Review

# MEDICAL EXPERTISE AS A HISTORICAL PHENOMENON AND ACADEMIC DISCIPLINE

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SUMMARY - Based on secondary literature, a survey of particular forms of medical expertise over history is presented. The state-to-individual interaction in terms of personality and physical integrity protection, health care, etc., was observed. It was only after the 16th century that the development of anatomy was found to have become a decisive argument for convincing expertise in various trials. In Croatia, the course of medical expertise development was comparable to the close settings in the neighboring European countries. Major advances at the legislative, educational and professional levels took place in the second half of the 19th century. The subject of Forensic Medicine was introduced at Royal Academy of Jurisprudence as early as 1861; the book entitled Lěčnička izvěšća (visa reperta) za praktičnu porabu lěčnikov by Ivan Dežman (1841-1873) from 1868 offered the first systematic form of autopsy reports, whereas Kratka sudska medicina, a handbook in forensic medicine by Niko Selak (1861-1891) from 1889 denoted the beginnings of forensic medicine literature in Croatian language. It has been noted that medical expertise approach perceives man as a social being at the crossing of manifold impacts and influences, thus being always observed by physicians of various specialties. During centuries, medical expertise has been formed in conjunction with advances in medicine and science, and with the development of civil society. Medical expertise had gradually grown into a multidisciplinary field requiring high professionalism, ethical approach, continuous training and collaboration with various professions. This resulted in a compact and polyvalent discipline, in Croatia gradually formed as a special course in medical curriculum.

Key words: History of medicine; Forensic medicine – history; Forensic medicine – trends; Expert systems – history; Expert systems – legislation and jurisprudence; Croatia

Twentieth century was characterized by pandemics of traumatism caused by industrialization and fast development of communications. The life accompanied by high risks, alienation, and overall commercialization entailed intensive development of insurance industry<sup>1-3</sup>. At the same time, major advances in medicine, ever higher availability of medical ser-

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vices to the ever greater proportion of the population, higher patient expectations, and also increased depersonalization of the patient-healthcare professional relationship have resulted in the ever increasing number of requests for damage repair. In the majority of cases, these conflicts of interest are resolved by civil lawsuits in which medical expertise has a major role<sup>4</sup>. Medical expertise has been firmly rooted in modern society, reflecting its development and mirroring the perception of reciprocity, legal principles and codes, the concept of damage and damage indemnity, etc. Development of medical expertise reveals exchanges

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of interaction between the law and medicine, morality and culture, developmental processes and stepwise society democratization. Therefore, the historical development of the field is closely associated with due knowledge about the development of medicine, science, law, as well as of cultural features and philosophy of morality that have molded human endeavors in different periods<sup>5-7</sup>.

During history, almost every organized social system generated some form of standardized proceedings related to the protection of rights and/or health of the population. From overseas cultures to Greece as the nursery of the European culture, there were endeavors that could be considered as the earliest beginnings of medical expertise. Yet, those early efforts should be viewed as the origins in establishing the system of values in the organization of life within a community rather than establishing the institution of medical expertise in current terms.

Based on secondary literature, a survey of particular forms of medical expertise over history is presented. The state-to-individual interaction in terms of personality and physical integrity protection, health care, etc., was observed. The aim is to illustrate the continuity of the formation of a field that has seen most intensive development in our era, having gradually set its place in medical *curriculum* in Croatia.

