST.

TABLE XIII
DISTRIBUTION OF SAMPLE BY DEPENDENCY CLASS

	<u>PRE (n=1,256)</u>	<u>POST (n=1,358)</u>	<u>TOTAL (n=2,614)</u>
Class I	28.7 %	22.5 %	25.5%
Class II	42.8 %	44.2 %	43.5%
Class III	15.1 %	17.5 %	16.4%
Class IV	13.3 %	15.8%	14.6%
Total	<u>100.0 %</u>	<u>100.0%</u>	<u>100.0%</u>

Chi square test = *** $p = < .001$

Dependency Class By Length of Stay. Dependency Class was then compared to length of stay for the PRE and POST periods. Length of stay declined significantly between the PRE and POST periods ($p .001$). Figure 3 presents data on Dependency Class by length of stay. While one would expect length of stay to increase as Dependency increased, this was not the case. In both the PRE and POST subsamples, the mean length of stay for Class IVs (Severely Dependent) was less (PRE LOS = 12.9 days; POST LOS = 8.9 days) than that for Class IIIs (Moderately Dependent) (PRE LOS = 13.1 days; POST LOS = 9.5 days). Thus, length of stay declined while Dependency at discharge increased.

A possible explanation for shorter lengths of stay for Class IV compared to Class III is that approximately half of the Class IV cases came from nursing homes and may have had skilled beds awaiting them post-discharge. Thus, the

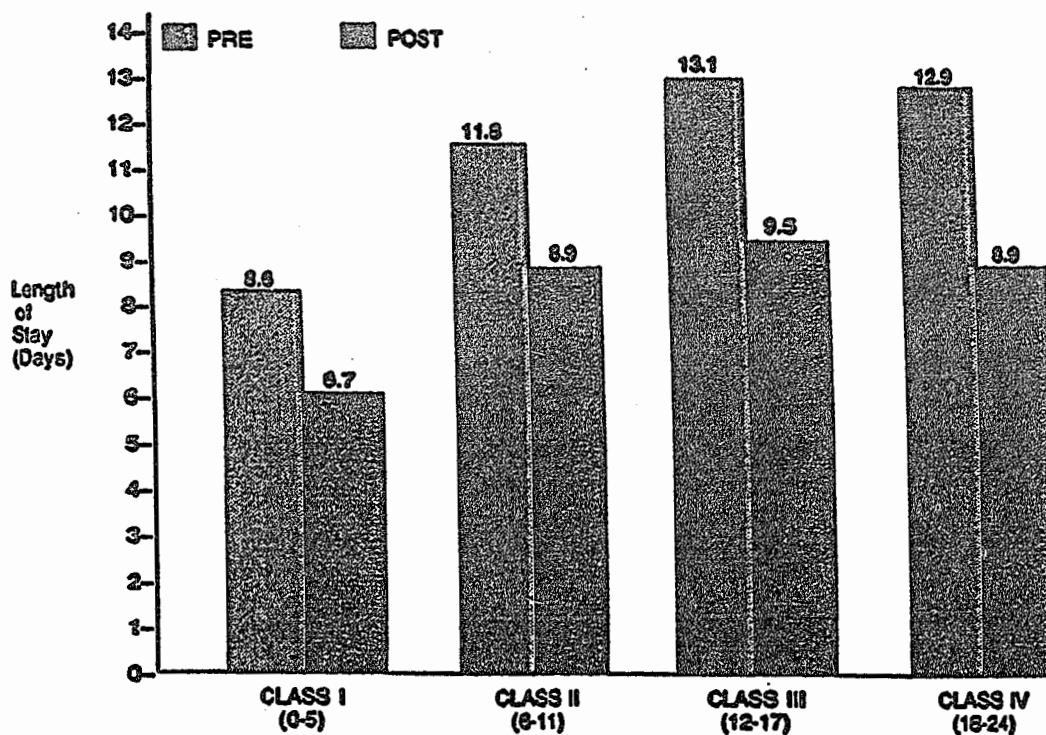


Figure 3. Dependency Class by Length of Stay, PRE/POST.

hospitals may have discharged these cases "earlier" because they had an established post-hospital placement readily available to them. In contrast, the Class IIIs generally came from a home setting into the hospital and may have had to wait in the hospital until an appropriate placement could be arranged for them. What these data do point out is that the relationship of length of stay to Dependency is a complex issue and likely to be influenced by other factors.

Post-Hospital Placement By PRE/POST. In addition to Dependency information, data collectors recorded information from the medical charts which identified the discharge destination of the sample patients. The categories were:

1. Home Alone
2. Home with Another (Spouse, Relative, Home Health)
3. Group Home (e.g., retirement community, foster care)
4. Nursing Home (SNF, ICF)
5. Transfer to Another Acute Care Facility (e.g., hospital)

Table XIV presents the sample distribution on the total percent of post-hospital placements for the PRE and POST period. In looking at the numbers, there was a tendency for increased placements to home alone, to group home (adult foster care, residential care facilities) and hospital transfers while there was a decrease in placements to home with another (family, home health). There appeared to be no change in nursing home placements in the POST period. When tested by Chi Square, the difference between the PRE and POST periods was found to be significant at the $p < .001$ level.

TABLE XIV
PERCENT POST-HOSPITAL PLACEMENT BY PRE/POST

	<u>PRE (n=1256)</u>	<u>POST (n=1358)</u>	<u>TOTAL (n=2614)</u>
Home Alone	13.7%	14.1%	13.9%
Home w/Another	52.3%	47.7%	49.9%
Group Home	3.4%	5.4%	4.5%
Nursing Home	27.4%	26.1%	26.7%
Hosp. Transfer	1.7%	6.1%	4.0%
Info Unclear	<u>1.5%</u>	<u>0.7%</u>	<u>1.1%</u>
Total	100.0%	100.0%	100.0%

TABLE XV
PERCENT OF POST-HOSPITAL PLACEMENTS
BY DEPENDENCY CLASS - PRE/POST
(N=2,614)

Placement	DEPENDENCY CLASS							
	I		II		III		IV	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Home Alone	7.7	7.4	5.7	6.1	.3	.4	0	.1
Home With Other	18.0	13.0	27.3	27.3	5.6	5.5	1.4	1.8
Group Home	1.0	1.0	1.6	3.0	.5	1.0	.3	.4
Nursing Home	.6	.7	7.5	5.4	8.0	8.0	11.2	12.0
Hospital	.2	.1	.5	2.1	.6	2.4	.4	1.5
Information Unclear	1.0	.2	.4	.3	.1	.1	0	0
Column Total	28.6	22.5	42.9	44.2	15.2	17.4	13.3	15.9

COMPARISONS:

Group Home versus All other PRE/POST - Chi Square value significant at .05
 Home Alone/Home w/Another versus All - Chi Square value significant at .01
 Hospital Transfer versus All other PRE/POST - Chi Square value sig. at .001

Figures 3 through 7. Figures 3 through 7 present Table XV data graphically. The data suggest that there was a tendency for more placements Home Alone in Class II, III, and IV (Figure 3) but fewer placements to Home with Another in Dependency Class I and about the same in the other classes (Figure 4) in the POST period. The data also indicate an increase in Class IIs and IIIs being placed in a Group Home setting (Adult Foster Care, Residential Care) (Figure 5). There was little change in PRE/POST placements by Dependency Class for Nursing Home placements, except for a decrease in Class IIs in the POST period (Figure 6). The Group Home and Nursing Home findings suggest that Class IIs are now being placed in the relatively new care setting of Adult Foster Care or Residential Care as opposed to being placed in a nursing home. Finally, there was a significant increasing trend across Dependency Classes for placement in another hospital for Class IIs, IIIs, and IVs (Figure 7).

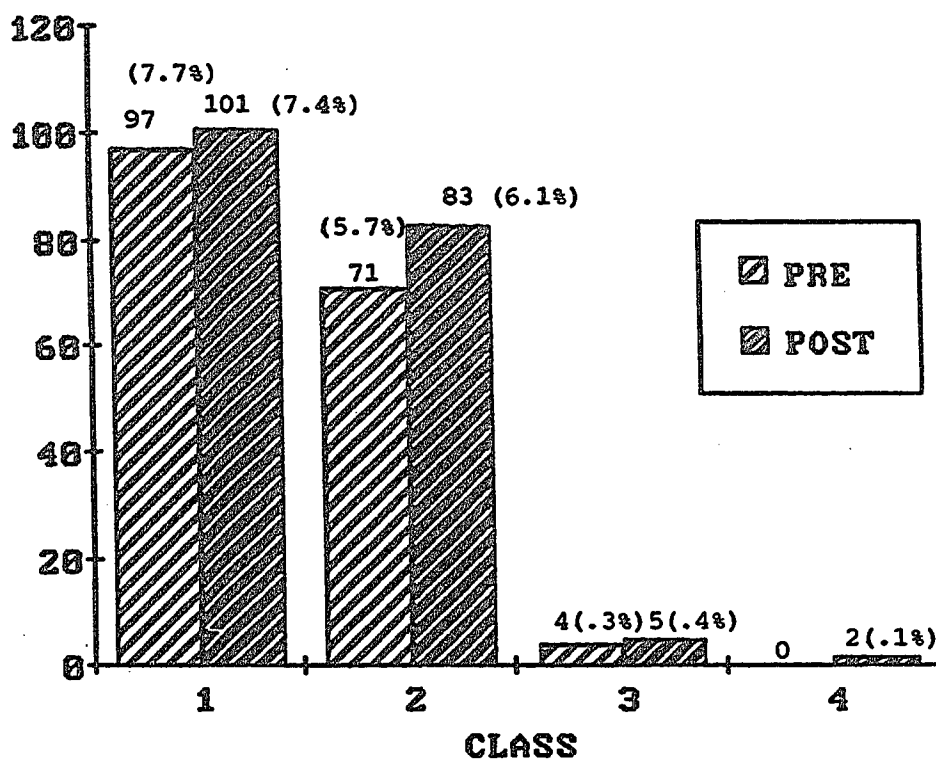


Figure 4. Placement at Home Alone, PRE/POST Dependency.

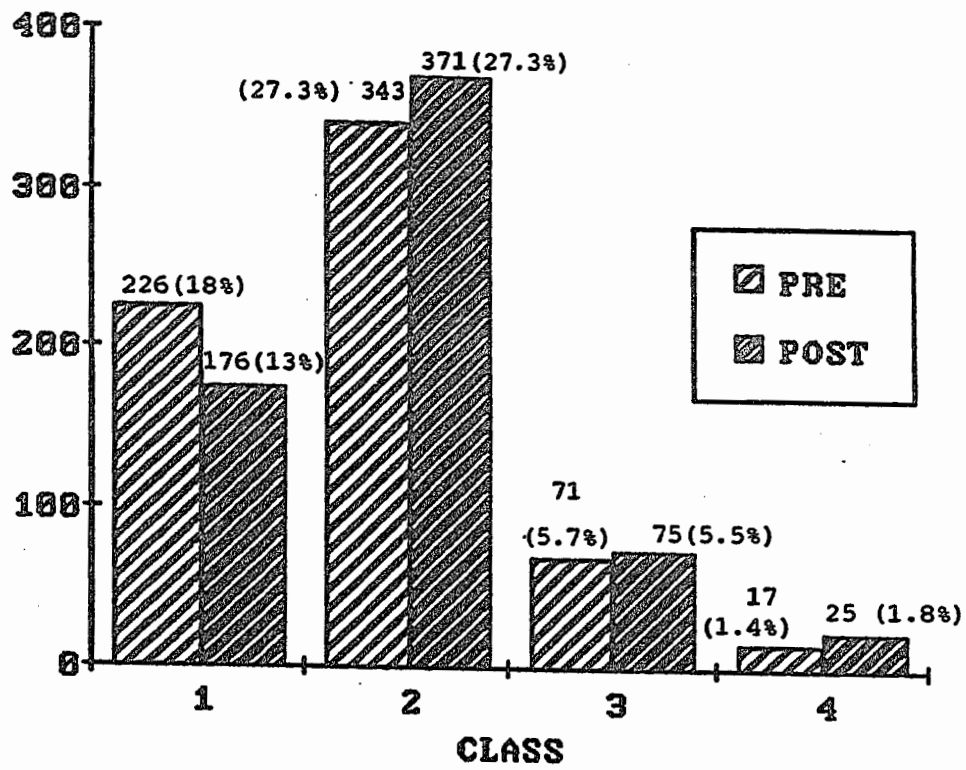


Figure 5. Placement at Home with Others, PRE/POST Dependency.

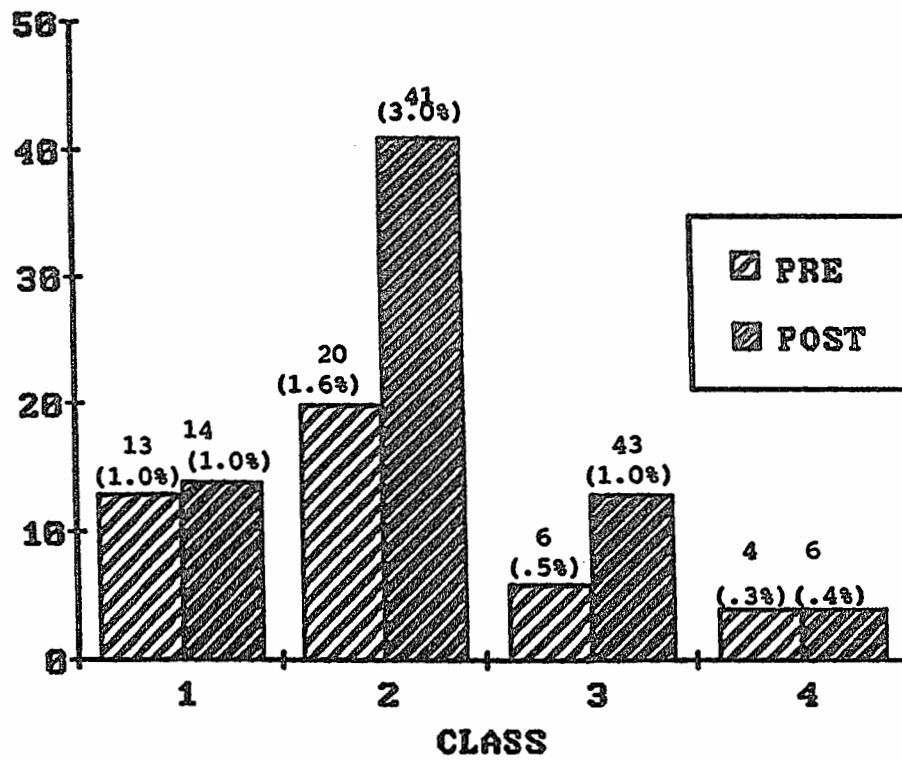


Figure 6. Placement in Group Home, PRE/POST Dependency.

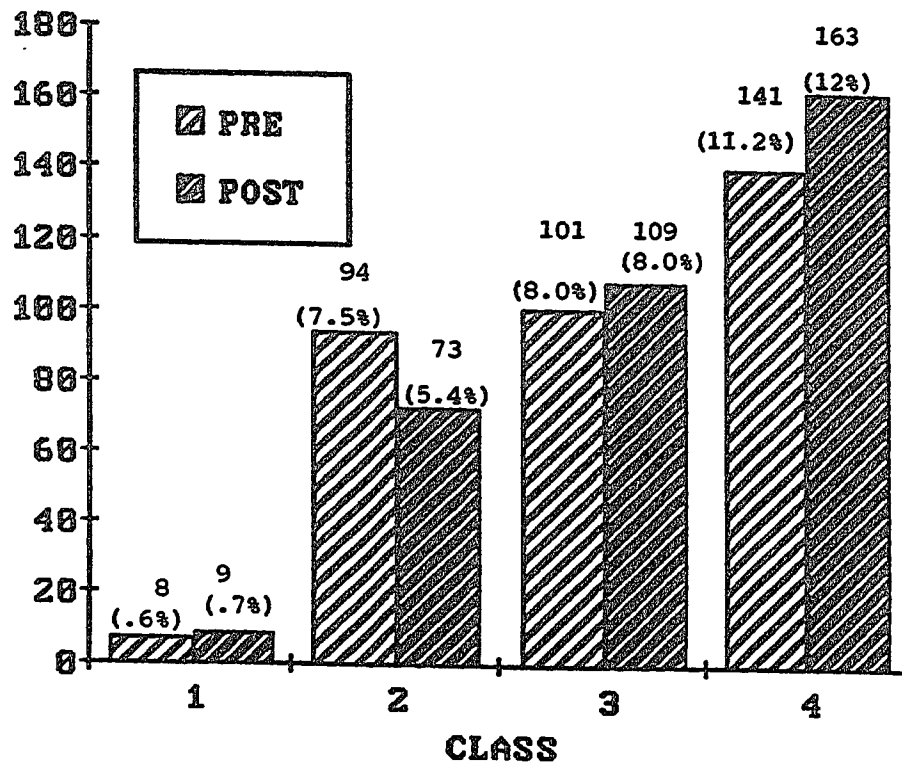


Figure 7. Placement in a Nursing Home, PRE/POST Dependency.

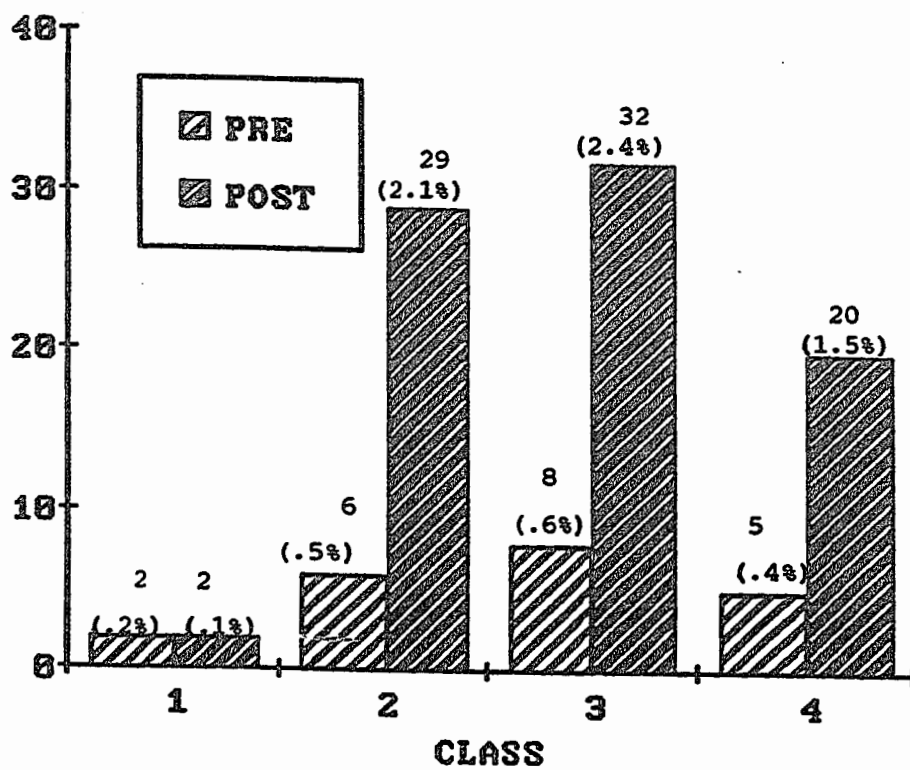


Figure 8. Placement in Another Hospital, PRE/POST Dependency.

Comparisons - Table XV. When comparing the combined categories of placements Home Alone and Home with Another to All Other Placements PRE/POST, a Chi Square test showed the difference to be significant at the .05 level. When comparing Group Home placement against All Other Placements PRE/POST, a Chi Square test showed the difference to be significant at the .01 level. And, comparing Hospital Transfer versus All Other Placements PRE/POST, a Chi Square test showed the difference to be significant at the .001 level. The change in nursing home placement PRE/POST was not significant. These findings suggest that changes have occurred in the volume of placements being made to community-based care settings after the implementation of PPS. Fewer placements appear to be being made to home, both Alone or with Another (Spouse, Family, Home Health) and an increasing number of placements are being made to Group Home (Adult Foster Care, Residential Care Facilities) and transfers to other hospitals.

A possible explanation for this significant increase in POST placements to "other" categories, especially for hospital transfers, is that some of the DRGs used in the sample selection generally required rehabilitation support (stroke, hip replacement, major joint pinning). There may be an unbundling of services that were previously provided as one unit of service, which may spread across all DRGs. Under PPS, hospitals have the incentive to discharge patients and then readmit them, to unbundle services, and to transfer patients along a new "continuum of care." In order to explore the possible influence diagnosis might play in post-hospital placement, an analysis of placement by DRG for PRE/POST was conducted. Tables XVI and XVII present the frequency distribution for post-hospital placement by DRG by PRE/POST.

TABLE XVI
PERCENT OF POST-HOSPITAL PLACEMENTS BY DRG - PRE/POST
(N=2,614)

Placement	DRG 14		DRG 89		DRG 127		DRG 209		DRG 210	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Home Alone	6.8	9.6	19.0	14.6	21.1	24.5	9.4	5.2	4.3	4.7
Home w/Another	46.4	37.6	50.5	50.0	54.7	49.6	66.1	65.4	44.7	32.7
Group Home	3.7	3.6	3.8	7.6	5.1	5.5	1.1	5.8	0.7	3.7
Nursing Home	35.6	32.2	24.2	26.9	17.1	17.2	21.1	15.7	50.4	32.2
Hosp. Transfr.	5.8	17.0	.7	.9	.6	1.3	0	6.8	0	4.7
Info. Unclear	1.7	0	1.7	0	1.4	1.8	2.2	1.0	0	0
Column Total	23.5	24.7	23.0	25.2	27.9	28.2	14.3	14.1	11.2	7.9

Table XVII presents data on total placements (percentage of all PRE/POST) by DRG for the PRE/POST period. When tested by Chi Square, the difference between the PRE/POST periods was found to be significant at the .001 level.

TABLE XVII
TOTAL PERCENT PLACEMENT BY DRG - PRE/POST
(N=2,614)

DRG	PRE (n=1,256)	POST (n=1,358)	TOTAL (n=2,614)
Stroke	23.5%	24.7%	13.9%
Pneumonia	23.0%	25.2%	49.9%
Heart Failure	27.9%	28.2%	4.5%
Hip Replacemt.	14.3%	14.1%	26.7%
Major Joint Pin.	11.2%	7.9%	1.1%
Total	100.0%	100.0%	100.0%

Percent Placement By DRG. As can be seen in Tables XVI and XVII, those diagnoses requiring rehabilitation after acute hospital stay did, in fact, increase dramatically. Increases in post-hospital placements occurred for DRG 14 - Stroke, DRG 209 - Hip Replacement, and DRG 210 - Major Joint Pinning. The slight increase for DRG 127 - Heart Failure is more difficult to explain. Correspondingly, there was no, or very slight, increase in post-hospital placements to other hospitals in DRG 89 - Pneumonia, which is not usually a diagnosis associated with post-hospital rehabilitation. However, the fact that these placements follow a trend for diagnosis does not explain the increase in volume between the PRE/POST period. Meiners and Coffey (1984) analyzed 1980 discharge data from Maryland hospitals in terms of diagnosis and discharge destination. Their data indicate that discharges to nursing homes fell more frequently in diagnostic categories that required skilled rehabilitation services (DRG 210 and DRG 209), that reflect mental or behavioral problems (DRG 429), or that specifically reflect frailty or old age (DRG 89 and DRG 320). Similar results were found in this study.

