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Twentieth Century Indicators of Change in American Medical Practice for the 21st Century

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ARTICLES

TWENTIETH CENTURY INDICATORS OF CHANGE IN AMERICAN MEDICAL PRACTICE FOR THE 21ST CENTURY

Human history becomes more and more a race between education and catastrophe.

H.G. Wells 1866-1946

*Bernard Ficarra, M.D.**

INTRODUCTION

Historical reviews of the closing decades of the 20th century are the previews of coming events in medicosurgical endeavors for the next century. This Article will discuss incipient changes discernible currently that will be carried forward with more intensity into the 21st century. Among these general topics are the loss of the impalpables in medicine, socioeconomic controls over medicine, the reaction of medicine to changes wrought by external and nonmedical forces, the psychological burden of medical practice, the competence of physicians to treat patients, and the changing patterns for future medical practice. In addition, this propositum will forecast that the present and future bioethical intransigencies will be lessened as standards are formalized into procrustean medicolegal protective procedures under the guidance of adjective and substantive law. Other specific subjects evaluated are the consideration of newer confirmatory medical approaches from the advance in technological pursuits, legal medicine as the overseer of medical practitioners, and medicine as a business. The prevention of diseases is predicted to be accentuated along with a renascence of some past discarded treatments with the utilization of non-conventional therapeutic modalities.

In the next century, medicine will need to discover new biologic avenues for the reception of the anticipated sophisticated techniques unleashed from

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intricate scientific research. As a counterbalance, medicine will be compelled as a commitment to urgent cost containment to seek less expensive diagnostic methods and therapeutic armaments to still the rising financial burden of medical care. Contemporaneously, the value of prophylactic measures will be stressed as part of the solution for disease control and economic survival of medical practitioners and their allied health care givers.

With the passage of the next decade, the United States of America will retain its economic nature as a commercial enterprising nation. However, its manufacturing superiority may diminish as it becomes more and more a country whose major industry is offering all types of services to its citizens. Medicine will decline from a strictly professional endeavor in its parallel socioeconomic trial to a specialized dispenser of health care according to divergent, delineated categories of medical expertise. Diminishing as a highly sought-after learned profession, the medical discipline will not attract persons with superior inquiring intellect oriented to biological research, scientific experimentation, or the ambition to achieve medicosurgical excellence. With the medical doctor's decreasing participation in scientific research, there will be a concomitant rise in the number of persons holding doctorates entering the bioscientific laboratories. Simultaneously, the preclinical faculty in medical schools will abound in teachers with doctoral degrees rather than medical degrees.

Prodromal signs and symptoms in the 20th century prognosticate that clinical medicosurgical practice, biochemical research, and the rendition of health care services will undergo a far-reaching metamorphosis. The ramifications of these changes will touch every root, branch, and leaf in the tree of American life. Health care is not an *ens a se*, isolated and separate from human daily activity. It treats the very intimate personal structures of the body which are the greatest concern of all humankind. Because people are the stream of life, it is inevitable that what concerns them as persons must be reflected in their individual interactions with other human beings.

The personalities of the men and women of medicine will change. Scientific research will not emerge from the lonely unique vigil of the solitary dedicated enthusiast whose medical, pharmacologic, chemical, or biologic laboratory observations begin during the silent, weary hours of late night and emerge with the early twilight of morning. Investigations into the unrevealed mysteries of the biophysical and medicochemical sciences will become a team effort. Gregarious, multivarious researchers will form groups with predetermined divisions of labor. Discovery will depend upon many contributing individually of their segmental talents. Thus, all finished complementary or supplementary parts will be assembled into a final complete

entity. The accumulated data supporting the terminal hypothesis or research discovery will be submitted for publication under the names of the many contributors as authors. Experience teaches that the more investigative medical effort distances itself from one-person research, the greater will be the number of authors on the published literary product.

There will be increasing numbers of medical scientific research publications in the 21st century. This increase is inevitable because group efforts produce more quantitative results than does a lone researcher who is responsible for the project *in toto* including documentation and the writing of *quod erat demonstrandum*. The individualist in science will disappear. Multiple research partners equate with multiple authorships. The numerical incremental increase in group efforts coincides with a potential diminution of self-criticism. Pride combined with self-praise often rises in collective projects, creating a dangerous opportunity for bending or ignoring ethical standards. Time-honored criteria may be subverted by the blinding intensification of competition for success, acclaim, and honors. All scientists should adhere to the admonition *Servabo fidem, sic itur ad astra*.[1]

Medical stories of old are thought to be fantasy by young physicians. In earlier times, personal inspiration originated in the classroom, rather than in the theatre or on the athletic field. Admiration and emulation of teachers began at the primary school level during an era when students frequently "fell in love with" their teachers. Inspiration flowed from the fountain of learning like the Pieriean Spring of Greek mythology. Teachers and professors who were the recipients of such admiration empathized from their own youthful academic experiences.

It seems as though the newer generations of physicians will not look for their heroes in the descendants of Hippocrates. They worship the modern Gods of materialism who do not dwell in the temple of Aesculapius. The intrinsic merits of medicine as a learned profession will not retain its former historical charisma. Nevertheless, the usefulness of a physician is not to be underestimated and his or her place in every society past, present, or future is and will be an honored one. It has been written:

> The usefulness of a physician is good: professional activity that salvages the sick is better: but over all these goodnesses should soar and brood a divine virtue of good example for the betterment of humankind. So that when the great mystery-play of life reaches its close one may say to oneself 'I have tried to do some good.'. . . Love and justice are two virtues without which peaceable and civilized societies cannot exist. Nowhere is the test of love and justice

1. I will keep the faith, thus one may rise to the stars.

> more urgently met than in the care of those at the margins of society — especially the ill of mind and body.[2]

In the twentieth century and the future twenty-first century era of enlightenment, it is and will be the inchoate right of a rational society to enjoy the tranquility of public peace, the protective security of civil order and the benefits of scientific research.

LOSS OF IMPALPABLES IN MEDICINE

Present-day teachers of medical students may be stunned by the profound differences from past decades. Disenchantment arises from the sight of the casual dress of both genders. It is not unusual for students to drink beverages during lecture periods. Their seated positions range from legs elevated over the seatbacks in front of them to a self-induced kyphotic slouch.

Such present-day classroom deportment contrasts markedly from that of the halcyon decades past when all medical students wore a white jacket or white coat. The jacket was the proud personification of a sophomore, while the freshmen were identifiable by their distinctive long coats. Wearing a white coat or jacket was an expression of pride in accomplishment, an outward sign of inner success at each level of medical study.

During medical school training, students must develop professionalism, the benchmark of a true physician and one of the invisible, impalpable attributes of medicine that categorizes it as a distinctly learned discipline of the highest intellectual order. The mark of the traditional physician is his or her professional behavior socially, personally, and in communications with all human beings.[3] The commercial concept of occupational pursuits such as that of an actor or actress, prima donna or athlete is alien to medical professionalism. Professionalism has a deeper significance because it engenders a one-on-one physician-patient relationship that is intimate and interpersonal, requiring mutual respect of unquestionable moral rectitude.

As human behavior, respect is a giving and a taking, blessing both the giver and the taker. Respect is a two-way street, never a one-way avenue or a king's highway reserved only for the selected few who travel the roadway infrequently. Professionalism encourages respectful conduct as an essential ingredient for the harmonious interchange of proper human etiquette.

Mutual respect, professional dignity, social graces, personal self-esteem, a

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2. Pellegrino, *Health Care: A Vocation to Justice and Love*, in THE PROFESSIONS IN ETHICAL CONTEXT: VOCATIONS TO JUSTICE AND LOVE 97 (F. Eigo ed. 1986).

3. *See generally* Pellegrino & Thomasma, *The Conflict Between the Autonomy and Beneficience in Medical Ethics: Proposal for a Resolution*, 3 J. CONTEMP. HEALTH L. & POL'Y 23 (1987).

patient's gratitude, and the physician's sacrificial efforts for the benefit of humanity are the unseen and immeasurable assets that accrue from the study and practice of medicine. They bring forth indescribable complex human gratifications that are rarely granted to other professionals. Hence, it is implied that each physician is obliged to raise individual standards in self appearance, to correct improper personal daily actions, and to be dignified commensurate with the historical acclaim that has been bestowed upon people of medicine. This elevating idealism neither indicates nor does it espouse any tinge of elitism, snobbery, or superior self-indulgence. Rather, it is respectful professionalism pursued to create, sustain, and preserve the confidential trust of the patient in his physician.

Visible respected professional characteristics beget unseen merits, embellishments which brighten the emblem of medicine. The ancient caduceus should be resurrected as the emblazoned shield of the medical profession. This insignia is a reminder of the glory that is medicine and the grandeur of its practice.

Surgeons consider surgery to be the king of the medical specialties. If so, then the burden of surgeons should be emphasized as a regal responsibility with greater gravity of culpability. Unfortunately, the present-day surgical resident is primarily looking forward to the day when his earning capacity is greatly enhanced rather than focusing on acquiring the precious knowledge that is at hand during his training period. Residents look so far ahead that their current assignment is either a tedium or a means to an end. Where are the residents who used to go to the operating theatre to assist or observe a patient from his service who needs an emergency operation at night? Once a resident leaves the hospital on his day off, he does not return.

To assimilate the essential ingredients of the master surgeon, patients must be followed and observed from the moment they enter the hospital to the day of hospital discharge. This continuum is the method of learning and absorbing the composing elements that transform the doctor of medicine into a complete surgeon. These basic essential ingredients are the mental, the moral, and the mechanical attributes. The first has to do with knowledge, the second judgment, and the third exquisite manual dexterity of operative technique. The greatest of these is judgment, but happy and fortunate are they who have acquired all three in equal proportion. This trinity of perfection should be the goal of all those in pursuit of surgical superiority.

There is another essential and intangible attribute necessary in a surgeon, namely conscience. Conscience may be defined as "an awareness of the moral goodness or blameworthiness of one's own conduct, intentions, or character, together with a feeling of obligation to do or to be that which is

recognized as good."[4] Formation of a surgeon's conscience commences during the period of surgical training. It becomes conditioned by the education and experiences encountered under the guidance of those who instruct. If the teacher is heartless, so is the pupil. If the master looks upon patients as a peptic ulcer or gallbladder case rather than as a human being with family ties and obligations, he might just as well be handling vegetables. The young surgical resident acquires not only his chief's scientific thoughts, surgical judgment, and technique, but also his morality and attitude toward the patient as a creation of God.

Blessed are those physicians who learn the valued need for integrity in thinking and in personal behavior, as well as the dignity of their relationships with patients, associates, and allied health care personnel. Surgeons should be their own severest critics. As people dedicated to the care of the sick, they are obligated to do more than what is expected of them. They should not count the hours that are spent in bringing comfort to their patients. During surgery, the surgeon is the captain of the team. As such he should carry himself with dignity and imperturbability during surgery. Team effort is the surgeon's goal. There is no place for exhibitionism or the assumption of a prima donna's role in the surgical theatre. The operating room is not a place of amusement. No story-telling or gesting is appropriate, which is not to say that a surgeon cannot smile. On the contrary, a good sense of humor is a blessing. It will prevent the surgeon from taking himself, but not his work, too seriously, an attitude which is good for the human ego.