### Community Organization and Medical Expertise in the Ancient Greek-Roman Culture

The Greek culture and medicine were essentially based on the macro- and micro-cosmos relation, tending to set standard criteria through continuous challenging the idea of living together, moralistic activities in the community, customs and behavioral patterns. The social and political reality of the Greek world relied on slave-holding that ensured living on other's work while also creating life privileges. It was the time of the holistic concept of man and his health, with the central figure of Hippocrates (460-377 B.C.), father of medicine, and a powerful symbol of treatment and deontological principles underlying the then medicine. Formulation of attitudes concerning the internal structure and type of government within the polis influenced the clarification of various reasoning and directions in political philosophy and gradual formation of legal awareness. This can be exemplified by the attitudes of the two outstanding physicians, Hippocrates and Plato, supporting individualistic ethics on the one hand and statist ethics on the other hand. Eugenics in this sense had already taken hold in Plato's ideas, discriminating individuals with chronic and mental diseases and disabled persons, leaving no room for any protection of their rights. Healthy body was a social imperative, a sort of dignity category8. On the other hand, the paternalistic physician-to-patient relationship put the patient in a submissive position to comply with any physician's decision. Such an asymmetric position could by no means support the patient's filing charge for possible indemnification. In addition, medicine was then a theoretical science and sources related to medical testifying at legal trials, in particular autopsy based expertise, are not known. Legal proceedings were exclusively a personal issue, even in case of homicide. Public law in modern sense, where offenders are persecuted by the state, was hardly known at the time. However, in spite of the lack of documentation on the true medical evidence, some parts of the orator speeches on the offenders describe the role of evidence in the form of statement<sup>5</sup>.

Law developed into properly formed and relevant field of human activity within the borders of the Western Roman Empire. In Roman law, specific sanctions began to be sentenced for many unlawful offences that are currently considered as non-material damage, the most important of these, private penalties (poena) being the one related to intentional violation of the other's personality (injuria). Every Roman citizen having sustained violation of his personality including physical integrity had the right to file charges against the offender and demand indemnity in money. The level of punishment was determined according to the severity of offence in each individual case, but there is no reliable evidence that a physician was involved in the procedure. As the public life including court proceedings in ancient Rome took place on the Forum, forensic medicine was named after it centuries later. In spite of the act on the length of pregnancy (to determine the child's legality) as well as the well known Lex regia and Lex Cornelia and severe punishments for their violation, little is known about medical expertise or trials related to violation of these norms. Death penalty was inflicted for those performing artificial abortion, in particular if the woman had died. The work



of physicians was submitted to strict legal regulations and close surveillance by medical associations taking care of due compliance with those legal regulations. Isolated examples of expertise on the health condition of slaves mention midwives, surveyors and other related professionals as witnesses reporting their expert opinion to the court. These data clearly indicate that the use of medical evidence and knowledge in terms of medical expertise was unknown at that time. In spite of the ambitious legislative regulations enacted during Roman Empire, autopsy was a crucial element that was lacking on hearing of evidence and medical expertise, and neglected for centuries thereafter<sup>5</sup>.

The civilization breakup following the Roman Empire collapse had enormous impact on the entire European continent. The Middle Ages feudalism developed during the very tumultuous period characterized by riot and violence. Medical expertise was replaced by witness testimony based on forced confession and superstition. However, the structure and methods of the Roman law were to a considerable extent taken over by many barbarian groups that conquered Italy and neighboring areas. A new civilization was gradually taking power in some parts of Europe, while the power of Islam was also expanding. Law schools that were relatively early established in the Islamic society defined the specific role of expertise in legal process. Large scholarly centers were developed in the towns in south Spain and Italy. Their disciplines included law and medicine, where scientists of the Islamic, Jewish and Christian origin worked together. These centers preserved the tenets of the Greek and Roman civilization for the times to come. This in turn resulted in a system that included witness examination, which has persisted to the present.

# Middle Ages Transformation of Legal Mentality and Emergence of the Coroner Position

Middle Ages laid the foundations of modern Europe, from morality and legislation through institutionalization of medical and law university institutions, professionalization, development of trade and economy, having eventually seeded the idea of united Europe. This period entailed numerous transformations in the legal mentality and led to the reinforcement and build-up of a specific life of social community. Living in the formed towns required development,

revision and adjustment of regulations, which resulted in the renaissance and expansion of legislation9. In the 8th century, Charlemagne (742-814) demanded medical expertise to be legally introduced again (the Capitularia codex), however, this attempt failed soon after his death. The number of town statutes was on an increase, developing in terms of detailed presentation of customary law. Henry II Curtmantle had an outstanding knowledge of the law and developed rich legal service in England. Legal practice was also introduced in Germany, under the pretext of pacifist movement. Current historical analyses describe 12th century as the era of legislation, not only in terms of Roman law revival but also by thorough elaboration of the canon law based on Gratianus' di Bologna Decretum Gratiani. Such a transformation of legal mentality intensified endeavors in search for a more exact definition of relationship between members of particular classes, professions, etc.<sup>9,10</sup>. It definitely influenced definition of various aspects within medicine and its role in judicial system.

