The Problem of Defensive Medicine

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Summary. Defensive medicine—the use of diagnostic and end-treatment measures explicitly for the purposes of averting malpractice suits—is frequently cited as one of the least desirable effects of the current rise in medical litigation. Many physicians and policy-makers claim that defensive medicine is responsible not only for the increasing costs of health care but the exposing of patients to significant risks of harm from unnecessary procedures. Very little solid information is available about defensive medicine. The studies that have been conducted have been fraught with statistical difficulties and are by no means definitive. Even more important than the issue of defensive medicine is the more basic problem of our system of compensation for medical injuries.

Recent years have witnessed a progressive increase in the number of malpractice claims brought against physicians (*1*); some estimates have placed the rate of increase as high as 10 percent annually. In addition there have been a number of well-publicized high awards, some in the million dollar range. Recoveries of this order of magnitude are thought by many to encourage yet more malpractice suits. One derivative of these trends has been a marked increase in malpractice insurance premiums (*2*), which have risen from a total of about $60 million per year in the early 1960's (*2*) to an estimated current total well in excess of $1 billion annually (*3*). Some specialists, such as orthopedic and plastic surgeons, pay as much as $40,000 per year for malpractice coverage in some parts of the country (*4*). These costs are, to a large measure, passed on to the patient, and inevitably affect the overall cost of medical care.

In addition to the significant impact that medical malpractice suits are having directly on the cost of medical care, many believe they are having an even more profound indirect effect on these costs by inducing physicians to resort to defensive medical practices. These practices are said to occur when specific diagnostic and treatment measures are employed explicitly for the purposes either of averting a possible law suit or of providing appropriate documentation that a wide range of tests and treatments has been used in the patient's care. Defensive medicine, according to the Secretary's Commission on Medical Malpractice, can be characterized as either positive or negative (*5, 6*). Positive defensive medicine is the use of diagnostic or therapeutic measures to protect the physician or health care provider from being found liable. Many of these measures are felt to be unnecessary for the proper care of the patient. Negative defensive medicine, in contrast, refers to the withholding of diagnostic or therapeutic techniques that might be medically justified in light of the patient's physical condition but are accompanied by more than the usual risk of an adverse outcome and could thus serve as the basis for a malpractice suit. Positive defensive medicine may not only result in an inflation of health care costs through the overuse of laboratory and treatment facilities, but may also expose patients to the risks of adverse outcomes from the procedures themselves. Negative defensive medicine has minimal, if any, effects on health care costs, but may result in suboptimal medical care for the patient by denying a potentially beneficial diagnostic or treatment procedure (*6*).

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The medical and health care literature is replete with references to the impact of defensive medicine on the cost and quality of patient care. Some have concluded that defensive medicine is so pervasive in the medical community as to suggest that the actions of as many as 70 percent of the physicians in this country are influenced by the fear of litigation (*5*). The effect of these practices on the cost of medical care has been estimated to be considerable. The Health Insurance Association of America has indicated that defensive medicine induced by fear of malpractice suits may itself create annual costs of $3 to $6 billion (*3*). In 1975 the former Secretary of Health, Education, and Welfare, Casper Weinberger, indicated his belief that as much as $7 billion a year may be spent on defensive medicine that provides no benefit to the patient (*7*). Others have disagreed, pointing out the lack of good studies documenting the extent of defensive medicine, and suggesting that its effects are probably small relative to both the cost and the quality of patient care (*6, 8*). Somers has suggested that defensive medicine and medical malpractice are being used as convenient scapegoats for the ever-expanding costs of medical care and has suggested that a more significant factor in these escalating costs may be the fact that hospitals derive financial benefit from introducing new technologies into their practice settings (*1*), thus creating incentives for increasing the range as well as the utilization of laboratory tests in hospitals.

