LOOK

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OUR HOSPITALS ARE KILLING US

An alarming report on conditions in many American cities

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DIRT, INFECTION, ERROR AND NEGLIGENCE:

The hidden death threats in our HOSPITALS

BY MARTIN L. GROSS

THE CHIEF OF SURGERY shook his head. Appointed to improve surgery in a large Eastern hospital, he had replaced the local physicians, many of whom had been general practitioners, with highly qualified members of the American College of Surgeons.

"We had one case recently in which a skilled team of surgeons operated for hours to save a critical case," he said. "After the operation, the patient was put back in the ward and placed on a Bird respirator. At five in the afternoon, we went to look at him, and we were proud because he was alive and doing well. When I came in to see the patient the next morning, he was dead. The nurse had forgotten to replace the oxygen tank for the respirator. Nursing care in this hospital is abysmal."

Patients daily learn, through hazardous experiences, what veteran physicians are well aware of: that the hospital is a complex entity with failings that threaten quality medical care. The dangerous deficiencies include medication errors, anesthesia incompetence, hospital-bred infection, faulty diagnostic work-up, blood-transfusion errors, unnecessary or poor surgery, inadequate nursing care, inappropriate therapy and negligence.

This tarnished side of the medical caduceus is apparently well-known to knowledgeable medical critics, but has been hidden from public view. Medical critiques that reveal the disturbing weaknesses of American hospitals are found in medical journals; in hospital-quality surveys conducted by university, public and private agencies; in hospital-accreditation reports; in hospital tissue-committee findings. To a nation concerned with the best possible hospital care, it is essential that this raging private medical dialogue about the state of our hospitals be made considerably more public.

The unprecedented "Trussell Reports," two penetrating studies conducted by the Columbia University School of Public Health and Administrative Medicine under the direction of Drs. Ray E. Trussell and M. A. Morehead, are forceful rebuttals of the mythology of the uniformly competent American hospital. The studies weighed two samples of medical and surgical care provided by approximately 100 cooperating hospitals in the New York area—from giant medical-center complexes to doctor-owned, profit-making proprietary hospitals.

"Appalling," "shocking case," "medical ignorance," "gross violation of medical ethics," "completely unjustified surgery," "sloppy performance, diagnostically and therapeutically" are just a sampling of the glossary of these hospital-quality studies, the results of which were both surprising and upsetting. In one of the Trussell studies, 43 percent of the care given patients was rated less than "good" by a group of outstanding doctor-surveyors. Almost a fourth of the patients (23 percent) received care of such low quality that it could only be described by the report as "poor."

"I had the opportunity of sitting in on a preview of what the report reveals," Dr. Martin Cherkasky of New York told the American Public Health Association, "and some of the findings were shocking to me, even though I have spent my professional life in medical care and know some of its shortcomings. For example, Cesarean sections where there was no need; out of 60 hysterectomies, in more than 20 there could not be any possible cause for doing them—and so on—errors of omission and commission, almost beyond belief. . . . Of course, the complications, the misery, the pain, unhappiness and the disability which followed upon this unnecessarily poor care will go on long after our discussions are over. If this was shocking to me, just imagine what it was to those lay people who place their lives in our hands."

One Trussell report states that more than 40 percent of the surgery under study was less than "good." Some observers believe that this percentage of failure caused by lack of uniform competence might be more awesomely applied to surgical *deaths*. Dr. Arthur James Mannix, Jr., a Fellow of the American College of Surgeons, says in the *New York State Journal of Medicine:* "Errors in judgment or technic concerning either the anesthesia or the surgery, or a combination of the two, contribute close to 50 percent of the mortality in the operating room."

Writing in *Surgery, Gynecology & Obstetrics*, Dr. Edward G. Stanley-Brown, a New York pediatric surgeon, reports that of 21 surgical deaths of infants and children that he and his colleagues examined, 90 percent were the result of doctor error. Dr. Leroy H. Stahlgren of the Philadelphia General Hospital reports that of 17 geriatric patients who died, "errors were committed in the surgical care of seven of the 17."

In many studies by doctors, emphasis is given to the dangers of dirt and infection in our hospitals. This comes as a surprise to the casual visitor, who often sees the American hospital as the quintessence of cleanliness, with its white-robed nurses and pungent purifying smell of antiseptic cleansers.