Impalpable assets flow from the teacher to the student in daily invisible and inaudible communications. If, during his period of learning, a surgeon has been under the influence of a capable, moral preceptor, he will absorb the high moral standards that are indigenous to the American surgical tradition. All medicosurgical teachers have a moral responsibility, as well as the optimal opportunity, to inculcate into subordinates the *noblesse oblige inchoate* to the dignity of being called a doctor of medicine. Although current remarkable medicosurgical advancements have been unequaled in past generations, the fundamental principles of professional ethical conduct in the relationship of doctor to patient, to colleagues, and to associates in the other branches of the biosciences have not changed.

Surgeons are especially fortunate who can say:

> Happy is he who, listening to the voice of his conscience, shall hear her murmur in his ear the comforting words, which tell him that whatever his failures and shortcomings, he has done more good

4. WEBSTER'S THIRD INTERNATIONAL DICTIONARY OF THE ENGLISH LANGUAGE (unabridged ed. 1976).

> than evil; that on this earth where joy and misery travel side by side, his hand, though bloodstained not unlike those of the Saviour, have relieved more suffering than they have caused pain.[5]

According to Nietzsche, a "philosopher is a physician of culture."[6] Similarly, a physician has philosophic creeds. The philosopher diagnoses the ills of the world and then devises methods to correct those ills while the physician diagnoses diseases of individual persons and then tries to cure them. Both philosophers and physicians are enemies of ethical misconduct, realizing that moral slavery will result when human rationality ebbs so that it cannot manage ordinary ethical conduct necessary for daily activities.

SOCIOECONOMIC CONTROLS OVER MEDICINE

Shakespeare wrote in his Sonnet 60: "Like as the waves make towards the pebbled shore, so do our minutes hasten to their end,"[7] an apt description of independence enjoyed by physicians in past decades. External interference with medicine's autonomy marked the twentieth century, an attitude that will intensify in the fast-approaching 21st century. Cold chilling winter winds outside the formerly impenetrable walls of the warm cozy medical practice climate will find their way inside through the cracks, apertures, and crevices of the falling ramparts of medical isolationism.

Invasion of medicine is visible under many acronyms such as HMO (Health Maintenance Organizations), PSRO (Professional Services Review Organizations), and GAO (Government Accounting Office). No matter the alphabet, the underlying purpose is control or dictation of policy in health care administration. This dictation of policy is illustrated by congressional interest in trauma care. During the 100th Congress, Senator Alan Cranston of California and Senator Edward Kennedy of Massachusetts introduced trauma care legislation.[8] Their bill incorporated many of the findings of a GAO health care study of states that have assumed leadership roles in providing emergency medical service.[9] Similar legislation has been introduced

5. B. FICARRA, ESSAYS ON HISTORICAL MEDICINE 37 (1948). Words of Rudolph Matas, distinguished surgeon of New Orleans, Louisiana, (1860-1957), who achieved fame by devising an aluminum band for temporarily occluding large blood vessels in order to test the condition of the collateral circulation. The Matas operation is an endo-aneurysmorrhaphy, a technique for treating aneurysm by opening the aneurysmal sac and closing the internal orifice with sutures.

6. 35 A LIBRARY OF THE WORLD'S BEST LITERATURE 10665 (C. Warner ed. 1895). Taken from Frederick Nietzche (1844-1900), philosophical psychologist, author of THUS SPAKE ZARATHUSTRA, BEYOND GOOD AND EVIL, and THE GENEOLOGY OF MORALS.

7. W. SHAKESPEARE, *Sonnet 60*, lines 1-2, in SHAKESPEARE'S SONNETS 141 (W.G. Ingram & T. Redpath eds. 1965).

8. S. 10, 100th Cong., 1st Sess. (1987).

9. GENERAL ACCOUNTING OFFICE, HEALTH CARE: STATES ASSUME LEADERSHIP

in the 101st Congress.[10]

Legislative planning aims for a mechanism that provides incentives for the establishment of regional centers for trauma care. The purpose is the development of a trauma system at designated centers. Informative studies, in conjunction with developed fieldwork, demonstrate that political and economic factors combined with resistance from hospitals without traumatic care facilities form impediments to the implementation of systematic, preplanned trauma-care capability.[11]

Additional limitations on medical practice arise from insurance carrier restrictions on fees for services rendered. A physician's personal profile may be a factor in granting a higher fee than that paid to other physicians in the same community. Furthermore, insurance carriers will have a right to question procedures performed and to demand a copy of the operative report or any similar documentation prior to payment. Failure to comply or to cooperate with insurance carriers may result in denial of payment, or even more devastating, accusations of fraud, deceit, or conspiracy to defraud by cheating. The preoperative second opinion will flourish under the watchful eye of third party payors.

Furthermore, government restrictions will worsen for the physician. The cudgels of Medicare, Medicaid, and Social Security disability will haunt medical practitioners to a greater degree than ever before as governmental agencies strive to obtain economic stability.

Medicine is targeted for critical control because it is the only learned discipline that deals with the human person on an intimate basis. It has been, and will continue to be, the recipient of scrutiny primarily because it is the archetype of a persuasive profession with great social and economic power, but also because it concerns itself with matters of grave significance related to societal and individual well-being, peace of body, and mental tranquility. It is the foremost example of "the dilemmas and difficulties of adequately controlling a profession from within and from without."[12]

It is difficult for any profession to regulate itself according to the wishes of external critics, be they sociologists, economists, commercial entrepreneurs,

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ROLE IN PROVIDING EMERGENCY MEDICAL SERVICES (Oct. 3, 1986). *See also* Tennant, *Washington Update*, 9 EMERGENCY MED. & AMBULATORY CARE NEWS 5 (Mar. 1987) (The purpose of the study was "to review the effect of the transition from federal to state leadership under the block grant and identify the key isues affecting the local delivery of services.").

10. S. 15, 101st Cong., 1st Sess. (1989); H.R. 436, 101st Cong., 1st Sess. (1989); H.R. 1602, 101st Cong., 1st Sess. (1989).

11. Tennant, *supra* note 9, at 5.

12. SOCIAL CONTROLS AND THE MEDICAL PROFESSION 2 (J. Swazey & S. Scher eds. 1985) (quoting Swazey & Fox, *Medical Sociology*, 247 J. A.M.A. 2960 (1982)) [hereinafter SOCIAL CONTROLS].

or governmental ombudsmen. Under these circumstances, the capacity of any individual, group of people, or learned profession to comply with these external regulators approaches zero. Hence it becomes the burden of another agency with stringent measures imposed upon medicine by a social community, third party payors, governmental officials or others whose influence increases as they regulate and/or discipline members of the medical profession. Even though these regulators do not have an adequate knowledge of medicosurgical diagnosis, procedures, and therapy, they will render verdicts on serious problems of which they are in total ignorance. Because of these impositions, medicine will be branded with suspicion by esoteric supervisors who will become the non-peer reviewers of physicians. "Nothing is more terrible than ignorance in action."[13]

REACTION OF MEDICINE TO CHANGES WROUGHT BY EXTERNAL FORCES

Near panic reigns in the ranks of medicodental societies, a reflection of concern over the decline in medical and dental school applicants. Dental school admissions have been declining, resulting in financial troubles and the closing of several university affiliated dental schools.[14] This same misfortune for nursing schools is an accomplished event.[15] The evil prognostication for medicine is affirmed by the apparent need doctors of medicine have to defend their profession from invectives and criticisms from many overt and covert sources. An approaching professional disaster is envisaged in the next century.[16]

Many writings with a primordial defensive intention attempting to dispel the burgeoning disenchantment in medical practice appear in scientific journals. Further proof of this disquietude is attested by the appearance of

13. J. GOETHE, THE MAXIMS AND REFLECTIONS OF GOETHE 108 (B. Saunders trans. 1893).

14. DePalma, *It's Boom Years Over, A School Regroups*, N.Y. Times, Apr. 8, 1989, at 29, col. 5 (reporting closing of Fairleigh Dickinson University's dental school due to financial difficulties, which included a $1.6 million deficit); Gordon, *Declining Rolls: U.S. Dental School Feel the Crunch*, L.A. Times, Oct. 26, 1987, at 1, col. 1 (reporting the anticipated closing of Georgetown University's dental school in 1990, as well the previous closings of the dental schools at Emory University in Atlanta and Oral Roberts University in Tulsa, Oklahoma). "The number of people who apply each year for admission to dental schools has dropped by about two-thirds since 1975, from 15,734 to about 5,700." *Id.*

15. Feinberg, *AU to Close Nursing School Despite Demand in Profession*, Wash. Post, Aug. 19, 1987, at C8. "The decision to close AU's Lucy Webb Hayes School of Nursing, which dates back to 1891, came after several years of declining enrollment and declining quality of applicants." *Id.*

16. *See* Restak, *The Case of the Disappearing Doctor*, Wash. Post, Feb. 7, 1988, at C3, col. 1.

books with titles such as *Future Practice Alternatives In Medicine*,[17] for which the editor "gathered a list of distinguished contributors to provide new doctors with a practical 'nuts and bolts' view of the future of medicine."[18] This tome is a source of valuable information for medical students and residents giving them an overview of the reality of being a physician today and tomorrow. Before embarking upon a medical career the student can profit by reading essays that explain the detriments to a medical career due to competition, a surplus of physicians, medical liability, governmental regulations, and other factors that limit the medical profession.

Current medical events are soothsaying oracles predicting that the scientific drama of the future will disclose vast changes in medicosurgical pursuits. There will be a noticeable reduction of the staunch, solitary, silent, individual and personal efforts leading to profound bioscientific discoveries. This heritage was recorded in the annals of medical history categorizing many past scientific contributions that gave vitality to the collective fulfillment of medicosurgical advancements now filed away in musty archives. There will be a burgeoning of collectivism in medicosurgical research with a close cooperative effort on the part of many to accomplish one end.

Socioeconomic pressures will be the major external forces that alter medicine's future. Changes will occur at all levels, from the medical school curriculum through residency training into the actuality of rendering health care to the public.

> 'Tis Education forms the common mind,
> Just as the Twig is bent, the Tree's inclined.[19]

A litany of anticipated changes affecting future physicians and surgeons are:

1. The loss of the solo practitioner;
2. The rise in salaried physicians;
3. An increase in group practice;
4. The attachment to universities, medical centers, community hospitals, medical foundations, private clinics;
5. An attraction to serve in the Army, Navy, Air Force, Public Health service (i.e., National Institutes of Health, Veterans Administration);
6. An increase in employment as hospital administrators, executives/researchers in pharmaceutical corporations, as industrial physicians or in labor unions;

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17. FUTURE PRACTICE ALTERNATIVES IN MEDICINE, (D. Nash ed. 1987).

18. *Id.* at 36.

19. A. POPE, Epistle to Lord Cobham, line 101, in ALEXANDER POPE, EPISTLES TO SEVERAL PERSONS 21 (F. Bateson ed. 1951). Alexander Pope (1688-1744) is one of the foremost English poets of the 18th century. This work was written in 1734.

7. A decrease in privately financed medical research facilities endowed by physicians/surgeons; and,
8. The virtual disappearance of the one-author medical article.

