

The History of Legal Medicine

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Before discussing legal medicine and forensic science, it would be helpful to have a general definition of terms. Forensic science is a broader term than legal medicine. The former actually encompasses the latter. The term “forensic” is used as an adjective to identify a growing group of subspecialties in science and medicine, all of which convey the fundamental concepts of methods, hopefully both scientifically valid and legally admissible, for the presentation of evidence in courts of law.¹ Legal medicine is considered to be the field of study and accumulation of materials that deals with the application of medical knowledge to the administration of justice.² For the purposes of this article, forensic medicine should be considered synonymous with legal medicine.³

Medicine and law have been related from the earliest times. The bonds that first united them were religion, superstition, and magic. The functions of the physician and the jurist were united in the priest, the intermediary between God and man. In early civilizations, primitive legal codes, religious doctrines, and social precepts were often ill distinguished, and laws with a medical content were often found within their context.⁴ Ecclesiastical courts and canon law were concerned with much that related not only to religious matters but also to medicine—for example, impotence, divorce, sterility, pregnancy, abortion, period of gestation, and sexual deviations. The oldest of these written records, the Code of Hammurabi, includes legislation pertaining to the practice of medicine, dating back to the year 2200 B.C.⁵ It covered the topic of medical malpractice and set out for the first time the concept of civil and criminal liability for improper and negligent medical care. Penalties ranged from monetary com-

penation to cutting off the surgeon’s hand. Fees also were fixed. The Code discussed various diseases of a slave that would invalidate a contract. Also included were references to incest, adultery, and rape.

In ancient Egypt, the acts of the medical man were circumscribed by law. Stab wounds were differentiated in the 17th century B.C. The Egyptians had a thorough knowledge of poisons. There is evidence that priests made determinations regarding the cause of death and whether it was natural or not.⁶

The Chinese published information about poisons, including arsenic and opium 3000 years B.C. In ancient Persia, wounds were put into one of seven classes, ranging from simple to mortal. In ancient Greece, there was a knowledge of poisons and laws against abortions. However, autopsies were not performed, since a dead body was regarded as sacred.⁷

In Rome 600 years B.C., a law was passed requiring that a woman who died in confinement should be immediately “opened” to save the child. The investigators of murder were selected from the citizenry. When Julius Caesar was assassinated in 44 B.C. (March 15), the physician Antistius examined his body and concluded that only one of the 23 stab wounds was mortal.⁸

The legal code in ancient Greece (about 460 B.C.) was very elaborate. In addition, it was a time of great advances in medicine. Though there is no clear evidence that medical knowledge was officially made use of in establishing proof in courts of law, it is known that Hippocrates and others discussed many genuine medicolegal questions. These questions included the relative fatality of wounds in different parts of the body, the average duration of pregnancy, the viability of children born before full term, and other matters. Moving across the Mediterranean, there is in existence a papyrus, found in Egypt and dated from pre-Christian times, in which a medical officer in Alexandria submitted a report on a suicide

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about which there had been some suspicion of murder.⁵

The Justinian Code, which made its appearance in Rome between 529 and 564 A.D., included within its provisions a precept that indicated that a medical expert would not be used to proper or greatest advantage if he were to be simply regarded as an ordinary witness, appearing for one side or the other. The Code, with much wisdom, stated that the function of such an expert was really to assist the judiciary by impartial interpretation and opinion, based on his specialized knowledge.⁵

There was also the recognition of medicolegal problems in the Far East. In China, in approximately 1236 A.D., a volume entitled the *Hsi Yuan Lu* (freely translated, *Washing Away of Wrongs*) was compiled that outlined procedures to be followed in investigating suspicious deaths. The book urged the medical examiner to make a thorough and systematic examination of every corpse, however unpleasant its condition. The book discussed the difficulties caused by decomposition and even advised the examiner about the problems associated with counterfeit wounds. Sections were devoted to wounds caused by blows from fists or from kicking and to deaths caused by strangulation or drowning. Means for distinguishing between the bodies of drowned persons and those thrown into the water after death were discussed, as were the distinctions between ante- and postmortem burning. The examiner was also cautioned that nothing in the inquest should be regarded as being unimportant. Considering its era, this volume was amazingly thorough.⁵

European Legal Medicine

In 1553 the Germanic Emperor, Charles V, published and proclaimed the Caroline Code, which clearly stated in its pertinent sections that expert medical testimony must be obtained for the guidance of the judges in cases of murder, wounding, poisoning, hanging, drowning, infanticide, and abortion and in other circumstances involving injury to the person.⁸