Discharges to home health comprised diagnostic categories that may require long-term management but do not necessarily represent debilitating conditions (DRG 82, DRG 294, DRG 148). PPS is expected to encourage hospitals to unbundle services (provide needed services on more than one admission), shift patients vertically to lower-cost care settings within a single hospital system (a hospital's affiliated nursing home, a rehabilitation unit within the same hospital), and perhaps, discharge and readmit patients in order to "game" the system. Unfortunately, the data collected for this study did not collect information on which hospital or care setting these hospital transfers

were going to. However, the increase in hospital transfers found here may be an indication of this shift in discharge patterns.

Further analysis was conducted to explore post-hospital placement by age category. Table XVIII presents a frequency distribution of post-hospital placement by age category. The distribution of the sample by placement and age shows an interesting pattern. Placements to Home Alone declined for the younger age categories in the POST period (60 - 65; 66 - 75) and increased for the older age groups while placements to Home with Another declined in all age categories from PRE to POST. Placements to Group Home increased for the 60 to 65 year olds, stayed about the same for 66 - 75 year olds, and increased dramatically in the two older age categories (76 - 85 and 85+). Nursing Home placements increased dramatically for the 60 to 65 year olds, the 76 - 85 year olds, and the 86+ age group in the POST period. Finally, Transfer to Another Hospital increased dramatically across all four age groups in the POST period. When tested by Chi Square, the difference between PRE/POST is significant at the p .001 level. These differences in PRE/POST placement may reflect the increases in Dependency in the age groups requiring more intensive and higher level of post-hospital care.

TABLE XVIII
PERCENT PLACEMENT BY AGE CATEGORY - PRE/POST
(N=2,557)

Placement	60 - 65		66 - 75		76 - 85		85+	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Home Alone	16.7	11.8	16.5	15.8	14.4	15.3	10.2	11.0
Home w/Another	76.7	67.1	66.1	61.7	55.0	48.9	36.3	31.7
Group Home	0	1.3	4.0	4.1	2.5	5.5	4.6	8.1
Nursing Home	3.3	13.2	10.3	10.1	24.2	27.8	46.3	44.2
Hospital	3.3	6.6	2.3	7.4	2.1	5.9	.7	4.7
Information Unclear	0	0	.7	.8	1.8	.6	1.7	.3
Column Total	2.4	5.7	24.5	27.5	39.7	40.9	33.6	25.9

A final analysis was conducted comparing PRE/POST Post-hospital Placement in terms of Dependency. The question being evaluated was whether there were any differences in mean Dependency by post-hospital placement before and after PPS implementation. That is, had Dependency increased for any of the placement categories. T-tests were conducted on all five placement categories, comparing PRE to POST on Mean Dependency score. Only one post-hospital placement category showed a significant increase in patient Dependency between the PRE and POST periods. Post-hospital placement to Home with Another showed a significant increase in mean Dependency at the p .01 level. This finding is consistent with the data in the literature indicating a trend toward "sicker" Medicare beneficiaries being discharged to community care providers and requiring more intensive care than before PPS.

TABLE XIX
MEAN DEPENDENCY BY PLACEMENT - PRE/POST

<u>PLACEMENT</u>	<u>PERIOD</u>	<u>MEAN DEPENDENCY</u>	<u>STANDARD DEVIATION</u>	<u>t-Value</u>
Home Alone	PRE	4.48 (n=172)	3.03	.061
	POST	5.13(n=191)	3.55	
Home w/ Another	PRE	6.78 (n=677)	4.35	.004**
	POST	7.48(n=647)	4.67	
Group Home	PRE	7.86 (n=43)	5.41	.57
	POST	8.41 (n=74)	4.73	
Nursing Home	PRE	14.94 (n=344)	5.85	.084
	POST	15.69 (n=354)	5.73	
Hospital Transfer	PRE	12.76 (n=21)	5.60	.676
	POST	13.28 (n=83)	4.89	

Key:

** p < .01

Summary. The data presented in this dissertation suggest that hospitals are discharging Medicare beneficiaries more quickly (shorter length of stay) and in a more Dependent state than before PPS was implemented. Further, the data indicate that younger beneficiaries are being admitted to acute care facilities POST-PPS, suggesting that older, less acute beneficiaries and beneficiaries needing chronic versus acute care are being sent to other care settings (nursing homes). In addition, these more Dependent beneficiaries are being discharged to community-based care settings (Home Alone, Home with Another, Group Home) and to other hospitals with greater care needs than before PPS. The impact of these changes in discharge practices by hospitals will be felt most by families and by community-based care providers as the locus of sub-acute care of Medicare beneficiaries shifts from the hospital to other settings. Thus, the data presented here suggest that PPS has resulted in Medicare beneficiaries being discharged "quicker and sicker" to community-based care providers, families, and perhaps, rehabilitation units in other hospitals and the hypothesis of this dissertation must be rejected. There were differences in patient discharge status and post-hospital placement after the implementation of PPS.

SECTION II: NATIONAL DATA

The ultimate objective of PPS was to reduce the rate of growth in Medicare outlays for inpatient hospital care while maintaining an acceptable level of access to quality health care for beneficiaries. The goal of reduced expenditures was to be achieved through a restructuring of the financial incentives facing hospitals. Data published by the Health Care Financing

Administration (HCFA) and by other researchers are presented below to assess the degree to which Medicare's DRG-based Prospective Payment System (PPS) met its stated objective. Data are presented on inpatient hospital expenditures, non-hospital services expenditures, out-patient hospital services, skilled nursing facility (SNF) expenditures, home health (HH) expenditures, and hospital revenue data.

Impact on Expenditures and Hospital Revenues

The predicted effect of PPS on hospital costs was that costs per admission would go down (Guterman & Dobson, 1986; OTA, 1985). Thus, one primary indicator of the success or failure of PPS would be its effect on the volume and rate of growth in Medicare program expenditures. Between 1974 and 1982, inpatient hospital payments increased at an annual rate of 19.9 percent and never fell below 14 percent in any given year. However, in 1983, the rate of increase was only 10.2 percent, lower than at any time in the previous ten years. The rate fell to 8.2 percent in 1984 and by 1986, the rate of increase in hospital inpatient benefit payments had fallen to 4.6 percent, the smallest increase in the program's history (Guterman et al., 1988). Thus, PPS appears to have slowed the rate of increase in the inpatient hospital benefits portion of Medicare. However, it is important to remember that costs are, to a large extent, utilization-driven and thus, rates of growth in hospital expenditures could be slowing, not because hospitals have improved productivity, but because fewer people are going to the hospital and those going are leaving sooner (Davis et al., 1985). However, whatever the cause, PPS was intended to slow the rate of growth in inpatient hospital expenditures, which it appears to have done.

Non-hospital Services Expenditures. The non-hospital services funded by Medicare include services provided by physicians, outpatient departments, skilled nursing facilities, home health agencies and non-physician suppliers such as laboratories and durable medical equipment suppliers. If lengths of stay are reduced, as is expected under PPS, these services could be substituted for inpatient hospital care. For example, the number of physician visits in hospital settings should decline as should physician inpatient costs. Shorter stays would also reduce the potential for consultative visits for both medical and surgical discharges. However, if Medicare admissions increase, which was also predicted to occur, then there should be an increase in physician visits and thus, physician payments by Medicare. Between 1975 to 1983, the annual rate of increase in physician payments was never smaller than 15 percent (Guterman & Dobson, 1986).

Health Care Financing Administration (HCFA) data from the first year evaluation of PPS show that the annual rate of increase in physician benefit payments declined slightly, down to 10.7 percent in 1984. Overall, the rate of growth in non-hospital expenditures was down from 8.9 to 8.1 percent for the first three years of PPS (Guterman et al., 1988). Thus, a change in the pattern of growth in Medicare payments for physicians services is supported, which is consistent with the decrease in inpatient expenditures rate of growth.

Out-patient Hospital Services. In 1984, outpatient hospital payments grew by only 11.9 percent but this rate continued to outpace the inpatient expenditures rate for the eleventh consecutive year (Guterman & Dobson, 1986). By 1986, payments for outpatient services grew by less than 7.1 percent,

the smallest percentage increase since 1973. Still, the outpatient services payment rate of growth was again larger than the increase for inpatient services (4.6%). Overall, hospital outpatient benefit payments grew a total of 15.7 percent in the first three years under PPS versus an average annual rate of increase of 8.8 percent for the five years prior to PPS (Guterman et al., 1988). This may indicate that some of the savings on inpatient services under PPS are now being spent on outpatient services as care is shifted from the inpatient to outpatient setting.

Skilled Nursing Expenditures. One of the anticipated effects of PPS incentives was that they would encourage hospitals to discharge patients to post-hospital care more frequently and at an earlier stage of recuperation. These actions could potentially increase the demand for skilled nursing and home care. Yet Medicare coverage of skilled nursing care is quite limited (20 days of care with total coverage, and an additional 80 days with a 50 percent copayment), and there has been a chronic shortage of nursing home beds since Medicare's inception. This shortage is likely to continue since most skilled nursing facility (SNFs) expenditures for Medicare patients are actually made by State Medicaid programs. Largely because of limits to coverage, spend-down requirements and low reimbursement rates under Medicare, there has been little incentive to add nursing home beds for Medicaid patients (Feder & Scanlon, 1982). The net expenditure impact of increases in the use of nursing homes by Medicare beneficiaries may thus be greatest for the beneficiary, who must pay up to 50 percent of the SNF cost after 20 days. There are few data available on increases in out-of-pocket expenditures for skilled nursing home care as a result of PPS.

Overall, the growth in skilled nursing payments has accelerated since the implementation of PPS. Between 1983 and 1984, SNF expenditures increased at a rate of 5.6 percent compared to a decrease in the rate of growth prior to PPS. The program grew at an average rate of 4.7 percent between 1984 and 1986 although the projected rate of increase for 1984 was 5.7 percent. However, the lower than expected rate of increase may indicate a relative upturn when compared with the decreases in the pre-PPS period (Guterman et al., 1988; Guterman & Dobson, 1986).

Home Health Expenditures. Between 1974 and 1983, Medicare reimbursement of home health providers grew at an average annual rate of 25 percent and has never been below 19 percent (Guterman & Dobson, 1986; Leader, 1986). Put another way, total reimbursements in 1983 were ten times larger than the amount disbursed in 1974 (House Aging Committee, 1986; Leader, 1986). Amendments to the Medicare home health benefit, expanded in 1980, began covering an unlimited number of home health visits (versus the 100 visit per benefit period limit under existing law) and eliminated the 3-day prior hospitalization requirement (OTA, 1985). As a result, Medicare payments for home health services have increased rapidly in recent years. Medicare home health payments increased at a somewhat higher rate than did inpatient hospital payments during 1983. Since 1984, the growth has accelerated to a rate about 4.5 times as high as that of inpatient hospital payments and more than twice as high as for any other major benefit category. Specifically, the growth in home health benefit payments increased an average of 12.7 percent in the first three years of PPS versus an average increase of 11.2 percent in the five years prior to PPS (Guterman et al., 1988). Although constrained by strict limits on its

use, shifts in service delivery as a result of PPS have meant an increase in nursing home and home health expenditures.

Hospital Revenues. Another area of concern under PPS was hospital financial viability. Because PPS generally pays hospitals a fixed price per discharge while the use of resources for patients in any given DRG may vary widely, PPS established a pattern of financial winners and losers across Medicare patients and the hospitals that serve them. However, such an uneven distribution of profits and losses among hospitals has three basic problems associated with it. First, it creates an incentive for hospitals to treat winner cases and avoid "loser cases" (Newhouse, 1983). To the extent that such cases can be identified before admission, serious implications for patient access arise. Second, random and unpredictable variation in treatment costs creates a financial risk that is borne only by the hospital. This risk varies inversely with the volume of cases a hospital sees. Small hospitals or those with low volumes are likely to suffer a disproportionate burden of financial risk resulting from cost variations. Third, some hospitals, by virtue of their mission or location, may end up serving a disproportionate share of high cost patients. Referral centers and public hospitals, for example, may be subject to this type of bias. Making such hospitals bear the financial burden of higher cost patients is not only inequitable but may threaten quality of care for those served by these institutions (OTA, 1985).

Revenues will also vary across hospitals independent of differences in patient characteristics since hospitals are paid different rates per DRG, depending on their area wage index, urban or rural location, and until national rates kick in, the region of the country the hospital is located in. In addition,

teaching hospitals receive an extra payment to account for the extra patient costs associated with teaching. The assumption is that differences in DRG payment rates mirror differences in costs of providing care. Whether the DRG pricing structure is refined enough to reflect differences in input costs accurately is subject to much debate.

The American Hospital Association (AHA) as well as many hospitals in rural counties or on the fringe of major metropolitan areas have claimed that urban/rural rate differentials discriminate against them (Mickel, 1984; Wallace, 1984; Washington Report, 1985b). On February 17, 1984, eleven hospitals in Ohio sued the federal government seeking to redress the undue penalty imposed by PPS classifications on rural hospitals, charging that the urban/rural classifications were "arbitrary and bear no national relationship to health care or to health care costs" (Mickel, 1984, p. 37). Furthermore, it was argued that the classifications were unconstitutional, violating the 5th Amendment because the boundary classifications amounted to the taking of private property without just compensation (Mickel, 1984).

The federal court decided on September 15, 1984, that the jurisdiction does exist and that Ohio hospitals had no basis to challenge the PPS system (Hospitals, 1984a,c). However, members of Congress, especially those with larger rural populations, introduced bills to remedy the situation and in March, 1985, the Congressional Record documented the belief that rural hospitals were getting "the short end of the DRG stick" (McIlrath, 1985, p. 33).

Political pressure on HCFA resulted in regional rates being eliminated, even though there is ample evidence that such differences exist (OTA, 1985). In addition, while rural hospitals will benefit from the change, some urban

hospitals will not (Lefton, 1985b). It is also unclear whether hospitals can adjust to uniform rates by changing physician behavior quickly enough or whether such uniformity of practice style is even desirable.

Based on the urban/rural example, it is clear that if DRG pricing does not adequately reflect differences in input costs, certain hospitals will systematically have higher or lower surpluses than average. Changes in the payment structure could also produce redistributions of revenue unrelated to hospital behavior. Arbitrary redistributions are unfair to hospitals but even more so to the patients treated by these hospitals who may have their access to and quality of care jeopardized (OTA, 1985).

Three studies simulating the impact of PPS revenues versus cost-based revenues predicted that small hospitals would fare well under PPS while large hospitals would fare relatively poorly (OTA, 1985). Teaching hospitals that qualify for large Medicare teaching allowances were generally expected to fare better than non-teaching hospitals. Government owned hospitals were also predicted to do well, perhaps because many government owned hospitals are also teaching hospitals. Urban hospitals and hospitals in the North section of the country were expected to fare better than rural hospitals and hospitals located in the North Central and West Regions (Congressional Budget Office, 1984; Vaida, 1984; Wennberg, 1984a). However, these simulation studies did not take into account changes in hospital behavior (e.g., staffing layoffs) or hospital characteristics (e.g., changes in case mix) or structural aspects of PPS (teaching allowances). Moreover, these studies were one dimensional. For example, small hospitals are predicted to do well but rural hospitals are

expected to fare poorly under PPS. It is possible for the predicted results to hold but only as long as a few large urban hospitals suffer heavy losses or as long as small, urban hospitals do well. It is clear that the financial distribution patterns of PPS were not well understood before the program was implemented.

Data. Although occupancy has fallen, hospital revenues have increased. Surplus revenue (the difference between income and expenses) for all U.S. hospitals more than doubled during the first year of PPS, with for-profit hospitals reporting a 44 percent increase in net income. The Inspector General's Office (IGO) of the Department of Health and Human Services (DHHS) reported that Medicare payments were an average of 14 percent greater than operating costs for Medicare patients in 1984 (Guterman & Dobson, 1986). Data from the American Hospital Association's National Hospital Panel Survey Report (1985) found that hospitals as a group saw a larger financial gain in 1984 (a \$8.3 billion surplus) than in any year since the survey began. However, as predicted, the distribution of this surplus was not even across geographic areas or across hospitals. Hospitals in the West, South Central, and Mountain regions experienced financial declines and the smallest hospitals (those with 25 beds or less) suffered absolute losses (AHA, 1985).

The percentage of hospitals with positive payment margins fell slightly between the first and second years of PPS, dropping from 83.1 percent to 79.2 percent. As predicted, large urban hospitals and major teaching hospitals did well under PPS while small and rural hospitals did not. One hundred percent of the largest urban hospitals and 98.1 percent of major teaching hospitals had positive payment margins whereas only 67.8 percent of the smallest rural

hospitals did. Urban hospitals had larger payment margins than did rural hospitals by the second year of PPS (13.6% versus 7.8%). Hospitals which had exceptionally high payment margins were large urban hospitals and major teaching hospitals (17% with 685 or more beds and 18.3% of teaching hospitals). Of the hospitals that had negative payment margins in the first year of PPS, 40.8 percent had positive payment margins by the second year of PPS, and only 13 percent had negative payment margins in the second year of PPS (Guterman et al., 1988). The evidence suggests that large hospitals were able to cut costs rapidly while small hospitals were not, even though hospitals as group did well under the first two years of PPS (Lefton, 1985).

It was expected that PPS would produce a significant redistribution of inpatient payments among hospitals, especially between urban and suburban/rural hospitals (Vladeck, 1985). A recent study by Ashby and Darmer (1988) supports the claim that Medicare payments are unevenly distributed across hospitals. Their study of 257 hospitals in five large urban areas examined the cost factors affecting core city and suburban portions of the same metropolitan areas. They found that the average unadjusted Medicare cost per case was 33 percent higher in core city hospitals relative to the suburban areas and that less than half of this difference was accounted for by the adjustment for case mix complexity and teaching costs.

The data also indicated that core city location was associated with a \$654 higher cost per case with all other factors held constant. The authors concluded that there are other essentially non-controllable factors affecting hospital costs per case; such as urban core location requiring higher wage levels

to attract employees, service to patients at an advanced acute stage of illness and with more frequent comorbidities not included in the DRG criteria, more difficulty in arranging post-hospital placement for patients, greater patient assistance costs (education and counseling, transportation), additional property related costs (parking structure operations, security), and added costs for patient account collection efforts and eligibility determination for Medicaid and charity care programs. Cutting across these factors is the added cost of treating larger numbers of low-income or indigent patients. The average loss in the first year of PPS was estimated at \$331 per case in city hospitals compared to only \$74 in suburban hospitals (Ashby & Darmer, 1988). Because neither core city location nor caring for indigent patients is recognized by PPS, the cost impacts of these factors translate directly into greater payment losses for many urban hospitals. The study demonstrated that current wage index systems in the DRG-based PPS system unfairly penalizes core city hospitals and rewards suburban hospitals, resulting in a redistribution of Medicare funds away from those hospitals serving the poor and indigent.

Summary. Medicare benefit payment under both the HI and SMI programs grew at annual rates exceeding 20 percent prior to PPS. However, the rate of growth in the HI benefit payments was sharply reduced after PPS and both HI and SMI benefit payments grew at about half of their pre-PPS rates during the first year of PPS (Guterman & Dobson, 1986). Over the three year period since PPS was implemented, the overall level of benefit payments has increased at a slower rate, due to a sharp decline in the growth of HI payments while SMI payments increased at a somewhat faster rate than before PPS. Thus, PPS

appears to have slowed the rate of increase in Medicare inpatient hospital benefit payments. Although this increase is still above the general rate of inflation, it does represent a downturn in the rapid growth of inpatient costs. The increase in Part B expenditures (SMI payments) may mean that there is a shift in the location of service delivery, such as from inpatient to outpatient sites, and that some of the savings being achieved in Medicare's Part A (inpatient hospital expenditures) may now be being spent on outpatient services (physician's services, outpatient surgeries, post-hospital care). The next section examines the impact of PPS on quality of care for Medicare beneficiaries.

PPS IMPACT ON QUALITY OF CARE

Medicare's PPS incentives for inpatient hospital services clearly have the capacity to alter the quality of care delivered to the elderly, both in positive and negative directions. However, in order for PPS to reduce inpatient hospital expenditures, one or more of the following has to occur: A) the cost of treating patients must be shifted from hospitals to other care settings; B) hospitals must reduce the cost of treating inpatients; or C) a portion of the cost of treating Medicare patients must be borne by payers other than Medicare. Each option has implications for the efficiency and fairness of PPS. Absolute reductions in the cost of treating hospital patients without shifting costs to other settings would be the most desirable provided this does not come at the expense of quality hospital care.

If cost reductions are accomplished by shifting patients to care sites outside the hospital, which must also be paid for, then actual savings in

hospital expenditures will be offset by expenditures in other parts of the program or by beneficiaries themselves. However, if hospitals finance the treatment of patients by raising charges to other patients, questions of equity arise. Or, hospitals could reduce costs of care to such a degree that Medicare inpatients become profitable, generating a surplus that could be used to subsidize other kinds of care. These considerations lead to three critical policy evaluation questions (OTA, 1985):

- (1) What, if any, negative effects has PPS had on the quality of hospital care for Medicare beneficiaries?
- (2) What is the net effect of PPS on the quality of hospital care for Medicare beneficiaries?
- (3) How has PPS affected the quality of care in nonhospital settings?

Quality of Hospital Care

Several outcome measures can be used to detect serious negative effects of PPS on the quality of hospital care, including in-hospital and post-discharge mortality rates, rates of occurrence of complications or iatrogenic events, admission and readmission rates, changes in length of hospital stay and discharge rates, changes in case-mix severity, levels of hospital staffing, and changes in the management and organization of hospitals.

Mortality Rates. In-hospital and post-discharge mortality rates can be measured as total death rates across institutions for specified types of facilities. Some rates are specific to patient populations (e.g., the frail elderly), and some rates are specific to diagnosis, surgical procedure, or DRG. Post-discharge death rates can also be measured at various intervals following discharge. It has been suggested that an increase in in-hospital and post-

discharge mortality rates are to be expected if less seriously ill patients are shifted to outpatient while more seriously ill patients are hospitalized. The question to be addressed is whether elderly patients with given medical conditions or with similar levels of severity of illness are dying in the hospital or shortly after discharge at rates demonstrably above those in the pre-PPS era (OTA, 1985).