Actually, the ostensibly aseptic halls, wards, operating room and even the permanent personnel provide a convivial environment for the bacteria that inhabit every recess. The hospital patient is exposed to a massive attack from bacteria that each

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The surgeon's gloves may actually be a source of

year infect over 1,000,000 surgical, medical, maternity and pediatric patients. Those who survive may spread the contamination to their families and the community.

The high incidence of hospital contamination was confirmed in a recent report by the National Academy of Sciences—National Research Council. Investigating the operating-room results of five university medical centers over a period of 27 months, the Council studied 15,613 operations on 14,854 patients. Of these, 1,157 had contracted "definite" infections within 28 days.

Using the 10,250,000 nonmaternity operations performed each year as a guide, this ratio indicates a national bacterial harvest of 750,000 hospital-acquired surgical infections. When this number is added to the medical, maternal and pediatric patients who contract infections in the hospital, the total reaches well over the 1,000,000 mark. Few familiar diseases affect that many Americans.

Hospital infections are invariably a result of loose hospital standards and procedures. The bacterial spread may be a result of unclean instruments, improper laundering, inadequate sterilization, poor housekeeping, old surgical facilities, improper patient isolation, faulty surgical gloves, improperly washed hands, unidentified nurse and doctor "carriers" and "shedders," patient "carriers," the presence of antibiotic dust, dirty kitchens, contamination between child and mother, cutdowns for intravenous fluids and catheters.

A major cause of hospital infection, critics believe, is the faulty assumption that in this age of antibiotics, a sterile hospital environment is somehow less essential. Dr. Harry B. Harding of Northwestern University School of Medicine says the indiscriminate use of antibiotics—especially penicillin—is largely responsible for the growth of resistant strains of staphylococci that now inhabit hospital halls. They *superinfected* the atmosphere after their weaker bacterial cousins were killed off. "Workers have tended to relax their aseptic technics, believing that antibiotics would cover for these lapses," Dr. Harding warns.

The faith in antibiotics may keep the patient cheerful, but hospital-acquired infections are often too virulent for chemotherapy. At Boston City Hospital, 84 patients who had severe hospital-acquired staphylococcal infections were treated with one of the newest antibiotics, oxacillin. Thirty-one died, despite the antibiotic treatment—some from the staph infection, others from underlying illnesses. Dr. Maxwell Finland of Harvard Medical School has shown that among 86 staph-infected patients, the death rate was twice as high (48, as opposed to 24 percent) for those who had caught the infection in the hospital.

Some hospitals are bacterially dirtier than others. In the five university medical centers surveyed for surgical infections, the infection rate ranged from three percent in one institution to a medically indecent 11.7 percent in another.

The ever-present danger from almost any hospital bacteria—no matter how apparently quiescent—was shown at the San Francisco General Hospital recently, when an epidemic struck 57 patients, 16 of whom died. Once isolated, the "bug" was found to be a "new" hospital staph, whose presence was detected in almost every ward. Examination proved that this strain of *Staphylococcus aureus* was hospital-born. With obvious concern, *The Journal of the American Medical Association* has editorialized that these new hospital germs appear similar to those isolated in Cincinnati and Boston hospitals.

As soon as staphylococci and other bacteria invade the corridors and operating rooms, only a new environment may destroy the infection chain. Deaconess Hospital in Spokane, Wash., learned this a few years ago when it replaced operating rooms dating back to 1908. Surgeons and nurses scrubbed up at the end of a corridor, then had to walk through the hall to their operating theaters. The surgical-infection rate was 12 percent for gastric patients and *27 percent* for colon surgery. The new suites were opened in 1961, and two years later, the infection rates had been cut in half.

Simple errors in the operating room often make it bacterially "dirty." Physicians reporting in the *American Journal of Surgery* found that *most* of the dramatic-looking face masks intended to protect the opened patient from the doctor's own germs are inefficient. The surgeon's rubber gloves, put on with a flourish, have become the symbol of modern-hospital sterility. Their job is to protect the patient's open body from bacteria that survive the "scrub." Actually, two doctors report "breaks" in "approximately 30 percent of gloves worn at operations." Frances Ginsberg, R.N., hospital asepsis consultant and columnist for *Modern Hospital*, is concerned about the surgeon's gloves as a source of contamination. She advocates sterile disposable gloves, which are thrown away at the end of the operation. "Too few hospitals are using them," she says, and adds that those that do "are attempting to reprocess them in a misguided effort to save money."

A major problem for hospitals is the staff member who is a "staph shedder." The Typhoid Mary of history has been replaced by the "Staphylococcus Peter," who actually "sheds" bacteria from his body continuously.

