August that NASA will be given the go-ahead for a new orbiter does not do much to relieve the uncertainty. Reagan said that the orbiter would be paid for from savings in NASA and from unspecified unspent funds in other agencies. Some $272 million will be required in FY 1987, rising to $665 million the following year, $715 million in 1989, $515 million in 1990, and $180 million in 1991. Several key legislators immediately said they would not permit the funds to be taken from other NASA programs, however, and presidential spokesman Larry Speakes promised that NASA's main big-ticket item, the space station, would not suffer. Where the money will come from is thus anybody's guess, but space scientists fear the worst.

All will become clearer by early fall. Between now and then lie some interesting politics. ■ COLIN NORMAN

For-Profit Hospitals Loom Large on Health Care Scene

An across-the-board need to contain costs affects traditional not-for-profit hospitals as well as for-profit institutions, blurring distinctions among medical care providers

It was only a few years ago that the for-profit hospital industry burst on the national scene with surprising force. Ever since the early part of the century, there have been for-profit hospitals in this country, usually small, often physician-owned establishments that blended into their communities without standing out in any particular way as "businesses." But during the 1970's, the definition of what it means to be a for-profit hospital changed as large investor-owned corporations began buying up individual hospitals and linking them nationwide in an imposing chain. The idea that, from a business point of view, owning a chain of hospitals is not unlike owning a flourishing chain of fast-food eateries took hold in the public imagination—and bothered a lot of people.

In 1975, only 378 hospitals in the United States were in the hands of investor-owned corporations—just about 6% of all the hospitals in the country. Only 9 years later, the figure had jumped to 878 hospitals or 13% of the total. Furthermore, the investor-owned or for-profit hospital industry quickly came to be dominated by a handful of giant corporations with assets in the billions of dollars and a seemingly insatiable appetite for expansion through the acquisition of more hospitals. The colossal reach of the investor-owned health care industry became widely recognized, and hospitals, never a big item on the stock market, became the talk of Wall Street.

The new reality came up hard against a long-held belief that hospitals benevolently serve the needs of the community, not a bunch of anonymous stockholders, and fears about the potential distortion of an idealized health care system were expressed. Nowhere were these fears expressed more consistently and vociferously than within academic medicine. The case of the never completed sale of Harvard's McLean Hospital to the giant Hospital Corporation of America is a dramatic case in point (*Science*, 21 March, p. 1363). Arguing that medicine and big business should not mix, the Harvard Medical School faculty blocked the planned sale of McLean, which would have continued as a Harvard teaching hospital under its new owners; HCA was prepared to pay $35 million up front.

Medical care as big business has been a hotly debated phenomenon for the past 5 or 6 years. In 1981, the Institute of Medicine (IOM) sponsored a workshop on the topic and subsequently a major study was launched in an attempt to "understand the provision of health care by investor-owned organizations and to illuminate the issues that are involved." The study, which took 3 years to complete and was recently released,* examined not only factual matters but also questions of value. "These value conflicts color people's interpretation of data and persist after all empirical studies have been reviewed," the IOM report acknowledges. Indeed, the 22 committee members themselves (drawn from medicine, hospital administration, business, ethics, law, and economics) never did reach total agreement on value-laden issues even though they did achieve consensus on the majority of questions before them (see box, p. 929).

Walter McNerney. *For-profits and not-for-profits alike will have to respond to new cost-cutting forces in the marketplace.*

But one inference to be drawn from the study data seems clear: the for-profit enterprise is not quite the menace it has been cracked up to be. Furthermore, as committee chairman Walter J. McNerney, former chairman of Blue Cross, says, "Today, the country as a whole tends to be a little more commercial in its attitude toward health care than it was in the sixties, for instance. Maybe medicine is viewed a little less ecclesiastically and a little more pragmatically."

The IOM report speaks of the differences between for-profit and not-for-profit organizations that have led to a number of assumptions about the attitudes of each type of institution toward quality of medical care, cost, service to the poor, involvement in research and education, and the role or primary loyalty of physicians. One assumption was that "something essential will be lost if a service ethos . . . is abandoned or replaced with a principle based on economic goals." The committee reported that its "examination of the evidence shows that many

*Institute of Medicine, *For-Profit Enterprise in Health Care*. Available for $39.50 from the National Academy Press, 2101 Constitution Avenue, NW, Washington DC 20418 (1986).

of these assumptions are false and that others are only partly true."

■ **Hospital costs.** The expectation that for-profit hospitals would cost less because large chains could achieve economies of scale has not yet been borne out. In fact, data collected by the IOM show that for-profit hospitals cost more. "On a per-day basis, charges range up to 29% higher in investor-owned hospitals," the report says.