Data from the three-year evaluation of PPS show that hospital mortality rates for the Medicare population did increase between 1984 and 1985. The population-based mortality rate for aged persons in 1985 was 5,140 per 100,000; this was somewhat, but not significantly, higher than the rate predicted by a time-trend model of mortality rates since 1979. The 30-day post-admission mortality rate for beneficiaries rose from 6.6 percent in 1984 to 7.2 percent in 1985, representing a 9.3 percent increase in one year. However, the total number of deaths actually decreased by 3 percent. The fact that total population-based mortality did not change and there was a large decline in admission rates strongly suggests that hospital-based mortality has been affected by PPS; that is, hospitals are discharging patients to other care settings to die (Guterman et al., 1988).

While not an intended consequence of PPS, the cost cutting incentives of the program have resulted in changes in hospital behavior. One consequence has been the admission and discharge of sicker patients, some of whom were expected to die. Adjusting the fiscal year 1985 mortality rates according to the case-mix changes both within and between DRGs, Conklin et al. (1988) found the increase in crude mortality rates between 1984 and 1985 fully accounted for

by an increase in the case mix severity. Adjustments for stage of disease, high risk comorbidity, age and sex resulted in expected mortality rates for 1985 of 7.3 percent, which is slightly higher than the observed 1985 mortality rate of 7.2 percent. The results indicated that despite the increase in morbidity at hospital admission and the incentives to reduce service delivery and length of stay, PPS apparently has not increased the risk of mortality following hospital admission.

Iatrogenic Events. Iatrogenic events, often called "sentinel events," including infections acquired by patients during a hospital stay, drug reactions and other mishaps due to treatment in the hospital. These and other preventable problems can signal that quality of care has declined (OTA, 1985). Since they help in distinguishing between very bad care and adequate care, they can serve as useful screening indicators of the direction that inpatient quality of care may be taking. The question under PPS is whether the rates of such problems increase as PPS incentives to reduce services and personnel begin to be applied. However, there has been no information published to date regarding the level of iatrogenic events pre-and-post-PPS.

Admissions. PPS was expected to increase admissions, especially in those DRGs for which the cost of treatment was expected to be less than the DRG payment rate. Hospitals also have the incentive to increase admissions. Since both the aged population and the average age of the elderly is increasing, added admissions would generate added revenue and since decreases in length of stay were anticipated under PPS, increased admissions would fill empty beds. Furthermore, hospital admissions of Medicare patients had increased every year

since the program was implemented with an annual increase never falling below 3.3 percent. Contrary to expectations, Medicare admissions actually dropped 4 percent in 1984, the first decline since the program was initiated (Guterman & Dobson, 1986).

By contrast, admissions had risen over 2 percent in 1983 (OTA, 1985). Since 1984, an unprecedented decline in hospital admissions has been observed for both Medicare and non-Medicare patients (Davis, 1985). Medicare admissions fell another 4.3 percent between 1985 and 1986 and Medicare admissions overall fell by a total of 11.3 percent between 1983 and 1986 (Guterman et al., 1988). Thus hospitals appear to be limiting admission to only those severely ill and shifting more routine care to other, non-PPS covered sites.

Hospital admissions have declined for all age groups also; falling by 10.3 percent between 1983 to 1986 while the number of inpatient days fell by 15.7 percent for the same period. Results from a preliminary study of the impact of PPS on general hospital admission rates suggest that admission rates per 1,000 Blue Cross/Blue Shield members and hospital days per 1,000 Blue Cross/Blue Shield members have declined at rates exceeding those for Medicare beneficiaries (Scheffler & Gibbs, 1986). The proportion of all community hospital admissions for people 65 or above increased 10 percent between 1979 and 1986. These data tend to reinforce the conclusion that PPS has had a system-wide impact versus an impact on Medicare beneficiaries only (Guterman et al., 1988). The data may also reflect the changing role of the hospital in the contemporary health care system as a result of increased cost and utilization

controls used by private insurers, the increase in alternative delivery system enrollment, the increase in the shift in care to alternative delivery sites, and/or changes in utilization in rate setting and PPS waiver states (Davis, 1985).

Readmission Rates. Readmissions can reflect a deterioration in the quality of care for a variety of reasons. Some patients will require rehospitalization for problems unrelated to the original admission. Readmissions can also occur if routine testing or specialized consultations are curtailed, so that unsuspected conditions are not detected or confirmed on a first admission. Readmission can also be prompted by complications arising from surgery or because of inappropriate care or inadequate recuperation before discharge ("premature discharge"). One form of readmission arises from sequencing of admissions, one admission for diagnostic testing and workup and a second for surgery or other definitive therapy. Thus, it is important to determine if PPS incentives for curbing length of stay, routine testing, follow-up of diagnostic tests, and specialty consultations seem to be associated with a rise in readmissions of this sort.

Readmission rates within 30 days of hospital discharge have remained relatively stable under PPS (Guterman et al., 1988). However, very little detailed information on readmissions has yet been published but the decline in admissions probably means that the readmission rate has not significantly increased (OTA, 1985). A study of 270,266 Medicare readmissions before PPS (between 1974 and 1977) indicated that approximately 5 percent were readmitted within 5 days and that 22 percent of Medicare patients discharged from the hospital were readmitted within 60 days (Anderson & Steinberg, 1984).

The fact that admissions declined in the first year of PPS, rather than rising as predicted, suggests three different explanations: one, that there may be strong counteractive forces operating to keep hospitals from admitting more Medicare patients; two, that strategies aimed at increasing admissions takes time to be developed; or three, that admissions are difficult for hospital managers to influence directly. Thus, it may be easier for hospitals, at least initially, to increase outpatient visits (since they are reimbursed on a cost basis) than to increase inpatient admissions in profitable DRGs (OTA, 1985).

Length of Stay. Statistics compiled by the Health Care Financing Administration (HCFA) tend to support the notion that hospitals have resorted to an "early discharge" strategy in response to the financial incentives of PPS. Although average length of stay (ALOS) has been declining over the past 15 years, PPS appears to have accelerated this trend for the elderly. Annual data on average length of stay for Medicare beneficiaries for the period between 1967 and 1984 show length of stay has been steadily declining over the 15 years prior to PPS. Average length of stay declined from 10.3 to 10 days between 1982 and 1983 (when TEFRA provisions were in effect), a 2.9 percent decline. Between 1983 and 1984 (when PPS was implemented), average length of stay dropped to 9.1 days, a 9 percent decline (Guterman et al., 1988). The Office of Technology Assessment (OTA, 1985) and Davis (1985) both report an even larger decline for the elderly, from 10.4 days in 1981 to 8.8 days in 1984, approximately a 15 percent decline.

While Medicare beneficiaries experienced declines in the overall use of hospitals in both 1984 and 1985, the two years differed greatly in the nature of

the declines. The sharp decreases in length of stay in 1984 were followed by more moderate declines in 1985 and 1986. Average length of stay for all Medicare beneficiaries declined just 3.5 percent in 1986, for a total of a 17 percent decline since 1984. The declines in length of stay also varied across age groups. Length of stay declined more for the oldest age group (86+), with a drop of 6.5 percent in 1985, than for the youngest age group (65 - 75 years), with a drop of 4 percent (Guterman et al., 1988). Finally, the decline in the elderly's length of stay was more dramatic for those hospitals under PPS the longest. Hospitals under PPS since 1984 had a 14.6 percent decrease in LOS between 1982 and 1984. Because the need for sub-acute post-hospital care is greatest for older persons, length of stay reductions could pose significant post-hospital care problems for this older group.

Although length of stay for all ages under 65 has also been declining, the rate of decline has been more modest. OTA (1985) reports that average length of stay in the under 65 population declined from 6.6 to 5.8 days between 1974 and 1983. The American Hospital Association (AHA) reports a 7 percent decline in general average length of stay, from 5.9 days in 1981 to 5.5 days by 1984 (Davis, 1985). Overall, average length of stay for all community hospital patients under age 65 has decreased only 5.1 percent since 1979 (Guterman et al., 1988).

Case-Mix Severity. It was hypothesized that elderly Medicare patients needing long-term care services, most often referred to as Medicare "outliers" (those with hospital stays greater than the geometric mean length of stay), would be much more likely to be discharged earlier than those discharged to

self-care (Meiners & Coffee, 1984). Contrary to expectations, it appears that the decline in length of stay under PPS has been achieved through shorter stays across the board, rather than efforts aimed specifically at patients who have the longest stays and are, presumably, the most severely ill. This conclusion is supported in the data reported by the Health Care Financing Administration (Guterman et al., 1988) as well as in the data presented in this dissertation where length of stay declined significantly in all five DRG categories examined. If less severely ill beneficiaries are being diverted, then there should be a corresponding increase in the average severity of illness among Medicare patients admitted to hospitals.

While LOS has declined, there has been a marked increase in the average severity of illness among those Medicare patients who are admitted to the hospital. The Medicare Case-Mix Index (CMI) increased sharply with the implementation of PPS. The CMI was 8.4 percent higher in 1984 than in 1981, exceeding estimates that were made prior to the implementation of PPS. Some of this increase could be the result of changes in documentation (upcoding), improvements in data collection, and/or changes in physician practice patterns (Guterman & Dobson, 1986). However, the CMI has continued to increase at an annual rate of 3 percent per year between 1984 and 1986. In addition, HCFA found that the percentage of hospital days spent in special care units by beneficiaries increased, from 6.4 percent to 7.1 percent, in 1984, reinforcing the perception that the only the more severely ill are being admitted to hospitals in the post-PPS period (Guterman et al., 1988).

However, a study by GAO (1985b) found that the use of intensive care units was lower in 1984. GAO attributed the decrease to PPS. Moreover, the

Commission on Professional and Hospital Activities (CPHA) found that the use of cardiac care units decreased in the first year of PPS (CPHA, 1985). More data over a longer term are needed to sort out the relative impacts of PPS on case-mix and utilization.

Hospital Staffing. It was also expected that hospitals would reduce expenses by laying off staff, eliminating beds, and negotiating lower prices with suppliers (OTA, 1985). Restructuring staffing patterns under DRG-based PPS to reduce unit labor costs and increase efficiency stems from reduced LOS, shifts to outpatient services and general pressures to decrease health care costs. One method of cutting costs is by "down substitution of staff" (replacing staff with less skilled staff; e.g., RNs with LPNs). These activities have definite implications for quality of care. Inadequate staffing ratios and changing mix of professional and ancillary personnel save money, yet PPS is predicted to increase the acuity of those admitted as less ill patients are shifted to outpatient and ambulatory care. Decreasing personnel ratios may delay or hamper restoration to full function and even increase chances of morbidity or mortality through decreased patient education activities, increased infection rates, reduced CPR time, etc.

A decrease in hospital occupancy frequently corresponds with a decrease in staffing. There is clear evidence that hospitals have been reducing their staffs in response to PPS. Data from the American Hospital Association (AHA) show that after having increased at an annual rate of 4.1 percent between 1974 and 1983, there was a 2.2 percent decline between May 1983 and May 1984, primarily because of a decrease in full-time employees (Washington Report,

1984). The number of part-time workers decreased only .2 percent during the same period (OTA, 1985). The American Nursing Association reports that there has also been a shift away from licensed practical nurses towards the more highly trained registered nurses (American Medical News, 1985).

Berki (1985) reports a 1.5 percent decline in hospital personnel nationally in 1984 and a 4 percent decline in the first quarter of 1985 while admissions increased by 6 percent during the same quarter. Similarly, after an annual increase in hospital beds of 1.4 percent between 1975 and 1983, hospital beds were reduced by .6 percent between 1983 and 1984 (Davis, 1985). Moreover, health care labor costs had been rising at a three percent annual rate before PPS, whereas they decreased by almost one percent in the first year of PPS (Hellinger, 1985). Data from specific states and regions reinforce this picture of hospital cost containment through staff reductions (OTA, 1985).

A reduction in staffing does not necessarily mean less staff time per hospitalized patient. Because of recent trends towards fewer admissions and reduced LOS, the number of full-time-equivalent (FTE) employees per 100 patients actually increased between May, 1983 and May, 1984. Full-time equivalent personnel per 100 patients increased 3.2 percent annually from 1975 to 1983 but increased by 7.4 percent in 1984 (Davis, 1985; Washington Report, 1984). There is little research published to date regarding the impact of staff reductions on the quality of care beneficiaries are receiving within the hospital setting.

Hospital Management and Organization. PPS appears to be having an impact on hospital information systems and their use in management. The use

of DRGs as the basis for payment has led to a proliferation of computer packages aimed at helping hospitals estimate their actual costs per case and predict the reimbursement levels per patient (Business Week, 1984; OTA, 1985). Furthermore, the medical records departments of hospitals are assuming a greater role in management since accurate records processing is necessary for prompt maximum reimbursement (Johnson & Appel, 1984). This has resulted in automated medical records processing. One market research survey showed that the use of automated processing among sampled hospitals jumped from 28.3 percent in 1981 to 48.1 percent in 1984 (Hospitals, 1985). While the increasing use of computers has taken place in many industries, PPS may be a contributing factor in their rapid application to hospital management.

The relationship between the financial pressure imposed by PPS and the resulting changes in hospital behavior, such as the steep declines in ALOS and admissions, may indicate that PPS has been effective in encouraging hospitals to change the way they provide inpatient care. However, PPS is not the only factor that has contributed to changes in patient care and management practices in acute care hospitals. Other factors such as competition among providers and increased utilization review by third-party payers have also influenced provider behavior. It is difficult to disentangle the specific effects of PPS from these other, equally influential, forces.

Net Effect of PPS on Quality of Hospital Care

Evaluating the net effect of PPS on the quality of hospital care is limited by the fact that mortality rates, readmission rates, or sentinel events alone are poor measures of more subtle changes in patient care of the elderly. Even if

death or readmission rates show little or no change, as they appear to have done from the data published so far, PPS may have an effect on changes in discharge status, time to full recovery, impact on chronic impairments, and the emotional status of beneficiaries. Moreover, because standard measures (i.e., mortality) are relatively rare events, relying on these more general quality indicators is inappropriate and insufficient to trigger corrective action (OTA, 1985).

Examination of the processes of care and "proximate," that is, short term, outcomes of care rendered in the hospital will provide a more balanced approach to the evaluation of PPS effects than just using studies of crude outcome measures. Only medical record audits, examining condition-specific process and outcomes related to medical and nursing care are likely to provide pre- and post-PPS data with the requisite reliability, validity, and clinical detail necessary to convince the medical profession, policymakers, and beneficiaries about the impact of PPS.

General questions to be addressed in evaluating whether treatment patterns have changed include: (1) has PPS resulted in changes in treatment patterns? (2) have changes in treatment patterns adopted in response to PPS affected outcomes of care? and (3) have changes in treatment patterns adopted in response to PPS negatively affected outcomes of care? (Lewin & Associates, 1986). Incentives for changes in care include reducing length of stay, developing a preference for the more lucrative surgical rather than medical treatments, decreases in the utilization of ancillaries, intensive care or heroic measures, maximizing pre-admission or post-discharge care as a substitute for inpatient care, use of less expensive treatments even if they are potentially less

effective over the long term, and the implementation of administrative and other changes in plant operation and maintenance procedures (OTA, 1985). Specifically, there is the potential for delayed diagnosis (e.g., failure to diagnose a condition at an earlier stage due to a less extensive diagnostic workup), and a reduction in less tangible aspects of quality of care. The two major determinants of these changes are hospital administrators and physicians.

The pressure placed on hospital administration concerning the costs of care for the elderly has, in turn, created pressures on physicians in the allocation of health care. The trend towards shorter lengths of stay and early discharge could pose specific clinical problems for the care of the elderly. For example, while research has shown that multidisciplinary geriatric assessment and therapy can improve the functional level of outcome, reduce readmissions, reduce nursing home admissions, and decrease mortality rates, none of these services are covered under PPS (Rubinstein, et al., 1984). Instead, acute and intensive care continue to be emphasized in the new payment system, promoting continued over-utilization of some services and the loss of others which may be more relevant to the elderly's needs (Cassel, 1985). There is little published research on this issue.

Surgical versus Medical Treatment. The incentives for physicians are complex and likely to occur within the hospital's organizational structure since PPS impacts physicians only indirectly. Hospital administrators are encouraged to specialize in those DRGs in which they can offer the most efficient and profitable treatment since PPS reimbursement continues the fee-for-service bias favoring surgical and procedure-based services over diagnostic judgment

and nonsurgical treatment. Hospital managers thus have the incentive to influence physicians to admit more patients in those DRGs with high profit-margins and to develop "product lines" that maximize the hospital's net revenues (Berki, 1985). For example, hospital management may choose to shift bed allocations from medicine to the more lucrative surgical DRGs, selectively grant staff privileges to physicians who are more likely to admit desired cases, and to de-emphasize special technology and support services for low-profit services, such as problem new-borns (Berki, 1985; Omenn & Conrad, 1984). All these actions would, in fact, impact physicians practicing in the hospital.

Lewin and Associates (1986), in a survey of current research on the impact of PPS, found some changes in treatment patterns since 1984 but most of these changes could not clearly be attributed to PPS. Moreover, a Rand study (Carter & Ginsberg, 1985) compared the proportion of medical versus surgical DRGs in 1984 to the number that would have been expected if prior trends had continued since 1981. These data were analyzed for each of the 15 Major Diagnostic Groups (MDCs) that have both medical and surgical DRGs. The results indicated that the proportion of Medicare discharges in surgical DRGs rose from 21 percent to 27 percent between 1981 and 1984, particularly in the MDCs where there was a substantial difference in the reimbursement of the DRG. The researchers were unable to determine if the shift towards surgical cases reflected more complete coding of minor surgical procedures or PPS induced surgery.

Garrison and Neuman (1988) conducted a study examining trends in the concentration of six surgical procedures under PPS. Three principal findings

reported from the study were: first, there was little evidence of significant concentration of surgical procedures in higher volume hospitals during the first three years of PPS. Although average volume increased for five of the six procedures, the number of hospitals performing the procedures also increased. The authors suggest that the increase can be attributed to general growth, rather than a significant shift from low-volume to high-volume surgery in hospitals. Second, consistent with previous studies, there was a statistically significant negative relationship between volume and in-hospital mortality, controlling for case mix differences across hospitals, for five of the six procedures. For all six procedures, there was a negative relationship between volume and average Medicare hospital costs-per-case. Third, changes in volume of procedures between 1984 and 1986 at individual hospitals were associated more with historical operating margins than PPS. Thus, increases in concentration were small and changes in concentration did not result in significant improvements in mortality or cost savings. The authors conclude that, contrary to expectations, PPS did not lead to a concentration of procedures in facilities that were more efficient or that provided higher quality of care.

In addition, PPS was predicted to lead to a restructuring of the physician's role in hospital decision-making (Omenn & Conrad, 1984). Organization theory suggests that all organizational systems have a variety of mechanisms available to influence behavior, ranging from indirect controls such as positive and negative incentives to more direct controls such as bureaucratic rule making. Bureaucracy uses red tape, specialization of function, adherence to fixed rules,

and hierarchy of authority as control mechanisms. In hospitals, the use of treatment protocols that make clinicians adhere to fixed rules, the requirement that medical student orders be countersigned or that standing orders be periodically reviewed by the chief resident are examples of fixed rules (Berki, 1985). The change predicted under PPS is that these rules which were, prior to PPS, almost exclusively determined by hospital practitioners, now are being evaluated and changed by hospital managers.

Management may be pressuring medical staff to develop clinical treatment protocols. The thrust of managerial control would be to make individual physicians accountable for costly behavior on the basis of data on length of stay, use of specific types of ancillary services, and total treatment costs per physician in relation to the treatment protocols (Omann & Conrad, 1984). Under such circumstances, physicians will lose much of their historical dominance of hospital operations (Berki, 1985; Young, 1985). There is the suggestion that hospital staff are, in fact, being asked to determine the kinds of resources necessary to successfully treat a condition (Young, 1985). With the management imperative to restrict decision making by physicians in order to minimize costs, conflicts may arise between clinicians and administrators as PPS incentives force managers to bureaucratize the practice of medicine.

The major questions regarding PPS-physician impact; that is, has PPS resulted in changes in treatment patterns and have these changes affected the outcomes of care are still largely unanswered (GAO, 1985; Lewin & Associates, 1986; OTA, 1985). Early reports from officials of the American Medical

hospitals is diminishing under PPS. The AMA has been monitoring physicians' experience with PPS through its DRG Monitoring Project. Overall, 66 percent of physicians surveyed in 1985 stated that quality of care had deteriorated and 73 percent stated that hospital admission and discharge policies had changed since the introduction of PPS. The information collected so far indicates that there is more pressure on physicians to discharge patients prematurely, to limit laboratory tests and to more carefully select 'patient mix' so that sicker patients aren't admitted to hospitals (Rogers, 1986).

Similarly, responses to HCFA's Physician's Practices, Costs and Incomes Survey (Pretest, n=200 physicians in five states) are consistent with the AMA data; 37 percent of physicians agreed that hospitals have encouraged physicians to shorten length of stay, 16 percent agreed that hospital administrators had pressured them to reduce ancillary services, 13 percent agreed they had been pressured to increase admissions, and 50% of radiologists, anesthesiologists and pathologists surveyed stated they had been encouraged to reduce outpatient testing (Guterman & Dobson, 1986). Moreover, the decrease in admissions in hospitals may partially be explained by the increased pressure on physicians to treat patients in non-hospital settings.

Ancillary Services. A report by the Prospective Payment Assessment Commission (Pro-PAC) in 1985 indicated that some changes in the use of ancillary services occurred between 1981 and 1984. Laboratory and radiology charges declined, from 31.7 percent to 28.6 percent, as a proportion of total ancillary charges for Medicare. However, no conclusions could be drawn since the change may have occurred because the services were being shifted from

inpatient to outpatient settings. Drugs, however, increased from 18.4 percent to 19.9 percent and medical supplies increased from 12.5 percent to 14.3 percent of total ancillary charges. These data support the contention that patients are leaving the hospital in greater need of care than prior to PPS. There are little data on the provision of pre-admission or post-hospital care pre/post PPS (Lewin & Associates, 1986).

Ambulatory Care. Changes in medical technology and financial incentives have resulted in a marked trend towards ambulatory care. In terms of hospital pressures on physicians to treat patients on an outpatient basis, data from an analysis of Medicare reimbursement data between 1983 and 1985 show that ambulatory care continued to be the fastest-growing segment of the health care industry (Leader & Moon, 1988). Outpatient revenue per visit has grown at an accelerated rate since PPS, although the increase in the rate of growth is not statistically significant. Both Medicare and non-Medicare outpatient visits declined in the first year after PPS implementation but both increased during the second year of implementation (Guterman, et al., 1988). Again, it is not clear how much of an impact PPS may have had on the shift to ambulatory care in relation to other forces affecting the health care market. Longer term (i.e., 5 to 10 years) longitudinal studies are needed to determine the relative impact of each of these factors in the changes occurring in the health care industry.

