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My wife had breast cancer in 1981 which was discovered by a mammogram. After her (successful) mastectomy, we made a practice of helping dedicate any mammography machine anywhere in Colorado. We were grateful and wanted to help expand this important service and, of course, every hospital loved to have either the Governor or the First Lady at their dedication.

In 1991, however, a study in the *Annals of Internal Medicine*¹ showed that although America had 10,000 mammography machines, we essentially utilized 2600 of them. The study postulated that if every woman had a mammogram every time the American Cancer Association suggested it was appropriate, we would utilize approximately 5000—still half as many as were then in existence. The study further showed that because the underutilized machines had to be amortized, American women had to pay more than twice what the real cost was, and this was having the effect of driving American women away from mammograms. It also found sites that did not do a sufficient number of mammograms had more flawed readings of the results. Welcome to the new world of excess preventing access and quality. (There are now 16,000 mammography machines in the United States, six times as many as are fully utilized.)

Recognizing that you can never have perfect utilization, and such formulas are thus not perfect, the fact remains—in the case of mammography machines as elsewhere in the health care system—that excess is interfering with access.

I am increasingly disturbed by the number of well-intentioned people making what they think are health-producing decisions who are in fact adding duplicative, superfluous health care facilities to the system. The net effect of these actions has been to build a great redundancy into our health care system at the same time great need exists in other parts of the system. Half-empty hospitals exist blocks from where children lack access to vaccinations. We have trained far too many medical specialists. Yet, a few streets away from every medical cen-

ter, women go without prenatal care. Excess sits cheek-to-jowl with inadequacy.

I suggest the sheer magnitude of this problem has become an ethical one. We are all trustees of the U.S. health care system—whatever our roles. We must eventually take responsibility for the indirect as well as the direct consequences of our actions. A hospital administrator in Colorado, which has a statewide hospital occupancy of less than 50%,² cannot say that the 500,000 uninsured Coloradoans have nothing to do with his/her facility. That facility is consuming significant resources which are desperately needed elsewhere in the system.

Once a community, state, or nation builds up a medical infrastructure, it must pay for that infrastructure. If it is too large, the citizens pay too much. The Government Accounting Office (GAO) has found:

Health spending per capital increases with the size of a state's health infrastructure, with hospital and physicians' services accounting for approximately two-thirds of the total personal health spending. States with greater health resources, including physicians as well as hospital and nursing home beds, have higher health care spending on the average.³

Supply seems to drive demand and create its own demand. Boston has twice as many hospitals per capita as New Haven, and it has twice as many hospital admissions with *no* difference in outcome.

A 50% increase in the capacity of the acute hospital sector decreases the threshold for admitting patients in a way that results in a 50% increase in hospital use.^{4a}

The number of specialists often determines how many and what types of procedures are performed in the community. The biggest correlation to the number of tonsillectomies, prostatectomies, hysterectomies, and hernia repairs is not the underlying health of the population, but the number of specialists in the area. Rates for appendectomies, which is not an elective procedure, are nearly geographically uniform while elective procedures, where doctors have discretion, vary by disturbing amounts. The major determinant of how many procedures are done in a given area is the number of special-

The Ethics of Excess

ists in the area who can perform them.^{1,5,6} One expert captured the dynamics perfectly:

...in order to gain competitive advantage, there are strong economic incentives for providers to develop new, state of the art facilities and services. This kind of development, in turn, encourages unnecessary or inappropriate utilization in order to generate sufficient revenue to cover the operating and capital costs of the new capacity.⁷

Much of what we do in health care serves the interests of the physician or a particular institution rather than the interests of the public. Well-meaning people continually turn away from facing the ethical implications of this dynamic.