A great change will occur in both medical facilities and the ambience in which medical care is administered. Illustrative examples are:

1. Ambulatory medical care centers, providing walk-in physician care, will be underwritten by private corporations;
2. Emergency services will become available in shopping centers, in facilities often called family medical centers;
3. Medical services rendered outside hospitals will result in significant financial hardships to the hospitals, forcing many of them to close;
4. All hospitals will have same-day surgical service for the treatment of a large number of outpatients;
5. Physicians will concentrate on symptomatic therapy, for example, pain treatment and acupuncture, given in pain clinics outside the hospital;
6. Medicare-designated centers will increase all types of organ transplantation, favoring scattered geographic locations as opposed to clusters in one region;
7. Cost containment will be a major concern with managerial regulations under the surveillance of an authority such as HCFA (Health Care Financing Administration);
8. Scientific writing may fall into disrepute as authors submit the same data to two or more journals under different titles, or pad the bibliography of less productive investigators, or send reprints of an article to newspapers, health magazines, or non-scientific publications to obtain free publicity, or manipulate statistics to reach a preconceived purpose;[20]
9. There will be increased usage of computers to make available the latest known therapy such as "The Physician Data Query" (PDQ);[21]
10. Nationwide networks of health care facilities with innovative systems (e.g., Humana, Kaiser Permanente, and others) will make primary medical care easier for both physicians and patients.

During the final years of this century dire predictions of future events abound. American medicine has been shocked into the reality that all is not well within its ranks. A major segment of this perilous position can be at-

20. Palumbo, *Transition: A New Editor*, 62 MAYO CLINIC PROCEEDINGS 230 (Mar. 1987).

21. Hubbard, Henney, & DeVita, *A Computer Data Base for Information on Cancer Treatment*, 316 NEW ENG. J. MED. 315 (1987). The Physician Data Query is described as "a computer data base for information about cancer, which allows clinicians to keep abreast of advances in treatment, to identify appropriate clinical research trials for patients under their care, and to retrieve information on specialists for consultation or referral." *Id.*

tributed to economic elements. An overabundance of new physicians has stabilized the doctor's income with a contemporaneous rise in the cost of maintaining a medical practice. Government overseers are looking over the doctors' shoulders demanding that fees be lowered. Commercialism in medicine has made health care a big business that is eroding the income of the personal physician. Walk-in clinics, shopping center medical facilities, health-maintenance organizations, union health benefits, and similar organizations are taking patients away from individual and hospital-based physicians. As economic factors stress cost-containment, the medical profession is losing its control authority to business experts, thus destroying a physician's autonomy with a diminution in medicine's inherited prestige. "No longer is control of medicine solely in the doctor's hands."[22]

In the twentieth century, intensified pre-admission inhospital approval will evolve into a solely economic question rather than a patient service. Except for emergency reasons, denial of hospital admissions will increase. Almost all insurance carriers will demand a corroborating second opinion prior to approval of most requests for elective surgical operations. Statistical verification will be based on data that will show a profound diminution in operations for hemorrhoids, herniae, cardiovascular diseases, arthroscopies, spinal disc syndromes, gall bladder calculi, uterine fibroids, mammary augmentation and breast reduction, and other so-called surgical diseases.

Forceful non-medical events have demotivated medicine's jewel in the crown of learning. Mechanical technology, now present and increasing in the next century, devalues precise deductive reasoning in medical diagnosis and treatment. Syllogistic logic resulted in firm conclusions because of the philosophic structure upon which they were embedded. This loss of the human reasoning process is an added factor in the lessening of the once propaedeutical physician-patient relationship. "Remember that we [physicians] have been granted a unique privilege by society, to enter into individuals' most private lives. It is a rare privilege, which we think so little of and teach so little about in our medical schools, but yet it is central to everything we do."[23]

PSYCHOLOGICAL BURDEN OF MEDICAL PRACTICE

Modern medicine lies mortally wounded at the Waterloo of governmental ineptitude, commercial legalism, and internecine medical politics. Economic security is no longer an alluring inducement for entering this scientific pur-

22. Work, *It's Fever Time for Doctors*, U.S. NEWS & WORLD REP., Jan. 26, 1987, at 44.

23. Fischer, *Back to Hippocrates: The Physician's Role as Central to Medicine*, 50 THE PHAROS 36, 39 (Winter 1987).

suit. The physician is entrapped by the present excessive propensity for litigation that is both psychologically and economically traumatic. The psychiatric aspect of this legal entanglement was viewed in past decades as a shadow without substance. Today under the subtle masquerade of early retirement, the decrease in the number of solo physicians, restrictive medicosurgical practice, the decline in the overall applicants to medical schools, the closing of nursing schools, and the declining desire to study dentistry are evidences of a much more significant problem.

Feeble attempts are being made to change the tort system of law. There have been legislative proposals to place a ceiling on malpractice awards for pain and suffering. This tokenism provides no berm for the tide of discontent submerging practitioners of medicine. Physicians facing increases in medical malpractice premium rates of almost 35 percent are not placated by these ineffectual efforts.[24]

More tangible evidence of medicine's fragility is demonstrated by the ostensible impersonal relationship between the physician and the patient. Laconic communication is replacing the friendly conversations that were the hallmark of medical practice since the horse-and-buggy doctor era. A sued physician feels betrayed by the suing patient, so the attending doctor is on guard at all times. Moreover, there is a noticeable lack of children "following in the footsteps" of their physician-parents in selecting medicine as a career, a maddening sequel to this ignoble legal strife.

What is most tragic is the persistently increasing rate of depression among physicians. Inevitably, the professional chagrin emanating from medical liability overflows into the physician's family life. The doctor becomes more and more irritable, withdrawing from usual social activities and even decaying into antisocial behavior. The malpractice ogre is a major factor diminishing medicine's cynosure as an attractive professional endeavor. Medicine has declined in dignity as a sought-after learned discipline. This loss of prestige coupled with the spectre of medical malpractice combines to undermine the psychological stability of an evidently increasing number of physicians who choose suicide. Doctors are no less vulnerable to the bodily weaknesses that beset all of humankind. Mental burdens, including symptoms of burn-out, can affect doctors so profoundly that they may succumb to the same mental or physical problems that they attempt to treat or eradicate in their patients.[25] The stress and strain of life may lead to self-destruction for the doctor, just as it might for anyone else.

24. Haight, *Doctor, Heal Thyself: Strong Medicine for Professional Woes*, Legal Times, May 8, 1989, at 25 (citing *Medical Monitor Liability* report of a 34.5% average increase in medical malpractice premiums nationwide between January 1986 and July 1987).

25. B. FICARRA, SURGICAL & ALLIED MALPRACTICE 558 (1968).

Most physician suicides occur in persons under fifty years of age.[26] The American Medical Association reports that most studies estimate the rate of physician suicide between 28 and 40 per 100,000.[27] The mode of death is by poisonous drugs, lethal overdose of barbiturate and morphia derivatives, or by a gunshot wound to the head.[28] Mental illness, abnormal personality, subclinical disease, dissatisfaction with the medical profession, financial hardship, failing self-esteem, and loss of the respect of family or friends may be factors in the physician's suicide attempt.[29] The accusation of negligence can be the final burden that precipitates the action of self-annihilation.[30]

An additional consideration facing doctors is harm from a patient. Professional people receive threats from their patients or other persons. Doctors are often the recipients of poison pen letters.[31] At the extreme, a distinguished orthopedic surgeon was shot to death by a disgruntled patient-firefighter in New York City.[32]

Is the constant malpractice threat in the United States changing the practice of medicosurgical specialties? Are doctors practicing with diminished enthusiasm because of this persistent legal misadventure? All physicians are painfully aware of the ever-increasing number of malpractice claims in their geographical areas, inducing them to modify their professional attitude toward patients and to eliminate from practice certain high-risk therapeutic techniques. It is a sad commentary that these tempestuous years of the closing 20th century have produced mental unrest exemplified by the ease with which physicians can be plunged into psychosomatic disquiet.

Detrimental effects that accusations of medical negligence produce are readily observable. Among them is that fear has become an impediment to

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26. *Id.*

27. Council on Scientific Affairs, *Results and Implications of the AMA-APA Physician Mortality Project*, 257 J. A.M.A. 2949, 2950 (1987). While this estimate closely compares with the estimate of 31 per 100,000 for the white male population over 25 years of age, the report notes that "it is important to keep in mind that quoted suicide rates are usually rates of *reported* suicides. Covered-up and attempted suicides no doubt add significantly to the number of physicians in need of help." *Id.*

28. *Id.* at 2951. "Forty-six percent of the physicians who took their own lives died by gunshot wounds, 29% by drug overdoses, 11% by hanging, and the rest by a variety of means." *Id.*

29. *Id.* at 2950. The Mortality Project provided a sketch of the suicide-prone physician. The data revealed, in part, that: a physician usually warns of his suicidal intentions; depression, a history of mental and physical health problems, and a troubled childhood and family life are often factors; and, the physician often self-prescribes drugs or has a problem with alcohol. The Mortality Project warns that "it is important to guard against the belief that the physician-patient is less endangered than any other psychiatric patient." *Id.* at 2953.

30. Wohl, *Death by Malpractice*, 255 J. A.M.A. 1927 (1987).

31. B. FICARRA, *supra* note 25, at 94-95.

32. N.Y. Times, Feb. 6, 1987, at B1, col. 1.

medicosurgical progress. Clinical advancements have been decelerated in part perhaps by the premature retirement by many distinguished physicians in good health. These prevailing evil omens will not result in medicine's flump. Confusion will reign supreme sporadically; nevertheless, people of medicine will survive. Each will continue the noble medical tradition of "Ich dien."[33]

Hopefully, a decrease in the court victories of patient-plaintiffs will parallel an increase in the quality of medical care. If the medical profession does not initiate improved quality of care, then government agencies or the courts will do it for them. An initial step in this direction in the 20th century points to additional similar measures in the 21st century.

Federal laws providing adequate protection for the peer review process have been enacted. The Health Care Quality Improvement Act of 1986,[34] now the law of the land, reflects the sense of the Congress about the appropriate way to encourage good physicians to prevent the practice of bad medicine. It is a system that grants immunity to reviewers and witnesses, creates a central source of information in hospitals, provides a state disciplinary action process, and guarantees medical malpractice payments. "The purpose of this system is to assist good physicians who are dedicated to improving the quality of care."[35] Its aims are:

1. To improve peer review so as to moderate the incidence of malpractice;

2. To obtain greater protection from malpractice suits, by convincing the public that the medical profession is doing everything reasonable to regulate itself; and,

3. To help improve the widely acknowledged lack of timely and accurate information on malpractice.[36]

Federal and state legislatures will support the enactment of procedures aimed at solving diminishing medicosocial relationships in the following manner:

1. Passing legislation aimed at protecting those who review and judge physicians' competency to encourage in-house self-discipline;

2. Advocating tort reform;

3. Checking the practice of insurance companies regarding pricing, i.e, premium hikes, as well as their investment portfolios;

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33. "I serve."

34. Health Care Quality Improvement Act of 1986, 42 U.S.C. §§ 11101-11152 (1986).

35. Waxman, *Medical Malpractice and Quality Care*, 316 NEW ENG. J. MED. 943 (1987).

36. *Id.* at 944.

4. Overseeing malpractice insurance to improve affordability and availability; and,

5. "Reducing the litigious atmosphere that is clouding the relationship between physicians and their patients."[37]

The burdened United States judicial calendars combined with the high cost of litigation have prompted the creation of alternative means to satisfy those who seek legal redress. The plan is not to litigate but to adjudicate. Often lawsuits go beyond the human will to control them. Even the most efficient claims departments can become enmeshed in lawsuits that consume time and money, dissipating energy on both sides of the adversarial proceeding. More and more corporations, insurance carriers, law firms, minor businesses, and other entities are attempting to resolve disagreements informally. Judicate, the National Private Court System, uses panels of former state and federal judges to conduct arbitrations and mediations in order to provide predictable, speedy, and cost-efficient dispute-ending services.[38]

At present the greatest deterrent to the medical malpractice juggernaut is an active program of prevention that must be instituted by physicians as soon as possible or medicosurgical practice as we have known it will perish. It is well to recall the admonition of Cassius, spoken in Shakespeare's Julius Caesar: "The fault, dear Brutus, lies not in the stars; but in ourselves that we are underlings."[39]

COMPETENCE OF PHYSICIANS

Medicine stands forth as an exalted profession and a responsible discipline actively concerned with the physical and social well-being of all members of human society. It continues to be the recipient of increasingly critical attention because it is the prototype of a powerful profession that is intimately involved with personal individual health. Secondarily, it typifies the confrontations, restrictions, and socioeconomic distress that arise from within and from without its own ranks.