Quality of Care in Non-hospital Settings

Some of the most important quality of care questions raised by the introduction of PPS can be addressed by focusing on two issues related to care delivered in non-hospital settings: 1) the condition of Medicare patients when

they are discharged from the hospital and 2) the appropriateness of post-hospital placement for patients who require sub-acute care (GAO, 1986). Prior to PPS, hospitals had the incentive to provide too much health care. There were also problems of access to post-hospital care services, most notably skilled nursing facilities (SNFs), resulting in patients remaining in hospitals longer than was medically necessary (GAO, 1983). Further, limitations in Medicare coverage for post-hospital services reinforced the incentives to extend hospital stays past the point where patients' acute care needs were met. Some of this extended care provided in hospitals could have been covered by Medicare in post-hospital settings. In other cases, the extended care was probably custodial or supportive care for chronically ill patients and would not have been covered by Medicare (GAO, 1986).

In shifting to a system of prospective payment, Medicare removed the financial incentives to provide more health care services than were needed in the hospital setting. Since hospitals can profit financially only from cutting back on medically appropriate as well as inappropriate services, the discharge of patients still in need of hospital care has become a major quality of care concern. In addition, the fact that only inpatient acute services are paid prospectively under PPS provides additional incentives for hospitals to use other services which are paid retrospectively, including skilled nursing facilities (SNF) and home health (HH) care, wherever possible.

Patient's Condition at Hospital Discharge. A major concern about the effect of PPS was that hospitals would discharge patients to post-hospital care more frequently and at an earlier stage of recuperation; that is, "quicker and

sicker." Premature discharge may necessitate readmissions (or cycles of discharges and readmissions), illness treatable at an early stage could progress undetected to a much more serious degree, or patients could be forced to acquire follow-up care in inappropriate settings with ramifications for the elderly's physical and mental well-being (OTA, 1985). While reducing lengths of stay may not influence whether or not a patient needs post-hospital follow-up services, it is also possible that some patients may be discharged at a time in their illness when they have substantial needs for care (GAO, 1986). Such patients are likely to experience quality of care problems if they do not receive appropriate and competent post-hospital care. In other cases, patients discharged with needs for post-hospital care could be more likely to seek out such services on their own after they leave the hospital. Both of these possibilities mean that patients who might not have used post-hospital care in the past may now use home health (HH) or skilled nursing facility (SNF) services during their recovery (GAO, 1986).

Measuring patient condition at the time of hospital discharge is essential for three reasons: in order to determine whether Medicare patients are receiving adequate hospital care, to assess the appropriateness of discharge decisions, and to anticipate the demand for post-hospital services. Thus, patient condition at discharge provides information about the process of care inside the hospital and post-hospital care requirements (GAO, 1986). While HCFA is currently funding a number of research efforts to develop measures of patient condition, these studies tend to focus on ways to compensate for variations in severity of illness and resource requirements of particular patients

whose hospital stays are classified under the same DRG. These measures may then be used to adjust DRGs in order to more accurately reflect variations in the total cost of providing appropriate treatments for patients with varying needs. Indeed, this area of concern has been the focus of the ProPAC deliberations almost to the exclusion of other, equally important, issues related to quality of care.

The reimbursement research efforts generally share two characteristics; 1) for the most part, the focus is on resources expended or required for appropriate care rather than patient condition per se and 2) most attempt to describe the seriousness of the illness and are not designed to track changes in patient condition and needs at different points in the course of hospitalization (GAO, 1986). The exception is the Northwest Oregon Health Systems study (1986) which specifically focused on assessing patient condition at discharge. The study, as described in this dissertation, applied a newly developed instrument, the Dependency at Discharge Classification Instrument, to medical records in 5 DRGs in order to measure patient dependency at discharge. Dependency was used as a proxy measure of patient care needs at the time of hospital discharge and was based on four items: Activity, Mobility, Symptoms, and Procedures. As reported earlier, the data showed that length of stay declined significantly in all five DRGs and that Dependency significantly increased in four of the five DRGs examined between the PRE and POST periods. While the study was limited (e.g., non-generalizable to larger populations, one city data collection), the study represents the only systematic effort published to date that attempted to develop valid measures which can

measure changes in patient condition at discharge (GAO, 1986). This study was important to the quality of care in non-hospital settings because of concerns regarding patient functional status upon hospital discharge. Problems related to patients' ability to function independently when they leave the hospital are most relevant to patients entering into post-hospital, community-based care.

The findings of the Northwest Oregon Health Systems study concerning dependency and of this dissertation concerning post-hospital placement are supported in more recent work conducted by Systemetrics (Guterman et al., 1988). Analysis of a large sample of hospital records using the medical illness severity grouping system (MEDISGRPS) measure showed that average severity of illness at both admission and discharge was greater in the post-PPS sample (1985) than in the pre-PPS sample (1982). The proportion of live discharges with the lowest severity level at admission decreased by 5.6 percent; that is, sicker patients were being admitted, and the proportion with the lowest severity level at discharge decreased by 9.6 percent between the pre and post measures; that is, sicker patients were being discharged.

Furthermore, the proportion of live discharges with no dependencies in the activities of daily living (ADLs) index decreased from 44.8 percent to 37 percent and the proportion of discharges with the maximum of 5 dependencies increased from 23.4 to 29.2 percent between 1982 and 1985 (Guterman et al., 1988). The data from both the NOHS and Systemetrics studies support the contention made by post-hospital care providers that Medicare beneficiaries are being discharged earlier and with greater needs for sub-acute care. When combined with the data on the decline in average length of hospital stay, the

NOHS and the Systemetrics studies suggest that Medicare patients who are hospitalized are, on average, likely to be sicker than those who were hospitalized before PPS and are likely to leave the hospital earlier than they would have before PPS was enacted.

What these changes mean for the long-term care system has yet to be systematically examined. Did those patients who were discharged earlier have better or worse outcomes? Anecdotal evidence of patients encountering problems in obtaining adequate post-hospital care in the home or in nursing homes has increased public awareness of the possibility that the gains in hospital efficiency have come at the cost of quality, at least for some people. However, there is no large scale study providing valid information concerning the quality impacts of earlier discharge (Wagner, 1986).

Post-Hospital Placement. Patients not acutely ill do not, by definition, need acute care hospital services and an important benefit of PPS is that it discourages excessive lengths of hospital stay. Many concerns raised about PPS relate to the discharge of elderly patients who, while they may not have needed acute care, were discharged either before they could take care of themselves adequately at home or without providing for needed non-medical services. It is not appropriate to attribute all such problems to PPS, since they also derive in large part from problems with discharge planning or the availability or quality of community-based long-term care services. However, it was feared that PPS would exacerbate any problems of access or quality already existing in community-based care settings.

It is likely that there will be differential effects on quality of post-hospital care for different groups of Medicare patients. Because most Medicare patients do not use post-hospital care, PPS incentives pose fewer quality problems for them. However, the patients who do require post-hospital care tend to have had longer-than-average stays. An analysis of 1980 Maryland hospital discharge data has shown that about 67 percent of recorded discharges to home health care and about 70 percent of discharges to nursing homes stayed in the hospital longer than the computed averages for their DRG (Miners & Coffee, 1983). This could make these types of patients more susceptible to hospital cost-control efforts. In addition, a recent study of hospital discharges found circulatory and cardiovascular DRGs to be among the most frequent self-care cases. Stroke, hip and other joint procedures and mental disorders were the most prevalent DRGs among nursing home cases. Home care patients were most frequently cancer and diabetes DRGs (Miners & Coffey, 1985). Such patients are often frail or chronically ill and have multiple health care problems which make them less attractive for hospitals to admit and harder for them to place upon discharge. Thus, the frail and chronically ill could experience disproportionate access and quality of care problems under PPS through a combination of premature discharges, inappropriate or substandard post-hospital care, or no care at all since they typically rely heavily on family and friends for help (GAO, 1986).

Variations in hospital practices and long-term care resources across the country could mean that there will be substantial differences in the way that PPS affects the quality of care in non-hospital settings. There are, for example, large variations in average lengths of stay in hospitals in different

sections of the country as well as in the availability of different types of post-hospital care. Hospitals which have relatively low lengths of stay or are located in areas with relatively extensive networks of post-hospital care providers will probably have less difficulty adapting to the incentives of PPS than those with longer lengths of stay or without networks of post-hospital care providers.

Furthermore, it is not clear whether post-hospital care providers, including nursing homes, home health agencies and community service organizations are equipped to handle sicker patients. To the extent that the decreases in length of stay for Medicare beneficiaries represent a reduction in unnecessary care and the substitution of suitable non-hospital services for inpatient care, then PPS may be seen as encouraging appropriate utilization. However, if patients are being discharged prematurely to inadequate post-hospital care settings, then the system may be stimulating inappropriate post-hospital care.

An investigation into the two most common problems predicted to occur under the prospective payment system 1) premature discharge of Medicare patients; that is when they still require hospital care and 2) inappropriate transfers; that is, when they no longer need acute care but have inadequate arrangements for post-hospital subacute care was conducted by the Inspector General's Office (IGO) of the Department of Health and Human Services (DHHS) in 1986.

The IGO study reviewed 3,549 problem cases reported to the Health Care Financing Administration during the period October, 1983, to May, 1985. Of the 3,549 cases, discharge was determined to be premature in 2,907 cases

transfers were determined to be inappropriate in 491 cases (14%), and other problems existed in 151 cases (4%). Sixty percent of the cases reviewed implied poor quality of care while 40 percent were determined to be premature discharges or inappropriate transfers not related to quality of care. The IGO concluded that the Health Care Financing Administration (HCFA) was not effectively addressing the issue of quality and continuity of care under PPS (Senate Finance Committee, 1986).

Investigations conducted by the Senate Aging Committee (1985) also found that large numbers of Medicare patients still in need of heavy medical care were being prematurely discharged from hospitals into their communities for care. Data obtained from reports prepared by HCFA indicated that "there had been a 40 percent increase in discharges to skilled nursing facilities and a 37 percent increase in discharges to home health care" in the first full year of PPS. The number of older Americans affected by these trends is substantial. It was estimated that, by the end of 1985, more than 50,000 additional patients were being discharged yearly to skilled nursing facilities and to home health care than had been discharged to these same providers prior to PPS (Senate Aging Committee, 1985).

Skilled Nursing Facility Utilization. A study by the General Accounting Office (GAO, 1983) reported a growing need for nursing home care by the elderly. The report also documented problems of access for elderly as a result of constraints on the supply of nursing home beds due to state Medicaid rules and certificate of need laws. GAO concluded that both factors had led to increasing access problems for the elderly.

Another study conducted by GAO (1985) on the potential impact of DRGs on post-hospital care indicated a marked increase in the use of skilled nursing facilities as well as problems associated with arranging placements for patients who depend on Medicaid for reimbursement and those who require "heavy" care or the use of sophisticated high technology services. The report pointed out that a community's ability to effectively meet this increased need may be limited by such factors as the shortage of nursing home beds and the importance of state Medicaid reimbursement policies for nursing homes. Because of the limited coverage for a skilled nursing facility under Medicare, nursing homes may avoid accepting too many Medicare patients. In addition, since Medicaid reimbursement rates for skilled care are not always sufficient to cover costs, nursing homes may limit the number of Medicaid patients as well. Thus, PPS may significantly impact the skilled nursing facility system.

With hospitals seeking to reduce lengths of stay for Medicare patients under PPS, an increase in the rate of transfers of Medicare cases to nursing homes was anticipated. Data on skilled nursing facility (SNF) admissions showed a slight acceleration in the projected rate of increase during fiscal year 1984 after a period of no increases from 1981 to 1983 (Guterman et al., 1988). However, the number of covered days per SNF admission declined from 29.2 days per stay in 1981 to 23.4 days in 1985, a decrease of 20 percent, indicating a trend toward more short-stay patients. The percentage of Medicare patients using SNF services within 60 days of a hospital discharge did not change substantially from 1981 to 1983 but increased by 44 percent between 1983 and 1985. By age group, the increase in SNF use from 1983 to 1985 varied from 31 percent for the 85 or older group to 71 percent for the group 65 to 74 years of

age. Finally, patients discharged from hospitals with large length of stay reductions in 1982-1984 increased their use of SNF care from 1981 to 1985 by 83 percent, compared with only 58 percent for patients discharged with small length of stay reductions (Guterman et al., 1988).

Data from this dissertation indicated almost no impact on the discharge of patients to nursing homes POST-PPS. However, the data were confounded somewhat by the fact that many of the cases included in the study were admitted from a nursing home and therefore were to be discharged back to their nursing home bed. In addition, in Oregon, certificate of need regulations and a Medicaid waiver program designed to place discharged patients in the community rather than institutions may have had an impact on the availability of beds for Medicare patients. It is clear that more research is needed to evaluate the true impact of PPS on access and quality of care in skilled nursing facilities.

Home Health Care Utilization. Although expenditures for Medicare home health benefits represent only about 2.4 percent of total program expenditures, it historically has been one of the fastest growing components of the Medicare program. By nearly every measure, home health utilization has increased dramatically: i.e., charges per visit, visits per user, total number of visits, and visits per 1,000 Medicare enrollees have all increased. The Health Care Financing Administration attributes most of this growth to an increase in the rate of utilization by Medicare beneficiaries: up from 17 per 1,000 enrollees in 1974 to 33 visits per 1,000 in 1981 to 46 visits per 1,000 in 1983 to 51 visits per Medicare enrollee in 1985 (Guterman, 1988; Leader, 1986; House Aging

Committee, 1986). Rowland (1987) documents growth in home health visits, growing from \$6.1 million for 8.5 million visits in 1970 to \$801 million for 24.4 million visits in 1981.

While utilization rates per 1,000 enrollees have increased sharply, increased use is clearly linked with beneficiary age. The oldest old use home health much more than do younger beneficiaries. This is to be expected due to age-associated frailty, lack of family support, and diminishment of recuperative powers. It also means that the growth of the aging population will continue to increase the demand for home care. For example, from 1983 to 1985, the increase in use of home health services 60 days after discharge increased 27 percent. Although rapid, this was less than the PRE-PPS rate of increase. However, it should be noted that Medicare home health benefits are restricted to recovery from acute illness and can only be provided to an elderly person who is homebound and needs intermittent skilled nursing, speech or physical therapy. The rigor with which these restrictions are applied by Medicare could significantly influence the volume of use of these services.

A national survey of Area Agencies on Aging (AAAs) indicated that community-based long-term care providers reported major shifts in service delivery patterns due, in part, to PPS. With few exceptions, most agencies surveyed reported increased service unit provision in the post-PPS period. Service unit provision for case management services increased 365 percent and in-home skilled nursing care services increased 196 percent (Harlow & Wilson, 1985).

Substantial increases were also noted for housekeeping (69.2%) and personal care services (63%). The substantial increases in in-home skilled

nursing, housekeeping and personal care indicate a clientele which may be experiencing increased levels of temporary or permanent health impairments. In addition, for most responding agencies, both length of service delivery and number of units per client have increased and this increase was more dramatic among those agencies where DRGs had been in effect the longest (Harlow & Wilson, 1985). Similar results were found in Oregon. An analysis of client and service data for Oregon Project Independence (OPI) services and Medicaid senior services conducted in June, 1984 by the Multnomah County Aging Services Division, showed a marked increase in the demand for publicly funded community-based services over the pre-DRG period (Murray, 1984). Thus, earlier discharge under PPS could affect outcomes of care if that care is inappropriate for their needs, provides inadequate care, or is unavailable.

Between 1974 and 1983, Medicare reimbursements grew at an average annual rate of 25 percent versus just under 15 percent in 1985. Evidence suggests that regulations for eligibility have been more stringently applied by Medicare in recent years, both through increased denials of claims and reinterpretations of regulations such as the "intermittency" requirement and homebound status. Denials of claims increased 133 percent from the first quarter of 1984 to the first quarter of 1986. Moreover, there is great variability across fiscal intermediaries in these denial rates (Leader, 1986).

There are three major concerns raised by advocates for the elderly regarding Medicare's home health benefit under PPS. One, the dual requirements of intermittency and homebound status can act as a "catch-22" for patients, particularly those newly discharged from the hospital. More or

less stringent interpretations of eligibility requirements (e.g., needing daily care for more than 2 or 3 weeks is not considered intermittent or requirements that the person be confined to home and need skilled care) can affect the ability of Medicare patients to receive needed care. Second, quality of care concerns arise for those lucky enough to receive home care. In contrast to its efforts to constrain eligibility, Medicare has few regulations to ensure quality or to regulate the home care industry (House Aging Committee, 1986). Further, quality concerns are even more important for those receiving services not paid for by Medicare where there is no regulation. Finally, Medicare's home health benefit has largely been interpreted as an extension of acute care services instead of a program for those with chronic conditions; leaving the non-acute, frail elderly uncovered and perhaps, underserved (Leader, 1986).

In response to the increased acuity of patients being referred to home health agencies, a study by Eastern Washington AAA (EWAAA, 1986) found that home care providers were purchasing more sophisticated equipment, such as intravenous pumps and hospital beds and were securing training for personnel in topics ranging from use of more sophisticated medical equipment to the performance of complicated nursing procedures in the home. In addition, the study found the HH agencies were experiencing an increase in the use of traditional nursing supplies, such as skin care kits, gauzes, irrigation sets, and intravenous kits; an increase in the demand for the delivery of rehabilitative services, especially speech and physical therapy, and an increase in the growth of staff nurses, aides, and office personnel.

A study analyzing the impact of New Jersey's DRG system on home health care (Cushman, 1986) documented an increase in hospital referrals to home

health care of 67 percent since the DRG system was phased in and a significant increase in the provision of high tech care in the home, such as catheter care (98%), tracheostomy care (88%), intravenous therapy (51%), respirator care (33%), and chemotherapy (26%) between 1981 and 1983. The study also found that home health agencies expanded their hours of operation, both business and service. Before the DRG system, only 66 percent of the New Jersey home health agencies provided services seven days a week or during the evening. After the implementation of the New Jersey system, over 82 percent of home health agencies scheduled admissions and visits seven days a week and provided services during the evening.

While data from the Health Care Financing Administration indicate an increase in HH and SNF placements, HCFA also reports that there is no systematic evidence that access to needed post-hospital care has been affected by PPS (Senate Aging Committee, 1986). However, the General Accounting Office (GAO, 1987) surveyed hospital discharge planners in 985 Medicare certified hospitals regarding problems in placing Medicare patients in post-hospital care. The results indicated that most discharge planners experienced problems in obtaining access to appropriate post-hospital care for Medicare patients.

In general, discharge planners viewed Medicare rules and regulations (i.e., eligibility determination problems and limited coverage of needed services) as the most important barrier to placing patients in both skilled nursing facilities (SNFs) and home health care (HH). The problem most often identified as a barrier to placement in a nursing home was Medicare rules and regulations

(71%) while the availability of beds and need for complex services (e.g., respirator care) were the next most frequently cited factors (63%) inhibiting placement. In terms of home health care, over half of all responding discharge planners cited Medicare rules and regulations as the most important barrier to arranging HH care for beneficiaries. Availability of services was cited as the next most frequent barrier (13%). Finally, more than half of all discharge planners reported that the percentage of Medicare patients waiting in the hospital for appropriate care was greater in 1985 than in 1982 (GAO, 1987).

Concern about discharge planning has accelerated sharply since the advent of cost containment policies. Of major interest is the key role of discharge planning in reducing unnecessary days in the hospital, thereby reducing hospital costs. However, social workers report that discharge planners are caught between the conflicting goals of providing the continuity of health care while at the same time trying to stimulate hospital efficiency. Like the GAO survey of discharge planners, a Senate Committee on Aging (1985) investigation found that hospital discharge planning services had been severely taxed under the new payment system and that they were often inadequate. According to a national survey of hospital discharge planners, caseload since PPS has risen faster than resources and, as a result, necessary followup on patients has been unavailable (Senate Aging Committee, 1985). While hospitals have set specific guidelines for those who may receive discharge planning services, most of these systems were established well before PPS and may not be responsive to new conditions in the current PPS environment and the type of patient being admitted.

CONCLUSION

The data presented in this dissertation indicate that hospital administrators have resorted to operational, labor, and structural changes in an attempt to control costs and increase the viability of their hospitals under PPS. Operational changes are occurring; such as shortening length of stay (resulting in increased dependency at discharge and increased use of post-hospital community-based care); reducing the use of ancillary services and decreasing admissions/readmissions; treating less severely ill patients on an outpatient basis (increasing the severity of hospital case-mix); eliminating or converting beds to new services; and shifting dying patients to other care settings.

Labor changes include staff reductions and skill-mix reconfigurations while structural changes have included emphasizing profitable DRGs (surgical versus medical treatment); shifting control of hospital operations from physicians to management; the implementation of computerized case-mix management data systems and horizontal and vertical integration (hospital-based home health services). All these actions are just some of the strategies being used to reduce costs, improve market share and maintain hospital profitability. However, how much and to what degree the changes implied by the data presented in this dissertation were prompted by DRG-based PPS is difficult to determine.

The relationship between the financial pressure imposed by PPS and the resulting changes in hospital behavior, such as the steep declines in average length of stay and admissions, may indicate that PPS has been effective in encouraging hospitals to change the way they provide inpatient care. Support

of this interpretation of the data published to date comes from the declines in the rate of growth in Medicare inpatient hospital expenditures for the first three years of PPS. Rates of growth fell to 4.6 percent between 1984 and 1986, the smallest increase in the program's history. However, PPS is not the only factor that has contributed to changes in patient care and management practices in acute care hospitals. Other factors such as increased competition among providers; increased utilization review by third-party payers; increased consumer awareness and media attention paid to the problem (e.g., Medicare's impending bankruptcy) may have influenced provider behavior. Consequently, it is difficult to disentangle the specific effects of PPS from these other, equally important, forces in the health care arena.

In terms of discharge status and post-hospital placement, the data generated for this dissertation indicate that Medicare patients are being discharged earlier, in poorer states of health, and in need of more intensive post-hospital care services than before the new payment system and as a result, these patients may now be experiencing inadequate treatment or inappropriate placement. For example, skilled nursing facility services may either be unavailable locally or the Medicare patient may not satisfy stringent eligibility criteria for SNF care. But, because of the intermittency requirement for Medicare HH care, the patient may not be able to obtain home health care either. Available data do not permit a precise assessment of the extent to which the Medicare benefit for either SNF or HH care actually meets the demand for this care. Furthermore, those patients requiring the most intensive forms of post-hospital services, such as respirator care, may also be

problems with access to appropriate post-hospital care. The data presented suggest a profound change in the use of post-hospital care services. Demand for nursing home and home health care is increasing, even under Medicare's stringent utilization requirements. Problems of quality and access in the skilled nursing home setting are still evident and may be exacerbated by PPS. Quality assurance in home health care is virtually non-existent and has been called the "black box" issue of home care services (Senate Aging Committee, 1986).

Finally, because many technologies are new to the post-hospital care setting, providers may not have the equipment or enough properly trained staff to administer the equipment. It may be that the complexity of these procedures and greater vulnerability of patients dependent upon them increases the likelihood of problems of quality (GAO, 1986). Subacute care providers may respond to a rise in the demand for services or changes in the types of services needed by discharged Medicare patients, by increasing the volume or changing the type of services they provide. However, if providers do not respond to increases in demand or to a need for different or more extensive services, the quality of post-hospital care could be compromised. As has been pointed out, there are little data available regarding the changes PPS has caused in the post-hospital care system (GAO, 1986). The next chapter summarizes the data presented in this dissertation, identifies needed research, and discusses the findings in relation to the future of PPS and the U. S. health care system.