Excess Physicians

There have been a number of studies⁸ that have found that America is training too many physicians. These studies generally point out that training too many physicians can be as big a mistake as training too few. The medical profession has ignored report after report showing that it was training too many physicians. And it is clearly expensive. Ginzberg speculates:

If we would have increased physicians from 140 per 100,000 (1962) to 190 per 100,000 (1990) instead of the 250 per 100,000 which actually occurred, potential savings would amount to \$173 billion out of the health spending of \$660 billion.⁹

The Bureau of Health Professions estimates that the United States currently has 15,000 surplus physicians; and by the year 2000, they will have 50,000 surplus physicians.¹⁰ There are other estimates which put this number considerably higher. Currently, we do know that America has 240 physicians per 100,000 people; and by the year 2000, our 126 medical schools will raise that number to 260 per 100,000 people.^{11,12}

On the other hand, Health Maintenance Organizations (HMOs)—one of the main models for managed competition—operate at 120 doctors per 100,000 subscribers.¹³ Fee-for-service medicine commonly uses 450 to 500 doctors per 100,000 people,¹⁴ but society is

demanding more efficiency and is experimenting with 17 varieties of restructured delivery systems that will dramatically multiply the effectiveness of each physician.

Kissick at the University of Pennsylvania estimates that if we could serve all of America with the same efficiency that Kaiser Permanente serves its system, we would need less than half the number of existing physicians.¹⁵ In the face of clear evidence, U.S. medical schools should dramatically reduce the number of physicians they train, while in fact they actually increased the number. "Cost containment may ultimately require constraints on the number of physicians allowed to enter the system," says John Hughes of Yale University School of Medicine.¹² Recognizing that one cannot serve rural America with the same efficiency as Kaiser serves its subscribers (Kaiser's demography is somewhat different also), Kissick suggests this comparison clearly shows that America will experience tremendous dislocation among physicians as Adam Smith restructures the marketplace and more and more physicians go to work in groups or for salaries in large systems.¹⁶ Those physicians unwilling or unable to make an arrangement with a health care system will be forced to go to a rural or inner city area, retire, or leave the practice of medicine. Many specialists will seek retraining in the growth sector of primary care.

There is other evidence of this surplus. The Medical Economics Continuing Survey finds that 45% of doctors reported they were not practicing at their full capacity.¹⁶ All the empirical evidence we have confirms that America has too many physicians and that this problem will grow worse before it gets better.

Specialists. We have not only trained too many doctors, we have trained the wrong types.¹⁸⁻²⁰ Simply stated, other developed industrial countries for many years have practiced medicine with roughly 50% of physicians in primary care and 50% in specialties and subspecialties.¹⁸⁻²⁰ In the United States, however, we train and employ about 32% primary care physicians (such as general practitioners, family physicians, general internists, general pediatricians, and some obstetrician/gynecologists and emergency medicine physicians), and about 68% specialists and subspecialists.¹⁸⁻²⁰ Other developed countries, however, do as well or better than the United States at providing care at much lower cost (whether

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cost is measured as the amount per capita per year, or as a percentage of the GNP). Yet, the situation in the United States is rapidly getting worse. The percentage of physicians graduating from U.S. medical schools who are declaring generalist fields has drastically declined during the last decade, from 36% of the graduating class of 1982 to only 14% in 1992.¹⁸⁻²⁰

Comparing the 50:50 specialist-to-generalist ratio desired and the existing 68:32 ratio, one finds a shortfall of approximately 100,000 generalist physicians and an oversupply of 100,000 specialists and subspecialist physicians.²¹⁻²³ Compounding this excess, existing models of managed care show that if the Federal Government, individual states, or the private marketplace creates health alliances or accountable health partnerships for everyone, we will need a work force that more closely approximates a 35% specialist and 65% generalist physician distribution, according to Sokolov. Using such models and some basic arithmetic, one can demonstrate a shortfall of 200,000 generalist physicians between current physician supply and what may be needed in the near future. The Pew Health Professions Commission did not accept the number, but it did the trend. Few people argue that we do not have too many specialists.

Wennberg has made a similar analysis:

If the hiring practices of prepaid group practice HMOs had been in force throughout the United States in 1988, more than half of all specialists would now be unemployed.^{4b}

He further adds:

...if radiology residency programs were completely eliminated, it would still take about twenty years before the numbers per capita in the national economy approached the numbers now hired by prepaid group practice HMOs. Under the same policy, it would take more than twenty-five years for the supply of neurosurgeons and about seventeen years for the supply of urologists to approximate the numbers employed by these HMOs.^{4c}

An example of the excess in specialties is found in a recent study by Leape where he looked at the number of surgeons the United States as compared to what is likely to be needed under the new health care delivery systems. He pointed out that the AMA projected the total supply of surgeons will increase 14% between 1986 and 2010,

with most of the growth occurring in surgical specialties. Using productivity standards that are widely agreed upon, he finds that half of the surgeons in the United States are presently significantly underutilized. He points out that staff model HMOs use surgeons two or even three times more efficiently than fee-for-service medicine.²⁴ At the same time, they perform significantly fewer operations. Fewer surgeons will, in the future, perform fewer operations and yet produce more health.