In England and Wales, the coroner position was introduced in 1194, initially as a tax collector, among others in charge of finding hidden possessions, especially in case of suicide. In such cases, the possessions belonged to the Crown. Suicide was condemned sharply and the possessions of those dying violent death were quite commonly confiscated. Murders of the Normans were frequent in England after Norman Conquest. In this context, the coroner's role was to establish violent death, of foreigners in particular. When murder of a Norman was established, a fine called Murdrum was hit upon the respective area; the English word murder has been coined from this term. The role of coroner in verifying death by violence is illustrated by the death of Richard Hunne from 1514, murdered by the London bishop's subjects by thrusting a wire through his nose into the brain and hanging him simulating suicide. The case was investigated in detail by the coroner and the jury<sup>11</sup>.

In inland Europe fostering the influence of Roman law, some forms of forensic activity were preserved. In Middle Ages, generally a neighbor or a citizen familiar with the case rather than an independent person was summoned to take role of expert witness. Local citizens used to be summoned to take the stand to describe the event and give their opinion about the



suspects, while the jury took the role of witnesses and decided on the guilt. The role of the jury and witnesses was more properly defined much later, however, the jury could still act as witnesses as well, and it remained so until the 17<sup>th</sup> century.

In Croatia, the legal codex from 1288, written in Croatian language and containing legal regulations for the Vinodol area, known as Vinodol Codex, brings a series of articles that reveal the criminal law system and elaborates crimes against person, including physical injuries, rape, defamation of character, and an article against witches. However, the Vinodol Codex articles say nothing about the person providing expertise of injuries sustained by the victim; it is only stated that the cost of physician's care after wound infliction or fight has to be reimbursed to the injured<sup>12</sup>.

The development of medicolegal institutes is inseparable from endeavors for the protection of the individual (the injured/patient as well as the physician/surgeon) and the community as a whole. Typical examples of individual protection were agreements made between the physician/surgeon and patient, where mutual obligations concerning determination of payment, way of payment, responsibility for failure, etc., were identified. The main purpose of those agreements was to protect the physician from prosecution in case of treatment failure. These agreements were generally so composed to present the patient as submitting to the physician 'as being dead'. The surgeon handed his knife over to the patient, then the patient handed the knife back to the surgeon, thus the surgeon being released from responsibility for the possible death of the patient and at the same time protected the surgeon from blood feud. Despite it, physicians and surgeons were frequently accused of having caused disease worsening or even death due to negligence and ignorance. Therefore, guilds of surgeons were founded in Middle Ages, followed by guilds of midwives, for protection and accomplishment of their rights13-15.

The statutes of Dalmatian towns offer a precious source of data on health care and medicolegal services<sup>15,16</sup>. These documents show that physicians in Šibenik and Dubrovnik were obliged to report to the authorities the injuries they diagnosed. In 1272, an act on the court procedure similar to the current procedure was passed in Dubrovnik. The Dubrovnik

Republic government appointed physicians that presented their expert opinion on the severity of physical injuries, instruments of the crime, and causes of violent death<sup>17</sup>. During the 15<sup>th</sup> century, judicial proceedings were instituted on the basis of civil (private) or expert (medical) charge. The then court files reveal that expertise was most commonly used for traumas due to wound infliction, thus it was mostly performed by surgeons. At that time, autopsy for medical expertise had already been established in the neighboring European towns, e.g., Padua, Bologna and Venice, while there are no data on autopsy taken for this purpose in Dubrovnik and other Croatian towns. Some authors<sup>18</sup> believe that among others, one of the reasons for this was the lack of institutional basis as a proper frame for autopsy, along with a relatively low proportion of violent deaths in our region as compared with some Italian towns, e.g., Venice. According to data on the 14th century eighth decade, for instance, twenty physicians performed a total of sixty autopsies in Venice<sup>19</sup>.