Social control of physicians, therefore, becomes a vital concern to those who are served by medical practitioners. This external interference arises when the internal mechanism of medical societies fails to regulate its members. Failure to heed those non-professional, self-proclaimed overseers re-

37. *Id.*

38. Judicate, The National Private Court System, National Administrative Offices, 1608 Walnut Street, Philadelphia, Pennsylvania 19103.

39. W. SHAKESPEARE, *Julius Caesar*, Act I, scene 2, in THE COMPLETE OXFORD SHAKESPEARE: VOLUME III - TRAGEDIES 1093 (S. Wells & G. Taylor eds. 1987).

sults in legal pressure to regulate or to discipline members of the medical population.

Hence it is inevitable that the topic of medical competence emerges from questions about professional independence, failure to correct alleged dissatisfaction, and socioeconomic impasses. These are a few sources of the wide-range of complaints alleging incompetency in the medical profession. As general criticisms remain uncorrected, attacks of failing competency are hurled against the individual physician and surgeon. Evaluation of the specific practitioner produces certain standards of professional competence.

These criteria become the components and/or confines within which competency is determinable. Standardization becomes calibrated in terms of medical knowledge, technical skill, compliance with hospital regulations, behavioral patterns with patients, colleagues, insurance carriers, hospital personnel, and normative social relationships. As subtopics under the wide spectrum of medical competence, guidelines are necessary to define impairment of a physician as well as to give direction for dealing with the incompetent person.

Questioning the competence of medical doctors will become more intense with the passage of time. Physician leadership will be challenged concomitantly as the destructive critics become more vociferous. Many highly placed physicians ignore the validity of such constructive criticism as they blindly adhere to old and no longer applicable rules. The number of medical zealots opposing change is seemingly infinite. They have the answers to all questions. They presume to know the proper rules for humanity to pursue from the view point of medical care. They do not exaggerate intentionally, but their prejudicial enthusiasm sometimes carries them away so that what they claim may not be factually accurate.

Many physicians of whatever basic school of training, i.e., allopathic, eclectic, osteopathic, or homeopathic, have failed to learn that:

> The capacity to serve others, to meet the human needs of patients and their families, individually, interconnectedly, and as members of a larger community — is more than a physicianly virtue. It is an essential form of competence, intrinsic to the responsibility of physicians to care for the health, illness, and welfare of patients. Good moral character and high purpose are not sufficient to enable a physician to serve and to care. Trained talent and skill are also necessary components in the ability of doctors to recognize, understand, and be responsible to the ideas, beliefs, feelings, and wants of the many and diverse others who are their patients.[40]

40. SOCIAL CONTROLS, *supra* note 12, at 228.

The general public assumes with impunity the role of judge in evaluating medical competency. Public condemnations are ostentatiously made by haughty non-medical persons who are encouraged and supported by judicial verdicts, attorney assistance, social approbation, economic substantiation, and commercial remuneration. This formidable array of antagonists has been aligned against doctors of medicine who, forsaking commerce and industry, have in the past dedicated themselves to the pursuit of knowledge. Their objective has been to combat diseases, to repair bodily defects or injuries, and to preserve an incremented longevity. Doctors have lived in the belief that every person's daily work, whether the arts, engineering, business, education, or anything else, is always a portrait of themselves. In presenting their own self-portrait, people of medicine are able to resist extraneous elements that distract, impair, or detour them from their chosen professional pathway.

CHANGING PATTERNS IN MEDICAL PRACTICE

As the 21st century approaches, monitoring of professional performance will intensify. This surveillance responsibility will reside in persons selected from both inside and outside the ranks of medicine. A comparative determination of medical scholarship will eventually take place, with the current updated state of the medical art as the standard. In addition, there will be a marked increase in required second opinions, even third opinions, prior to treatment.

The experience of physical or mental weakness, of death itself, as well as fearing to face the innumerable dangers that threaten human existence are common to all people. For this reason alone any tintinnabulation to attenuate those somatic or psychic adversities resounds with the shrillness of a cymbal. This belief in timidity is applicable to the current popularity of second and third surgical opinions.

Reviews prior to medical or surgical treatment are not a new fad. Preadmission review of the need to admit a workers' compensation patient for in-hospital treatment is well-established. Kentucky joined the expanding list of states with insurers that require a preadmission review before hospitalization.[41] Patients who are admitted but remain in the hospital longer than the approved days are personally charged for the extra time.[42]

The chameleon climate of medical practice is controlled by insurance carriers who restrict fees for services rendered. The payor has a right to ques-

41. *Plan to Require Preadmission Review*, American Medical News, Oct. 14, 1983, at 54, col. 1 [hereinafter *Preadmission Review*].

42. *Id.*

tion the treating physician or surgeon and even accuse the physician of fraud, deception or conspiracy to cheat or steal. The governmental agencies that provide Medicare or Medicaid payments to physicians have the same right to allege improprieties as private insurance carriers.

Added to the third-party list of participants in medical care curtailment are the health maintenance organizations (HMO), professional standards review organizations (PSRO), and other restrictive agencies that are increasing throughout the fifty states.[43] As third-parties continue to intrude in the matter of physician's fees, surgeons especially could cease to be what they are and become instead supervisors of physiotherapy or revert back to being the barber-surgeon of yesteryear. All these factors that are altering medical practice have awakened a confrontation tantamount to a crisis in which politics and economics are the major influences in determining the quality of American health care. It demonstrates quite visibly how we have distanced ourselves from the kind of basic relationship physicians ought to have with their patients. Furthermore, the restrictive pattern of medicosurgical practice has lessened the eagerness of physicians to return to their work.[44]

As a person, the physician and surgeon of tomorrow's new century will be subjected to repetitive periodic reexaminations in order to maintain a specialist status. A license to practice medicine and surgery will have an expiration date with a mandatory renewal examination. Thus, a specialist in medicine or surgery will have to undergo dual testing: one for the right to practice and the other to uphold his standing as a specialist. These demands will turn away many excellent medical degree candidates who will enter other professions with less stringent restrictions. These impediments will dissuade capable men and women from studying medicine as an altruistic profession of distinctive merit.

The physician as a person will seek employment situations that reduce the stress and strain of solo or group practice. Under programmed quality assurance and risk management in medical service systems physicians and surgeons will have greater peace of mind as they pursue their daily professional activities. There are signs already that physicians are becoming more and more interested in occupational medical opportunities.[45]

Occupational facilities are being planned in proximity to a hospital.

43. *See generally* Comment, *Diagnosis Related Groups and The Price of Cost Containment*, 2 J. CONTEMP. HEALTH L. & POL'Y 305 (1986).

44. *Preadmission Review*, *supra* note 41, at 54, col. 1.

45. *See* Milne, 9 EMERGENCY MED. & AMBULATORY CARE NEWS 3, (May 1987) (report on lecture given at the 15th Annual Winter Symposium of the American College of Emergency Physicians addressing emergency physicians' growing interest in occupational medical opportunties).

Emergency department directors who perceive such service as being redundant with their departments may object. However, proponents of distinct occupational medical care emphasize that separation is favorable to managerial employers. These executives acknowledge the salutary convenience of referring employees to an occupational acute care clinic because it relieves them of medical decision-making, i.e., whether the injury or illness is major or minor. Furthermore, the employer is not responsible for deciding whether the employee requires general, specialized, or emergency treatment.

> If occupational health, simply defined, looks at any factors affecting the health and safety of workers in the workplace, then occupational medicine is a subset aimed primarily at prevention in the workplace. This includes prompt treatment when needed, directed toward rehabilitation, and also general promotion of health and well-being of workers to prevent disease, disability, and premature death. . . .[46]

Other prodromal signs prognosticate that university medical centers will maintain their prestige. They will have multiple satellite health care facilities as their main source of in-hospital referrals for major medicosurgical problems. The minor "feeding" subordinates will be able to treat approximately 75 percent of the patients entering their facilities with the remaining 25 percent being transferred to the parent medical center. An inherent danger to this form of health service is that physicians may become shopkeepers of medicine, guardians of the gates to limited medicosurgical treatment, or will serve mainly as triage officers.

Under the anticipated changes in medical health care for the 21st century, the role of the registered nurse will increase in responsibility as well as in intellectual stature. It will not be uncommon to find nurses employed by pharmaceutical companies as professional sales representatives, department heads for professional services, or respondents to medical inquiries on manufacturers' products.

Additionally, nurses will serve as the mainstay of women's health care information centers. They will give preventive advice and primary care instructions. Minor genital complaints, personal hygiene mechanics, psychological counseling of an intimate nature, nutritional guidance, and related information will be part of the nurses' expertise.

Physicians will be enticed by curiosity or seduced by lucrative compensation to be an experimental participant in drug evaluation. Acknowledging the geometric increase in drug testing, without hesitancy physicians and surgeons will be asked to submit to such experimental tests within the confines

46. *Id.*

of their homes or offices. Organized medicine has not expressed itself officially on this subject. However, drug testing has been debated at medical society meetings regarding possible endorsement under the imprimatur of organized medicine.

Whatever the future may confirm or deny concerning the sentiments expressed on medicine's *modus operandi* in the 21st century, President Theodore Roosevelt's words of April 23, 1910, will prevail:

> It is not the critic who counts; not the man who points out how the strong man stumbles, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena, whose face is marred by dust, sweat, and blood; who strives valiantly; who errs, and comes short again and again, because there is no effort without error and shortcoming; but who does actually strive to do the deeds; who knows the great enthusiasms, the great devotions; who spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who know neither victory nor defeat.[47]

BIOETHICAL STANDARDS FORMALIZED

When Nietzsche said a philosopher is a physician of culture, little did he realize that future generations would be involved in philosophic decision making in medical practice. A bioscientist who allows inordinate pride to supplant moral competency, leading to deviations from professional integrity and honor has assured himself of immortal infamy. When scientists err, the laity fall victim to the iniquity.

Allegations of immorality against biological engineers will uncover bioethicists beating their mythological wings against the eternal void of indecision. Research scientists will label their efforts as medical progress even though their technological skills may border on the bizarre, the esoteric, or the grotesque. All people engaged in human research must realize that what is technically feasible is not always ethically permissible.[48]

When natural causes are destroyed or altered to accomplish an unnatural result, moral issues arise. Proper ethical conduct is an appended biological duty that substantiates a scientist's sacred obligation not to venture against the natural human physiological order. Expressed differently, the biological

47. Theodore Roosevelt, *Citizenship in a Republic, reprinted in* 94 THE OUTLOOK 983, 985 (1910) (address delivered by the President at the Sorbonne, Paris on Apr. 23, 1910).

48. *See generally* Ficarra, *Legal Medicine: The Ombudsman of Medical Ethics*, 3 J. CONTEMP. HEALTH L. & POL'Y 151 (1987).

function of humankind must be preserved intact and untampered unless it is the last resort available for the preservation of a specific human being against the finality of death.