John Ulrich, Ph.D., a Mayo Clinic microbiologist, describes a series of baffling surgical infections finally traced to a surgeon who proved to be a staph shedder. Patients from one surgical service in a local hospital had three postoperative infections within a week; all were contaminated with *Staphylococcus aureus* 54/75, a strain uncommon in hospitals. Every member of the surgical team was tested, until finally a colony of the staph 54/75 was found on the jaw of one member. He was removed from the surgical team for six weeks until he stopped shedding.

Not all carriers are shedders, but a California survey indicates the high incidence of carriers: one in every five hospital personnel.

The jeopardy of hospital negligence is not absorbed solely by the patient. His family and community may also be victimized once he returns home. The "hopscotch" pattern of hospital-acquired infection is described in a drug-company medical publication, *Spectrum*. Infant Johnny came home from the hospital nursery with staphylococcal impetigo. A few months later, his three-year-old sister Mary had a staph throat infection. The father of the children then contracted cellulitis, a severe staph skin infection. The pace quickened: Mary was rushed to the hospital with a deep infection and the threat of septicemic blood poisoning; mother contracted a perineal staphylococcal abscess; brother Bobby kept developing sties during the year. Fourteen months after returning home, Johnny himself had a painful staph boil.

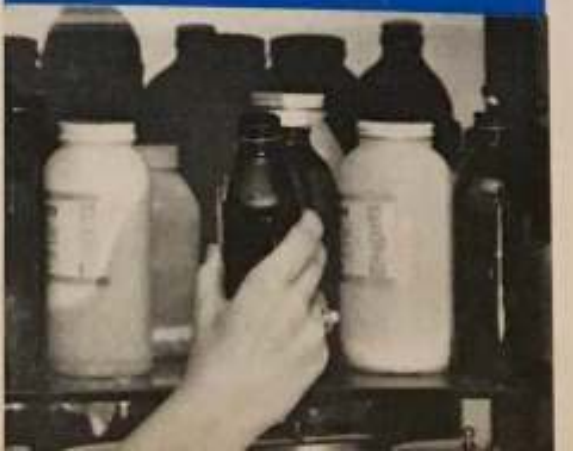
Anesthesia is administered to the 13,900,000 patients who undergo surgery or childbirth each year, yet the dangers to heart, lungs, brain and life from it are among the least-discussed hazards of hospitalization. Rather than a rare occurrence, death from anesthesia is excessively common. Estimates of its toll vary from 9,000 to 33,000 lives a year, with jarring evidence that the higher figure may be the more realistic.

Dr. Robert D. Dripps and his colleagues at the University of Pennsylvania analyzed 33,224 cases of surgery over a period of years and found that 80 deaths could be attributed to anesthesia, as either a "definite" or "possible" cause. "Inadequate" anesthesia care, physician "inexperience" and error are collectively implicated as the major cause of death. If this is an accurate sample of anesthesia casualties among the 13,900,000 subjects, then 33,000 lives are either "definitely" or "possibly" lost each year because of anesthesia.

This toll is admittedly much higher than that usually reported. Estimates of anesthesia death usually vary from one in 1,000 operations to one in 2,000, or some 9,000 deaths a year. This figure is sufficiently disturbing in itself, but underreporting of untoward medical fact is part of the American medical tradition.

Death certificates, for example, severely understate the anesthesia problem. "In assigning the cause of death on a death certificate, anesthesia rarely was entered, except in those circumstances where the contribution was major and unequivo-

"The average nurse," a Florida hospital researcher revealed, made "one error for every six medications given."



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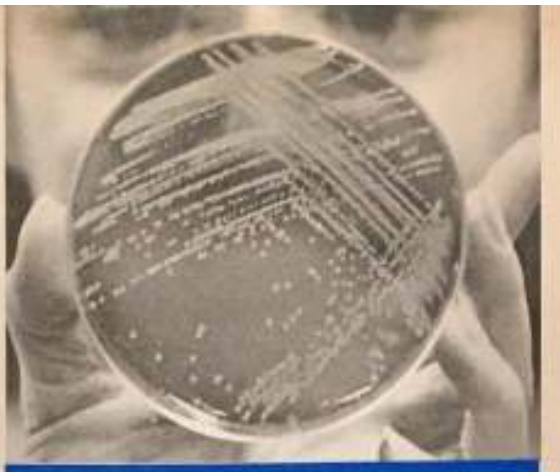

After 16 patients died during an epidemic, a San Francisco hospital discovered the cause: a new hospital-born strain of Staphylococcus aureus.

cal," the Pennsylvania doctors confirm.