France also had an early start among European nations in the cultivation of a medicolegal system. From 1570 to 1692, France enacted laws that, like those of Germany, favored the development of legal medicine as an academic discipline. However, by 1690, medicolegal offices became corrupt, and progress in legal medicine actually regressed, not to

start on a forward march again until after the French Revolution in the next century.⁹

Meanwhile, in Italy, a physician named Fortunato Fedele published in 1602 a fairly comprehensive volume on forensic medicine entitled, *De Relationes Medicorum*. Another Italian, Paola Zacchia, a papal physician, published the huge *Questiones Medicinæ Legales*, which quickly overshadowed Fedele's work. Zacchia's book discussed in detail questions of age, legitimacy, pregnancy, death during delivery, resemblance of children to their parents, dementia, poisoning, impotence, feigned diseases, miracles, rape, mutilation, and the matters concerning public health. The work has deficiencies that can easily be explained by the era in which it was written; for instance, the knowledge of anatomy and physiology was sketchy and erroneous. The book also contains sections on the different methods of torture then in existence, and it has a section that deals with miracles. Despite these shortcomings, it was a worthwhile and influential volume.¹⁰

Legal medicine was not treated as being just a theoretical pursuit. It was eventually brought into the courtroom. For example, in 1667 Schwammerdamm, in Germany, claimed that the lungs of a newborn baby would float in water if the baby had actually breathed. That is, if it was not stillborn and had lived and subsequently died, either by natural causes or by homicide. In 1681, the German physician Schreger used this test forensically, and secured the acquittal of a girl who had been accused of murdering her illegitimate child.⁶

Legal medicine began to be promoted within formal educational circles. In 1650, Michiælis, in Germany, delivered lectures on legal medicine. By 1720, professorships concerning the subject were founded by the state. Germany, in fact, established the first known medicolegal clinic in Vienna in about 1830 and a second one in Berlin in 1833. France established its first clinic in 1840. France has also provided, since 1803, that judges appoint medical experts who must be graduates in medicine and must have attended a course (in earlier days this requirement was fulfilled by going to one or more lectures) and have passed an examination in legal medicine. France established its first professional Chair in Legal Medicine in 1794. Great Britain, in 1803, established its first Chair of Forensic Medicine at the University of Edinburgh. By 1876, there were chairs in all of its medical schools.⁹

These academic recognitions should not lead one to believe that legal medicine had entered into a thoroughly enlightened era. Its development was always academically turbulent and against the intellectual current of the times. For example, during the period from 1620 to 1720, a serious topic of conversation in both medical and medicolegal circles was whether a woman could be impregnated by the devil or in a dream.⁹ In fact, in one case French judges actually legitimized an infant in a case in which the husband had been separated for four years from the mother, on the grounds that the child owed its paternity to a dream. Until 1726, it was taught that in the presence of the murderer, his victim's wounds would "open their congeal'd mouths and bleed afresh." Courts would accept the testimony of medical experts as to this miraculous bleeding of the corpse. Unearthed bones of animals would serve to convict men of murder. The highest medicolegal authorities advocated belief in ghosts, witches, and possession by the devil. They united with the clergy until 1752 in denouncing all disbelievers in these precepts as heretics and atheists. The authorities also recommended persecuting, drowning, and burning thousands of the insane, since they were, after all, "firebrands of hell" who were "moved and seduced by instigation of the devil." The going was not smooth, indeed.⁷

In the 5th century, when the Germanic and Slavic peoples took over Western Europe, they instituted a system of indemnity to replace the primitive system of personal vendetta. The person responsible for the injury would pay an amount to the injured party or, in the case of death, to his relative. Since the payment varied with the severity of the wound, it was important to classify the wounds in the code and to be able to call on experts to testify as to the damages. In the Visigothic and Bavarian Codes, mention is made of injury to pregnant women, to the child *in utero*, poisoning of prisoners, and penalties of negligent doctors if the patient died.¹¹

Charlemagne attempted to give some unity to the laws of the empire. There was recognition of the necessity of adducing all relevant evidence in judicial cases. There were articles discussing the direct intervention of physicians and instructions to judges to seek all relevant medical evidence, especially in cases involving questions of wounds, infanticide, suicide, rape, bestiality, and divorce on the grounds of impotence. The assizes of Jerusalem, in 1100, provided for the courts to order medical examinations. In the case

of murder, the corpse had to be examined, and a report made as to what had been found, the location of the injuries, and the likely mechanism that had caused them.¹¹