CHAPTER V

THE POLICY IMPLICATIONS OF PROSPECTIVE PAYMENT

The recent changes (in the health care system) are important because they abandon the principle, in fact if not in rhetoric, that medical care should be provided whenever it is needed, that costs should not be considered when life or health is at stake...This represents a fundamental change from the philosophy that has driven the system for a long time, and the beginning of a search for a new balance between costs and benefits (Lave, 1984, p. 254).

The American health care system has undergone significant change in the past two decades prompted by national policy responses to rapidly escalating costs and increased utilization of health care services. Among the most prominent of these changes have been the significant shift in the relationship between supply and demand (surplus of physicians and hospital beds); the corporatization of many sectors of the health care industry (multi-hospital systems, vertical integration of services); the introduction of capitation and other forms of alternative health care delivery systems (HMOs, PPOs); the emergence of organized buyers of medical services such as commercial insurers, employer and union coalitions, and Blue Cross/Blue Shield plans; a growing reliance on market forces as compared to economic regulation to deal with costs; and dramatically different incentives arising from changes in the way health care services are financed (state-wide rate regulation). These changes have created unprecedented challenges for the traditional health care providers as the contemporary health care market rapidly changes. For example, the

dominance of physicians and the central role hospitals have historically played in medical care delivery ironically now places them in a precarious position as the once dominant structure of the community, not-for-profit hospital with its independent, largely solo-practitioner medical staff becomes a thing of the past (Grey & McNerney, 1986).

THE "OLD" HEALTH CARE SYSTEM

Over the past 20 years, policy makers at the federal level have responded to the dramatic rises in health care costs using two policy approaches: regulation and competition. National policy initiatives during the 1970s relied heavily on various forms of regulation: including health planning and certificate of need regulation (CON); state-wide hospital rate-regulation; professional standards review organizations (PSROs); health care wage and price freezes; and continually more stringent interpretations of eligibility for Medicare and Medicaid services (Brown, 1986b). While some of these regulatory programs were successful in moderating spending increases, they were either not successful enough or they generated significant opposition from provider groups to the point where many of the programs were dismantled or eliminated.

For example, health systems agencies (HSAs) were established to control the formation of expensive new capital projects, such as building or renovating a hospital, or the purchase of new medical equipment costing more than \$150,000. No new major hospital expansion or capital expenditures were permitted without state-approved certificate of need (CON). However, HSAs were severely constrained by their lack of direct control over hospital

reimbursement and state regulatory processes. Furthermore, HSAs had to contend with organized provider groups with enormous resources, able to 'fight' CON decisions, as well as conflicting goals written into the health planning legislation (i.e., cost containment, improved access, upgrading facilities, etc.). These forces combined to prevent HSAs from achieving effective cost control regulation (Altman & Rodwin, 1988; Brown, 1986b; Havighurst, 1985; Marmor & Marone, 1980).

The closest the federal government came to effective regulatory cost control was during the Economic Stabilization Program of 1971 to 1974. However, even under this freeze, controls were placed only on what could be charged for services not on what could be spent. Nevertheless, the Economic Stabilization Program was successful in limiting spending for hospital care. Hospital costs per admission grew by 11.2 percent just prior to the program. During the program, the growth rate slowed to 8.5 percent. After controls were lifted in 1974, hospital and total medical care spending returned to pre-freeze levels (Altman & Rodwin, 1988; Brown, 1986b).

Overall, the research on the impact of regulatory efforts on costs suggests that CON controls had little effect on costs or utilization while the economic stabilization program of the early 1970s generally had a short-run positive, but long-run negative, impact on hospital costs. The evidence also suggests that rate regulation worked better when the programs were mandatory (state-wide) and were in effect for several years (Coelen & Sullivan, 1981; Vladeck, 1981). Merrill and McLaughlin (1986), in an analysis of HMOs, rate regulation, certificate of need (CON), and professional standards review organizations (PSROs), found that regulatory efforts produced mixed results.

None of the existing regulatory efforts appeared to have had a significant effect on overall per capita hospital costs; although mature mandatory rate-regulation programs did appear to have lowered the growth rate in cost per admission and cost per day. In addition, Worthington and Piro (1982) found that rate-regulation also led to longer lengths-of-stay while PSROs led to shorter lengths-of-stay but higher admission rates.

By the late 1970s, regulation strategies were being replaced by three competition or 'market-oriented' cost-containment approaches: one, increased consumer awareness of health care costs through individual cost-sharing, e.g., deductibles and copayments; two, the encouragement of health maintenance organizations (HMOs) and other alternative delivery systems that would compete with traditional providers by marketing diverse blends of quality, access and cost health care plans; and three, the development of market power of organized purchasers of medical services in order to achieve more favorable payment arrangements (Brown, 1988a; Meyer, 1983b).

Businesses, which paid more than \$100 billion in health insurance premiums in 1986, had begun to feel the pressure of increased insurance costs on their ability to compete in foreign and domestic markets. Prompted by studies showing that consumers reduce utilization when they are required to bear a portion of the costs, employers began to limit their financial liability for medical services by redefining what they would (and wouldn't) pay for. The evidence regarding consumer behavior has also prompted insurers to design health plans with more frequent and extensive use of deductibles and copayments thereby requiring patients to pay more from their own pockets for each service.

Prudent purchaser programs, a second market-oriented approach, have included self-insurance options for employers and the use of competitive bidding for contracts. Groups of employers formed health care coalitions in conjunction with labor, insurers, and providers in an effort to reduce health care costs through the sharing of information and joint bargaining. Similarly, large employers used their purchasing power to demand more favorable terms of payment and greater provider efficiency. The primary result of this approach appears to be the fact that payers have now become involved in "managing" the delivery of medical care (Altman & Rodwin, 1988, p. 329). Employers as well as unions are beginning to require second opinions and pre-admission screening, promote wellness programs, and to emphasize outpatient services. They have begun to shop for health plans among competing insurance companies, to monitor the cost and quality of medical services received, and to lobby among practitioners for reduced fees (Havighurst, 1983a; Meyer, 1983a; Samors & Sullivan, 1983).

Recent evidence suggests that a well-operated managed care program can save between 8 and 10 percent of total premium dollars (Gertman, 1987). Even with these changes, more than 70 percent of all medical expenses are still being paid by public and private third-party payers (Gibson & Waldo, 1984). It also should be pointed out that many of these private sector initiatives could not be successful without the corresponding influence of a physician surplus and the establishment of PSROs and PROs, which have provided important data on utilization and methods of monitoring provider performance, and that both of these influences are the result of government regulation (Altman & Rodwin, 1988).

The major competitive activity of the last ten years has been the encouragement of health maintenance organizations (HMOs) as a means of introducing competition into the health care marketplace. It is well-documented that HMOs have been able to reduce their own costs by cutting down the number and duration of hospitalizations. However, some of these reductions may be offset by increased utilization of outpatient services since HMOs typically include more outpatient benefits than traditional insurance plans (Brown, 1988b; Luft, 1984, 1985; Luft, Maerki, & Trauner, 1986).

Proponents have argued that the growth of HMOs will create health care price competition. These advocates hypothesize that as HMOs gain large market shares, the cost-containment features of HMOs; for example, fixed budget financing, reducing inpatient utilization by keeping patients out of hospitals and using fewer resources once a patient is admitted, and controlling significant amounts of patient volume, will require other third-party buyers of care to adopt the same behavior if they are to become more price-conscious and cost-effective (Feldman et al., 1986). That is, HMOs will create a "spillover effect" to other providers in a medical market (Merrill & McLaughlin, 1986).

There have been a number of empirical tests of the competitive impact of HMOs at the community level. Chiswick (1976), analyzed variation in occupancy and admission rates in 192 SMSAs. His results indicate that the presence of an HMO in a state did, on average, reduce the admission rate by 7.6 percent. Goldberg and Greenberg (1981) found that the greater the market share of HMOs, the lower the hospital utilization rate for privately-insured

individuals in a given state. Feldman et al., (1986), in a study of the effects of HMOs on utilization, found certain types of HMOs (staff network versus IPA HMOs) did lower utilization.

However, some of the ways HMOs compete appear to have shifted costs among payers and increased, rather than decreased, total spending for medical care. There is some evidence that HMOs market themselves in such a way so as to encourage a favorable selection of patients; that is, patients that will cost less (e.g., creaming). This is accomplished through such techniques as offering services that will attract young and generally health people (e.g., well baby care; sports medicine); locating in neighborhoods that are middle class; and they do not "cater" to groups with high-cost illnesses (Altman & Rodwin, 1988; Etheridge, 1986; Luft, 1985; Wilensky & Rossiter, 1986).

While there was some initial evidence that the presence of HMOs in a market lowered the costs of competing providers, more recent evaluations suggest that this is not the case. Merrill and McLaughlin (1986), in their study of 25 medical markets, found that competition (as measured by degree of market penetration) had no significant spillover effect on reducing overall hospital costs. Further, the researchers found that HMOs had no impact on the growth rate of hospital expenses per capita or per patient-day. Another study of HMOs in Hawaii, Rochester, and Minneapolis/St. Paul (Luft, Maerki, and Trauner, 1986) found that in none of the three markets was there a reduction in hospital use that could be attributed to HMOs. Instead, reductions were attributable to other factors; such as biases in the data, long term trends predating the HMOs, indirect effects of other policy changes, and other forms of competition.

Many of the so-called competitive initiatives (i.e., employer-based initiatives, HMOs) have been restricted to a rather narrow 'corridor' of purchasers, usually at the high end of the market. While producing a sort of competition, it was not the kind that occurs for most other goods or services where options range from inexpensive to expensive (Altman & Rodwin, 1988). As Altman and Rodwin (1988) persuasively argue, the new incentives promoted competition but only between high-quality benefit packages or delivery systems and higher quality services and benefits. The authors state:

Such competition does little to reduce the expense of basic coverage, and it may even encourage the market to sell policies that carry additional protection. Since insurance policies still largely insulate patients from most costs, the increased use of consumer incentives has at best only a marginal effect on resource utilization or expenditure control (p. 326).

It is striking that approximately 15 years after the introduction of competition in health care (e.g., Nixon's HMO legislation), there appears to be little agreement on what is actually meant by a competitive approach to health care cost-containment. There appears to be no central core or unified theory of competition in health services, we seem to know very little about the workings of competition or about the outcomes of competition, and as Brown (1988a) points out, "...while significant progress has been made toward enhancing competition, in whatever form, there is little data that shows this 'progress' has saved the system money...or why there is nearly a complete lack of documented progress toward cost-containment" (p. 362).

Summary. Based on the data reviewed, neither competition nor regulation appears to have had a significant impact on reducing overall health care costs.

The results from these studies suggest that competition must encompass more than just HMOs if competitive strategies are to succeed and that regulation must involve more than just certificate of need or wage and price freezes to contain rises in costs.

Competition and regulation have converged in the contemporary health care market, blurring the traditional health care boundaries as providers deliver new types and levels of care, become involved in both the financing and provision of care; and form for-profit/not-for-profit hybrids. The Reagan Administration, more than any other, has encouraged both competitive and regulatory activities in health care to create a "health care system in which measures of competition and regulation unthinkable ten years earlier were not only present but accepted and applauded" (Brown, 1986, p. 580). With the government's retreat from system-wide regulation in the 80s and its pressing of the anti-trust attack upon monopoly practices in health care, decision-making power has begun to devolve upon the consumer and on the private entities accountable to them in the competitive marketplace. In light of the historical development of the health care system and the degree of control providers have wielded since the turn of the century, this decentralization of decision-making is significant (Havighurst, 1986). It has resulted in the movement from cost to price, from unconstrained provider behavior to intensive scrutiny, from paternalism to self-responsibility and reflects the seminal changes driving health care from a public good to a private good (Brown, 1986).

While some form of a prospective payment reimbursement system had been advocated for Medicare since the early 70s as a means of containing rising

costs, Congress's reluctance to alter the basic structure of the program combined with fierce opposition by the health care industry, stood in the way of fundamental reform. In 1972, Congress mandated the Health Care Financing Administration (HCFA) to grant waivers to states wanting to experiment with prospective reimbursement. Several states experimented with a variety of systems and some had favorable results (e.g., New Jersey's DRG-based system). With the ink hardly dry on the New Jersey waiver application, the Reagan Administration already was touting DRG-based prospective payment as its "competitive" solution to the Medicare financial crisis. Viewed by Administration officials as the first significant change in Medicare reimbursement since its passage in 1965, the intent of PPS was to constrain rising hospital costs while ensuring continued access to quality health care for Medicare beneficiaries (Guterman & Dobson, 1986; Thompson, 1986). The fundamental issue central to the new payment system was the radical change in incentives that PPS represented.

THE NEW HEALTH CARE SYSTEM

Changing the method of reimbursement for hospital care alters two major dynamics of the health care system: the incentives facing hospitals and the behavior of physicians. PPS changes the role of the hospital from a revenue center to a cost center. Before PPS, more care meant more revenue. Now, more care can mean less revenue. Similarly, before PPS, the hospital's role was to provide the facilities to produce the maximum combination of services physicians wanted to order. Under PPS, providers must reduce costs by reducing services and they must produce those services more efficiently (Berki, 1985).

Many observers fear that the Medicare payment reform is actually a "euphemism" for minimizing federal fiscal responsibility and a strategy to "shift the burden of payment from government to individuals" (Cohodes, 1987, p. 66). They fear that the changes now occurring in the health care system may reduce the accessibility and quality of care available to the public and that the elderly will be paying more out-of-pocket costs for their health care. There is also a great deal of concern that the emphasis on cost-containment will result in permanent damage to the health care system. Others fear that the health care system will equally be damaged if costs are not brought under control. It is not clear that either group's fears will be proven right but what is clear is that budget realities (i.e., the large federal deficit and Medicare's continued fiscal problems) will continue to bring pressure to bear on the scope of federal welfare programs.

Although the direction of the incentives under PPS and some of the resulting impacts were predicted by the designers of PPS, the assumptions behind the new payment system are still largely untested. Both positive and negative impacts have been predicted, including serious undesirable results of PPS on patients' access to and quality of health care (OTA, 1985). The widespread concern regarding the threat to the health care system that PPS poses as well as the fact that very little is known or understood about the short and long term consequences of such a reimbursement system underscores the need for valid and timely data on the impacts of PPS. Without such information on which to base decision-making, policy makers will be unable to nurture the positive effects, or ameliorate the negative effects, of PPS without doing major damage to the health care system and to Medicare beneficiaries.

WHAT DO THE DATA SHOW?

The data presented in this dissertation indicate that PPS does appear to have slowed the overall rate of increase in inpatient hospital expenditures. Although the rate of growth was still above the general rate of inflation, it represents a downturn in the rapid growth of inpatient hospital payments prior to PPS. However, the data also show a corresponding increase in outpatient expenditures, expenditures for skilled nursing facilities (SNF), and expenditures for home health (HH) care. The data also show a significant decrease in average length of stay for Medicare beneficiaries, an increase in patient severity of illness at hospital admission, an increase in patient Dependency at Discharge, and an increase in discharge placements of more dependent patients to community-based care, especially to home health care.

Hospital Expenditures

Data from the Health Care Financing Administration (HCFA) (Guterman, et al., 1988) on the first three years of PPS show that, as predicted, the rate of growth in Medicare inpatient hospital expenditures decreased after the implementation of PPS. After having increased at an average annual rate of 19.9 percent since 1974, inpatient hospital expenditures grew at a rate of 10.2 percent in 1983, at 8.2 percent in 1984, and fell to 4.6 percent in 1986. This was the smallest rate of growth in the program's history. In addition, expenditures for non-hospital inpatient services (e.g., physicians services) declined slightly, down from 8.9 to 8.1 percent for the first three years of PPS (Guterman et al., 1988). However, it was not clear that the decline was a result of PPS or whether it was a result of a 15 month physician's fee freeze instituted by the Health Care Financing Administration in 1984. The freeze was expected to save Medicare \$2.9 billion over a three year period.

Outpatient Expenditures

Outpatient hospital payments grew at 11.9 percent in 1984, an increase larger than the rate for inpatient expenditures for the eleventh consecutive year. While payment rates grew by less than 7.1 percent in 1986, this was still larger than the rate of increase for inpatient expenditures.

Skilled Nursing and Home Health Expenditures

An anticipated effect of PPS was the encouragement to hospitals to shift the care of many Medicare patients to community-based care settings. This prediction turned out to be accurate. The growth in skilled nursing facility (SNF) payments has accelerated since the implementation of PPS. Between 1984 and 1986, SNF payments grew at an average rate of 4.7 percent as opposed to a decrease in the rate of growth in SNF expenditures prior to PPS. Similarly, home health (HH) expenditures have grown. Payments for home health care grew at an average of 12.7 percent over the first three years of PPS versus an average rate of growth of 11.2 percent for the five years prior to PPS (Guterman et al., 1988). Both SNF and home health care growth are significant in light of strict eligibility requirements and limited benefits under Medicare rules. These data indicate a profound shift in the delivery of health care since the implementation of PPS.

Severity of Illness

Severity at admission appears to have increased since PPS. The Medicare Case-Mix Index (CMI) increased 8.4 percent between 1981 and 1984, exceeding predictions made prior to the implementation of PPS. In addition, the CMI continued to increase at a rate of 3 percent per year between 1984 and 1986

(Guterman et al., 1988). Furthermore, hospital-based mortality rates, which were expected to rise as a result of PPS, showed an increase in population-based mortality rate. However, this rate of increase was somewhat, but not significantly, higher than was expected based on trends since 1979. Analyses of these data in light of case-mix changes suggest that the increase in mortality was fully accounted for by the increase in case-mix severity.

Admissions

Admissions, which were expected to increase, actually decreased by 4 percent in 1984, dropped another 4.3 percent between 1985 and 1986, and declined a total of 11.3 percent between 1983 and 1986 (Guterman et al., 1988). Readmission rates remained relatively stable.

Length of Stay

Length of stay has dropped significantly, down from 9.5 days in 1983 to 7.5 days nationally in 1984 (GAO, 1985). Length of stay also declined significantly in the sample studied by Northwest Oregon Health Systems (NOHS) where average length of stay dropped from 11.3 days in the PRE-PPS period to 8.6 days in the POST-PPS period, a drop of 2.7 days. Length of stay for those under 65 did not evidence this dramatic decline.

Patient Status at Discharge

Although national data on patient status at discharge are lacking, anecdotal evidence from surveys of health and social service providers suggests that elderly patients are leaving the hospital at an earlier stage in their recuperation and more in need of intensive, high technology sub-acute care than before PPS was implemented. The NOHS data indicate that patients in four of

the five DRGs studied were being discharged significantly more Dependent than before DRGs. Furthermore, the Northwest Oregon Health Systems data show that there was a significant increase in the numbers of patients being discharged to community-based care and a significant increase in the number of highly dependent patients being discharged to home health care.

Hospital Operations

Hospitals appear to have responded to the incentives in PPS by reducing staff; acquiring automated case-mix data management systems; and emphasizing high-return DRGs. For example, data from the American Hospital Association (Washington Report, 1984) show that there was a 2.2 percent reduction in full-time employees between May 1983 and May 1984. This decrease is in sharp contrast to the 4.1 percent increase in staff annually since 1974. In addition, in a survey of current research on changes in treatment patterns since 1984, Lewin and Associates (1986) found some changes in treatment patterns since 1984 but these changes could not clearly be attributed to PPS alone. Furthermore, a Rand study (Carter & Ginsberg, 1985) found that the proportion of Medicare discharges in surgical DRGs rose from 21 to 27 percent between 1981 and 1984, particularly in diagnoses where there was a substantial difference in the reimbursement of the DRG. However, the researchers were unable to determine if the shift toward surgery cases reflected a more complete coding of procedures or if PPS had induced the change.

Finally, it appears that PPS may be causing a redefinition of hospital care and a restructuring of the physician's role in hospital decision-making (Omenn & Conrad, 1984). Hospitals are no longer viewed as the primary site of treatment

but rather are now seen as a part of a continuum of care based in institutions and in the community. Physician's roles have also changed and they have lost some of the dominance over the health care system. With the emphasis on business principles for the maintenance of hospital financial viability, managers (i.e., hospital administrators) rather than the physician-staff appear to be taking control of hospital operations and pressuring physicians to be more accountable for their treatment decisions.

EVALUATION OF PROSPECTIVE PAYMENT

After three years under PPS, it is not clear that it has achieved its full objective. There appear to be two views: one, the official government view, that DRG-based PPS has worked fine; producing the intended economic transformation of the health care system. Advocates point out that in less than one year of implementation, startling reductions in average length of stay, admissions, and costs were identified. According to the Inspector General of HHS, hospitals were financially doing better under Medicare PPS than anybody had thought possible. The Inspector General reported that hospital profits on Medicare had risen to 14 percent in the first year of PPS (Spiegler & Kavalier, 1988). There was praise for the Reagan Administration for its leadership in regulatory reform of the hospital sector and the introduction of competition into hospital service delivery resulting in hospitals adopting modern cost accounting procedures, business management techniques, and actual price development mechanisms. For example, the New York Times (June 12, 1985) editorial stated that "...the Reagan Administration has managed an apparent taming of hospital cost inflation. While caution may still be in order, so is credit for a triumph of social policy" (p. 2).

Even while claiming credit for its policy "success," HHS and the Health Care Financing Administration acknowledged certain limits to the DRG system by officially recognizing the inequities in the reimbursement formulas (e.g., rural/urban differences; lack of a severity of illness factor; teaching/non-teaching hospital status). For the most part, however, supporters of the system agreed that, even if PPS did not produce the total results anticipated, the health care system has been fundamentally altered. As one observer put it: "...the U.S. health care system won't ever go back to a retrospective, cost-based reimbursement system" (Friedman, 1984b, p. 33).

A second and, in my view, more compelling conclusion is that DRG-based PPS has only been a "qualified" success. PPS can be called a qualified success for three reasons. In the first place, it is not clear that the reductions in costs and utilization are specifically due to PPS. Many of the 1984-1986 trends identified by HCFA as effects of PPS (e.g., decreases in length of stay, reduced utilization) predated PPS. In addition, the impact of PPS on average length of stay (ALOS) is complicated by the fact that ALOS under PPS is influenced by two separate incentives. First, if hospitals are able to attract patients with less severe conditions, ALOS will decline. Conversely, ALOS could rise in the same DRGs if all but the most severely ill are treated as outpatients. A second incentive influencing ALOS is the incentive for "early discharge." Reported ALOS will decline if patients are discharged earlier in their recovery to other care settings.

Related to the issue of utilization reductions is that the decline in inpatient volume has not been uniform across hospitals or geographic areas.