#### Foundations of the Institute of Medical Expert

The turnaround in the study of human body during the period of Renaissance generated a different attitude towards medicine, while the reform of anatomy shook the very foundations of the Aristotle-Galen axis of health and disease interpretation. Anatomic dissection was now put into the center of medical education, having also become the key point in modifying the medical paradigm. At that time, Ambroise Paré (1510-1592), a French surgery reformer, in addition to numerous achievements and novel methods in the field of surgery and obstetrics, included court reports in his famous work Ouvres de M. Ambroise Paré, conseiller et premier chirurgien du Roy, published in 1575. Besides other Paré's contributions, mention should be made of his precise descriptions of the signs of violent death caused by drowning, lightning and poisoning; he also lists indications for the assessment of virginity, infanticide, etc.<sup>20</sup>.

Although the importance of medicine and law interaction in medical expertise was for the first time emphasized in Justinian Code (529-533 AD), the *Constitutio Criminalis Bambergensis*, elaborated by the bishop of Bamberg in 1507, is considered as the beginning of standardization of medicolegal institutionalization. This act codified medical expertise in all



cases of violent death and served as a model for the subsequent *Constitutio Criminalis Carolina* from 1532, which confirmed the role of medical expert. Thus, foundations for establishing the medical expert institution within governmental authorities were gradually built up, although medical expertise was still performed variedly and at different frequency in different regions. In England, the service was performed within the frame of the above mentioned coroner institute and was as such transferred to America, where medicolegal autopsies were recorded from the 17<sup>th</sup> century onward<sup>5</sup>.

## Establishment of Forensic Medicine as Academic Discipline

Having considered all cases where physicians are engaged as medical experts, Paolo Zacchia (1584-1659) developed a system and laid foundations of medical expertise by his fundamental work entitled *Quaestiones medicolegales* (1621-1631). Published in ten volumes and containing chapters on the assessment of pregnancy and child's legality, impotence and sterility, sexual perversions, mental illnesses, injuries, poisonings, etc., it made a great success and was considered as a basis of the medicolegal practice until the beginning of the 19<sup>th</sup> century<sup>21</sup>.

The first lectures in forensic medicine as an elective subject were introduced in the 17th century at German universities. The number of reports on physicians' expertise at courts all over Europe increased in the 17th and 18th century. At that time, first autopsies performed in order to detect the cause of death or to verify homicide by poisoning were described. In 1752, Dr. Addington, an English physician, was the first to use a scientific method in medical expertise to demonstrate the cause of poisoning. Forensic medicine as a required subject was introduced in France in 1794 (Paris, Strasbourg, Montpellier), in Italy in 1801 (Pisa), and in England in 1803 (Edinburgh). In the 17th and 18th century, forensic medicine and medicolegal expertise were part of quite ill-defined regulation that varied in its implementation. In spite of the above mentioned advances in the field of medicolegal expertise initiated in the 17th century and continued during the Enlightenment, true professionalization and institutionalization of this profession in modern terms began in the 19th century, when the process of systematic involvement of professionally competent experts in the medicolegal practice was initiated<sup>5,6</sup>.

### Regulation of the Role and Work of Medical Experts in Croatia

The great shift in science and medicine in the 19<sup>th</sup> century was decisive for the development of medical expertise. Some fifty certificates issued by Zagreb bishop physicians on autopsy findings and severity of injuries during the 1800-1846 period point to a defined and systematic approach according to which the physician had to explore and record the injuries, and only then could issue his opinion<sup>5,6</sup>. At the mid-19<sup>th</sup> century, the payment of medical experts was officially regulated, thus his social and professional position being more clearly defined<sup>22</sup>.