The ease of administration and the miraculous absence of pain involved in anesthesia belie its serious depressant effects on the human body, even when negligence is not involved. A healthy six-year-old child scheduled for a corrective eye operation was placed under general anesthesia, then lapsed into cardiac arrest. The anesthetist refilled the bag with oxygen and attempted to restore the heart action by external massage, without success. A surgeon preparing for surgery was rushed in and opened the child's chest. Massaging the exposed heart by hand started it pumping again, but too late to save the blood-starved brain. The child became a blind mute, spastic quadriplegic and was confined to a state hospital. The brain cells can exist only four minutes without oxygen-blood nourishment, after which damage is permanent.

Even a slight cold or feverishness, especially in a small child, may trigger tragic results in otherwise routine surgery. A young child of 20 months, undergoing a harelip correction, initially, had his surgery delayed because of a cold. When it was rescheduled, his temperature was only slightly elevated, but he was taken into surgery and put "asleep" by the nurse-anesthetist. What should have been a routine repair became a biological debacle as the child's temperature soared, destroying brain tissue irreparably.

Another too-frequent cause of anesthesia death is the aspiration of vomit from the stomach into the lungs during an operation, especially during maternity cases in which the mother may have eaten before delivery. Dr. Daniel C. Weaver of Yale explains that "many physicians" are either "largely unaware" of the danger or are ignorant about the prevention of such tragedies.

The reason for uneasiness about anesthesia death is that it is usually preventable, and most often caused by anesthetist error or oversight. Once considered a technician's job, anesthesia has now so grown in complexity that many medical critics believe only the ablest, most intensively trained physician can properly handle the unanticipated anesthesia emergency. Unfortunately, 57 percent of hospital anesthesia is administered by nondoctors: nurse-anesthetists and technicians.

The necessity of skill is illustrated by a recent tragedy in Kansas. A patient with a mastoid condition consulted a surgeon, who ordered an operation. The head anesthesiologist at the hospital had a resident in training aid him, and the young doctor administered the anesthesia, then inserted an endotracheal tube into the patient to carry oxygen to his lungs during the operation. But instead of inserting it in his windpipe, the resident placed the oxygen carrier in the patient's esophagus, leading to the stomach. The error resulted in a bluish cyanotic condition, caused by the lack of oxygen. The result of the young anesthetist's failure of skill was a cripple—a patient unable to see, talk, walk or perform his bodily functions.

The electronic monitors in the modern operating room are valuable additions to medicine, but overreliance on the blips and waves by the anesthetist to the point of not perceiving the symptoms displayed by the flesh-and-blood patient may invite disaster. Dr. Valentino D. B. Mazzia, professor of anesthesiology at New York University School of Medicine, after examining 21 anesthesia deaths, concluded that the electrocardioscope monitor "did not help to predict the chain of events early enough to reverse them," and that it "was of no value in avoiding a lethal overdose of anesthetic agent."

The patient can avoid some of the most glaring shortcomings in anesthesiology by insisting on skilled hands putting him "to sleep." A board-certified anesthesiologist is preferable, a nonboard physician-anesthetist next and the nurse-anesthetist in an emergency only.

Two and a half million hospital patients receive transfused whole blood yearly, and most live to discuss it. But the toll of blood-transfusion accidents and biological contamination is outlandishly high: A minimum of 3,000 die every year, and from 10,000 to 75,000 hospitalized patients contract hepatitis as a result of the transfusion. Thousands more suffer other serious reactions, including hemorrhaging, gangrene, red-cell destruction, kidney disease and even heart attacks.

Dr. Leon Sussman, blood specialist at Beth Israel Hospital in downtown Manhattan, is convinced that preventable "human failure" in the hospital accounts for at least 50 percent of blood-transfusion accidents. The tales of such negligence fill the malpractice courts. In California, a six-week-old child was hospitalized for a skull fracture. Tests revealed internal bleeding, and a blood transfusion was ordered. The child's blood was Type A, Rh-negative, but it was mistyped, and the child was given Type A, Rh-positive instead. When the transfusion was completed, the child's left foot, where the blood was inserted, started to turn blue. Later, without correction of the error, the same blood, from the same bottle, was given to the child in still another transfusion. Both legs turned heavily cyanotic, then gangrenous, and had to be amputated below the knee.