A Review of the Data

The studies conducted to assess the extent and nature of defensive medicine have created more controversy than resolution of the issue. One of the more frequently quoted addresses only indirectly the issue of defensive medicine. This study involved examination of the effectiveness of x-rays in the evaluation of head injuries (*9*). A prospective study was conducted, requiring the cooperation of physicians working in the emergency rooms of two academically associated hospitals. These physicians were asked to complete a form describing the severity of patients' injuries, the likelihood of a skull fracture, and the reasons for ultimately requesting that an x-ray examination be performed. In 1 year 1500 x-rays were ordered and evaluated by radiologists. Ninety-three fractures were discovered; diagnosis of 28 of these fractures (30 percent) resulted in an alteration of the course of treatment. The researchers identified 21 specific clinical findings—for example, the presence of neurologic abnormalities and vomiting—that were associated with a high yield of skull fracture on x-ray examination. Had these criteria been applied to the study group, about 1000 x-rays would have

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been ordered, and would have documented 92 fractures. Those patients who presented with, at most, one or two of the index clinical findings would have fallen into the low-yield group, and could have been effectively treated without a skull x-ray; of the 435 patients who would have fallen into this group, only one presented a fracture. The researchers argued that x-rays of this low-yield group could have been omitted or possibly deferred without creating any adverse effects on the patients. Because the researchers found no clear reason for ordering these x-rays, they concluded that medical-legal reasons must have been operating, and that the excessive use of x-rays in the emergency room situation reflects the defensive practice of medicine. A separate study of skull x-rays in children suffering from head trauma arrived at the same conclusion. In this study, 570 children consecutively admitted to an emergency room after head trauma had skull x-rays performed. Only one of these x-rays actually resulted in affecting the treatment that the child received (*10*).

Studies such as these reflect the difficulty in determining when use of diagnostic procedures is motivated by concern about lawsuits. The physician confronted with the individual patient must make a diagnostic judgment on which to base a therapeutic action. Ancillary examinations such as skull x-rays are seen by many as reducing the degree of uncertainty in such a situation. It seems at least as likely that forces such as these are operative; the ready assumption that legal considerations are paramount seems at best simplistic. A recent study of the efficacy of diagnostic radiological procedures resulted in different findings and conclusions (*11*). In an evaluation of x-ray practices in emergency rooms seven common procedures were examined—x-rays of the skull, cervical spine, lumbar spine, chest, abdomen, extremities, and kidneys (by intravenous pyelogram)—which constitute approximately 90 percent of the radiologic studies ordered in the emergency room. A total of 8658 cases were studied, of which 1039 involved skull x-rays. It was concluded that at most only a small fraction, perhaps 5 percent, of those x-ray examinations had had little or no input into the choice of diagnoses by the primary physician. At the time the clinicians requested the x-rays they were substantially uncertain about the accuracy of their diagnoses. Medical-legal reasons were infrequently suggested as the basis for request of an x-ray examination. However, when medical-legal reasons were cited by the clinicians, the influence of x-rays on diagnostic reasoning was still present, although, perhaps, to a somewhat smaller degree.

Attempts to Determine Extent of Defensive Medicine

In addition to the studies on the utilization and efficacy of x-ray diagnosis there have been several attempts to address directly the extent to which defensive medicine operates. The first of these was conducted in 1970 by the *Duke Law Journal* (*6*). Ten medical specialties were selected for study because they include procedures which, when used, might reasonably be considered to be motivated by the threat of medical malpractice. Hypothetical situations were constructed around these specialty disciplines, and questions were asked pertaining to the use of specific procedures. The questionnaires relevant to each of these ten specialties were sent to 100 practitioners in each of two states—California, where malpractice insurance rates as well as number of malpractice claims are high, and North Carolina, which ranks relatively low in both.

Of more than 1500 questionnaires that were distributed, approximately 54 percent were returned. The results indicated that the malpractice threat does influence practitioner decision-making, but particularly in the direction of practicing positive defensive medicine, which might lead to enhancement of the quality of care. Even so, this influence is not as great as previously estimated by others. In fact, the overall assessment suggested that procedures thought to result from fear of malpractice suits are not frequently performed by the practitioners of the various specialties selected. Paradoxically, physicians in North Carolina, where the malpractice threat is significantly lower than California, actually followed the practices outlined in the questionnaire more often than did those in California.