The shortened stay of Medicare beneficiaries and sharp decline in admissions of nonelderly patients have had a tremendous impact on all hospital days. Although community hospitals overall experienced a 8.4 percent decline in admissions between 1983 and 1985, hospitals with less than 50 beds experienced a 22.3 percent decline and hospital with 50 to 99 beds had a 17.1 percent decline. Thus, the combination of declining admissions and short stays for all age groups has been concentrated among small hospitals and confounds any clear connection to PPS (Guterman et al., 1988).

The dramatic declines in ALOS may be leveling off. There has been little change in the decline in length of stay since the first year of PPS. In addition, the distribution of average length of stay has not changed much since PPS was implemented. Hospitals with short stays before PPS have had about the same decrease as hospitals with longer average stays. Data from the Medicare Provider Analysis and Review files show a decrease in average length of stay averaging only .6 percent per year (Guterman et al., 1988). This "leveling off" may be due to the strong initial response by hospitals to the PPS incentives while more stringent enforcement of utilization review nationwide may also have impacted the declines by diverting the less severely ill from inpatient to outpatient and other ambulatory care settings (Davis, 1985).

Furthermore, other than shortening stays and reducing staff, there is no evidence published to date that indicates that physicians have altered their practice patterns or that hospitals are changing their basic methods of providing hospital care. Consequently, total hospital costs may have slowed, not because hospitals improved productivity or that physicians ordered fewer tests, but because fewer people utilized hospitals and because they were

discharged earlier (Davis, et al., 1985). Without more comprehensive evaluations of inpatient hospital care practices to determine if PPS created the incentive for increased efficiency rather than just decreased utilization, PPS cannot be adequately evaluated nor defined a "success."

Second, other factors may have had an equal or greater influence on the reductions in hospital costs documented by HCFA, including the initial cost-containment forces enacted under other federal health programs (e.g., TEFRA); a surplus of physicians (179 physicians per 100,000 population in 1975 versus 207 physicians per 100,000 population in 1981); the increased availability of alternative treatment settings (e.g., an increase in free-standing emergency centers, growing from 44 in 1979 to almost 500 in 1982) and alternative health care deliverers (HMOs, PPOs); increased utilization review; increased pressure on employers to keep health care costs down; and the growth in the awareness of consumers regarding health care costs and avoiding hospitalization (Davis, 1988; GAO, 1986; OTA, 1985). Therefore, the cost savings for the elderly may be more the result of systemwide changes than changes in the Medicare program.

On the one hand, given the rapid multiple changes in the hospital sector, it is difficult not to attribute cost-reductions to these plausible alternative explanations. On the other hand, it is equally likely that the changes in the Medicare program contributed to the decline in hospital length of stay and may have affected other payers and patients (e.g., a spillover effect). It is just not clear what contribution each of the above mentioned forces has had on the health care system. The real test of the effectiveness of PPS on hospital cost-

containment will be experienced in the long term and its effects on the long-term care system with the shifts in the costs and site of care may influence the ultimate judgment of PPS's success.

Finally, while the data presented in this dissertation suggest gains for the government, the control over costs has come at the expense of quality of care for the general public as well as the Medicare beneficiary. That is, controlling costs has required unacceptable trade offs; namely, the establishment of an explicit cost-based rationing of health care, specifically of inpatient hospital care; a slowing of the development, testing and adoption of new medical technology; the negative impact PPS has had on the long term care system; and the implementation of a largely untested policy that provided only short-term financial gains and ignored the larger health care financing problem.

Rationing Hospital Care

While rationing (i.e., refusing to care for or limiting care for patients who cannot pay) has always been a part of the American health care system, PPS has exacerbated the problem by placing some hospitals at such financial risk that they must turn away patients. Urban core hospitals and small, rural hospitals have been particularly vulnerable to the cost-containment pressures of PPS. Similarly, decreases in the allocation of funds under PPS could influence physicians to undertreat patients or to discontinue treatment to the terminally ill.

It was feared that PPS would ratchet down hospital revenues to such an extent that hospitals would be forced to limit or forgo providing charity care to the medically indigent. For example, the medically indigent in California had a

22.6 percent decline in Medicaid hospital days in the first six months of 1984 (Kinzer, 1984). In addition, the "dumping" of the undesirable poor and elderly on public institutions is increasing under PPS, with some hospitals carrying the burden on behalf of the rest of their communities. Cost-containment could force hospitals to adopt an "out of sight, out of mind" mentality to those needing emergency care due to the financial burden it might place on the facility. Arnold Relman (1985) suggests that:

As economic pressures grow and hospital managers are...forced to act like businessmen concerned primarily with profit margins, more and more patients will be denied access to urgently needed care...In such a climate, we cannot expect the emergency care of indigent and uninsured patients to be given a very high priority - and it is not (p. 372).

The question whether DRGs promote efficiency or rationing leads to a more fundamental ethical issue: whether hospitals and physicians are the appropriate actors to undertake the awesome responsibility of this new role in health care; i.e., allocators of scarce resources. Policy makers and society as a whole have yet to deal explicitly with the issue of rationing nor have they provided the medical profession with clear guidelines. As Spiegel and Kavalier (1988) have put it:

We cannot ignore the fact that DRGs, and similar schemes, are simply ways of covertly rationing health care, without subjecting Congress to the wrath of the American electorate. The responsibility is shifted to the medical profession, which continues to serve as the scapegoat (p. 510).

Thus DRGs change the method of allocation; that is, "who does the rationing and who is affected by it" (Fuchs, 1985, p. 1332).

Impact on Medical Technology

One of the objectives of DRG-based PPS was to eliminate unnecessary care, including tests and procedures, that did not contribute to patient recovery. According to a report by the Office of Technology Assessment (OTA), medical costs increased over 107 percent between 1977 and 1982 and that approximately 28 percent of this rise could be attributed to the overuse of medical technology. OTA, in an evaluation of the impact of DRGs on medical technology, found that there was substantial evidence that the inappropriate use of medical technology is common and raises "...costs without improving quality of care" (American Medical News, 1984b, p. 2). The study went on to conclude that, due to PPS, the number and intensity of ancillary inpatient procedures will decrease while procedures that can be shown to lower costs will increase. Furthermore, DRG payments will encourage the movement of technologies into the home, particularly for post-hospital care and that incentives to reduce costs will result in a concentration of capital intensive technologies in fewer institutions while increasing competition will create incentives for widespread acquisition of high return technologies. Finally, the report suggested that DRGs will promote greater product standardization as more expensive models and procedures are eased out of the market through competition. In general, the report concludes, technologies that are cost-reducing will be encouraged; cost-raising technologies will be discouraged.

Many fear that these trends will mean that, under PPS, technology will wither away and the cheapest treatment will be used. A representative from the Health Industry Manufacturers Association (HIMA) stated during

Congressional hearings on PPS that the Association was concerned that PPS could jeopardize quality of health care by inhibiting the development of new diagnostic and therapeutic technologies. Since the reimbursement formula is based on historical data applying to established technology, this could bias reimbursement levels (Buzzel, 1983). Dr. David Banta, of the OTA, has stated that DRG-based PPS will mark the first time that concern for medical technology assessment will become part of the decision-making process on rates of payment for health care services. What this means, he said, is that "the hospital administrator is going to become very conservative about technology" (OTA, 1983, p. 11).

At issue is the ability of policy to encourage the production and distribution of equipment and procedures that are both rational (i.e., better matched to the needs of the population) and more economical (i.e., more likely to yield maximum output from the dollars expended) (Brown, 1988b, p. 9). This means devising the criteria needed to govern the introduction, diffusion, application and withholding of technological advances. Important consideration in the development of these criteria is the impact on mortality and morbidity, the ethical issues involved in withholding treatments, the difficulty of prospective versus retrospective technological evaluation, and the intricacies of rationing care. Aaron and Schwartz (1984), in their analysis of the impact of cost containment on resource use, point out that:

The idea that by getting rid of the fat we can keep the current system is a myth. The only way to cut costs will be to deny benefits to some people or deny benefits for some diseases (p. 117-118).

Impact on Long-Term Care

With the introduction of PPS using diagnostic related groups (DRGs) to pay hospitals on a predetermined rate per case rather than by costs, average length of stay (ALOS) and hospital admissions decreased. While the former was anticipated, decreases in admissions were not. The hospital admission rate for those 65 and over was 377 admissions per 1000 Medicare enrollees. However, in 1984, the hospital admission rate declined to 361 admissions per 1000 enrollees and by 1985, the admission rate fell to 352 admissions per 1000 enrollees (Gornick & Hall, 1988).

Plausible explanations for the declines in hospital admission include a trend toward increased provision of health care on an outpatient basis (e.g., hospital outpatient units, ambulatory care settings, surgicenters, physicians' offices) as well as more stringent utilization and quality control review programs. PPS incentives for shortened length of stay, earlier discharge and increased use of outpatient services have focused attention on assuring that the system does not have a detrimental impact on the quality of care or on the health status of the Medicare population. Two major issues related to early discharge and changes in the site of care need to be considered in any evaluation of the efficacy of the PPS program: one, the impact of the program on the availability of needed post-hospital care (called after-care) services and two, the impact of these changes on the quality of care delivered to the Medicare population (Gornick & Hall, 1988).

Under PPS, many Medicare patients are now expected to receive care outside the hospital, in nursing homes or at home, for conditions that four years

ago would have kept them in the hospital. The availability and adequacy of post-hospital care services are especially important because of the sociodemographic characteristics of the elderly population and the resulting implications this has for health care delivery. For example, after the death or institutionalization of a spouse, many elderly live alone and may face special care needs after discharge from the hospital for an acute care episode. If the needed services are not available or are not adequate, there is the potential for delayed or interrupted recovery, readmission to the hospital, increased morbidity and even death. Moreover, acute illness often strikes those who already suffer from chronic illnesses. Those chronically ill or disabled elderly living in the community and who experience an acute care episode are likely to have greater care needs than other elderly discharges.

Thus, appropriate placement and adequate after-care treatment are of major concern for these greater care elderly now leaving the hospital sooner and in more debilitated conditions. Skilled nursing facility (SNF) services may either be unavailable locally or the Medicare patient may not satisfy stringent eligibility criteria for SNF care. But, because of the intermittency requirement for Medicare home health (HH) care, the patient may not be able to obtain home health care either. Available data do not permit a precise assessment of the extent to which the Medicare benefit for either SNF or HH care actually meets the demand for this care.

Nursing Home Services. Until the implementation of the 1988 Amendments to the Social Security Act, skilled nursing facility (SNF) benefits were available only to persons who were previously hospitalized for at least 3

days prior to the request for service. The patient also needed to have required daily skilled nursing or rehabilitation (physical, occupational, or speech therapy) services usually available only in a nursing home. Medicare did not cover skilled nursing or rehabilitation services that were required intermittently (i.e., one or two times a week) or if the person did not need to be in a SNF to receive the care. Further, Medicare covered only 100 SNF days for each episode of illness including a maximum of 20 SNF days with no cost sharing. The 1988 Amendments eliminated the 3 day hospitalization requirement, increased the number of covered days to 50 days per year and altered the co-payment requirements. These changes in coverage will take effect on January 1, 1990 (Gornick & Hall, 1988).

Federal, state, and private spending for nursing home care add up to more than \$30 billion per year. Total annual expenditures from private sources is over \$15 billion. Medicaid spends more than \$14 billion yearly and Medicare spends approximately \$650 million (Senate Aging Committee, 1986). On any given day, 1.5 million patients occupy beds in the nation's 15,000 nursing homes. National occupancy rates are stable at 95 percent, indicating a tight demand/supply situation.

With the implementation of PPS, skilled nursing payments, which comprised a steadily decreasing share of total Medicare expenditures, increased slightly. It has been suggested by a number of analysts that this slight increase is significant in light of the fact that Medicare's nursing home benefit is limited by the number of allowable days and the skilled care need requirement (Leader, 1986; Senate Aging Committee, 1986). Due to these factors, Medicare's share

of the total outlay in nursing home expenditures constituted only about 2 percent of all funds spent for nursing home care in 1985 (Waldo, Levit & Lazenby, 1986).

Data from the HCFA show that 3.2 enrollees per 1000 hospitalized Medicare beneficiaries used covered SNF services in 1981. This figure rose to 4.6 enrollees per 1000 hospitalized Medicare beneficiaries between 1983 and 1985. Similarly, there was an increase in the number of SNF users per 1000 Medicare enrollees during the same time period. Between 1983 and 1985, SNF users per 1000 enrollees rose from 9 per 1000 in 1981 to 10 SNF users per 1000 enrollees in 1985, an increase of 11 percent (Gornick & Hall, 1988). These increases not only reflect the decline in hospital admissions but also the trend toward early discharge under PPS. Another measure of SNF utilization, the mean number of covered SNF days per user, declined from 27.4 days in 1981 to 21.7 days in 1985, reflecting both an increase in short Medicare-covered SNF stays and a decline in long SNF stays in general (Gornick & Hall, 1988).

However, there are gaps in the long-term care system. Medicare, the primary source of funding for acute care services, was not designed to provide long-term or sub-acute care assistance. While Medicaid finances approximately 40 percent of all nursing home care, it is available only to those who deplete their income to impoverishment and does not cover care in the community. A study by the General Accounting Office (GAO) found that some nursing homes will avoid accepting Medicare patients who might become eligible for Medicaid after exhausting their Medicare benefits since Medicaid reimbursement usually does not cover the costs of care (GAO, 1983). There are also access problems

for nursing home patients needing intensive or "heavy care" services. Thus, PPS may be increasing problems of access to nursing home care for Medicare beneficiaries.

Furthermore, hospitals have historically augmented the effective supply of long-term care beds by providing "back-up" days, i.e., days waiting in the hospital for an available nursing home bed, largely at Medicare's expense. Access to post-hospital care becomes critical in a hospital where attending physicians or a utilization and quality control peer review organization determines that a patient no longer needs acute care. Moreover, existing rules and regulations concerning the range of services covered under Medicare's skilled nursing care benefits are so limited that it is likely to heighten difficulties of nursing home access.

Access to nursing home care has been a problem in many, but not all, states prior to PPS. With the incentives of PPS, the hospital is penalized while the patient awaits an available bed and is therefore motivated to discharge the patient as soon as possible to almost any care setting that is available. However, with occupancy rates exceeding 90 percent, experts are in general agreement that there are serious shortages of nursing home beds throughout the country. Extra nursing care needs and the requirement of copayment by the beneficiary make many nursing homes reluctant to admit short-stay Medicare patients. In addition, Medicare coverage for skilled care is limited and the uncertainties of coverage following hospitalization put nursing homes at financial risk. Medicaid has become the major public financing mechanism for long term care for the elderly and poor. It provides full coverage and is fairly

comprehensive and predictable, but the level of reimbursement is lower than that provided by Medicare. Moreover, many states have chosen to hold down the costs of their Medicaid programs by reimbursing at a level such that the supply of beds is insufficient for the demand. This "back-up" of patients may allow nursing homes to discriminate among patients in a variety of ways; such as source of payment or intensity of care required (OTA, 1985). Consequently, the waiting list for both Medicare and Medicaid patients is, in effect, permanent. Thus, it appears that PPS has contributed to the problem of permanent excess demand for nursing home beds.

Access to care will be affected by more than the behavior of the nursing home industry. Most significant will be the potential for an increase in the provision of post-hospital care by hospitals. Such developments as "swing beds" and hospital-based home health services are early indicators that hospitals may choose to deal with the early discharge problem by providing care themselves. However, some states, including Oregon, have not extended the concept of extended care beds from rural to urban hospitals and, despite the growing demand for nursing home care, deny certificate of need applications that would authorize new nursing home construction.

Distribution of cost is another matter for concern. Medicare coverage for nursing home care is significantly more limited than coverage for inpatient hospital care. Substitution of care may shift costs from Medicare to patients and their families. It is estimated that the elderly not covered by Medicaid and their families pay an average of \$20,000 to \$30,000 per year in nursing home costs (Holahan & Palmer, 1988). A recent Senate Committee on Aging (1986) report noted that nearly 70 percent of single elderly nursing home residents are

impoverished after only 13 weeks in a nursing home while impoverishment for a couple takes an average of only six months. To the extent that Medicare patients eventually become sufficiently impoverished to go on Medicaid, costs will be shifted to the state Medicaid programs (OTA, 1985).

Finally, quality of care has always been an issue in the nursing home industry. Findings from a two-year investigation by the Senate Committee on Aging (1986) into the quality of care provided in nursing homes found five significant problems in the nursing home industry. One, thousands of patients in nursing homes still suffer from the poor nutrition, inadequate nursing care and squalid conditions which were to have been corrected by state and federal reforms of the past 10 to 15 years. Nursing home inspection reports reveal that over one-third of the nation's 8,800 certified skilled nursing homes failed to comply fully with essential health, safety, and quality standards of the federal government. Nursing home inspection reports also reveal that in 1984, about 11 percent (1,000) certified skilled nursing homes were cited for violating three or more critical minimum standards for health and safety.

Two, federal inspection reports show that between 600 and 800 certified skilled nursing homes in the U.S. chronically fail year after year to meet minimum quality standards. One reason cited for poor quality is inadequate and poorly targeted reimbursements by Medicare and Medicaid which force some SNF operators to "cut corners" (Senate Aging Committee, 1986).

Three, finding a vacancy in a nursing home, let alone one that offers quality care, is extremely difficult and one in which the consumer has little control. A serious shortage of nursing home beds exists in many communities

which effects Medicaid eligible patients, those who will shortly spend down and become Medicaid eligible, and those with heavier care needs. Four, HHS has failed in its Congressionally mandated responsibility to ensure that nursing homes receiving federal funds provide high quality medical and rehabilitative care. Five, existing federal penalties for use against sub-standard homes are ineffective in that they limit the number of enforcement actions that can be taken against sub-standard nursing homes and expose residents to serious risks from transfers.

The Report recommends that Congress strengthen the nursing home inspection system, develop a case mix reimbursement system for Medicaid nursing homes, expand the hospital swing-bed program to ease the tight bed supply, provide a larger array of intermediate sanctions, strengthen nursing home patients' rights, and strengthen the national long term care ombudsman program. Many of these recommendations were incorporated into the Quality of Care Amendments to the Social Security Act passed in 1986. Still, PPS incentives for early discharge continue to exacerbate the problems of access and quality of care in the nursing home sector.

Home Health Care. Home health benefits are covered by Medicare for beneficiaries who are home bound and who require 'intermittent' skilled nursing care or physical or speech therapy. This benefit does not cover general household services (housekeeping, meal preparation, shopping, etc.) or other personal care needs. No prior hospitalization is required, there is no limit to the number of visits covered and there is no beneficiary cost sharing (Gornick & Hall, 1988). The 1988 Amendments to the Social Security Act expanded the interpretation of skilled care, which had traditionally been conservatively

defined, to cover 38 consecutive days of care at any given time and redefined intermittent to cover up to 6 days of care a week for those qualifying (versus the prior limit of 4 days a week). These changes take effect on January 1, 1990.

Between 1974 and 1983, Medicare home health (HH) expenditures grew at an average annual rate of 25 percent. However, after the introduction of PPS, growth in the HH component of Medicare declined to 15 percent, although this was still 4 1/2 times faster than the rate of growth in inpatient hospital expenditures (Guterman et. al., 1988; Moon, 1986). Additionally, HH use rose from 35 users per 1000 Medicare enrollees in 1981 to 51 per 1000 enrollees in 1985 (Gornick & Hall, 1988). Attributing increases in HH expenditures to PPS is difficult since the program was growing rapidly before PPS. However, Medicare expenditures alone are not a good indicator of HH use due to the limits on eligibility for the HH benefit.

Other indicators, such as elderly out-of-pocket expenditures, should also be examined. It was estimated that the elderly spent over \$2 billion in out-of-pocket expenses for home health care in 1985 (Leader, 1986). In addition, absolute expenditures by Medicare add insight into the issue of PPS impact on HH use. Total Medicare benefits increased from \$41.2 billion in 1981 to \$74 billion in 1986, an increase of 80 percent. Included in that increase is a 65.9 percent increase in inpatient hospital benefits, a 32.7 percent increase in skilled nursing facility (SNF) payments and, in contrast, a 147.9 percent increase in home health benefit payments. The relatively small increase in SNF payments reflects, in part, the high percentage of beneficiary cost sharing required after the 21st. day of nursing home care (Gornick & Hall, 1988). Thus, the most

visible impact of PPS appears to be on the home health industry. "It appears that home health agencies are bearing the brunt of...earlier discharges under the PPS system (Cushman, 1986, p. 3).

Analysis of a sample of Medicare hospital discharges in 1981 and 1984-1985 showed that, if a patient was discharged from the hospital in 1981, there was a .41 percent chance that the patient would go into a SNF and be covered for 7 or fewer days. In 1984-1985, that chance would have increased to .65 percent. The chance that the patient would go into an SNF and be covered for more than 30 days increased only slightly, from .86 in 1981 to .88 in 1984-1985. Analysis of HH use suggests that PPS has increased the percentage of patients receiving home health visits within 7 days of discharge by 14 percent (Guterman et al., 1988).

However, home health care outlays have not kept pace with this increase in need/demand. It appears that this is the result of a variety of factors. First, legislative changes in the program enacted since 1980, such as ceilings on home health reimbursements, eliminating occupational therapy benefits, and requiring copayments for durable medical equipment all reduced expenditures somewhat. Second, there has been tremendous variability in the annual rate of change in total Medicare reimbursements for home health. Therefore, the recent decline in rate of outlays may be a temporary phenomenon. Since the bulk of charges for home health services reflects labor costs, lower inflation rates could have led to lower rates of increase in charges, but it is not clear how much this factor contributed to the lower rates of growth.

Third, another source of limits to growth in home health has been administratively induced reductions in access to care. For example, HCFA has implemented a series of administrative rules and guidelines intended to tighten eligibility, coverage and reimbursement for services. One consequence of this administrative reduction in benefits is an increase in the denial rate for provider claims. As an example, between 1978 and the first three months of 1986, the percent of all Medicare bills denied for any reason rose from 2.8 percent to 3.9 percent, a 39 percent increase. In comparison, recent national data on Medicare denials for home health claims show that the denial rate increased 133 percent from the first quarter of 1984 to the first quarter of 1986 (House Aging Committee, 1986; Leader, 1986). Tightened eligibility and more stringent determinations of the "intermittency" and "home bound" requirements for home health services have also added to an impossible situation for Medicare beneficiaries needing home care. That is, they must be basically confined to their home in order to obtain home health services, yet the amount of care provided under Medicare may be insufficient to meet their needs. Furthermore, if family members supplement Medicare-covered services, they may jeopardize the receipt of those services (Leader, 1986).

Continued restrictions on growth in the home health benefit could jeopardize access and quality of care for home health services. Further, the General Accounting Office (GAO, 1985a) reported that a prospective payment system for home health care would increase expenditures if payments were set at 75 percent of costs per visit. Cost control measures will adversely affect beneficiaries in that small and rural providers will be bankrupted; that costly

services will be curtailed; that heavy care patients will be rejected as unprofitable; and that the volume of indigent care provided by on-profit providers will decline.