By dint of necessity, bioethical standards will be formalized by the collective efforts of clinical physicians and surgeons, attorneys, research scientists, and governmental agencies. Among the subjects for which guidance is imperative are the following:

1. Respect for human life in its origin plus the dignity of procreation;
2. Biomedical technologies relating to the origin of human life;
3. Moral perimeters in medical decisions;
4. Ordinary versus extraordinary medicosurgical treatment;
5. Guardianship for the impaired patient; and,
6. Medical moral responsibility in the military ethics of unconventional weaponry (nuclear missiles and microbiological warfare).

Any discussion to the contrary, the pro-abortion advocates are being wounded by the pro-life militants. All is not well in the camp of the legal abortionists. The laws allowing abortion are being tested in the Supreme Court of the United States. As medical knowledge increases, the moment human life occurs will cease to be speculative. With such knowledge, the anti-abortion group may advance their position on the sacredness of human life. Sometime in the future century, the pro-abortion laws will tumble from their present position.[49]

The medical, legal, moral, economic, and social inadequacies imbedded in biological engineering will intensify before solutions are found for its dangerous quagmire. A seamless garment of the imperfections in biomedical technologies appears to have been fabricated unwillingly. Among the foremost concerns are artificial insemination, *in vitro* fertilization, embryo transfer (laboratory embryo, artificial inovulation), gamete intra-fallopian tube transfer (GIFT), low tubal ovum transfer (LTOT), embryo banks, interspecies fertilization, surrogate motherhood, and post mortem insemination. The male sperm and the female ovum are the gamete pawns in the medicolegal chess game of biomedical engineering.[50]

Of all the topics mentioned above, the one that has aroused the most legal discussion is surrogate motherhood. Reviewing the trial court's decision in the "Baby M" case, the New Jersey Supreme court awarded a father and his

49. *See generally* Smith, *Procreational Autonomy v. State Intervention: Opportunity or Crisis for a Brave New World?*, 21 NOTRE DAME J.L. ETHICS & PUB. POL'Y 635 (1986); Smith & Iraola, *Sexuality, Privacy and The New Biology*, 67 MARQ. L. REV. 63 (1983).

50. *See generally* Smith, *Imitations of Life: Extracorporeality and the Law*, 21 GONZ. L. REV. 395 (1986).

wife custody of his child born to a surrogate mother.[51] In the first part of its decision, the court declared the surrogacy contract invalid.[52] In the second part of the ruling, the court found that the child's best interests were served by placement with the father.[53]

The New Jersey decision caused commotion beyond the greatly publicized courtroom drama,[54] raising the question of the need for state legislation on surrogate births.[55] If sanctioned, surrogacy must protect all the persons involved so there is no repetition of a Baby M controversy. It is estimated that 2.4 million infertile married women who are less than 44 years of age might become involved in this form of motherhood if legislative action would support it.[56]

The new century will provide a contrast with previous decades that were marked by Victorian propriety. What was proper years ago has been attenuated or abandoned in toto. Medical ethics is not exempted from change. In the final years of this century, bioethics was formed by the amalgation of philosophy and biology into an intellectually sophisticated specialty that oversees the entire gamut of the life sciences, the core of which is medicine. As the seeing eye, bioethics is a potent persuasive guide in "the moral dimension of clinical decision making."[57] It will assist the medical practitioner in making judgments on many daily encounters that center on quality-of-life questions, such as elective death, proxy consent powers, resuscitation, patients' rights, artificial reproduction, the transmission of genetic and infectious disease, and how to handle the comatose patient.[58]

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51. In the Matter of Baby M, 217 N.J. Super. 313, 525 A.2d 1128 (1987), *aff'd in part and rev'd in part*, 109 N.J. 396, 537 A.2d 1227 (1988).

52. *Id.* at 442-44, 537 A.2d at 1250. "In sum, the harmful consequences of this surrogacy arrangement appear all to palpable. In New Jersey the surrogate mother's contract to sell her child is void. Its irrevocability infects the entire contract, as does the money that purports to buy it." *Id.* (footnote omitted).

53. *Id.* at 456-62, 537 A.2d at 1257-61. "Based on all of this we have concluded, independent of the trial court's indentical conclusion, that Melissa's best interests call for custody in the Sterns." *Id.* at 459, 537 A.2d at 1259. The court allowed for visitation by the natural mother and remanded this issue to the trial court for a determination of the visitation parameters. *Id.* at 463, 537 A.2d 1261.

54. Krauthammer, *The Baby M Verdict: A Triumph of Feminist Idealogy*, Wash. Post, Apr. 3, 1987, at A27, col. 4. *See* Smith, *The Case of Baby M: Love's Labor Lost*, 16 LAW, MED. & HEALTH CARE 121 (1988). *See generally* Wadlington, *Artificial Conception: The Challenge for The Family*, 69 VA. L. REV. 465 (1983); Note, *Redefining Mother: A Legal Matrix for New Reproductive Technologies*, 96 YALE L.J. 187 (1986).

55. Krauthammer, *supra* note 47, at A27, col. 4.

56. *Tomorrow: Market Pressures Changing the Way Attorneys Do Business*, U.S. NEWS AND WORLD REP., Mar. 2, 1987, at 27.

57. Fletcher, *The Moral Dimension in Clincial Decision Making*, 50 THE PHAROS 2, 3 (Spring 1987).

58. *Id.*

Associated with bioethical determinations is the economic evaluation of cost reductions. The danger of money matters being of higher consideration than ethical conduct may be a pervading force in the care of the severely ill patient. On occasion, it has been judged ethical to withdraw intravenous fluids and nutrients from patients if they are considered to be in an irreversible coma. Definite protective instructions must be formulated to protect the physician or surgeon who writes an order with this intention.[59]

Voluminous evidence proves that life and death ethical decisions are becoming increasingly complex. These facts argue for the necessity of formulating a definite program for their solutions. It will become mandatory to define and outline the doctrine of ordinary versus extraordinary medicosurgical procedures or interventions for the dangerously injured, the incurable, and the terminally ill patient. The 21st century will bring into focus the valued judgmental opinion of the attending physician or surgeon in this matter. It is morally reasonable to rely upon the mature, educated, experienced judgment of learned medical practitioners. After adequate medical studies, if the physician or surgeon arrives at the prognosis that death is inevitable, imminent, and determinable then no one will be at fault from not instituting incipient ordinary or extraordinary medicosurgical care.

Medicolegalists and all other participants in society during the next century must make positive efforts

> to bring the issue of the technological prolongation of life of the terminally ill from the isolation of ethical contemplation to the public arena with a plea for society to institutionalize its moral verdicts by legislation. . . . Both physicians, patients, and their families must face the question: 'Under what circumstances may life sustaining therapies be withheld from a severely deformed or terminally ill person?'[60]

Another interrogatory that demands a response is: "What does life support support?"[61] It must be answered by the medical profession. Legislative experts must give physicians legal protection to discontinue or refrain from using extensive life support apparatus when circumstances dictate.

Medical ethics is considerate of guardianship guidelines for those who are incapable of trustworthy decisions regarding their welfare. In the past and present, medical therapy decisions for patients who could not think or

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59. *Id. See also* Dyer & Brazil, *Should Doctors Cut Costs at the Bedside?* 16 HASTINGS CENTER REP. 5 (1979).

60. Jonsen, *What does Life Support Support?*, 50 THE PHAROS 4 (quoting Scheer, *Decisions of Life and Death Require Our Judges' Guidance*, N.Y. Times, Oct. 19, 1986, at 26, col. 4 (letter to the editor)).

61. *Id.*

render an opinion for themselves have relied upon others to assume this burden. Thus, family members or the treating physicians were the deciding source for this initiative. Recently, the tendency to give court-appointed guardians authority over the medical and/or economic affairs of incompetent persons has increased. Simultaneously, professional and lay interest in the enactment and reform of guardianship laws and policies has been accentuated with persistency.[62]

Medicine as a distinguished profession, dedicated to the care of the sick, the injured, and the handicapped cannot avoid expressing itself in regard to warfare. Future life is in grave peril of extinction if conventional weaponry is complemented or supplanted by nuclear missiles and/or microbiological warfare. Military ethics will be supported by bioethics in any attempt to prevent a total exterminating holocaust.

With the advent of the 21st century protective measures will be enacted to safeguard, curtail, or expunge the biological products of scientific engineering to protect the bioethical conduct of medicine. Contemporaneously, all similar scientists and/or participants in the newer, rapidly burgeoning medical technology will be given rules and regulations for guidance. For personal peace of mind, medical scientists will scrutinize more thoroughly the philosophical dictum that what is scientifically possible is not always ethically sanctionable.

MEDICINE'S CONFORMITY WITH 21ST CENTURY TECHNOLOGY

Wanton commercialism and uncontrolled legalism are diminishing medicine's lustre. Professionalism is fading as a doctor of medicine is enmeshed in economic necessities. A professional person has been described historically as one who professes to perform specific acts which become a self-imposed duty. To profess is to take a vow. Physicians used to recite the Hippocratic Oath which was tantamount to taking a vow to serve humanity with prosopolepsy.

At the onset of modern anomie, sporadic passels of critics have assumed a cavil forcefulness. This trifling persistence of the minority psychobabble tamps down any rising medical inspiration. These pseudo-constructionists are to be found as causists within the ranks of medical practitioners as well as in organizations extraneous to medical societies. A resurrection of the middle ages "auto-da-fe" maneuvers may be among the written annals of medical history for the 21st century.

How can these detriments be avoided? Medicine must prepare new ave-

62. Lynn, *A Guiding Hand Needed for Guardianship Programs*, 2 MED. ETHICS 3, 10 (Feb. 1987).

nues to be implemented for the high technologies that will enter its portals. These medical approaches must be malleable to conform to the anticipated technological advances. Failure by medicine will impede technology. Many presently unknown marvels will be revealed, discovered, or invented in the next hundred years. Medicosurgical discoveries must parallel the newer scientific technologies to alleviate human injuries, pain, and suffering that may result therefrom or be an inherent impediment to their fulfillment.

Twentieth century thoughts are centering on highly technological pursuits aimed at reducing the risk of warfare,[63] because a nuclear war will vastly eclipse World War II. There is much disagreement among scientists, as well as others, concerning the means for making this reduction. Even a failure to do so does not excuse the medical profession for not being prepared to treat the civilian population and military personnel who may be victimized by a nuclear war or biological disasters. One of the fruits of science is the improvement of the welfare of our citizens, another is the ensurance of national security.

Antisatellite weapons and space warfare are not myths to be considered as apocryphal tales of impossibility.[64] Medicine must be prepared to confront these potentialities and to treat victims of a presently unknown war that may become a future reality.

Advancing technology will shape the 21st century as an age for the glorification of the gadget enthusiasts. With this accentuation on the mechanical, there is the fear that it will be purchased at the expense of declining human effort. Hence, that indescribably soothing personal touch of medical palpation must be preserved. Sophisticated electronics, monitors, and other technologies should never supplant the human elements thereby destroying the sacred humaneness which is the keystone of medicosurgical practice.

Research in the next century will border on the miraculous. Magnificent accomplishments by neuroscientists will yield major revelations in the pathophysiology of neuropsychiatric diseases. The chemistry of brain function will reach currently unrealistic heights of enlightenment, opening a wedge for discovering previously undreamed therapies for currently untreatable diseases of the nervous system. Histopathology, having served medicosurgical endeavors so well in the past, will fall into disuse in its present form. The biochemical functioning of the individual cell unit as well as its influence on contiguous structural cells will be understood. In addition,

63. *See generally* THE HIGH TECHNOLOGIES AND REDUCING THE RISK OF WAR, 489 ANNALS OF THE NEW YORK ACADEMY OF SCIENCES (Stever & Pagels eds. 1986).