This survey of physicians, although it represents a very small sample in each specialty, supports the position that the practice of defensive medicine is by no means extensive, and is probably not a contributing factor to the escalation of medical care costs in this country. Other factors, such as the lack of meaningful cost constraints on physicians, the demands of patients for what they perceive to be optimum care, and the growing sophistication and cost of new technologies were felt by the journal staff to be more compelling reasons for overutilization of medical resources. Even when physicians acknowledged that they overutilized x-rays, they did not relate this to the threat of medical malpractice suits. As an illustration of this, orthopedists, who are often sued for medical malpractice, were asked whether they would order x-rays under a variety of circumstances. Among the hypothetical situations was one involving a young, healthy, male adult who might have injured his ribs in an accident. A variety of reasons were given by those physicians who indicated they would order an x-ray in these circumstances. Some simply claimed that this was the usual practice that they followed, even though they questioned the cost and efficacy of rib x-ray (*6*).

A second study supported the conclusions of the *Duke Law Journal* investigation. Seventeen physicians in the Pittsburgh area were interviewed to determine the extent to which liability considerations influenced practice, the nature and extent of defensive practice, and its effect on the physician-patient relationship and on the quality and cost of medical care (*8*). Defensive medicine in this study was defined as essentially poor practice induced by the threat or fear of a malpractice suit. Tests or procedures that are induced by the threat of suit but result in improved diagnosis or enhancement of the quality of care would not be included in this definition of defensive medicine. On the basis of these interviews the investigator concluded that defensive medicine is not extensively practiced. If it does occur it probably results in increased use of referrals and consultations by specialists. The study also suggested that the influence of malpractice suits is probably to reduce the number of procedures or tests ordered, rather than to increase them for purposes of documentation; if any group is prone to defensive medical practice, it appears to be those who have been sued in the past, and have been sensitized to the value of careful documentation.

Because of the small number of subjects and scanty data, this study does not permit firm conclusions as to the extent or impact of defensive medicine. However, despite their limitations both of these studies conclude that, contrary to the general belief, the prevalence of defensive medicine has been considerably overemphasized.

Opinion Surveys

Besides these two studies several recent opinion surveys have also tried to

assess the extent of defensive medicine. In 1974, more than 4000 randomly selected physicians were questioned regarding 15 specific actions that might be taken to lessen the chance of a malpractice suit (*12*). Of approximately 1400 who responded to the questionnaire, 80 percent indicated that they had taken at least one of the 15 measures presented (such as referring more cases, using consultations, being more selective in accepting new patients, and ordering diagnostic tests), because they were sensitive to the possibilities of a legal suit. Many of the physicians, however, indicated that some of the actions that they took for the purpose of avoiding a malpractice suit also turned out to be highly beneficial for the patient. In a 1976 study of the response of physicians to the increase of insurance premiums in California, investigators surveyed third-year resident physicians, as well as medical and specialty societies in that state, and found that the threat of medical malpractice had not had a significant impact on medical practice (*13*).

Last year, the American Medical Association Center for Health Services, Research, and Development participated in a survey of 500 physicians regarding the practice of defensive medicine. Of 111 who responded, 76 percent indicated that they are now practicing defensive medicine; 92 percent indicated that they are more aware of the possibility of a suit than they had been in the past (*14*). Nearly 76 percent indicated that they believed that defensive medicine is responsible, in some measure, for the increase in the cost of medical care. Some indicated that it might be responsible for as much as a 50 percent increase.

The Unresolved Issues

The available studies of defensive medicine, as noted, are limited by statistical and definitional difficulties. None is sufficient to characterize the problem of the influence of malpractice suits on medical care. Thus, in both the Duke (*6*) and Pittsburgh (*8*) studies, the sample sizes were too small to permit a reliable conclusion. In some of the surveys conducted the small percentage of responses to a wide range of questions precludes placing any reliance on the results.