Medical Schools. In the face of clear evidence, U.S. medical schools should dramatically reduce the number of physicians they train. If America comes anywhere near achieving the efficiency of an HMO in its entire health care system, there will be no need for medical schools to turn out approximately 16,000 physicians a year. An unneeded medical school is an expensive luxury which cannot be tolerated in an efficient system.

The remaining medical schools should recognize that they have an ethical obligation to dramatically increase the number of primary care physicians they graduate, and to reduce the number of specialists. Supply and demand have never heretofore been a concern to medical schools. As a tragic result, a generation of young professionals are being prepared, at great public and personal expense, for careers where employment will be limited and perhaps not even available. Left unchanged, in fact, the 25 billion public dollars we devote to training health professionals will give our society professionals we simply do not need.

The future system will require medical schools to take much more into consideration the community needs for health manpower, and require them to match their output to what the market needs.

Recognizing that there are many rural and inner city areas which are not adequately served by doctors, one nevertheless has to predict that there will be a consider-

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able surplus of doctors after health care reform takes effect. This conclusion is reached after looking at a number of comparisons with other health care organizational models.

Excess Institutional Capacity

It is axiomatic that a nation must pay for its medical infrastructure. Once a hospital is built, or a doctor trained, or a piece of medical technology put in place, it almost inevitably has to be funded. America has too much health care infrastructure that is draining too many dollars from other important needs. This costs America dearly.

Hospital Beds. Most industrialized nations put strict limits on hospitals, hospital beds, and medical technology. European countries seem to recognize that once hospital beds are in place and once doctors and specialists have graduated, they will be used. There is a Parkinson's Law to hospital beds and medical technology: *The work expands to fill facilities available.* Even though the United States actually has a smaller number of hospital beds per capita than most nations, we deliver by far the most intensive treatment while in that bed. We may have fewer beds per capita than other countries, but our beds are often dramatically underoccupied, and a large number of patients in a hospital do not really need to be there. The United States averages 3.8 hospital beds per 1,000 people.²⁴ Yet, some experts estimate that because of outpatient surgery, drug therapy, and other medical advances, we only need 1.8 beds per 1,000 people.¹³ We have massive underutilized capacity in most metropolitan areas. The United States seems to have a "7-11" theory of hospitals where we want a hospital on every corner filled with every marvelous machine and open 24 hours a day. This is a terribly expensive luxury—one we can no longer afford.

Excess capacity creates its own demand. Health economists have an axiom called Roemer's Law which states: "A built bed is a filled bed."²⁵ Not totally true, of course, but a built bed is a magnet that does create demand. As Evans has noted:

...overall bed capacity emerges from study after study as the single most important factor influencing hospital inpatient utilization, and the level of bed capacity at which use would appear to stop responding to increases is double or triple current capacity or need estimates.²⁶

At any given time, approximately one-third of America's 924,040 staffed hospital beds are empty.²⁷

This is staffed beds—licensed beds are actually a much higher figure. Large HMOs in the United States operate with only 1.5 beds per 1,000 members.¹³ Put another way, HMOs operate with less than half the hospital beds per capita as now exist, and yet keep their subscribers every bit as healthy as fee-for-service medicine.

America may have over 1000 unnecessary surplus hospitals which think they are contributing to the nation's health, but actually consume resources desperately needed elsewhere in the system.

"There is clearly excess capacity in the system," says Richard Wade, spokesman for the American Hospital Association. He predicts 20% to 25% hospital capacity will be cut, along with many of the 3.5 million people employed in hospitals. In 1992, 39 of the country's 5,000 hospitals closed with many more shrinking their staff.²⁸

Of course, many uninsured will be brought into the U.S. health care system; but since many of them are already inefficiently served in emergency rooms, this is unlikely to save the large scale closure of hospitals.