64. *See* Yonas, *The SDI Perspective: Transition and Technology*, in HIGH TECHNOLOGIES AND REDUCING THE RISK OF WAR, *supra* note 63, at 53.

the biological activities of cells in all species of tumors will be compared to tumors of other diverse origins with the objective of selecting a common modality of treatment for multiple classifications of tumors. These techniques will also be applied to non-neoplastic diseases, especially auto-immune disorders.

Microscopic cytoarchitecture will be estimated secondarily in the evaluation of cancer. More accurate information as to category, type, and prognosis of cancer with therapy will be obtained by means of unforeseen discoveries in abnormal cell biology. The entire vista in pathology will expand. As a preclinical academic subject, it will rise celestially as the quintessential selective supplement for the most effective available therapeutic agents.

Physiologic research will be an ally of biophysics with organic chemistry acting as a catalyst between them. Laser treatment for cancer and other illnesses will enjoy preferential popularity over other therapeutic modalities currently in use.

Marked improvement in emergency radiologic techniques of imaging will take place. Computerized tomography of trauma will be a *particeps principis* in the saving of lives and the salvaging of patients with multiple systems injuries who in prior years were deemed hopeless and thereby deprived of heroic therapeutic efforts.

Predictable medical research will find greater utilization of physics and chemistry with a lessening of the importance of present-day pathology to fathom the unidentifiable. Biologic mechanisms will unravel new information, other than the hormone dependence of some tumors, as a strong factor in cancer studies.[65] Many biologic chemically energized functions unknown in the 20th century will be revealed in the 21st century.

As Western medicine continues to be castigated for its excessive cost and inexorable annual rise, alternative forms of medicine will be explored. Conventional allopathic medicine is dubbed the culprit for the high technology and the diagnostic approach to medicosurgical solutions by hospital-based facilities and physicians. On the medical scene of this century are notable attempts to propagandize the benefits of acupuncture,[66] and the resurrection of homeopathy as an inexpensive treatment method.[67]

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65. *See* Adami, Malker, Holmberg, Persson & Stone, *The Relation Between Survival and Age at Diagnosis in Breast Cancer*, 315 NEW ENG. J. MED. 559, 562 (1986).

66. *See generally* Zhu Zong-Xiang, *Research Advances in the Electrical Specificity of Meridians and Acupuncture Points*, 9 AM. J. ACUPUNCTURE 203 (Jul.-Sept. 1981).

67. *See* Kishore, *Homeopathy: The Indian Experience*, in 4 WORLD HEALTH FORUM 105, 106 (1983).

With the passage of time, there will be greater physician participation in radiation emergencies.

> Among the lessons we learned from radiation emergencies are the need for more public knowledge about radiation health and safety, the lack of confidence people have in radiation protection authorities, and the necessity for effective involvement by the medical community in coping with radiation accidents. . . . The AMA should encourage state and county medical societies to generate a national registry of physicians trained to respond to radiation emergencies. Doctors on these registries could establish a public education program about radiation health and safety, could respond to public concerns in emergencies, and could manage the clinical aspects of radiation accidents. I believe that a designated group of physicians near every nuclear reactor should be trained in managing blast, radiation, and burn injuries.[68]

The forces of medical necessity will compel an implementation of this proposal because the approaching century will be characterized by an increasing usage of nuclear energy in all its multivariegated modalities. These modalities include added perfections in x-ray diagnosis, such as with magnetic resonance imaging (MRI) in establishing the likelihood that brain injury in children is the result of physical abuse.[69] A study of magnetic resonance imaging found "that the MRI scan is much more sensitive to blood and blood products that are subacute or chronic than is the CAT."[70]

Present and future scientific researchers will perfect medical strategy so that many side-effects in drug therapy will be substantially reduced or eliminated. With precise guidance mechanisms bonded to drugs as a control over their dispersal, absorption, and assimilation once inside the human body, the outlook for cancer patients and others may become brighter. Future biological knowledge will enable pharmaceutical manufacturers to produce targeted medications such as the beta blockers used in the present-day treatment of hypertension and angina pectoris. These are designed to interfere with the beta-2 receptors in heart tissue simultaneously avoiding the beta-1 receptors in lung and gastrointestinal tissues, where they could cause serious

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68. Stern, *Greater Physician Participation in Radiation Emergencies Urged*, 9 EMERGENCY MED. & AMBULATORY CARE NEWS 3 (Mar. 1987). This article quotes Dr. Gordon MacLeod, in his address to the American Medical Association International Conference on Non-Military Radiation Emergencies, Washington, D.C.. Dr. MacLeod, Professor of Medicine at the University of Pittsburgh, was the Pennsylvania Secretary of Health during the 1979 incident at Three Mile Island.

69. Stein, *MRI May Help to Spot Abuse in Children with Brain Injury*, 9 EMERGENCY MED. & AMBULATORY CARE NEWS 3 (Mar. 1987).

70. *Id.* (quoting from address by Dr. Robert A. Zimmerman to the 72nd Scientific Assembly of the Radiological Society of North America, Chicago, Illinois).

unintended side effects.[71]

Future bioscientists in pharmacophysiology envision the availability of highly sophisticated targeting systems allowing the delivery of very toxic medications to specific diseased areas without entering normal cells. Hence "drug targeting and delivery research is aimed at building drugs that affect one biological process and no other, for example to interrupt the AIDS virus."[72] The millennium to reach in the culmination to perfection "is to deliver therapeutic agents to specific population of cells where a desirable effect may be achieved and not to other cells where a toxic effect may occur."[73]

Although the rising worth of medical technology, scientific research, and mechanical aides are acclaimed, the human ingredient in health care must not be discarded. This requisite tenderness can be dispensed only by people who under the stress and strain of another's illness and impending death magnify it heroically. In the forefront of these compassionate persons are doctors of medicine whose historical heritage creates in each a hero-worship that touches immortality. For they know:

> Wealth dies
> Kinsmen die
> A man himself must likewise die
> But word-fame never dies,
> For him who achieves it well.[74]

ANTICIPATED CONTROVERSY OVER BIOTECHNOLOGY

We have witnessed only the surface of the primitive drama of the biotechnologic age to come. It will overshadow chemical developments that have occurred in medicine over the past two centuries. The previewed medical benefits are expected to be bountiful. However, biotechnology, if applied injudiciously, can become a destructive weapon that could upset the natural order in the world, threatening the harmony of human existence.

The consternation awakened by this new advancement in research is exemplified in a recent ruling by the Board of Patent Appeals and Interferences:

> On April 3, [1987], the agency said that animals could be patented if they had been modified in a 'nonnatural' way. In so ruling, the

71. *Magic Bullets, Trojan Horses and Mother Nature*, 1 SCIENCE FOCUS 1, 10 (Winter 1987).

72. *Id.* at 11 (quoting from address by R.L. Juliano, M.D., at the New York Academy of Science Conference entitled, "Biological Approaches to the Controlled Delivery of Drugs").

73. *Id.* at 1.

74. Fitzgerald, *Heroes in Medicine*, 50 THE PHAROS 28, 29 (Spring 1987) (quoting from a nordic Icelandic saga, *The Havamal*).

> [office] cited a 1980 Supreme Court decision, *Diamond v. Chakrabarty*,[75] in which a patent was granted on a bacterium that had been modified biologically to eat oil spills. The agency contended that the court's broad language paved the way for patenting of higher organisms. . . 'The U.S. Patent Office Board of Appeals in one stroke has reduced the entire animal kingdom to a commercial commodity.'[76]

Holzman goes on to state:

> Biotechnology, including animal biotechnology, is simple in principle. It is based on manipulation of the genes, the cellular entities that determine inheritance. Single genes determine simple traits such as eye and hair color, while many genes acting together influence many complex traits such as intelligence. Genes also code for the vast numbers of molecular machines that run bodies. Some of these are familiar, such as the hemoglobin that carries oxygen from lungs to tissues. Many will be mass-produced as drugs by biotechnology companies: human insulin; tissue plasminogen activator, a blood clot dissolving substance that could treat heart attack victims; interferon; and hormones.[77]

Scientists first learned to transfer genes from one organism into another in the 1970s, through the manipulation of bacteria.[78] "Many of the drugs that will emerge from biotechnology are difficult to synthesize chemically, but splicing genes could turn microorganisms into pharmaceutical factories."[79] What can we expect when biotechnologists perfect their ability to alter the genes of farm animals?

Future investigative events may unfold matters of grave import. Under all circumstances it is the inchoate right of a reasonable citizenry to know the tranquility of personal peace and to reap the salubrious benefits of scientific knowledge.

LEGAL MEDICINE: THE OVERSEER OF MEDICAL PRACTICE

Combining medicine with the law has given birth to a new specialty termed legal medicine. There was a time when medicolegal problems were separated into two categories. Accordingly, there was a distinction between forensic medicine and medical jurisprudence. Thus, when a physician ap-

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75. 447 U.S. 303 (1980).

76. Holzman, *Biotechnology's New Strain of Strife*, Wash. Times, August 31, 1987 (Insight Magazine), at 56 (quoting Jeremy Rifkin). *See generally* Smith, *Biotechnology and the Law: Social Responsibility or Freedom of Scientific Inquiry?*, 39 MERCER L. REV. 437 (1988).

77. Holzman, *supra* note 76, at 56.

78. *Id.*

79. *Id.*

pears in the courtroom as an expert witness, he or she is appearing in a public locality or in the forum of justice as a participant in forensic medicine. When legal matters were discussed in private or were presented in conjunction with medical practice, it was proper to apply medical jurisprudence to this relationship because it concerned the association of laws and legal processes to the practice of medicine. A more modern approach is to employ the term legal medicine as the phylum under which all medicolegal discourses, discussions, and disputes are standardized.

The complexities that have arisen in this century will worsen in the next century. These mounting sociomedical dilemmas can be solved by medicolegalists who are trained in legal medicine. They are valued assets in trying to solve the present and future threats against medical practitioners. Among these invectives are the malpractice burden, hospital refusal of staff appointments, medical products liability, insurance interferences, the definition of ordinary and extraordinary care, and the interpretation of federal and state health laws.

These labyrinthine intricacies are surreptitiously entwined with each other. Often the relationship is undetected. Nevertheless, they are problems demanding solutions. More urgent than others are the survival of the tort system in its present format, the physician's right to practice medicine privately, government subsidized health insurance, and the concept of the complete socialization of medical care in the United States.

The eyes of the law are on medicine even as the ears of medicine are attentive to the dicta pronounced by the judiciary. In the 21st century, the law will scrutinize, restrict, and demand more from medicine than in the previous century. Legal decisions will alter medicine's pattern and thinking processes, exemplified by the present-day AIDS fear. The Supreme Court declared a person infected with tuberculosis to be equal under the law with a person described as being handicapped.[80] Hence under certain circumstances, the law equates illness with physical disability.