One of the most difficult issues to be addressed if we are to understand the nature and extent of defensive medicine is that of defining appropriate standards of care for various medical conditions. Standards in most specialties of medicine have not been clearly described, so that what might appear to be defensive medical practice to one clinician may, to another, be quality medical care. The study on the use of skull x-rays in head trauma takes the position that discovering one fracture in 435 x-rays does not justify the extensive use of this diagnostic procedure. However, from the perspective of the physician making a decision about the appropriate treatment of an individual patient (*11*), it may be high-quality care to obtain the x-ray in order to reach a greater degree of certainty in the evaluation of the patient's condition. Defensive medicine as a concept is not easily understood in a way that would avert the conceptual difficulties in distinguishing between those acts which are clearly the result of fear of malpractice suits and those which may be perceived as acceptable medical practice.

As pointed out by David Mechanic (*15*), much of the argument around the defensive practice of medicine is closely associated with the wide range of disagreement regarding standards of medical practice (*16*). To whatever extent they exist, standards of medical care have been focused primarily on the processes of practice rather than the outcomes of medical intervention. Hence, the standards by which physicians are evaluated in terms of malpractice are based on how their diagnostic and therapeutic measures compare with those of other physicians in their locality or specialty. The focus of an individual evaluation tends to center on the process of a physician's judgment and assessment of the patient, rather than on the outcomes of practice. On a broader scale, our traditional approaches to the evaluation of medical practices have sometimes resulted in institutionalizing modalities of care that have later turned out to be of questionable merit in terms of patient outcomes. In other words, the validation of clinical processes is developing slowly, and has proven especially difficult after procedures have diffused into the care system. One instance of this may be the study by Mather *et al.* of death rates in acute myocardial infarction, which suggested no advantage in coronary unit care as compared with care at home (*17*). Even more striking are the recent studies indicating that coronary bypass surgery may not be as effective as has been thought in the treatment of patients with coronary occlusive disease (*18*).

Need for Outcome Assessment

The point is that one cannot handle accurately the issues involved in defensive medicine without having first established epidemiologically the soundness of medical procedures as they relate to specific outcomes in patients. The wide range of disagreement concerning many procedures and practices suggests the need for outcome assessment. Cochrane emphasizes the importance of evaluative techniques in establishing the relationship between process and outcome. He recommends the extensive use of random clinical trials as a means for making such correlations reliably (*19*). Recent restrictions on methods for clinical investigation make this increasingly difficult to achieve, however, and hence new technologies may continue to be spared the rigorous scientific evaluation essential for establishing their efficacy and safety.

The same difficulties that attend the delineation of standards for medical practice also affect evaluation of the existence of defensive medicine, the extent to which certain defensive practices may be beneficial for patients and may be viewed as a desirable impact of medical malpractice suits on physician behavior, and the extent to which defensive medicine may generate unnecessary procedures that are not only costly but may be detrimental to patients by exposing them to high risks of adverse outcomes. Complicating this further is the fact that new medical technologies are being introduced faster than ever before, and accompanying this is an increased expectation on the part of the public of the benefits of these new techniques. To a large extent new technologies shape consumer values and expectations, and these inevitably affect the nature of medical practice. This force may be considerable, and may have a greater effect on the way medical care is delivered than do defensive medical practices.

An illustration of this phenomenon can be seen in the increased use of cesarean deliveries in this country. At the 1977 meeting of The American College of Obstetricians and Gynecologists, it was reported that the rate of cesarean sections over the past 10 years has doubled (*20*). Some believe that cesarean sections have become more prevalent because of the increasing rate of litigation around birth trauma, and that minimal attention has been paid to the risks, which are not unlike those attending any surgical procedure where anesthesia must be administered. However, there is evidence of a decrease in perinatal mortality coincident with the increase in cesarean births (*21*).