In Zagreb, lectures in forensic medicine were much earlier held for lawyers than for physicians. At Zagreb Royal Academy of Jurisprudence, lectures in forensic medicine were held by Mavro Sachs (1819-1888), a physician, from 1861. The lectures for law students were not limited to theoretical lectures, but public experiments in chemical toxicology and autopsy were also performed in the scope of university education<sup>22</sup>. Besides Sachs, lectures in forensic medicine were also delivered by another outstanding figure of the Croatian medicine, Antun Lobmayer (1844-1906). Upon return from his medical study in Vienna, he was first appointed railway prison physician in Osijek, then professor and head of National Maternity Hospital, and assistant professor of forensic medicine and health legislation at School of Law in Zagreb<sup>14</sup>. At the mid-19th century, coroner's inquest was stimulated by a decree on judicial coroner's inquest, issued by the Ministry of Interior and Justice as of January 28, 1855<sup>23</sup>. Although this decree regulated the protocol form, in practice it was not uniformly written and was mostly issued in German or Latin language. Therefore, the work by Ivan Dežman (1841-1873) entitled *Lěčnička* izvěšća (visa reperta) za praktičnu porabu lěčnikov, published in 1868, was beyond doubt a pioneer project aiming at offering the physicians involved in expertise a linguistically and structurally systematized form for writing autopsy protocols<sup>24</sup>. The next advance in the field was the appearance of forensic medicine hand-



book in 1889, *Kratka sudska medicina* by Niko Selak (1861-1891), considered the first work in forensic medicine literature written in Croatian<sup>25</sup>.

### Development of Forensic Medicine in the Twentieth Century

The foundation of the School of Medicine, University of Zagreb in 1917 established conditions for the development of academic and scientific medicine, along with development and differentiation of medical professions at the national level. Upon foundation of the School of Medicine, lectures in forensic medicine were held by Ljudevit Jurak, Professor at the School of Veterinary Medicine. In 1932, Dr. Eduard Miloslavić (1884-1952) was invited by the School of Medicine and came to Zagreb from the USA. In 1935, he established Department of Forensic Medicine and Criminalistics, School of Medicine, University of Zagreb<sup>5,6,26-28</sup>.

After World War II, considerable advances were recorded in defining and regulation of the methods and standards of medical evidence, with special reference to the use of all scientific methods available in the formation of so-called 'irrefutable evidence' and insisting on the role of medical expert presenting objective and reasoned opinion based on facts and evidence.

Development of forensic medicine was in part influenced by medical expertise, which has remained in the domain of this profession to the present. Forensic medicine is mostly focused on the forensic aspects of expertise, solving the problems and issues regulated by criminal law. By inherent nature, forensic medicine makes use of medical state-of-the-art in analysis of the type and severity of crime, thus being involved in the state repression instruments<sup>29</sup>.

Considering the continuity of medical expertise, at all times to the present it is observed to have exceeded the competence of a single profession, thus having always involved physicians of various specialties. In the forensic medicine approach, man has been observed through the interaction of manifold influences that determine him as a social being within a community. Democratization of the society has resulted in ever growing awareness of protection of the rights, personality and integrity of each individual, while the responsibility for injuries is assessed according to the

general rules of the civil law, i.e. according to the Act on Obligative Relationship provisions<sup>30</sup>. Responsibility for injuries is considered whenever the general preconditions of this Act are met, even when the actual type of injury is not specified in the Act. Health care service has now become available to the majority of the population. In addition to medical rules, ethical, legal and economic standards regulating the complex and finely tuned relations have been ever more important in the physician-to-patient and health care system-to-patient relationship. Even some minor irregularities in these relations may cause major injury in the patient<sup>31-33</sup>.

In spite of all preventive measures, the rate of general traumatism and various types of injuries sustained within the health care system has not yet been shown to decline. This unfavorable tendency has been accompanied by constant increase in the number of claims for indemnity in civil trials. A precise and objective evaluation of non-material damage to the person, obtained by medical expertise, is one of the substantial instruments on establishing the civil-law responsibility for the injury and criteria for indemnity adjudication<sup>4,34-36</sup>.