An inconspicuous paragraph in a 1973 law has become expanded into a formidable legal arsenal with unanticipated, unintended results. The rubric sentence states: "No otherwise qualified handicapped [a preferential word is handicapable] individual in the United States . . . shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving

80. School Board of Nassau County, Florida v. Arline, 480 U.S. 273, *reh'g denied*, 481 U.S. 1024 (1987).

Federal financial assistance."[81]

This sentence is used by the present administration in Washington to impose the medical obligation to provide extraordinary medical therapeutical efforts to salvage infants born with severe potentially fatal congenital defects.[82] This same section was quoted by the Supreme Court in the *Arline* decision.[83]

Inevitably, the more contemporary issue will involve situations where AIDS patients will claim that the Rehabilitation Act of 1973 provides them with special legal protection against all kinds of "discrimination."[84] Section 504 apparently covers a wide range of physical and mental illnesses, a coverage that may need reassessment.

Medicolegalists will be involved in clarifying existing laws and federal regulations. The Department of Health and Human Services (DHHS) regulations, in part, define a physical or mental impairment as any physiological disorder or condition, cosmetic disfigurement or anatomical loss affecting one or more of the body systems as well as mental retardation and learning disabilities.[85] Currently, regulations state that an individual need not have the impairment in actuality. "It is regarded as sufficient if they have recovered from it. The impairment need not be properly diagnosed."[86]

Progressive litigation against medicine continuing at its present rate demands that legal medicine become a protective prerequisite for graduation from medical, dental, nursing, and law schools. Legal medicine currently is taught in many settings to a variety of audiences. Courses given in the various professional schools on this subject are in reality a mere sampling of the vast range of topics it encompasses. To satisfy the academic insufficiency medicolegal seminars are sponsored by universities, pharmaceutical corporations, and medical societies.

> Some of this education is tied to continuing education credits for health professionals. For some health professionals it may be the stepping stone to career enhancement or change. . . . Legal

81. The Rehabilitation Act of 1973 § 504, Pub. L. 93-112, 87 Stat. 355, 394, (codified at 29 U.S.C. § 794 (1985)).

82. *See generally* Haddon, *Baby Doe Cases: Compromise and Moral Dilemma*, 34 EMORY L.J. 545 (1988); Shopin & Barthel, *Infant Care Review Committees: An Effective Approach to the Baby Doe Dilemma?*, 37 HASTINGS L.J. 827 (1986); Comment, *Baby Doe Decisions: Modern Society's Sins of Omission*, 63 NEB. L. REV. 888 (1984).

83. 480 U.S. at 278.

84. Walter S. Feldman, M.D., J.D., AM. C. LEG. MED. NEWSL., Apr. 1987, at 11 (editorial). *See generally* Smith, *Quality of Life, Sanctity of Creation: Palliative or Apotheosis?*, 63 NEB. L. REV. 709 (1984).

85. 45 C.F.R. § 84.3 (i) (1988).

86. Feldman, *supra* note 84, at 11.

> medicine, medical law, or perhaps more accurately, health law, is a topic of prime importance to all caregivers. Indeed, it is a subject of growing concern for those who are not directly involved in the care of patients.[87]

The burgeoning need for law and medicine to combine their talents to solve the medical malpractice maelstrom is one pressing example of a reason to study legal medicine. It also is applicable to the more expansive legal conundrums of limited medical resources, preferential dialysis treatment, the selection of candidates for organ transplants, and the responsibilities and duties of indirect health care givers such as nutritionists, laboratory technologists, physical therapists, and social workers.

Acceleration of the non-medical aspects of health care, such as ethical conduct, legal duties, and patients' rights has stimulated courses, seminars, or programs on legal medicine and health law as applied specifically to health care dispensers. Medicolegal education is significantly necessary to augment professional competency and socioeconomic accountability. Future methods of medicolegal instruction will include audiovisual tapes, telecommunications, autopsy observation, visits to sites of negligence, observation of surgery in action, attendance in obstetrical suites, and possible service in an emergency department. Interdisciplinary participation in mock trials, malpractice panel hearings, administrative tribunals, and disability commissions offer additional opportunities for learning. Legal issues pervasively have entered all classrooms, stressing defensive tactics, as opposed to patient care.[88] The 21st century will require medicolegal knowledge. The techniques of instruction will become very sophisticated.

Especially applicable to physicians it must be written that: "In general terms, cognitive knowledge of both the legal process and the substantive law governing the practice of medicine is essential for the up-to-date medical practitioner" now and in the future.[89] Without a preconceived basis for legal guidance the physicians and surgeons in clinical practice are vulnerable to accusations of negligence. People of medicine must learn to think as lawyers as they perform their daily tasks of treating the sick, the injured, and the dying patient.

A legal education for physicians is not only an urgent necessity, but it is

87. F. Rozovsky, *Symposium on Teaching Legal Medicine*, 8 J. LEGAL MED. 91 (1987). Such career enhancement might include the pursuit of a second career, abandonment of one career for another, or the combination of two degrees, such as a medical degree with a legal degree.

88. Siden Ticho, & Kopnick, *Malpractice Concerns Enter the Medical School Classroom*, 314 NEW ENG. J. MED. 461, 522 (1986) (letter to the editor).

89. Kapp, *Teaching Legal Medicine in Medical Schools*, 8 J. LEG. MED. 94, 95 (1987).

also a source for tranquility in medical practice. The educational process must be planned realistically to suit the needs of all health care professionals as it is implemented to be an integral part of their holistic daily activities. Unfortunately, however, "the wisdom of teaching legal medicine to medical students [and other health care personnel] is seldom seriously challenged today."[90]

> Law governs virtually all human activities, including those encompassed within the practice of medicine. Government today extensively regulates all aspects of the physician's relationships with patients, other health care professionals, treatment facilities, third-party payers and reviewers, and society . . . the law also affects medical practice by drawing the physician into a patient's social problems or disputes that require legal resolution.[91]

Medical practitioners are undoubtedly an integral part of today's legal system. They are involved in all types of legal matters, both civil and criminal. They are often called upon to testify in court, prepare medical reports, conduct pre-trial physical examinations, as well as a whole host of other functions. Today's physician, for example, can be expected to participate in a wrongful death case, a worker's compensation case, and even a child or elderly adult abuse case. Therefore, "[a]n understanding of the law can be as important to the proper care of patients as an understanding of emergency medical procedures or proper drug dosages."[92]

A salutary effect radiating from an acquaintance with an understanding of the law will ease the tension of physicians and surgeons in at least three areas. These are:

1. Legal compliance is a prophylactic against accusations of wrongdoing;

2. Familiarity with the law can positively influence the doctor's attitude toward the legal profession, fostering a more productive physician-lawyer relationship than can inure to the benefit of the patient and the physician;[93] and,

3. Legal education, accepted as a routine component of the medical curriculum in the 21st century, can instill in future physicians a greater capacity of compassion toward patients and colleagues.

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90. *Id.* at 94-95.

91. *Id.* at 95.

92. Annas, *The Function of Legal Rights in the Health Care Setting*, in THE LAW-MEDICINE RELATION: A PHILOSOPHICAL EXPLORATION 225, 226 (S. Spicker, J. Healy & H.T. Engelhardt eds. 1981).

93. *See generally* Schwartz, *Teaching Physicians and Lawyers to Understand Each Other: The Development of a Law and Medical Clinic*, 2 J. LEG. MED. 131 (1981).

Freedom from legal entanglements is a favorable milieu for harmonious interprofessional relationships. Additionally, it can contribute to the rehumanization of medical care. As a personal merit, legal knowledge is a preventative against possible criminal or civil liability.

An appreciation of the obligations that law imposes on medicosurgical practice can be an advantage. Absent a legal background, physicians and surgeons can succumb easily to avoidable legal violations. Ignorance or misconceptions in legal matters can be costly in two categories. First, monetarily, it is a commonly known fact that malpractice premiums are expensive and damage awards are high.[94] Second, in terms of psychological trauma, unnecessary anxiety is a potential pitfall that jeopardizes professional efficiency just as it is destructive to a normal physician-patient relationship.

Finally, since allied non-physician personnel, especially physicians' assistants, nurses, students, medical technologists, emergency squads, and social workers, are involved with patients, it is necessary to teach legal medicine to them as well as to doctors. The reasons are four-fold:[95]

1. To heighten awareness of their personal legal rights and duties, as well as the risks that may be anticipated in their activities with patients;

2. To assist them in proper conduct that ensures the preservation of their legal rights, the fulfillment of duties owed, plus the minimization of legal risks;

3. To teach the avoidance of unrealistic attitudes as to what they think the law is, as compared to what it is actually; and,

4. To help students "avoid legal conflicts in the future," as far as it is humanly possible.[96]

Adequate education is the medium that can make medicine fungible with the discipline of law, thereby creating a new specialty called legal medicine.

MEDICINE AS A BUSINESS

It is commonly known that doctors of medicine are poor businessmen. Therefore, the increasing economic involvement in medical pursuits is often tragically perilous. Hence, health care for the indigent is programmed with multiple deficits. Paramount social importance is attached to the formation of contracts for the care of the poor on a prepaid basis. California and Arizona have experimented with such methods for administering medical care

94. Haight, *supra* note 24, at 25-26. This article also discusses the successful tort reform efforts of California.

95. Rozovsky, *Teaching Legal Medicine to Health Professionals*, 8 J. LEG. MED. 115, 116 (1987).

96. *Id.*

to the indigent.[97] Competitive contracts with health maintenance organizations or independent provider associates are becoming more frequent occurrences.[98] Such arrangements aim for efficiency and cost containment.[99]

Often the desired objectives are not realized. Staffing inadequacies present problems.[100] "Low salaries, dictated by inadequate funding, may result in high turnover rates or the hiring of staff with inadequate training or skills."[101]

The business of medicine was not medicine's business. Due to their notorious ignorance of business methodology, physicians' self-determination in the management of the business of their profession has been usurped. Nonmedical entrepreneurs have molded the financial destiny of physicians. Large business corporations will control hospitals and the granting of staff appointments to doctors. Medicosurgical care will be dispensed with industrial business acumen and not with the empathy indigenous to the medical doctor's professional past history.

One of the most spectacular uninhibited innovations in medicine's future will be encroachment of big business into the medical sciences. After the initial insidious inveigling, medicine will embrace business tactics as a necessary ingredient to its survival. Medical schools will offer combined degrees such as M.D./Ph.D. in medical economics or M.D./M.B.A. in business medical administration. Medicine has taken the first step toward making medical business the business of medicine. Physicians of the future will become more accurate in their business record-keeping, in accounting for the fees charged for medicolegal evaluations and for medical examinations, and in writing narrative reports.

What may become a familiar sight is the incorporation of business organizations bringing complex medical equipment to hospitals, eliminating the hospital's cost of purchasing such expensive hardware. As part of this service, trained personnel will use the equipment and expert physicians will interpret the results, making an otherwise unavailable but vital service affordable to some health care institutions. Itinerant diagnostic (CAT scan-

97. J. CHRISTIANSON & D. HILLMAN, HEALTH CARE FOR THE INDIGENT AND COMPETITIVE CONTRACTS: THE ARIZONA EXPERIENCE 10-12 (1986).

98. *Id.* at 156. "One of the changes adopted in several states, and under consideration in others, involves selective contracting with providers through some form of competitive bidding or proposal solicitation process in which winners are chosen based on bid prices and other criteria." *Id.*

99. *Id.* "The states hope that the competitive incentives introduced through these selection processes will restrain provider fees and charges, as well as induce the adoption or development of innovative cost-saving approaches to medical care delivery." *Id.*

100. *Id.* at 86 (citing G. EDWARDS, IMPLEMENTING PUBLIC POLICY (1980)).

101. *Id.*

ning, MRI imaging), therapeutic, and other services will not be alien to customary medical practice in the year 2000.