The application of fetal monitoring devices during labor has also increased greatly (*21*). Although the overall bene-

fits of electronic fetal monitoring have not been clearly established, some argue that the prevention of a percentage of fetal deaths in high-risk groups warrants its widespread use, even though three-fourths of all pregnancies probably fall into low-risk groups that might just as effectively be monitored by highly skilled general nursing care (*21*). The physician who uses such precautions may not be doing it out of concern for the defensive medical aspects. The increases in cesarean sections and electronic fetal monitoring illustrate the conceptual difficulties in trying to assess the impact of defensive medicine on medical practice. From one perspective, they can be seen as a direct response to the growing number of suits around fetal injuries. On the other hand, these procedures do enhance perinatal health.

The second major conceptual issue is also related to questions of standards of medical care, and concerns the degree of risk that is acceptable in the physician-patient relationship. Many so-called defensive procedures arguably seem extreme from a statistical standpoint, in light of the benefits they produce. On the other hand, as has been pointed out above, when physicians order such tests, they cannot be aware of which individual may have an altered course of treatment. Furthermore, societal expectations of medical practice demand a high degree of certainty. These factors undoubtedly contribute to the pressures on physicians to employ various tests and procedures that may result in low diagnostic yields.

Conclusion

The definition of defensive medicine is loose and ambiguous; the incentives operating on the physician to conduct a wide variety of laboratory and other diagnostic tests are broader than the threat of medical malpractice suits alone. The studies we have discussed are not definitive, but they do not support the notion of widespread defensive medical practices, nor do they indicate a major impact on the increasing cost of care. At the same time, it is virtually impossible to assess directly the overall impact of defensive medicine, since much of what enters into the decision-making processes of physicians has been determined through the acculturating processes in medical education. The nature of that education is inevitably influenced not only by the scientific knowledge of the day, but also by the range of societal responses to the care being delivered. Hence, individual physicians may be unable to respond accurately to inquiries regarding the extent to which they are being influenced by the increase in medical malpractice suits. Many physicians feel strongly that defensive medicine is an operating factor in medical practice and, although these perceptions may be inflated, they cannot be ignored, as there has been a heightened sensitivity and awareness by all providers of health care of the possibilities of malpractice suits. Even more problematic is the question of whether defensive practices are beneficial for patients, or, instead, result in nonproductive medical activities that are both costly and potentially harmful. The distinction between these two cannot be resolved until standards of care are established for each specialty and for specific medical diagnoses and treatments.

Until we establish the basis for assessing standards of medical care, particularly as they relate to the outcomes of practice, a new study on the role of defensive medicine would probably provide little additional information. One possible exception would be a study that would clarify the nature of medical injuries that occur in various care settings with particular attention directed to those injuries that result from diagnostic procedures that may be considered to be "defensive" in a variety of circumstances. Clearly defined standards of care may be established in time by professional standards review organizations or groupings within the profession, and may provide a meaningful basis for evaluating overutilization of laboratory procedures and treatment facilities, thereby providing some method for measuring the impact of malpractice suits on medical practice. Perhaps even more important than focusing on the design of studies for assessing defensive medicine would be an examination of the incentives of a medical injury compensation system that would effectively promote positive rather than negative defensive practices. Some of the alterations of the existing malpractice system that have been proposed over the past few years, such as arbitration and automatic systems of compensation, have been geared specifically to that objective (*22*). In addition to the incentives of the system, attention must also be directed at developing effective information disclosure methods, so that patients can participate more fully in decisions affecting their medical care. A thorough attempt to educate patients about the benefits and risks of various procedures should not only result in a decrease in the use of negative defensive practices, but may also decrease the number of suits and alleviate concerns about medical liability. Attention should be directed at structuring a fair and equitable system for compensation and patient redress; the problems surrounding defensive medicine would likely be resolved in the process of accomplishing these objectives.

Finally, it should be emphasized that the defensive medicine issue is not the basic problem, but a symptom of it. The underlying difficulty is the parlous state of our compensation system for medical injury; when this has been addressed comprehensively the problems of defensive medicine will fade.

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