Daily practice imposes the need of continuous development and training of medical experts in terms of their proficiency in procedural law and other legal proceedings, along with the need of most objective and reliable expertise performed by different medical specialists. Therefore, in 1997 the Croatian Medical Association established the Croatian Society of Medical Expertise, as holder of continuous postgraduate education of medical experts. Since the Society establishment, 30 Postgraduate Courses of Continuous Education for Medical Experts Involved in Legal Procedures have been organized, now under the auspices of the Zagreb School of Medicine, and attended by 563 students from different medical specialties. In addition, Introduction in Medical Expertise has been included as a multidisciplinary elective subject at Zagreb University School of Medicine since 2004. A handbook entitled Uvod u medicinsko vještačenje u građanskim parnicama<sup>37</sup> has been published for use at Postgraduate Course of Continuous Education for Medical Experts Involved in Legal Procedures and in Introduction in Medical Expertise as a multidisciplinary elective subject at the School of Medicine.



#### Conclusion

Over centuries, medical expertise has been formed in conjunction with advances in science and medicine, as well as with the development of civil society. At the international level and in Croatia, medical expertise has gradually grown into an interdisciplinary and multidisciplinary field that requires professional and ethical approach, continuous training and close collaboration with different professions. Thus, medical expertise has developed into a compact and polyvalent discipline; in Croatia, it has also gradually turned into a special course of medical *curriculum*.

Initial steps were taken at School of Medicine, University of Zagreb, where the Introduction in Medical Expertise has been included in the undergraduate *curriculum* as elective subject, while a book entitled Introduction in Medical Expertise in Civil Lawsuit has been printed for the elective subject at the postgraduate Continuous Education Course for Forensic Experts in Legal Proceedings.

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#### Sažetak

#### ULOGA MEDICINSKOG VJEŠTAČENJA U ZAŠTITI PRAVA GRAĐANA TIJEKOM POVIJESTI

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Na temelju sekundarne literature u ovom radu se iznosi pregled pojedinih oblika medicinskog vještačenja tijekom povijesti. Prati se interakcija države i pojedinca u smislu zaštite osobnosti, tjelesnog integriteta, zaštite zdravlja i sl. Uočeno je da je razvoj anatomije postao ključan argument za uvjerljivu provedbu vještačenja u različitim parnicama istom nakon 16. stoljeća. Na području Hrvatske razvoj medicinskog vještačenja tekao je slično kao i u bliskim sredinama susjednih europskih zemalja. Tijekom druge polovine 19. stoljeća uočavaju se pomaci na zakonodavnoj, obrazovnoj i stručnoj razini. Sudska medicina kao predmet počinje se predavati na zagrebačkoj Kraljevskoj pravoslovnoj akademiji već od 1861. godine; djelo Ivana Dežmana (1841.-1873.) *Lėčnička izvėšća (visa reperta) za praktičnu porabu lėčnikov* iz 1868. ponudilo je prvi usustavljeni obrazac za pisanje obdukcijskih protokola, dok je priručnik sudske medicine *Kratka sudska medicina* Nike Selaka (1861.-1891.) iz 1889. obilježio početke sudskomedicinske literature pisane hrvatskim jezikom. Istaknuto je da je medicinsko vještačenje u okviru svog pristupa promatralo čovjeka kao društveno biće na razmeđi svekolikih utjecaja i njime su se oduvijek bavili liječnici različitih kompetencija. Medicinsko se vještačenje tijekom stoljeća oblikovalo u sprezi s napretkom medicine i znanosti, te izgradnjom civilnoga društva. Ono je postupno izrastalo u multidisciplinarno područje koje zahtijeva stručnost, etičnost u pristupu, kontinuirano usavršavanje i suradnju s različitim strukama. Samim time ovo se ustrojilo u kompaktnu i polivalentnu disciplinu te se i na području Hrvatske postupno oblikuje i kao zaseban predmet u okviru medicinskog kurikuluma.

Ključne riječi: Povijest medicine; Medicinsko vještačenje – povijest; Medicinsko vještačenje – trendovi; Ekspertni sustavi – povijest; Ekspertni sustavi – zakonodavstvo i pravosuđe





Fig. 1. Panoramic view of medieval Šibenik with a note on rewarding physicians. (Painting received by the courtesy of Asst. Prof. Damir Kovač, PhD, from his personal collection).