In Italy, in 1249, Hugo de Lucca took his oath as a medicolegal expert. Medical reports from this time show that autopsies were performed to determine the cause of death. Pope Innocent III, in 1209, provided for appointment of doctors to the courts for the determination of wounds. In Germany, in 1507, a comprehensive penal code was established that called for proof of cause in all violent deaths. It allowed the opening of bodies and represented progress toward the practice of medicolegal autopsies and the development of legal medicine as a separate professional discipline. It became a subject for special instruction in the 17th century and, by the start of the 18th century, designated chairs in legal medicine were created in German universities. Around this time, the earliest applications of medical observations designed solely to aid justice were made. The hydrostatic test to see whether a child had been born alive was used in cases of suspected infanticide.¹¹

The first book on legal medicine written in English was authored by Samuel Farr in 1788 and was entitled *Elements of Medical Jurisprudence*, a succinct and compendious description of findings in the human body that were required for judgment by coroners and courts of law in cases of divorce, rape, and murder, among others. The first British teacher of legal medicine was Andrew Duncan, a professor of physiology, who gave a course of lectures on legal medicine and public health, beginning in 1789. His son, Andrew Duncan, Jr, became the first professor on this subject at the University of Edinburgh, where the first Chair in Legal Medicine in the English-speaking world was established. Alfred Taylor (1806–1880), Professor of Medical Jurisprudence at Guy's Hospital Medical School, wrote *Principles and Practice of Medical Jurisprudence*. The British Association in Forensic Medicine was established in 1950, and later the British Academy of Forensic Sciences was created in 1960.⁴

American Developments

In the United States, the first lecturer on legal medicine was Dr. J. S. Stringham, who gave his lectures in New York beginning at around 1804.¹² In 1813, the first Chair of Medical Jurisprudence was established by the College of Physicians and Sur-

geons of New York City and was filled by this same Dr. Stringham. In 1815, the College of Physicians and Surgeons of the Western District of New York appointed Dr. T. R. Beck as the Professor of the Institutes of Medicine and Lecturer on Medical Jurisprudence.¹³ In the same year, the Medical Department of Harvard University appointed Dr. Walter Channing as the Professor of Midwifery.¹⁴

Dr. Benjamin Rush is credited with emphasizing the significance of the relationship between law and medicine in the early 1800s. As the nation's first surgeon general and a signatory of the Declaration of Independence, Rush established American legal medicine with his published lecture "On the Study of Medical Jurisprudence," which he delivered to medical students at the University of Pennsylvania in Philadelphia in 1811. The lecture dealt with homicide, mental disease, and capital punishment.¹⁵

The works of Stringham and Rush inspired the teaching of medical jurisprudence in other American medical schools. Among the early teachers were Dr. Charles Caldwell in Philadelphia and Dr. Walter Channing at Harvard. In 1819, Dr. Cooper, a legal officer of distinction and president of the College of South Carolina, published *Tracts on Medical Jurisprudence*. This volume contained almost all available literature written in English on legal medicine.¹⁶

In 1815 Dr. T. Romeyn Beck was appointed lecturer on medical jurisprudence at Western Medical College in New York state. In 1823, Beck published the *Elements of Medical-Jurisprudence*, which defined the field of legal medicine for about half a century of American medical practice. Beck's two volumes included impressive topics, such as rape, impotence and sterility, pregnancy and delivery, infanticide and abortion, legitimacy, presumption of survivorship, identity, mental alienation, wounds, poisons, persons found dead, and feigned and disqualifying diseases.¹⁷

In 1838, Isaac Ray published *A Treatise on Medical Jurisprudence of Insanity*. In 1855, the year that Beck died, Francis Wharton, an attorney, and Dr. Moreton Stille, a physician, collaborated to publish *A Treatise on Medical Jurisprudence*. In 1860, Dr. John J. Elwell, a physician and an attorney, published a book entitled *A Medico-Legal Treatise on Malpractice, Medical Evidence, and Insanity Comprising the Elements of Medical Jurisprudence*, which highlighted the issue of malpractice in the medical jurisprudence literature. Elwell's book presented excerpts from con-

temporary cases for the purpose of teaching physicians what to expect from malpractice litigation. Dr. John Odronaux, also a physician and an attorney, published *Jurisprudence of Medicine* in 1867 and *Judicial Aspects of Insanity* in 1878. In 1894, Randolph A. Witthaus and Tracy C. Becker published *Medical Jurisprudence, Forensic Medicine and Toxicology*.¹⁸

For medical students and physicians, medical jurisprudence assumed the position of central importance in U.S. schools of medicine throughout most of the 1800s. During the course of the 19th century, the institutions, laws, and judicial decisions in America reflected the increasing influence of sound medicolegal principles, especially those pertaining to mental disease and criminal lunacy.