Keeping incompatible foreign blood out of the human body is essential. Almost immediately after incompatible blood has begun to flow out of the plastic bag into the patient's veins, he complains first of backache, then of chest pain.

With only an ounce or two of donor's mismatched blood in him, the peripheries of his body start to turn blue, and he becomes restless. Inside his body, the donor's red-blood cells are being destroyed at a critical cost to the body.

"If the transfusion is interrupted at this point, there are seldom any serious aftereffects," Dr. Sussman states in *Trauma*, a medical-legal journal. "However, if continued, the reaction gets worse, with chills and fever and severe prostration. (If the patient is under the effect of a general anesthetic, these symptoms may not be recognized.) The symptoms progress rapidly, and soon pulmonary edema (filling of the lungs with fluid and blood) may appear, followed rapidly by death."

Cross matching samples of the patient's and donor's blood, a process that should be reflex in the good hospital, is the vital safeguard. The red cells of the donor are mixed with the serum (liquid) of the patient's blood and vice versa. The mixtures are watched carefully for telltale signs of clotting, a warning that the transfusion will be a threat to the patient's life.

Despite the existence of this check, the range of transfusion mistakes in the hospital is staggering. Bottles of blood are mislabeled; donors are not correctly identified; units of blood are delivered to the wrong patients (a special danger when two patients in a hospital have the same name); blood is mismatched; bottles crack and become contaminated; the patient is improperly identified; a sample of his blood is typed, then placed under someone else's name.

The most frustrating aspect of blood death is that many of the transfusions given in American hospitals appear to be unnecessary. Of 30 incompatible blood transfusions studied by Dr. Lee Binder and colleagues at the Kings County Hospital in Brooklyn, 16 were judged to have been unnecessary, and ironically, more lethal. "Clearly, the morbidity from blood-transfusion reactions would have been reduced by more than half and the mortality almost to zero were there greater appreciation for the indications for the use of blood," the doctors state in *Surgery, Gynecology & Obstetrics*.

Hepatitis is the most widespread transfusion danger for the hospital patient, the result of contaminated blood. "It has been reliably shown," says *JAMA*, "that an essential therapeutic measure, blood transfusion, causes death in approximately one of every 150 transfusions in persons over 40 years of age as a result of serum hepatitis."

Key area studies in Chicago, Los Angeles, Philadelphia and Baltimore reveal that hepatitis strikes one in every 25 to 50 transfused patients, with sizable danger of death. "It appears that the incidence of hepatitis after blood transfusion is greater than prior estimates have indicated," states Dr. John R. Senior, a Philadelphia researcher. Tufts University researchers believe they have found the basic source of the danger: prebottled commercial blood bought by many hospitals. The nine Boston teaching hospitals, which have a much lower transfusion-hepatitis rate, have shown the possibility of reducing this scourge. None of their blood is obtained from commercial firms.

The modern hospital is persistently dogged by error. One of the most cumulatively oppressive is medication error, now the leading cause of hospital accidents, according to George F. Archambault, former chief pharmacist of the Public Health Service hospitals. Instead of being fed glucose in

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water intravenously, one hospital patient was given 1,000 cc's of distilled water. The water in his blood caused hemolysis, a breakdown of the red cells, and irreparable heart damage. At a New York institution, the patient's order sheet read: ALLERGIC TO PEN (penicillin). Despite the precaution, he received a penicillin injection and predictably died of anaphylactic shock.

Sample surveys have hinted at the extent of this problem: 178 medication errors were *reported* in one seven-month survey of a Baltimore hospital. Two skeptical researchers, using an observer disguised as a "hospital pharmacy intern," have uncovered more startling statistics. In one reputable Florida hospital alone, they unearthed an annually projected 51,200 medical blunders! "The average nurse," states their *Modern Hospital* report, made "one error for every six medications given."

One surveyed nurse, asked to recall any medication errors she had made, answered confidently: "None—to my knowledge, I have never made one." Actual observation revealed the chasm between hospital self-judgment and what proved to be typical reality. "During the first shift that she was observed, this nurse gave a patient two aspirin tablets which were not ordered," the report states. "To another patient, she gave, at different times, two doses of procaine penicillin, and though the order on the chart was for 1.2-million units, she gave 600,000 units each time. She gave one phenobarbital tablet to another patient for whom no such order existed, and to still another patient, she administered papaverine injection, though the order on the chart said oral papaverine."