Even with the 1988 Amendments, significant gaps in coverage of Medicare's home health benefit remain in effect. HCFA's guidelines primarily reflect the focus on acute care of the Medicare program which effectively eliminates the home health benefit from those elderly requiring part-time skilled care or to the frail elderly or those with chronic conditions. In addition, while Medicare pays for hospital beds, canes, and walkers, the program will not pay for bathroom equipment, occupational therapy, home intravenous antibiotic therapy supplies, equipment, or services, and excludes all drugs and biologicals when provided by a home health agency (House Aging Committee, 1986). These gaps in coverage, specifically when combined with the increased severity and intensity of care needed in post-hospital care as a result of early discharge have meant increased beneficiary costs.

There are significant issues of quality of care in the home health industry. The rapid growth in Medicare utilization of home health care has occurred in virtual "regulatory vacuum" in which consumer needs and interests are poorly understood or protected (Leader, 1986). Medicare dollars are being spent on services for which there is little knowledge and few quality standards. Existing regulatory organizations (e.g., PROs; ProPAC) are inadequate, the effects of home care on patient well-being and satisfaction are unknown, and there is little understanding of the extent of unmet need for services. The increased demand for home health care in lieu of more costly hospital care has resulted in

the growth of private home care agencies in the home care market. Between 1966 and 1986, the number of home health agencies increased from 1,275 to 6,005 and recent average annual growth rates in the industry have ranged from 20 to 25 percent. Since 1982, the number of home health agencies certified under Medicare increased by more than 55 percent (Leader, 1986).

There has also been a dramatic shift toward proprietary ownership in the home health industry with large chains and hospitals seeking to vertically integrate home health care into their systems. By 1984, 42 percent of all hospitals offered home health care. In 1985, the percentage increased to 65 percent. In addition, the greatest growth has occurred in investor-owned agencies with their numbers increasing 300 percent during that period (Leader, 1986). Proprietaries now make up more than 30 percent of Medicare certified agencies, up from less than 6 percent in 1979 (House Aging Committee, 1986; Leader, 1986). The proliferation of private home care agencies is a fairly new phenomenon and there is little information comparing service delivery in private versus public agencies. There is a lack of information about who is providing these services, how many people are being served and how many public and private dollars are going to home care.

Concerns have been expressed by advocates for the elderly that private home health agencies might be "skimming the cream off the top" of the home care market by caring primarily for paying patients and referring them to public agencies only after their funds have run out. In a study comparing a public and a private home health agency, Kornblatt et al. (1985) found that the public agency studied had clients requiring more frequent visits, a longer length

of care and greater nursing intensity than the private agency. The public agency also had a larger proportion of Medicaid and medically indigent patients. The private agency, which served approximately the same number of home health referrals during the study period, had clients with needs for less frequent visits, shorter length of care, and less intensive nursing services. The private agency also had a larger proportion of Medicare and Blue Cross/Blue Shield patients. Thus, public and private agencies serve different patient populations, the types of visits made by public and private agencies are not equivalent in terms of intensity, and they serve different populations with respect to ability to pay.

The growth of the home health industry is of concern for a number of reasons. One, the growth in the numbers of and the increased vulnerability of elderly persons receiving health care and personal support services in the home setting require greater knowledge regarding the cost and the quality of services than is currently available. It is estimated that about 8 million persons needed assistance with personal care in 1985 -- 5.2 million of them were over age 65. Every month since 1960, an average of 149,000 persons joined the ranks of the elderly. The total age 65 population doubled between 1950 and 1980 and is expected to double again by 2020 (House Aging Committee, 1986). The kinds of home care services needed by this burgeoning population encompass health and social support services, many of which are provided by the home care industry.

Two, because of the location of delivery of home health services, i.e., in the home, their actual delivery makes them essentially invisible and, therefore,

largely beyond the reach of public or professional scrutiny. Furthermore, the industry is underregulated. As of June 1985, only 34 states required a certificate of need (CON) for new home health agencies. There is some evidence that when states drop their CON requirement, the number of providers increases dramatically. For example, when Texas dropped its CON requirement in 1981, the number of agencies in the state quadrupled by 1984 (Leader, 1986). Some states, such as Massachusetts, do not require either a CON or a license. In 1985, only 32 states required any licensure of home health agencies at all. In some of these states, only proprietary agencies are licensed and there is no uniformity among licensure laws and state regulations.

The American Bar Association's Commission on Legal Problems of the Elderly recently reviewed state regulation of home health agencies and found that most states simply cite the Medicare home health regulations and do not regulate the non-health component (homemaker, personal care) at all. Few states require home health aides to meet minimum training requirements and there is little evidence of state capability of investigating complaints against providers. Further, the study found that effective consumer protections in home health care are rare, if not wholly absent (House Aging Committee, 1986).

Furthermore, Medicare monitoring of home health agencies is virtually nonexistent. Medicare regulation primarily consists of surveys of home health agencies to ascertain compliance with standards and does not even stipulate the amount of training required by home health aides. Clients are not routinely interviewed and there is no independent assessment of quality of care provided. Very few providers have been terminated from the Medicare program for

failure to comply with required standards. This virtual lack of effective independent quality control and consumer protection in the industry has significant consequences because of the explosive growth in home health service utilization since the implementation of PPS (Leader, 1986).

Three, the lack of knowledge regarding home health services is also of concern because a great deal of money is now being spent for home health care. An estimated \$9 billion was spent for home health care products and services in 1985 with an expansion to \$16 billion predicted by 1990 (House Aging Committee, 1986). There is concern because Medicare's home health benefit is the only service which is reimbursed on a cost basis and is exempt from beneficiary cost-sharing. Thus, Medicare provides the industry's "life blood" because 80-90 percent of those served are age 65 and older and because only 20 percent of the market consists of private pay patients (House Aging Committee, 1986; Leader, 1986).

Finally, there is little, if any, objective data on the quality of home care (House Aging Committee, 1986). Most literature on the issue of long-term care focuses on the frail and chronically ill in terms of the cost/benefit of community versus institutional care. This focus is of little relevance to the current home health beneficiaries where the Medicare benefit is primarily being used for post-acute care; that is, the focus of current Medicare home health services is on recuperation, not on maintenance of those with chronic conditions. And, the requirement that skilled nursing care in the home be provided on a part-time or intermittent basis precludes the substitution of home care for skilled nursing facilities.

Policy issues that need to be addressed regarding the "black box" of home health care include more effective oversight and regulation of the home health industry in order to protect consumers and ensure the quality of services being purchased by consumers, including Medicare. Furthermore, standardized, as well as useful, measures of quality of care and outcome are needed in order to establish and achieve high levels of quality and compliance with those standards. Finally, policymakers need to establish incentives and graduated sanctions within the home health regulatory process in order to maintain high standards of quality of care (House Aging Committee, 1986; Leader, 1986).

In addition, policymakers should examine HCFA's efforts to arbitrarily reduce access to services by means of vague and inconsistently applied eligibility rules. With the implementation of PPS, demand for home health care has become the "growth industry" in health care. It is important to accurately assess policy options concerning the shift in health care to community-based settings that focus on more than just budgetary issues. Because of the capricious manner in which eligibility is determined and the increase in need for home health benefits due to PPS, more and more "beneficiaries may need care and yet fail to qualify for either SNF or home health care" (Leader, 1986, p.23).

Furthermore, HCFA's strict adherence to regulations that exclude the frail elderly and the chronically ill from access to home health care benefits needs to be reexamined. Such an exclusion creates a serious gap in coverage, generates large out-of-pocket expenses for the elderly who must privately purchase needed care, and may serve to increase the rate of institutionalization of these elderly in nursing homes (Leader, 1986; House Aging Committee, 1986).

In terms of needed post-hospital care research, it is incumbent upon Medicare to fund research which would determine the effect of PPS on the extent and nature of the need for home health care, both for sub-acute post-hospital care and for the frail elderly and the chronically ill, research comparing the cost and quality of services provided by non-profit and proprietary home health agencies, analyses on the effects on cost and quality of care provided by vertically-owned home health agencies versus independent providers, and evaluations of the cost effectiveness of Medicare reimbursement rules for durable medical equipment (Leader, 1986).

While a number of pieces of legislation have been proposed to address some of the identified concerns with the home health care sector (see Leader, 1986 or House Aging Committee for detailed discussions of each legislative proposal), many areas of concern remain. The major shift occurring in the location of the delivery of care, from institutional settings to ambulatory care, and the concern over increasing costs should not be allowed to over-ride the equally valid goals of quality and access to care for those in need. It is important for policymakers, researchers, and program administrators to keep the elderly beneficiary as central to the policy making process as are costs. It must be remembered that the goal of PPS was not only to reduce the costs of inpatient hospital care for the Medicare program while maintaining access to and the quality of care for beneficiaries, but also to include some method of addressing the need for long-term care and the more efficient integration of our social and health services system.

PPS and Future Cost-Containment

There is ample reason to believe that the significant budgetary savings achieved in the first three years of PPS cannot be sustained (Brown, 1988b;

Holahan & Palmer, 1988). Recent analyses of the status of the Medicare program (both the HI and SMI trust funds) indicate that the Medicare program is still in deep financial trouble (Holahan & Palmer, 1988). The conjunction of continued rapid escalation of overall health care costs, the rapidly expanding elderly population, and the increasing need for health care services among the elderly has created another policy dilemma for the Medicare program (Vladeck & Alfano, 1987). It is now believed that Medicare faces a "far greater fiscal problem than did the Social Security Program a few years back" (Holahan & Palmer, 1988, p. 53-54).

In 1982, the Trustees of the Social Security program issued a report predicting insolvency for Medicare's Hospital Insurance Fund by 1987. In 1984, the date was moved to 1991. In their 1985 report, the Trustees claim that the hospital fund is solvent until 1998. Credit for these positive changes were attributed to PPS, low inflation, and high employment levels. However, the report also cautioned that the positive prediction assumed a hospital DRG-rate freeze in 1986 and adjustments in rates in the future of no more than hospital market-basket inflation plus one-fourth of one percent. To ensure solvency for the next 25 years, the report states, either benefits will have to be reduced by 19 percent or payroll taxes increased by 24 percent (Finn, 1985).

In their analyses of the dimensions of the fiscal problem, Holahan and Palmer (1988) conclude that, even under optimistic assumptions and despite the slight decreases in the rates of growth under PPS, the long-run picture for the Medicare program looks bleak. Under optimistic assumptions, the total revenue shortfall (that is, the amount of additional revenues and/or expenditure

cuts necessary to maintain fiscal balance in the Medicare program) will total over .5 percent of GNP (or \$27 billion) by the end of the 1990s. By the time the "baby boomers" are all past retirement age (2030), this annual fiscal shortfall will be well in excess of 2 percent of GNP (or \$117 billion annually).

Under pessimistic assumptions, the relative size of the fiscal gap is well over twice as large as under optimistic assumptions (Holahan & Palmer, 1988). While PPS may have slowed the rate of increase in inpatient hospital payments, rates of growth in both the inpatient and outpatient components of Medicare are rising faster than the general rate of inflation and still threaten the fiscal solvency of the Medicare program.

Another upward pressure on costs involves the rate of increase in the PPS payment levels. Medicare PPS rates were increased by the "market basket plus .25 of 1 percent" in 1985, were frozen for seven months in 1986 and allowed to rise by just .5 percent for the rest of the year. In 1987, the rate of increase was just 1 percent (Holahan & Palmer, 1988, p. 67). This is in contrast to the 3 to 5 percent annual increase over the past 15 years. Holding growth rates so close to the market basket will also begin to constrain physician's treatment decisions and the application of medical technology. Political problems are sure to arise if this occurs. Furthermore, if private sector payers allow faster rates of growth than Medicare, access to care will be affected as will the quality of care. Costs may also be shifted to other third party payers and self-pay patients and states may begin to adopt all-payer systems in response.

Furthermore, the incentives inherent in PPS for early discharges are shifting increasing amounts of care to post-acute care providers. While limited

in the initial years of PPS due to restrictive Medicare coverage requirements and constraints on the availability of services, the costs of this shift in care appear to be growing substantially. PPS incentives also encourage unbundling of services as in diagnostic testing prior to admission and the performance of certain surgical procedures in outpatient settings. Both actions could increase Medicare costs since many of these services are not covered by PPS.

Finally, the uninsured will bear the brunt of any resource allocation plans. So far, HHS has resisted pressures to provide additional funds to hospitals serving a disproportionate share of indigent patients even though a court order forced HCFA to redefine disproportionate share hospitals in 1985 (McIlrath, 1985a). Moreover, access problems for the poor and elderly will arise if payment rates to providers do not keep pace with costs. Thus, policies must be developed that more equitably distribute provider payments across hospitals while maintaining access to and the quality of care for vulnerable groups.

Although hospitals overall had their highest recorded profits in the first three years under PPS and these were still higher than during the 1970s, this trend appears to have slowed down. Higher operating margins may also reflect a reduction in charity care as well as the shifting of care to fee-for-services settings (ambulatory care, outpatient visits, and other non-inpatient services). In addition, although hospitals are generally more profitable, the American Hospital Association (AHA) reports that 18 percent of all hospitals experienced revenue deficits in 1984. Many of these hospitals were small, rural facilities without much flexibility in planning their budgets and urban public hospitals which treat a high proportion of the uninsured population (Guterman & Dobson, 1986).

However, the main challenge to Medicare's fiscal integrity lies in the interplay between demographics and costs. Demographic trends will aggravate pressures on the program. Since 1960, the population aged 65 and over has been growing twice as fast as the younger population; the group aged 75 to 84 has grown 65 percent faster and the group 85 and over have grown 174 percent faster. In 1960, 16.7 million old people constituted 9.1 percent of the population. In 1980, 25.9 million elderly comprised 11.1 percent, and it is estimated that the figure for the year 2000 will be 36.2 million (13.2 percent), rising to 52.6 million (17.2 percent) by 2020 and more than 67 million by 2040 (Burke, 1988; Rice & Feldman, 1983).

These demographic trends mean increased demand for physicians' services and large increases in hospital stays, nursing-home days, home health expenditures and out-of-pocket costs to the elderly themselves which will obviously strain Medicare's funding base. The fund ratio in the hospital insurance part of the program (i.e., funds available at the start of a year divided by disbursements during the year) declined from a peak of 70 percent in 1975 to 45 percent in 1981, triggering predictions that the trust fund would go bankrupt by the late 1980s. While PPS, lower inflation and diminished utilization have helped ease the problem, "the demographic forecasts offer little ground for complacency" (Brown, 1988b, p. 24).

Although the full consequences of PPS on access, quality and budgetary savings are still uncertain, it is clear that PPS alone cannot control the rise in health care costs. One critic of the system called it an "incomplete" cost-control device and noted that admissions and preventive care weren't included

in the system and that the physician was really "out of the picture" (Meyer, 1984b, p. 98). A number of policy options have been proposed to address the rapid and continuously expanding gap between expenditures and projected revenues in the Medicare program. Most observers agree with Hollahan and Palmer (1988) when they state:

Maintaining fiscal equilibrium in the program...will require some combination of intensified efforts to control provider payments, increased financial burdens on the elderly themselves and higher taxes on the under-65 working age population (p. 65).

POLICY OPTIONS FOR THE MEDICARE PROGRAM

There are enormous political concerns involved with each of the proposed reforms as well as corresponding practical consequences. However, without a more concentrated approach to health care cost containment, Medicare will continue to have fiscal problems and access to care and the quality of health care will be compromised for all of those groups who cannot pay for their care. Although PPS directly impacts Medicare expenditures, it also indirectly affects the Medicaid program. When the programs were enacted in 1965, policy makers pictured a general division of labor in which Medicare would assist the aged while Medicaid predominantly served the younger "welfare" poor (Brown, 1988b). However, due to the joint federal-state structure of Medicaid, which allows great variation in eligibility standards, Medicaid today covers fewer than half the poor (Brown, 1988b). Groups usually excluded include two parent families, the medically indigent, the unemployed, and the uninsured. This exacerbates the problem of uncompensated medical care for hospitals. In addition, because Medicare will pay for medical but not chronic care of the

elderly, Medicaid has become the principal public source of funds for nursing-home care. The maintenance of the fiscal integrity of the Medicare program has produced three broad themes, including: 1) increased control over provider payments, including capitation and rate setting proposals; 2) reduced benefits or increased cost sharing; or 3) increased tax burdens on the working population (Brown, 1988b; Holahan & Palmer, 1988).

Controlling Provider Payments

Controlling provider payments will be difficult and cannot be achieved without some impact on the quality of care available to at least some elderly and poor. As was discussed above, hospital payments are already below the cost of living/CPI and it is difficult to believe significant savings can be achieved in the future since costs are again beginning to rise. Moreover, projections of Medicare's fiscal problems already incorporate optimistic assumptions about the government's availability to control costs. In reality, the government will be "lucky" to get what it hopes for. The question remains unanswered as to how much more can be squeezed out of provider payments (e.g., fat in the system). Continuing to hold Medicare hospital payment growth to a minimum raises serious political and ethical questions as quality of care begins to be compromised (Holahan & Palmer, 1988).

Physician DRGs. Physician DRGs, physician fee schedules, capitation and national health insurance have all been proposed as ways to save on costs for physicians' services. Each of the proposals has been debated by policymakers with great controversy and fanfare. However, effective lobbying efforts by physicians' groups have, up to now, successfully contained federal efforts to

implement any such payment control system for physician's services. Yet, some form of controls appear to be on the horizon. With strong opposition to physician DRGs, alternatives, such as relative value scales, bundling services, and capitation systems are being considered by HCFA and appear to have general public support. As Congressman Ron Wyden (D, OR.) has stated, "the Medicare legislation is like a gun without bullets. Without cost controls on the attending physician, who controls the volume of inpatient services, costs cannot be controlled" (Spiegler & Kavalier, 1986, p. 519).

There is concern, however, that instituting provider controls will only limit access. Gabel and Rice (1985) cite their study of the impact of the physician's fee freeze of 1984 in California, where services to Medicare patients increased from 8 to 15 percent in one year. They contend that physicians countered the freeze by increasing the complexity and the number of services delivered to patients. The researchers also found that physicians were less likely to care for public program patients under restricted payment modes. The authors suggest three options to control costs and volume while altering the fee-for-service mechanism: one, increase reimbursement rates for some medical services while freezing or reducing payments for others; two, reduce hospital admissions by freezing or cutting physician reimbursement for hospital visits while increasing payment for office and home visits; and/or three, contract selectively with groups of physicians to provide all medical care to Medicare and Medicaid patients.

Other forces could influence the willingness of physicians to control costs. For example, the physician surplus has prompted doctors to form joint

practices, join PPOs and HMOs, and to practice in underserved areas (Ginsberg, 1985b). However, Holahan and Palmer (1988) point out that this option factor is limited by the fact that physicians are not as dependent upon Medicare as hospitals for the majority of their income (30% of physician's income is Medicare related versus 40% of hospital revenues).

Capitation. Capitation arrangements have been proposed as a way to curb both physician and hospital costs, such as prepaid health plans. Both health care management experts and investment analysts predict a larger role for capitation schemes. Indeed, when PPS was enacted it was hoped that PPS would encourage the development of new forms of payment systems in the private sector. To illustrate, then HCFA administrator Carolyn Davis, in a 1984 speech, alluded to DRG-based PPS leading to "a pluralistic system with the concept of capitation, either with episodic or voucher payments for hospitals and physicians" (Rust, 1984, p. 2). Stuart Altman, Chairman of ProPAC, also forecasted a greater percentage of capitated systems by 1990 (Hospitals, 1984b).

Despite the optimism with which the HMO movement has been seen, less than 3 percent of the Medicare population is currently enrolled in some form of capitated arrangement and there is much uncertainty about both the accomplishments and the potential of HMOs and other variants such as independent practice associations (IPAs) and preferred provider organizations (PPOs) to contain costs. For example, there is little firm evidence on the cost-containment accomplishments of PPOs, their growth has been explosive. At the end of 1984, there were 141 PPOs; by 1988, there were 646. Evidence on the

impact of HMOs is more abundant but does not necessarily support the contention that HMOs lower costs. After more than a decade of "hope and hype" concerning HMOs in 1988, only about 12 percent of the population was enrolled in HMOs with membership highly concentrated in certain regions of the country (Brown, 1988b, p. 36).

Furthermore, expanding the number of enrollees in these programs poses enormous implementation problems, such as the difficulty of setting capitation rates that accurately reflect the extremely diverse needs of the Medicare population or policy questions as to whether membership in the plan should be mandatory or voluntary. Finally, the limited availability of HMOs willing and able to accept the financial risks of Medicare beneficiaries in pre-paid plans may constrain the feasibility of this policy option (Brown, 1988b; Spiegel & Kavalier, 1986).

National Rate Setting. National rate setting as a form of capitation on physicians and hospital services has also been proposed, often in the form of state-wide or national health insurance. Such systems, in effect, would yield the greatest benefits to the public since total health care costs would be controlled. Indeed, the PPS legislation mandated a report to Congress on the concept of a national rate setting system by December 1985. Moreover, while many health care analysts and consumer groups supported PPS, they believed that a single payer cost control program was doomed to failure because of the potential for cost-shifting. They advocated that PPS should be the "forerunner" of a national all-payers prospective payment system. If it was not, they argued, many of the potential negative consequences of PPS (e.g., mergers and closings of hospitals; deterioration of care), would certainly occur (Milch, 1984).

While offering the potential for controlling costs without creating incentives for discrimination against beneficiaries, this is a radical departure from the current health care system and, unless carefully tailored to the idiosyncrasies of the American health care system, would be difficult to implement. Furthermore, the combination of public and private influences on a "hybrid" national health insurance program would most certainly limit its potential to control costs. Finally, while many policymakers, advocates for the elderly, and health care analysts support a universal health care system, it is not clear that the political will is there to so fundamentally change the American health care system.

Reduced Benefits and/or Increased Costs to Beneficiaries

A second group of policy options concerns reducing benefits, or more plausibly, increasing costs to beneficiaries. It is believed that increased cost sharing (e.g., higher deductibles and copayments) will reduce health care utilization since people will be reluctant to spend money if the dollars come from their own pockets. It is argued that financial participation on the part of consumers will 1) influence demand while not discouraging essential services; 2) will influence the choice of services (i.e., encourage lower cost ambulatory or home care in preference to inpatient services); 3) will improve understanding of services provided as well as their value; 4) will permit patients to express their preferences and priorities; 5) will contribute to accurate reporting of services provided to the patient; 6) will provide essential financial resources when other priorities dictate limitations on funding by payers; and 7) will permit discretion and flexibility (Health Care Financial Management Association, 1983).