After the Civil War, however, things changed drastically. Legal medicine became temporarily dormant. American Professor and Dean Stanford Emerson Chaille expressed his view of the deplorable condition of medical jurisprudence in the United States. Chaille demonstrated how the teaching of medical jurisprudence had deteriorated by noting that in some medical colleges the course had been dropped altogether.⁹ In others, it had been attached to some other subject, and in many colleges the teaching of medical students was entrusted to an attorney with no formal training in the medical field.²

Even in the early 20th century, the teaching of medical jurisprudence was relegated to a position as an occasional subject taught outside the mainstream.¹⁹ However, by the middle of the 20th century, legal medicine underwent a renaissance, as evidenced by the establishment of the American College of Legal Medicine (ACLM), the founding of the Law-Medicine Institute at Boston University, and the rekindling of contemporary interest in a vast array of legal medicine issues, medical ethics, physician and patients rights, and business and professional aspects of medical practice.

In 1867, the Medico-Legal Society was organized in New York. It was the first society in the world to be organized for the purpose of promoting the principles that an attorney could not be fully equipped for the prosecution or the defense of an individual indicted for homicide without some knowledge of anatomy and pathology and that no physician or surgeon could be a satisfactory expert witness without some knowledge of the law. Harvard University established a separate professorship in legal medicine in 1877.²

Organizations

In 1955, recognizing the growing impact of legislation, regulations, and court decisions on patient care and the general effect of litigation and legal medicine on modern society, a group of physicians and surgeons, some of whom were educated in the law, organized what would later become the aforementioned American College of Legal Medicine (ACLM). The college was incorporated on September 23, 1960, by nine doctors of medicine, three of whom were attorneys. Of the 36 physicians who were designated founding fellows, 10 had earned law degrees.

The ACLM is the oldest and most prestigious U.S. organization devoted to problems at the interface of medicine and law. Its membership is made up of professionals in medicine, osteopathy, and allied sciences, including dentistry, nursing, pharmacy, podiatry, psychology, and law. The ACLM has published a scholarly journal, the *Journal of Legal Medicine*, since 1973. In 1988, the ACLM also published the first edition of the textbook, *Legal Medicine*; the sixth edition was published in 2004.¹⁰

In 1972, a physician and two attorneys founded the American Society of Law and Medicine (Ethics was added in 1992; ASLME) as a successor organization to the Massachusetts Society of Examining Physicians. Its founding president was cardiologist Dr. Elliot Sagall, who also co-taught the law and medicine course at Boston College Law School with George J. Annas, an attorney. The organization quickly became the largest medicolegal organization in the world dedicated to continuing education, as well as the publisher of the two leading medicolegal journals: the *Journal of Law, Medicine, and Ethics* and the *American Journal of Law and Medicine*. The latter is published as a law review at Boston University Law School. The ASLME also has sponsored international meetings in locations around the world in an effort to bring physicians, attorneys, ethicists, and others interested in health law together.²⁰

Education

From World War II until the late 1960s, the field of legal medicine was defined by law school courses that were almost exclusively concerned with forensic psychiatry and pathology and were properly considered advanced courses in criminal law. In the late

1960s, some law and medicine courses began concentrating on broader medicolegal questions faced in the courtroom, including disability evaluation and medical malpractice. These courses were properly considered either advanced tort or trial practice courses.¹⁰

In the 1970s the concerns of at least some law and medicine courses expanded to include public policy, including access to health care and the quality of that care. At the same time, advances in medical technology created new legal areas to explore—from brain death and organ donation to abortion and *in vitro* fertilization. These topics were increasingly incorporated into law and medicine courses, which were themselves becoming known by the broader term of “health law.”¹⁰