Dr. Lendon Snedeker of the Children's Hospital in Boston asks for a "rigid regimen" to reduce medication error. "It may be necessary," he says, "to have one nurse check another when particularly potent drugs are being used."

Rather than a carefully controlled environment, the American hospital is dangerously accident prone. The hospital, says Dr. Eric Stone, former director of the VA Hospital in Manchester, N. H., is actually "a dangerous place for employees and patients alike." Patients are burned by chemicals and hot liquids, cut by thermometers, injured by equipment. Some misadventures are minor, others, catastrophic. In a large New York hospital, two leukemia patients fell from their beds, causing uncontrollable hemorrhages and death. Dr. Stone has counted 3,747 nonmedical accidents among 103,005 patients. Projected, the total would be a million hospital accidents a year. Almost half involve patients falling out of ill-designed hospital beds!

Surgical accidents—such as sponges and retractors left in patients' abdomens, operations performed on the wrong patient and postoperative wound disruption—are equally hazardous. Death strikes an estimated 40 percent of patients whose innards contain "lost" surgical instruments.

The absence of proper diagnostic work-up—a missed blood-sugar or ignored heart sign—is another hospital troublemaker. The second Trussell report shows that the chance of general medical patients receiving satisfactory hospital care is shockingly low—*less than one in three*. Only 31 percent of its 120 cases in 98 varied hospitals were given passing medical grades.

Negligent diagnosis and therapy seem common in these hospitals. "By far the major reason . . . was the failure to explore fully the symptoms . . . and to establish a diagnosis for which a rational treatment program could be instituted," the report states candidly. "All too frequently, there was superficial therapy. . . ." Speaking of cardiac hospital care, it adds: "The use of digitalis and other drugs was frequently irrational and inadequate."

The compendium of ill-doctored diabetics, coronary cases, and respiratory and intestinal patients is discouraging. A male patient was hospitalized for edema and hemoptysis, spitting up of blood. The surveyors noted: "Exploration of respiratory disease superficial." Nine weeks later, the patient was readmitted, and the surveyors again commented: "Treated symptomatically, but underlying disease not investigated." Two months later, he was admitted to a Veterans Administration hospital where he died of cancer of the lung.

Hospitals have also been a factor in the sophisticated layman's oldest suspicion—unnecessary operations. In Baltimore, Dr. J. Frederick Sparling found that *less than half* the appendectomies performed in three local hospitals were necessary. (The greatest abuse was perpetrated on Blue Cross subscribers.) The uterus is another seemingly dispensable organ to surgeons, who perform 359,000 hysterectomies a year. "There is no avoiding the thought that some surgeons are too ready to remove the uterus," a medical journal has said. The first Trussell report indicates this surgical waste: 33 percent of hysterectomies were judged unnecessary.

Including the much-abused tonsillectomy, two million or more operations performed each year may be unnecessary. A five-hospital survey of seven common operations (including ulcer and ovary surgery) reported in the *Bulletin of the American College of Surgeons* showed, by hospital average, that 24 percent of their surgery should have been scrupulously avoided.

The American hospital is a surprisingly free agent, answering virtually only to itself for its record of death, infection, misadventure and medical culpability. The only external "control" is approval by the Joint Commission on Accreditation of Hospitals, whose criteria are both voluntary and generally unchallenging. Of 7,127 hospitals, 4,204 are accredited. Some 1,000 hospitals are too small to qualify, while many others blithely ignore the organization. A hospital's lack of accreditation should prompt suspicion, but approval is no guarantee of patient safety.

The unchallenging nature of accreditation is confirmed by Dr. James Z. Appel, recent JCAH chairman, who explains that because of "minimal" standards, "the public should not be led to believe that accredited hospitals are 'superior.' " Dr. Robert Myers of the American College of Surgeons adds that "many hospitals go to sleep between [accreditation] surveys."

The variance among hospitals must be understood by the knowledgeable patient. The first Trussell report revealed that in proprietary hospitals, 61 percent of the care given to patients was inadequate. The second survey illustrated the *relative* superiority of university-affiliated hospitals, which provided 83 percent satisfactory treatment. Care in all other hospitals—voluntary, municipal, private—was shown as a rank gamble, ranging between 48 and 56 percent inadequate.

The American patient does not have to be satisfied with such low standards of adequacy. Understanding of hospital pitfalls can help communities make more intelligent decisions. Thus armed, they can insist that *all* hospitals become what they were intended to be: institutions of healing, places of impeccable science and meticulous care.