Based upon prior experience, some authors advocate the introduction of more competition into American medicine. Contracts for medicosurgical therapy will be awarded to the lowest bidder. Such practices base choice not on medical ability but on dollar values. It is difficult to comprehend this philosophy as applied to medical care. It appears that prescribing medical treatment in the next century will become big business without the human element that has unquestionably characterized the medical profession until now.

What changes will be made in the future dispensing and prescribing of drugs? Present-day drug investigations have accentuated the devastating effects of unanticipated medication side effects. With the physiopathological changes wrought in the human autoimmune system and the imperfections discerned in drug manufacturing, or caused by tampering with medications, there will be a marked rise in these unintended reactions.

Drug prices must decline under carefully controlled conditions. Curtailing the manufacturing of the same product under different brand names by multiple pharmaceutical companies will become an economic necessity. Prescription medications will become so expensive that a favorable market for generic drugs will evolve. An educated consumer will learn the generic equivalents to specifically named pharmaceutical products and purchase economically.

Diminishing costs for medications may give rise to a more liberal use of placebos especially in the management of patients with neuroses. With pharmaceutical acceptance of placebos in medical circles, the use of placebos must be protected under the law with explicit approval for physicians to use a placebo as a therapy as well as a substitute for another medication.

Prevention Theme for 21st Century

As the new century approaches, prevention will continue to be accentuated, assisted by innovations that allow disease prediction. Biomedical ingenuity has devised tests for genes, even in utero, that give information of health status now and for decades yet to come. With this knowledge, diseases are potentially preventable before they become untreatable. Genetic studies disclose that susceptibility to certain diseases can be determined. Genetic counseling may assist in the future control of many diseases such as heart diseases, emphysema, diabetes mellitus, multiple sclerosis, and selected neoplasms. Research efforts on the horizon may enable perfections in ge-

netic engineering to correct hereditary illness.[102]

Already in this century, genetic profiles can be evaluated via specific tests for adult polycystic kidney disease, emphysema, fragile X syndrome, sickle-cell anemia, Duchenne muscular dystrophy, cystic fibrosis, Huntington's disease, hemophilia, phenylketonuria, and retinoblastoma.[103] In the 21st century, similar genetic tests will very likely become available for hypertension, dyslexia, atherosclerosis, certain cancers, manic depressive psychosis, schizophrenia, AIDS carriers, juvenile diabetes, Alzheimer's disease, multiple sclerosis, and myotonic muscular dystrophy.[104]

Preventive medicine will have a significant impact on mortality from cancer. Physicians will devote more time promoting healthier living practices by their patients. However, the increasing rewards of prevention extend beyond the practitioner's office. Community health promotion studies have demonstrated a beneficial impact on a wide range of health behavior patterns. Preventive measures include smoking bans[105] and health promotion efforts in the workplace. Beneficial effects in disease control by means of intelligent exercise, nutritional guidance standards, and school health education programs have been proven.

Prophylactic measures can diminish diseases, injuries, and deformities. For example, substantial data support the premise that occupational and community exposures to carcinogens are major factors in the increase of lung cancer not traceable to tobacco smoking. Occupational cancers due to radium, asbestos, industrial dyes, and other substances, are preventable. Geographic patterns of lung cancer closely follow those of petrochemical and other industries. In the next century, geomedicine will emerge as a valued agent in medicine's prevention of diseases.

Mental disease prevention will come into its own during the 21st century. Many educational resources will be developed to assist persons to identify and reduce stress in their lives. Practical advice on causes and tactics to reduce and control high stress levels will become a part of the physician's regular routine. Hopefully, stress, burn-out syndrome, drug-addiction, and alcoholism will decrease in the next century through use of preventive tactics like positive attitudes and altered lifestyles.

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102. J. CALIFANO, AMERICA'S HEALTH CARE REVOLUTION: WHO LIVES? WHO DIES? WHO PAYS? 138 (1986). *See generally* Donley, *A Brave New World of Health Care*, 2 J. CONTEMP. HEALTH L. & POL'Y 47 (1986).

103. *Predicting Diseases*, U.S. NEWS & WORLD REP., May 25, 1987, at 65. *See generally* G. SMITH, GENETICS, ETHICS AND THE LAW (1981).

104. *Predicting Diseases*, *supra* note 103, at 65.

105. For a discussion of smoking in the workplace, see Comment, *A Call for Action: The Burning Issue of Smoking in the Workplace*, 5 J. CONTEMP. HEALTH L. & POL. 221 (1989).

Objections to compulsory testing for diseases such as AIDS will abate as the efficiency of such a policy is realized. Other preventive measures advocated by the surgeon general have aroused the ire of religious groups.[106] Preventive medical advocates inadvertently became controversial immoralists, espousing the concept of no-fault morality. "In dealing with AIDS and other 'behavior-dependent' diseases, the Catholic Church must teach and instruct that no-fault morality does not work in medicine or morals."[107]

Medicine's role in the drama of politics, centering around the health of world leaders, will be incredibly significant in the year 2000. It is clear from political history that several heads of government suffered from significant and debilitating illnesses during this 20th century.[108] Physical disorders affect the decision-making ability of officials to the detriment of their citizenry. This delicate situation raises ethical questions about the balance between confidentiality and the public's right to know about the health of its national leaders. It is postulated that at some future date, the United States of America will implement a Presidential Disability Commission consisting of physicians, including a neuropsychiatrist, selected by both major political parties to evaluate the mental and physical health of candidates for the presidency.[109] Subsequently, this practice may be extended to include senators, congressmen, governors, mayors, and other civil servants in strategic positions of policy formulation.

Medical experts will not wander into the 21st century, rather they will have a predetermined calendar leading to scientific solutions based upon

106. Whitman, *A Fall From Grace on the Right*, U.S. NEWS & WORLD REP., May 25, 1987, at 28.

107. Address by Msgr. William B. Smith, at the Medical-Morals Workshop held before a synod of bishops in Dallas, Texas (1987). *See* McCormick, *AIDS: The Shape of The Ethical Challenge*, AMERICA, Feb. 13, 1988, at 147. *See generally* G. SMITH, THE NEW BIOLOGY: CHALLENGES AND OPPORTUNITIES, ch.6 (1988); Howe, *Ethical Problems in Testing Military Patients with Human Immunodeficiency Virus Diseases*, 3 J. CONTEMP. HEALTH L. & POL'Y 111 (1987).

108. *See* B. PARK, THE IMPACT OF ILLNESS ON WORLD LEADERS (1986). It was recognized that President Woodrow Wilson was confused at the Paris Peace Conference; his cerebrovascular insufficiency is a more valid explanation for his deteriorated capacity to govern than his hardened Calvinistic ancestry. *Id.* at 20. Other governmental leaders whose good health was questionable were Adolph Hitler, Winston Churchill, Franklin D. Roosevelt, Ramsay MacDonald, Anthony Eden, Paul von Hindenburg, and Josef Pilsudski. Hitler abused drugs, especially amphetamines. *Id.* at 179-82. MacDonald, Pilsudski, and Hindenburg had dementia praecox. General Hindenburg was unable to understand that Hitler was manipulating him. *Id.* at 88-89. Dull-witted MacDonald recorded in his diary that his memory was failing him. Although he was depressed, he would not resign as the prime minister of the British coalition government. *Id.* at 103-04. While President of Poland, Pilsudski was unable to modernize the army. Old World War I equipment was retained including an impotent dress calvary. *Id.* at 121. A modern diagnosis of his illness would be Alzheimer's disease.

109. *Id.* at 321.

preknowledge gleaned in the 20th century. *Deus lo vult.*[110]

NON-CONVENTIONAL DIAGNOSIS AND THERAPY

Electrodiagnosis will become a routine part of patient examination in the future. It will be embellished by computer science and lessons learned from aerospace technology. Bioenergy as a part of these advancements will allow comparative studies of normal versus diseased cells in their primordial movements due to pathologic changes. With this knowledge cancer may be diagnosable in its earliest stages permitting proper treatment that enhances a favorable prognosis approaching total cure.

In the realm of therapy, there will be many alterations in medication control, drug manufacture, distribution, and prescription. One of the capstones of change will be amendments to drug laws, which will include requirement to use new prescription forms periodically with limitations on the filling of written and oral prescriptions. In 1986, New York enacted legislation providing pharmaceutical insurance coverage for the elderly that also allows for the filling of prescriptions with generic drugs unless the prescriber specifically states otherwise.[111]

For better or for worse, there will be a renascence of propaganda or other disfavored medical teachings of the 20th century, i.e., the rising interest in natural medicine, especially in Europe. In Germany, sixty percent of clinicians are using natural medicine healing methods called Naturheilverfahren with reportedly fifty percent acceptance by the general public.[112] Advocates of holism in medicine will increase as the old dictum of treating the patient as an entire human entity continues to recruit new enthusiasts. In Germany, the Hufeland Society for Holistic Medicine, Inc., is the holistic scientific organization uniting all similarly oriented medical societies of West Germany.[113]

CONCLUSIONS

Courage will be needed for the now invisible panorama that will commence on January 1, 2000—courage to adhere to the positive in medicine for minimizing discord among all health care givers. The 21st century will produce mind-stretching events. Professional men and women will struggle to

110. God wills it.

111. N.Y. EXEC. LAW §§ 547(a)-(l) (McKinney Supp. 1989).

112. Natur und Medizin, Fordergemeinshaft fur Erfahrungsheilkunde C.V. Wisenshaftszentrum ahrstrade 45, 5300 Bonn 2, West Germany.

113. The Hufeland Society for Holistic Medicine, Inc. Friedensstrasse 101, D-7530 Pforzheim, West Germany.

fulfill their inate ambitions to contribute something for the benefit of humanity. They may or may not accept the additions of those people of medicine who lived before them. Nevertheless, at least some will express gratitude to their predecessors, for is it not true that we build on those who precede us?

Future medical revelations cannot be portrayed in radiant simplicity because the present forecasts an awesome one hundred years to come. Medical higher education will not topple but will be an energizing *vis a tergo* to bring renewed life into a profession that faces many challenging and humbling experiences.

As a human person, the physician must continue to stand firm for beliefs that are morally right, socially just, and professionally honorable. Adherence to virtue and goodness must not falter even if others mock that which they represent. Strength to achieve laudable goals may wane, but perseverance will revive it.

Great expectations are optimistically envisioned for the next century. It is not beyond possibility that vaccines can be perfected against certain forms of cancer, i.e., those with a viral etiology. Other medical predictions that may materialize in the 21st century are:

1. The medical war against some infectious agents such as AIDS, rubeola (measles), rubella (German measles), poliomyelitis, malaria, and hepatitis will be won;

2. Coronary heart disease will diminish due to preventative measures with by-pass surgery replaced in large measure by other modalities of therapy, i.e., modified catheterization and blood clot lysis via medication;

3. Neuroscience with marked advancements in applied physiology and immunology will eliminate traditional psychotherapy in favor of drug treatment for the majority of neuropsychiatric disorders;

4. Artificial inorganic medically approved devices will be in common use, i.e., implantable hearing aids, subcutaneous pump mechanisms delivering rationed medications, and chemical blood substitutes;

5. Organ transplantation of fresh or stored organs will extend to virtually whole body replacement capabilities; and,

6. The common cold will be unconquerable as it continues to wreak havoc among the populace.

No matter what the future may bring, people of medicine will continue to push back the barriers to progress, to hold forth helping hands to the distressed, to bring smiles to the faces of the weary, and to offer faith to those who disbelieve.