Teachers of health law in law schools and medical schools, together with health law teachers in schools of public health and schools of management, began meeting on a regular basis in 1976, when the first national health law teachers’ meeting took place at Boston University under the auspices of the law school’s Center of Law and Health Sciences (the successor organization to the Law-Medicine Institute). The purpose was to help define the expanding field and develop necessary teaching materials.²⁰ In 1987, the American Association of Law Schools sponsored its first teaching workshop on health law. Although this narrower group only recently convened, its program and proceedings offer useful insight into the current state of health law in law schools. As the organizers of the workshop saw it, law and medicine (fields primarily concerned with medical malpractice, forensic medicine, and psychiatric commitment) had become subdivisions of the new field of health law. Health law itself has three additional subdivisions: economics of health care delivery, public policy and health care regulation, and bioethics. These three subdivisions are actually three different approaches to the same subject matter—the health care industry. Health law is applied law, much the way medical ethics is applied ethics.²¹

In an effort to bridge the gap between law and medicine, some attorneys enroll in medical school or in dual-degree MD/JD programs. The number of medical school courses extraneous to a legal practice specializing in medicine also discourages attorneys from pursuing a formal medical education.²²

In 1993, Harry Jonas, Sylvia Etzel, and Barbara Barzansky noted that students can earn combined doctor of medicine and doctor of jurisprudence (MD/JD) degrees in only 9 of 125 degree-granting U.S. medical schools fully accredited by the Liaison Committee on Medical Education (LCME). Presently, there are 15 such programs. In contrast, students can earn combined doctor of medicine and doctor of philosophy (MD/PhD) degrees in 113 of the 125 U. S. medical schools. Most individuals who currently have MD/JD degrees, however, earned their doctorate degrees separately, with most of them earning the MD first.²³

In 1985, Eugene Schneller and Terry Weiner published their findings regarding individuals who earned MD/JD dual degrees and noted that cross-professional education in law and medicine remains a relatively rare phenomenon in the United States. They concluded that

...without the development of institutionalized career lines and the acceptance of cross-disciplinary approaches to problem solving MD/JDs must negotiate their jobs and job descriptions within an occupational structure that rewards disciplinary efforts. The marginal status of the interprofessional specialist persists in the decade of the 1980's [Ref. 24, p 337].

A combined MD/JD program is probably not the most effective way to teach medical concepts to law students, and it is doubtful that many students are willing to pursue such a long period of training. Moreover, there is more than enough to learn in either field.²⁴

These reasons probably explain the increasingly popular movement toward providing a health law concentration in many law schools and offering joint JD/MPH degree programs (such as those at Boston University and Georgetown University) for students interested in health law. Practicing attorneys need a working knowledge of the health care industry, but do not need to know most of the material taught in medical schools. A well-developed health law program designed to fit into the law school curriculum can prepare an attorney to handle medical matters competently. Existing programs, such as health law concentrations at Boston University, Georgetown, Case Western, St. Louis University, and Loyola of Chicago, are still few in number.²⁵

In 1982, the American Board of Legal Medicine was established to administer examinations to individuals with both legal and medical degrees. Since

then, this Board has certified approximately 250 MD/JDs in legal medicine. These examinations are given annually. Other specialty groups that may have some relevance to MD/JDs are the American College of Physician Executives and the American College of Quality Assurance.¹⁰

The teaching of medicolegal problems in our country's medical schools has not, however, been as swift or as comprehensive as one would desire. Although many respected authorities in the field have urged for a long time that the active teaching of forensic medicine should be a responsibility and duty of our medical schools to their medical students, most medical schools have been slow in paying heed to this advice. In 1951, one respected authority in the field, Dr. William E. B. Hall, stated before the Academy of Forensic Sciences that America's medical schools had been, for the most part, derelict in their duty.²⁶ Hall felt that medical students received only a cursory indoctrination in the rights and duties of the physician, the rights of the patient, the various aspects of malpractice, and the functions of the courts. Hall stated:

We ask that our medical schools train our students, that they may at best recognize something of the medicolegal aspects of the various contacts in this practice, that they be better able to avoid misinterpretations of the facts and observations of a case, that they recognize when more capable advice and assistance are needed, so that the innocent may not needlessly be subjected to prosecution, and the operations of justice will be furthered [Ref. 26, p 555].

We have come a long way in the past 25 years toward meeting Hall's criteria.²⁷ The output of literature on medicolegal subjects has increased year by year, and, in general, forensic medicine in America, with regard to teaching and research, appears to be progressing. However, there is still a long way to go before we can be intellectually satisfied with the level of understanding, acceptance, and utilization of this extremely important field of study.

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