Centers of Excellence. America has 850 hospitals doing open heart surgery,²⁹ less than half do the minimum number (250) to meet federal standards. A hundred of these hospitals do less than one heart surgery a week. Under an efficient health care system, many of these institutions will close. There is no way, for instance, that the Denver metropolitan area needs 14 open heart surgeries,³⁰ or that Colorado needs four hospitals doing heart transplants. HMOs either own their hospitals or contract with one highly efficient hospital. If America follows the experience of European countries, it will close some of its redundant hospitals, and create centers of excellence which consolidate specific operations in specialized centers.

Intensive Care Beds. It is estimated that \$62 billion of the \$809 billion of health care in 1992 was for the expense of intensive care units.^{31,32} The United States has approximately three times more intensive care beds as do other developed countries. For instance, our intensive care unit (ICU) utilization is 2.5 times that of Canada.^{31,33} Whereas 8% of the total Canadian inpatient costs were allocated to ICU units, the United States had 20% of its inpatient care costs allocated to ICU units. Intensive care units employ about 19% of the nurses who worked in general specialty bed units.³¹

The reason that the United States has so many more intensive care beds is that we have different standards about who we put in an intensive care bed. By the stan-

dards of other nations, we put many people into an intensive care bed for whom there is no happy outcome. And, conversely, we often put people in an intensive care bed who are not sick enough to really need such a level of care. Eight percent of patients in intensive care units consume 92% of the inpatient hospital resources; and of those 8% high cost patients, 70% died in the hospital.³¹⁻³³ It would seem clear from the statistics that other developed countries with very similar standards and culture with regard to death and dying are much more thoughtful about the categories of people who have access to an intensive care bed.³⁰⁻³³ In America, we expend massive resources often only to give someone an expensive death.

The Myth of Medical Technology

Americans love technology of any type. Much of this is justified and has led to our being a world leader in the manufacture and use of technology. It is deeply ingrained into our culture. But there is a widespread belief that *medical* technology saves money. Alas, it does not. Here's what one study found on medical technology:

...most technological innovations in the health service industry have added to, rather than reduced costs. This *added* cost reflects a qualitative difference in what the client receives. For example, today's treatment for a particular ailment will almost certainly include a set of therapeutic procedures that is markedly different from what would have been received 25 years ago.... In short, the question is not whether recent technological developments have added to health costs. They have. The real question is whether the benefits exceed the costs, and in at least some instances, they may not.³¹⁻³³

Some critics question whether hospitals actually add technology to save health care costs. Evans observes:

Technological innovations that really reduce costs, simultaneously and by definition, reduce sales and income as well. That is not the end most health providers seek when adding a new technology.³⁴

Newhouse, an economist at Harvard, estimates that half of the increase in the national bill for medical care now goes to pay for new technology.³⁵ Whatever the motivation, medical technology does not come cheap and seldom saves money. Our miracles are often very expensive.

The United States has far more medical technology

than it can effectively utilize. With 4.7% of the world's population, we have one-half of the world's CT scanners, and about two-thirds of the world's magnetic resonance imagers (MRIs). In 1987, the United States had 7.4 times as many radiation therapy units and 8 times as many MRIs per million people as did Canada, and had 4.4 times as many open heart surgery units and 2.8 times as many lithotripter units as did Germany.³⁶

The state of Colorado has 22 stationary MRIs in hospitals—three on the same block in Denver.³⁷ Although Canada has the same number of MRIs as Colorado, Canada has nine times our population. Colorado has a myriad of unmet social needs. Yet, it is wasting resources on duplicative, redundant medical technology that often exists in a hospital which is itself not needed for the health of the state.

Conclusion

I would suggest that the sheer size of the health care system has become an ethical issue. It is filled with highly trained (and highly paid) people who believe they are adding to the nation's health. Often they are not. They are utilizing resources desperately needed elsewhere in the system. The opportunity costs of those resources could go a long way toward correcting the inadequacies in the system. Excess is interfering with access and ethical people should work to correct both.

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