Reductions in benefits could take various forms, including reductions in the number of beneficiaries (raising the initial age of eligibility or retreating from the program's universal coverage), restrictions in the scope of services for which it will pay; cuts in payment per service (which, as was discussed above, might reduce access by beneficiaries and strengthen providers' incentives to increase the volume of services); or to make beneficiaries pay more out-of-pocket for their care (Ginsberg & Moon, 1984). In contrast to increased cost-sharing, the other approaches to cost containment do not appear to be politically feasible in the near future. In fact, reductions in benefits appear to be contrary to the current political climate as evidenced in the recent passage of Medicare's catastrophic illness coverage where Congress actually expanded benefits and lowered the cost sharing targets of the program.

The more politically feasible approach, and one utilized by Congress in the passage of catastrophic health, was an increase in beneficiaries' contribution to their own health care coverage. The greatest strength of increased cost sharing is that it presumably discourages unnecessary care; the greatest weakness is that it increases the costs for precisely those beneficiaries who already have the greatest financial liabilities for their health care (Brown, 1988b). Although the elderly overall have had their financial situation improved for the past 25 years, many elderly still suffer from considerable economic hardship. Added to a very sizable group of poor elderly is a very large group (nearly half of all of those 65 or older) that is not poor but not "financially secure" (Holahan & Palmer, 1988, p. 72).

Looking toward the future, there is little evidence to suggest that the elderly will continue to enjoy the relative gains in their financial situation that

they have in the past. For successive new cohorts of retirees, benefits will no longer rise faster than wages, and at the turn of the century, benefits will not even keep pace with wages, as the increase in the age of eligibility to 67 for full benefits contained in the 1983 Social Security amendments is gradually phased in (Holahan & Palmer, 1988). While the elderly as a class should share in any economic growth, with little prospect of the elderly's financial situation improving markedly, it is difficult to argue that they can contribute very much to Medicare's fiscal problems.

Shifting some portion of beneficiaries' health care expenditures to Medicare recipients poses a sizable financial burden on the moderately well-off and poor beneficiary. In 1984, the average out-of-pocket health care expense for non-institutionalized elderly amounted to over 21 percent of income for those with incomes between \$5,000 and \$10,000. And since personally paid health care costs have been rising faster than income, these figures are increasing, especially for post-hospital and chronic care. Furthermore, the elderly now have only about 45 percent of their medical costs covered by Medicare. Critics argue that if cost-sharing really were an effective deterrent to utilization, its effects should be evident by now (Brown, 1988b). Finally, the nearly one-fourth of all elderly requiring hospital care each year bear the greatest financial burden for the program. Thus, increased cost shifting would pose enormous hardship on an already burdened segment of the population. The main point, say Holahan & Palmer (1988), is that under current Medicare benefit policies, including catastrophic coverage, "a sizable segment of the elderly population appears to be already severely strapped by health care expenses" (p. 73).

Other approaches to increasing beneficiary costs, such as increases in the already-established SMI premium, instituting an hospital insurance (HI) premium, and raising the age of full eligibility, do not offer the potential of increasing efficiency in the use of health care services, since they are not tied to utilization; but they do have the important advantage of not concentrating the increased costs on those already shouldering a substantial burden. Rather, these options spread the increase in costs evenly across all Medicare beneficiaries when such costs are not income-related or focus the increase among higher-income beneficiaries when the costs are income-related. For example, an increase in the SMI premium was used to cover the catastrophic health benefits. However, these approaches begin to undermine the traditional "earned right" to hospital insurance fund benefits that is the foundation of the Medicare program and leads to the political issue of "means testing." While I believe this may inevitably be the road Medicare must take as a partial solution to the cost problem, I do not believe it will be an explicit policy of means testing. The probable option will be some form of capitated system with increased costs to beneficiaries with some income-related conditions for care.

Increased Taxation of the Working Population

As the above discussion suggests, large increases in Medicare revenues will probably be required to aid in Medicare's financial solution. These revenues will most likely have to come from other forms of taxation, including increases in the financial burden of the working population and more aggressive changes in provider reimbursement. However, this latter option will result in policymakers having to more explicitly define the cost-containment role of the federal government and may mean a stronger presence of the federal

government in the health care sector. This increased role will have to be determined by a tough political process and can result in one of two conclusions: one in which federal control is limited to the Medicare and Medicaid programs but where the role is much larger than it is today. However, this larger role in only two, albeit significant, payer systems in health care could limit its effectiveness. Two, the development of a 'national' system of cost control could be instituted. This option, at least at the present time and with approximately 35 million Americans either under or not insured for health care, appears to be more feasible than at any time in the past 25 years. A model such as the Canadian long-term care system, which has been able to provide a desirable mix of community based services at a relatively controllable cost of about 10 percent of the nursing home budget (Connolly, 1988). Overall, Canada spent 8.5 percent of its GNP on health care in 1983 as compared to our 10.8 percent for that year. However, besides flying in the face of the historical antecedents of the U.S. health care system and our cultural abhorrence for anything "socialist," the feasibility of adopting such a plan in the United States is in question.

CONCLUSION

The policy choices involving continued or increased control of provider costs, increased costs to beneficiaries or reduced benefits, and rates of increases in taxation to the working population seem to be the choices now facing the American government in its effort to control health care costs. The form these choices take will mean either the continued "mainstreaming" of Medicare patients with resulting increases in costs to Medicare or the deliberate fostering of a "two-tier" health care system in which only the well-

off or fully insured have access to the best care. Efforts to reduce provider payment rates too far below the norm will eventually lead to reductions in the amount and quality of services being provided to Medicare (and poor) patients. No reductions will mean unacceptable increases in costs. Thus, policymakers face the very difficult trade-offs between major reductions in provider payments, with the very real potential for lessened access and quality of care, or continued growth in the Medicare program.

There are many significant forces increasing health care expenditures other than the inefficient use of medical services. These forces are unaffected by any efficiency gains produced by market competition or by health care regulation. Among these forces affecting market strategies are a growing population; the increasing size of the oldest age cohort, which uses more medical services and long-term care; the increasing medicalization of social problems; and the growing AIDS epidemic. Forces impacting regulatory strategies include conflicting goals of much cost-containment legislation (e.g., health planning, certificate of need), the costs of implementing health care regulation, and the limited and focused nature of most regulatory legislation that ignored many of the fundamental forces driving costs in the health care system (e.g., physicians).

Medical care spending has not abated during the last decade. From 1976 to 1987, medical care spending increased by almost 80 percent above the level of inflation and far exceeds the nation's growth as measured by GNP (Altman & Rodwin, 1988). While there was a small decline in the rate of growth between 1984 and 1986, reflecting the cost-containment efforts of the federal government (PPS) and private payers (employers, insurance companies), health care costs have begun to rise again.

Policymakers are now faced with a dilemma with Medicare similar to the one they were with Social Security. However, as Holahan and Palmer (1988) point out, the proposals to "fix" Social Security (including cuts in benefits to slow growth) produced such a "political backlash in Congress that the President was forced to withdraw them and appoint a bipartisan presidential commission to recommend an alternative course of action" (p.80). The result was the 1983 Social Security Amendments which introduced the Prospective Payment System.

As this dissertation has tried to demonstrate, PPS has been only a marginal success in terms of budgetary savings and it is still not clear what effect it may be having on access to and the quality of care. Furthermore, Medicare's problems will not be solved with just one solution. A combination of the above proposals will have to be instituted if we are to even minimally address the fiscal problems facing Medicare. Further, this political process must include all segments of society if it is to be successful. It is going to require the fundamental rethinking of the underlying assumptions of Medicare, and perhaps, all entitlement programs, and a better understanding of the impacts of any policy changes will be necessary if we are to avoid the same pitfalls experienced under the Prospective Payment System. Research is needed before the policy change, not afterward. Finally, we must, finally, overtly address how we as a society want to organize health care and how much we want to pay for it.

Fuchs (1986) has identified three ways spending for medical services can be controlled. One way is to improve efficiency in the provision and allocation

of services; two is to reduce the prices paid for the materials and services used in health care, which implies paying producers and providers less; a third way is to reduce the volume of services provided or to shift the balance from high-cost to low-cost services. Both regulatory and competition strategies have attempted to utilize these three methods to control costs. But, as we have seen in the above discussion, the historical development of the American health care system and the incremental nature of our legislative process have both impeded efforts to effectively implement one or the other strategy. It does not appear that PPS will be any more successful.

While the Prospective Payment System is shifting care away from the inpatient to the outpatient and community care setting, this shift in care is creating enormous demand for these other forms of care, many of which are inadequately covered by insurance or Medicare/Medicaid and has resulted in increased costs to consumers. Furthermore, cost-containment efforts have yet to address the larger and more fundamental issue of financing long-term care, both because of the increasing demand for greater coverage of these services and the fact that these programs significantly impact state as well as federal budgets. In addition, the true forces in health care costs, third-party payers, have been unable to unite to effectively confront providers on the issue of cost. Several years of reduced inflation and high corporate earnings appear to have deflected attention away from health care cost concerns (Altman & Rodwin, 1988).

As opposed to the acute care system, the United States has never had an explicit, coherent policy toward the organization and financing of long-term

care. Rather, the system of care for the frail elderly and chronically ill has evolved incrementally and disjointedly, "often as an after-thought or an add-on to other pieces of health and social legislation" (Connolly, 1988, p. 3). The current system is heavily biased toward the institutionalization, medicalization and fragmentation of the financing and delivery of health care system. As an example, the main public programs supporting long-term care services are Medicaid, Medicare, the nutrition and social services programs authorized under Title III of the Older Americans Act (OAA), Title XX of the Social Security Act, and the long-term care programs provided by the Veterans Administration (VA). As a result of these different sources of funding, existing social and medical services rarely intersect and they are delivered in a piecemeal fashion. This presents enormous problems of coordination.

The gaps in the programs supporting the delivery and the explicit non-policy toward long-term care have encouraged the growth of a largely proprietary nursing home industry and is now encouraging a greater number of proprietary home health agencies. Based on the track record of the nursing home industry, it is clear that policymakers need to be concerned about the quality of care of an industry that is largely hidden from view and for which there is little regulation.

Thus, how to design an acute and long-term care system that is affordable, both now and in the future when the population in need of those services is larger, remains a growing public policy issue. It is possible to design public policies that balance the need to contain costs with the assurance of continued access to care and the provision of quality care. But, to do so, we

must explicitly address the larger social questions of the role of health care in society, whether health care is in fact a "right" or a "privilege," and how much we as a society are willing to pay to maintain the "best health care system in the world" and one that includes a comprehensive strategy of acute and long-term care financing and delivery.

If one were to speculate, based on the discussion presented in this dissertation, on what the future of the American health care system would look like, it might look something like this: the role of the hospital in the health care system will be much different from its historical role. In the first place, hospitals have to become businesses if they are to financially survive. Much more attention will be focused on the hospital's "bottom-line" and business management techniques, such as strategic planning, finance and accounting, marketing, and human resources issues, which will become extremely important in the hospital's competitive position in the health care market. I believe we will continue to see vertical and horizontal integration in the hospital sector, with larger corporate systems providing a broader range of services (e.g., home health care, hospice care, nursing home care, specialized services, etc.) including services once reserved for the insurance industry (i.e., HMOs, PPOs, etc.). In short, hospitals will have to merchandize themselves and move toward utilizing capitated payment arrangements with a whole host of purchasers, not just the government. The by-word for the successful hospital will be "total" health care management rather than the traditional hospital management focus.

In terms of the larger system, hospitals will become cost centers as opposed to the historical role of service centers as system-wide capitation

systems are adopted. Alternative delivery systems (e.g., ambulatory care clinics, surgicenters, hospital satellite clinics) will increase and the system may be financed under some form of national health insurance. HMO growth will continue, spurred on by the continuing physician surplus and strict utilization review procedures for care management.

Physicians, home health, and nursing homes will be financed, at least in part, by capitated systems. Due to the surplus of physicians, graduate medical education will no longer be funded and more and more new physicians will opt for "corporate" medicine instead of private practice. Competition for ambulatory care patients among physicians, hospitals and alternative delivery providers will increase with the result that physicians' incomes will continue to decline. Finally, the end of the fee-for-service system, particularly for physicians, appears to be on the horizon.

In terms of public programs, DRG-based PPS, or capitated arrangements, will spread to more state Medicaid programs as state governments attempt to control health care costs. Medicare will continue to face dire financial constraints but will move toward more capitated payment systems (i.e., HMO enrollment for beneficiaries; provider fee schedules, etc.). Increases in costs to beneficiaries, potential strict limits on current services, and a larger tax burden for Medicare to be borne by the working population also appear imminent. It is even plausible that a "capitated" national health program, for Medicare and Medicaid, will be established.

For the beneficiary, greater participation and responsibility (both financial and in terms of decision-making) will be required. As greater amounts

of health care information are passed on to the consumer, health care decision-making will become a "team" process where the team includes the patient as well as the providers.

There will be a greater need for vigilance concerning quality of care as multi-faceted organizations enter into the health care arena and as cost-containment pressures encourage the provision of minimal, versus maximal, care. We must be careful not to let cost-containment become care-containment. Finally, it appears that policymakers are at last "ready" to discuss the medically indigent problem as third-party payers continue to refuse to accept the cost shift from government programs. Thus, costs, not policymakers, will continue to force change in the health care system. In 20 to 25 years, the United States health care system will look different. However, I believe there will be one major factor that is consistent with the past; that is, whatever form the future takes in health care, it will be done on an incremental basis with the system incorporating minor changes over time, hopefully on the basis of good information and thorough political debate. Furthermore, it will not resemble the European model of national health care; it will still be a hybrid of public and private programs pieced together to form the American "whole."

The analysis presented in this dissertation attempted to evaluate the impact of Medicare's Prospective Payment System (PPS) on specific components of the health care sector. Attention has been paid to the formulation of the PPS policy and to the strategy of its implementation. The focus of this dissertation has been to examine a number of the predicted

impacts of PPS in relation to original data gathered for this purpose and from published studies regarding PPS implementation and its impact on quality of care to the Medicare beneficiary.

There are a number of limitations to this dissertation. First, the feasibility of any evaluation of PPS is limited by the kinds and quality of the data available, the cost of obtaining the data, the administration or ethical barriers to their use, and by the lack of comprehensive and balanced measures of quality of and access to health care. Second, attributing any observed effect to PPS is constrained by several factors, including the fact that because PPS has been implemented universally among non-Federal community hospitals, the opportunities for comparison are limited. Another problem is that PPS is not the only change underway in the U.S. health care system. Simultaneous influences, which can often only be distinguished by the passage of time, confound attempts to directly attribute many changes in the health care sector to PPS. Finally, this dissertation is limited in its generalizability to the larger population of Medicare beneficiaries and therefore constitutes an important preliminary step in the process of a comprehensive evaluation of the impact of PPS on the quality of care. However, the pre/post analyses presented in this dissertation do offer strong suggestive evidence about the impacts of PPS on the discharge status of Medicare beneficiaries and subsequent changes in post-hospital placement.

FUTURE RESEARCH

Two excellent analyses of the requirements to adequately evaluate the impact of PPS on both inpatient and post-hospital care settings have been

published recently. The first is Medicare's Prospective Payment System: Strategies for Evaluating Cost, Quality, and Medical Technology (OTA, 1985) and focuses on research in the inpatient setting. A central objective of the OTA study was to identify critical evaluation questions that need to be addressed with respect to PPS impacts on five important dimensions of health system performance:

1. expenditures and costs;
2. quality of care;
3. access to care;
4. technological change; and
5. clinical research.

For OTA, these questions arise from the incentives inherent in the structure of PPS relative to cost-based reimbursement. New incentives leading to alterations in the behavior of providers and patients will be brought about as a result of a combination of three aspects of PPS: (1) it is a system of expenditure control; (2) it pays hospitals by case rather than by day or by service; and (3) it uses DRGs as the system of classifying patients for payment purposes. The report points out that it will be difficult to disentangle the effects of each of these three components of PPS from one another. The ultimate effects of PPS on the health care system will occur through effects on the utilization and organization of health care services. However, changes in the utilization and organization of health care services by themselves are insufficient measures of the ultimate impact of PPS. Without detailed analyses of how any observed changes in the utilization and organization of services affect beneficiary health status and costs of health care, little can be said about the extent to which PPS has achieved its objectives. However, the report concludes that the evidence of PPS impacts thus far illustrates the lack of

linkages between measured effects (e.g., length of stay, admissions) and the critical impacts (e.g., quality, access).

The second report, Post-Hospital Care: Efforts to Evaluate Medicare Prospective Payment Effects Are Insufficient (GAO, 1986), focuses on the post-hospital care environment. Prospective payment methods are, in general, designed to reduce the rate of increase in hospital costs by providing incentives to providers to adopt more efficient practices, both in administrative operations and in patient care. Because the PPS system is based on a fixed rate per case, there are incentives to limit the costs of care for each patient by reducing patients' length of stay in acute care facilities. One possible outcome of reducing length of stay is that more patients will be discharged at an earlier stage of their recuperation and in need of post-hospital care than would have occurred before the payment system was implemented. In addition, the fact that only inpatient acute services are paid prospectively provides additional incentives to use other services which are not paid prospectively, including Skilled Nursing Facility (SNF) and Home Health (HH) care. Together, these related incentives could affect the following five health care outcomes for which descriptive, change-over-time, and attributive studies are needed:

1. patient's condition at hospital discharge;
2. the use of post-hospital services;
3. expenditures for those services;
4. access to those services; and
5. quality of care delivered by post-hospital providers.

The GAO report assesses Health and Human Services research activities as they relate to post-hospital sub-acute care and concludes that the level of effort and resources devoted to developing appropriate information on post-

hospital care is small relative to the overall need. Furthermore, many of the studies are only preliminary or "feasibility" studies of evaluation options and not well-organized, long term "attributive" studies. Finally, the level of expenditures for many of the descriptive and change-over-time studies are as expensive as the necessary attributive research.

Both reports are excellent compendiums of current research on PPS and are extremely critical of the Health Care Financing Administration's current efforts to adequately fund evaluations of the impact of PPS. Consequently, because these reports provide extensive analyses on the status of current research efforts and needed directions, this section will focus on issues specifically related to the question addressed in this dissertation: post-hospital placement.

Post-Hospital Placement

The decreases in lengths of hospital stay, increases in patient transfers, and increases in the use of outpatient care (both for surgery and for post-discharge followup) all require evaluations of the quality of care prior to admission and the outcomes of care after discharge (OTA, 1985). PPS's emphasis on reducing hospital use also calls for special attention to subsets of patients most vulnerable to cost-containment efforts as well as on patients who are never admitted, either because their conditions can be treated adequately on an ambulatory basis or because their poverty or severity of illness makes them undesirable.

In addition, study of the broader effects of PPS requires longitudinal studies of panels of patients or cohorts of Medicare beneficiaries whose course

of diagnosis, treatment, and recovery can be tracked through an entire episode of illness wherever care was provided. Patient outcomes such as physical functioning, emotional well-being, and capacity for independent living as well as effects on family members, are all critical dimensions of care to be evaluated. Investigations are needed to determine how the outcomes of care are changing in the post-PPS era, with evidence strong enough to link such changes at least provisionally to PPS (OTA, 1985).

Another important area of research is changes in access to post-hospital care as a result of PPS. Measuring access to care is a major problem. Traditional measures, such as waiting lists, complaints to ombudsmen for the elderly, information on problems recorded by discharge planners, while helpful, are not likely to be available in a consistent form either across sites or for pre-PPS periods. There are no other established measures for access to post-hospital subacute care and no related measures that have been found which could plausibly be adapted for this purpose. Until basic measures for this concept are identified, refined, and tested, systematic analysis of this issue cannot proceed (GAO, 1986).

Another area of needed research is the quality of post-hospital subacute care. GAO (1986) identified three dimensions of quality of care discussed in the literature: health outcomes, process measures and structural characteristics of health care facilities. Process measures, which focus on the amount and types of services provided) and structural measures, that is, measures of the adequacy of physical plant and equipment, staff and organizational resources on quality of care are integral parts of the certification process for many providers, but

the relationship between them and health outcomes has not been established. Global indicators of health care quality outcomes, such as deaths and hospital readmissions, are available and could be used for preliminary analyses but they convey only limited and sometimes ambiguous information about the quality of post-hospital services.

More direct measures of the quality of care in long-term care settings are currently under development by HHS and others. However, this work largely focuses on the general long-term care population and its relevance to post-hospital subacute care is uncertain. Measures that have focused on the health care outcomes of patients who are chronically ill or are suffering from progressively serious or terminal conditions would not be important for the post-hospital subacute patient. In general, potential outcome, process and structural measures of health care quality currently exist and continue to be refined, but their application to post-hospital subacute care needs to be validated through appropriate testing (GAO, 1986).

Furthermore, studies are needed to document the types of post-hospital services provided to patients. Outcome measure should include measures of morbidity and mortality over an episode of illness, including hospital and post-hospital care. Studies are needed to examine the extent to which family members and self-care are used and the effects of the demands for care on family and informal care providers. Finally, studies are needed to compare need for post-hospital care and access to post-hospital care pre/post PPS. With these and the other identified areas of needed research (e.g., GAO, 1986; OTA, 1985), a broader understanding of the impact of PPS on Medicare beneficiaries and the health care system will be achieved.

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APPENDIX

PACIFIC HEALTH POLICY RESEARCH, INC.
DEPENDENCY AT DISCHARGE CLASSIFICATION TOOL*

By: Patterson, Coe and Wilkinson

	+6	+4	+2	0
ACTIVITY AND MOBILITY	In bed always, needs turning assist; if able to transfer, needs 2-person assist to get into chair or commode	In bed mostly, needs 1-person assist to transfer or walk a few feet, or is confined to wheelchair or walker when out of bed	walks around room, uses bathroom; may require standby assist or walker	walks independently, ad lib; uses hallway; uses no assistance devices
BATHING AND HYGIENE	needs total oral hygiene and bathing assistance	needs partial assistance to complete bath but is able to manage own oral hygiene; washes at bedside	needs supervision or minor assist for safety to bathe or shower; washes most of self if done in bed; may need help with footcare or pericare	Independent with bath or shower; washes in bathroom
PROCEDURES	tube feedings; major skin care with medications and/or wet/dry dressings; Hickman or dialysis cath, intermittent urinary catheterization; continuous respirator; suctionings	indwelling urinary catheter; ostomy care; complex dry dressings or minor decubitus care; speech therapy; ambulation retraining; frequent blood drawings or x-rays	oxygen; nebulizer; simple dry dressing; strengthening exercises; sling; ace wrap TED hose; IV site care; occasional blood drawing	none
SIGNS AND SYMPTOMS	frequent urinary incontinence without indwelling catheterization; fecal incontinence; lower limb paralysis; aphagia; comatose; severe pain or confusion	moderate dizziness; pain; nausea, fatigue, anxiety, or depression; generalized weakness, unsteadiness; stress incontinence; upper limb paralysis; severe hearing or vision limits	minimal weakness; dyspnea on exertion; occasional scattered rales, slight ankle swelling; mild confusion, disorientation, dysarthria or anxiety	none

Class I = 0 - 5 points
Class II = 6 - 11 points
Class III = 12 - 17 points
Class IV = 18 - 24 points

Revised: 2/87

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