Whether higher costs will continue to characterize for-profit hospitals is doubtful. The IOM data were collected during a period of years prior to the start of what is known as the "prospective payment" system for hospital reimbursement. Beginning in 1984, the federal government, which pays a lot of hospital bills through Medicare and Medicaid, implemented a new policy under which charges for various illnesses are set in advance. Thus, more than 460 medical conditions have been identified under "Diagnostic Related Groups" and the government has said what it will pay for each—so much for cataract surgery, so much for hospitalization for ulcers, so much for treatment of myocardial infarction. This is a radical shift from the traditional "charge-based" system under which insurers simply paid the hospital bill no matter what the figure. McNerney, who is now at Northwestern University's Kellogg Graduate School of Management, predicts that as prospective payment becomes the norm not just for the federal government but for all payers, patient charges at for-profit hospitals will decline in response to market forces and the need to be competitive. (Useful data on the actual effects of prospective payment on the system as a whole will not accumulate for another couple of years at least.)

■ **Quality of care.** Measuring quality of care is not an easy thing to do, but according to available indicators there are no appreciable differences between for-profit and not-for-profit hospitals. For instance, at the IOM committee's request, the American Medical Association surveyed physicians' opinions on the subject. "Almost one-fourth of the physicians with privileges in for-profit hospitals said they believed the quality of care was better in the not-for-profit sector," the report states. That means three-fourths of that survey group did not.

Using more objective measures, including accreditation by the Joint Commission on Accreditation of Hospitals, numbers of board certified physicians, and numbers of nursing personnel, again little difference was found.

■ **Care of the poor.** The investor-owned hospital industry has been accused, with some justification, of neglecting to care for patients who are poor or who have only very limited insurance coverage. Indeed, the committee found that "for-profit hospitals proportionately provide less uncompensated care than do not-for-profit hospitals."

What meaning one attributes to this depends in part on one's values. While some members of the committee see this as proof that for-profit hospitals fail to serve the community in an important way, others see it as a failure of public policy in a much broader sense. The real issue, they argue, is not that for-profit hospitals fail to behave as public charities but that society has failed to provide an adequate, comprehensive, tax-supported system to pay for health care for all Americans. In the current economic environment, neither for-profit nor not-for-profit hospitals can afford to care for large numbers of patients who cannot pay, the report states, noting that "Unlike other developed nations that have some type of universal health insurance, the United States has never provided for the availability of care to all in need."

■ **Education and research.** Another charge leveled at the for-profit industry is that it is not carrying its share of responsibility for medical education and research. Certainly it is true that education and research are not major activities at most for-profit institutions, notwithstanding the fact that some of the big chains have bought a few university teaching hospitals. Whether this will develop into a major trend is unclear; the committee's guess is that it will not.

■ **The role of the physician.** The greatest of all the fears raised by the increasing prominence of the for-profit sector is the fear that concern for the fiscal bottom line will pervert doctors' fiduciary responsibility to their patients. On this question, the committee arrived at two interesting conclusions. First, physicians should not have an economic interest in health care facilities to which they make patient referrals; nor, in general, should they participate in plans that pay them a bonus for keeping costs down because that could mean sacrificing patient care in the interest of keeping costs down. And second, the pressure to contain costs,

Dissenters See For-Profits As Threat to Public Interest

At the present time, approximately 13% of hospitals in the United States are investor-owned. Estimates of the extent to which for-profit hospitals will dominate health care vary. Walter J. McNerney, chairman of the Institute of Medicine's study of the for-profit enterprise (see story), guesses that during the next 5 years, for-profits could grow to as much as 30% of the hospital industry but says, "I don't think it will ever be a real 'takeover.' Besides, the blush is off the rose as far as the stock market is concerned, and the big chains are not expanding as much as they have been."

Most of the IOM study committee's 22 members concluded that the rise of for-profits, while somewhat threatening, is nonetheless accompanied by certain advantages for society. For instance, old community hospitals have been modernized, and the entire health care system has been stimulated by the "diversity" and "entrepreneurial energy" of the for-profit sector.

However, a distinct minority took exception. In what is euphemistically labeled a "supplementary statement," seven committee members, including *New England Journal of Medicine* editor Arnold S. Relman, an outspoken critic of for-profit medicine, express a less sanguine view of the for-profit industry's potential for dominance; they see a real threat to the public interest.

"In our opinion," they write in a dissent from the majority, "the major finding of this report is that the investor-owned hospital chains have so far demonstrated no advantages for the public interest over their not-for-profit competitors." The for-profits, they note, are "slightly less efficient," charge more, and give less free care to the poor. Their access to capital that allows them to build or renovate facilities may encourage overexpansion and "may not always be a virtue." The threat they see would be even greater were for-profits to dominate the system. A dominant for-profit sector would be a potent political lobby. It also would "increase the drift of the health care system toward commercialism and away from medicine's service orientation."

The country would "have little to gain, and possibly much to lose," if the for-profit industry took over. ■ **B.J.C.**

with the consequent potential of neglecting certain aspects of patient care, may now be as important in not-for-profit as in for-profit hospitals. (A second article will explore in greater detail the implications of cost-containment for the doctor-patient relationship.)

Increasingly, health care institutions in this country will be forced to juggle new economic realities with established concepts of mission and service. With this in mind, the majority of IOM committee members have concluded that ownership may not be the most important element in determining how our hospitals will behave in the future. Princeton economist Uwe Reinhardt, who was a member of the IOM committee, supports measures to prevent blatant conflict of interest but believes that ownership is not the real issue. "We have an excess of medical facilities and an excess of physicians," Reinhardt says, at a time when pressures to reduce costs are severe. Reducing spending in an environment of excess capacity will produce competition that may adversely affect physicians' behavior. "The issue of saving money versus the doctor's responsibility to the patient will be a more important force than ownership," he says.

Reinhardt and others, including Bradford Gray who was staff director for the IOM study, anticipate that the cost crunch and competition among health care providers will steadily erode the differences that theoretically distinguish for-profit from not-for-profit hospitals. The big chains not only own hospitals but also other types of health care facilities, such as "surgicenters," medical laboratories, and alcohol recovery homes. But the not-for-profit hospitals are also moving into the business of expanding their reach—joining forces with other health care providers, opening ambulatory care facilities, and establishing networks of various kinds. Just a few months ago, for instance, Johns Hopkins announced formation of the Johns Hopkins Health System, that includes not only The Johns Hopkins Hospital itself, but three other Baltimore area hospitals, and a health maintenance organization.

Gray observes that it is hard to find grounds for being critical of for-profit institutions per se in this rapidly changing environment in which business needs are driving all health care institutions. "As all health care systems become hybridized," he says, "it will be a challenge in the future for the not-for-profits to define what makes them different." ■ BARBARA J. CULLITON

This is one of a series of occasional articles on the implications of major changes that are taking place in the health care enterprise in the United States.

France Weighs Benefits, Risks of Nuclear Gamble

Unswerving political commitment, national pride, and firm state control of all levels of debate help explain the rapid growth of France's nuclear power program

Paris

In the early 1970's, as Arab countries began using their virtual monopoly on world petroleum reserves to force a rapid escalation in oil prices, the French government responded by launching a massive expansion of its nuclear power program. It did so with the same fervor and determination that the United States had dedicated, over the previous decade, to putting an American on the moon.

In purely technical terms, the French record has been impressive. Thirty-six reactors have begun operation since 1977, 15 more are currently under construction, and two additional reactors have been given the go-ahead. In the early 1980's, when most other Western countries were slowing down their programs, five or six new reactors were starting up in France each year.

As a result of its $50-billion investment program, France now produces 65% of its electricity by nuclear power. This compares with 16% in the United States, 31% in West Germany, and 19% in Great Britain. France is now the second nuclear nation, after the United States but well ahead of the Soviet Union, in terms of net output.

Furthermore, France not only boasts the lowest electricity prices in Europe, with electricity generated from nuclear power plants costing two-thirds that from coal-fired plants, but it is currently exporting more than 23 billion kilowatt hours a year to its European neighbors.

The factors that have led to the rapid growth of French nuclear power are complex. Both the structure and the practices of the nuclear industry are deeply embedded in the political and administrative traditions of French society. Because many of these would be unacceptable in other countries, it is difficult to transpose experience from one context to another.

One key to the French experience has been the sustained and single-minded commitment of governments of both right and left to the development of nuclear energy as a top priority over all other energy sources. This commitment rests in part on the practical concern that France lacks indigenous sources of energy other than hydropower. But it also has political roots. For example, despite some preelection hesitations, the socialist government continued support for the program when it was in power between 1981 and earlier this year, primarily because of the jobs that would have been lost in the nuclear industry if the construction program had been brought to a sudden halt.

Political support combined with France's tradition of centralized administration have encouraged a simplified structure for the nuclear industry. Overall responsibility for design, construction, and operation of all nuclear plants lies in the hands of France's single, nationalized utility, Electricité de France (EDF). Since 1975 there have been single suppliers for reactor vessels (Framatome, operating until 1982 under license from Westinghouse), for turbine generators (Alsthom), and for many other construction contracts.

The advantage of this system over the fragmented structure of independent utilities in the United States is that it has allowed bulk ordering of reactors, an approach previously adopted for coal- and oil-fired plants. The French nuclear program has progressed through a series of steps, each containing a number of power stations of basically identical design, which have, as a result, been ordered and licensed almost simultaneously.

The first post-1974 order, for example, was made up of 16 pressurized water reactors (PWR's), each of 900 megawatts, based on technology and know-how licensed from Westinghouse. Altogether, 32 units of this size were constructed between 1977 and 1985. Currently under construction is a series of 20 PWR's of 1300 megawatts. And for the future, the government has given the go-ahead for two 1450-megawatt reactors, which EDF now claims will be "completely French," since they use technology based on the experience gained through the Westinghouse collaboration, but were developed independently.

Standardization undoubtedly plays a large part in explaining why average construction costs in France for a nuclear power station