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CAUSATION IN THE CRIMINAL OFFENSE OF NEGLIGENT MEDICAL TREATMENT IN LEGAL DOCTRINE AND CROATIAN CASE LAW

ABSTRACT

The concept of causation in criminal law is a complex and difficult-to-define legal institute. Three theories prevail: the theory of equivalence, the theory of adequacy, and the theory of objective imputation. The criminal offense of negligent medical treatment constitutes a wrongful act by omission. A causal link exists only if the required action would have prevented the consequence. Complexity arises when, despite negligent treatment and the created risk, the same consequence occurs, raising the issue of applying the doctrine of permissible alternative conduct. Advances in medicine and technology have increased treatment risks, while the law seeks stronger protection of the right to health. Although outcomes of certain medical interventions are often known, negative consequences may occur even with proper conduct and adherence to professional standards. Scientific uncertainty must be accommodated within criminal law norms, which require a high degree of legal certainty. Croatian case law shows that courts, following the theory of objective imputation, demand a high—and often higher—degree of certainty than that proposed by legal theory. This approach aligns with the purpose of the offense of negligent medical treatment and contemporary medical developments, as it limits criminal liability to serious and obvious cases of malpractice that, with near-complete certainty, result in the deterioration of the patient's health, while preventing the further emergence of defensive medicine. This paper defines the criminal offense of negligent medical treatment, reviews the notion of causation, and analyzes Croatian legal theory and case law, drawing conclusions about their consistency and examining whether the ratio legis of the offense has been achieved.

Keywords: criminal law, causation, negligent medical treatment, defensive medicine

1. INTRODUCTION

The concept of causation generally represents a challenge that gives rise to numerous questions and debates. Due to its specificity in each individual and concrete situation, the notion of causation is almost impossible to define unequivocally. It is the subject of discussion in both the natural and the social sciences and poses difficulties in the natural sciences as well as in the humanities. Its complexity in attempts at definition has resulted in the fact that, within contemporary Croatian criminal law, there is no normative definition of causation, even though it constitutes an objective element of a criminal offence.

Although no normative definition exists, this paper analyses the concept of causation in the criminal offence of negligent medical treatment in legal theory and Croatian judicial practice, with the aim of examining the circumstances in which a medical professional who acts contrary to the rules of the profession incurs criminal liability. The existence of a clear distinction in this respect ensures effective protection of the right to health, while at the same time enabling medical professionals to perform their specific professional duties under conditions of legal certainty. Excessive criminalisation would otherwise render the medical profession impossible to practise in a legally secure manner. Physicians' fear of litigation has led to the development of a practice known as defensive medicine, defined as the ordering of unnecessary diagnostic tests and procedures or the avoidance of treating patients considered high-risk.¹ For these reasons, the existence of a clear normative and judicial framework is essential in order to achieve a balance between two competing objectives: the protection of human health and the unimpeded exercise of the medical profession. Accordingly, following the entry into force of the new Criminal Code on 1 January 2013, the legal definition of the offence of negligent medical treatment was structured so as to sanction only manifest breaches of professional standards, evidently negligent conduct, or the failure to implement measures for the protection of patients, with the aim of ensuring that this offence operates strictly as an *ultima ratio*.² This paper examines recent judicial practice concerning the issue of causation in relation to the aforementioned offence, analysing it through the lens of theoretical legal models, with a view to determining whether case law has kept pace with legislative

¹ Miziara I.D., Miziara C.S.M.G., *Medical errors, medical negligence and defensive medicine: A narrative review*, Clinics, Universidade de Sao Paulo, Brazil, 2022., p. 1

² Roksandić Vidlička S., Pražetina Kaleb R., *Utvrdjivanje pravnog kontinuiteta i tumačenje elemenata bića kaznenog djela nesavjesnog liječenja*, Zbornik radova s međunarodnog kongresa: "1. kongres KoKoZ-a i 3. hrvatski kongres medicinskog prava s međunarodnim sudjelovanjem, Pravni fakultet Sveučilišta u Splitu, 2019., p. 311.

developments in this area and whether the intended function of this offence as an *ultima ratio* has indeed been realised.

The paper defines the criminal offence of negligent medical treatment, provides an overview of the concept of causation, and ultimately analyses Croatian legal theory and judicial practice. It offers conclusions regarding their consistency and examines the application of the criminal offence of negligent medical treatment in case law, addressing the question of whether the ratio legis of the offence has been fulfilled and assessing its effects in relation to the concept of defensive medicine.

2. THE CRIMINAL OFFENCE OF NEGLIGENT MEDICAL TREATMENT

The criminal offence of negligent medical treatment is statutorily defined in Article 181 of the Criminal Code.³ This offence constitutes a *delictum proprium*. As is evident from paragraph 1, the circle of potential perpetrators includes healthcare professionals. The term healthcare professionals refers to physicians, doctors of dental medicine, medical biochemists, nurses and medical technicians, pharmacists, physiotherapists, sanitary engineers, and other professions listed in the Act on Healthcare Professions.⁴

Persons possessing the aforementioned status must, in the performance of healthcare activities, apply an obviously inappropriate means or method of treatment, or otherwise manifestly fail to act in accordance with the rules of the medical profession, or act in an obviously negligent manner.

When classifying the criminal offence of negligent medical treatment with regard to the structure of the offence, it is evident that this is an offence of injury. The injury consists in the violation of the protected legal good, namely human health. The violation is concretised, in the basic form of the offence, by the worsening of an illness or the impairment of another person's health. In the qualified forms of the offence, it is required that the conduct result in particularly serious bodily injury, termination of pregnancy, or the death of one or more persons.

³ Criminal Code of the Republic of Croatia ("Official Gazette" br. 125/11., 144/12., 56/15., 61/15., 101/17., 118/18., 126/19., 84/21., 114/22., 114/23., 36/24, 136/25)

⁴ Cvitanović L., et al., *Kazneno pravo posebni dio*, Pravni fakultet Sveučilišta u Zagrebu, Zagreb, 2018.

The injury thus concretised represents the consequence, the cause of which is the manifestly negligent conduct or omission of the healthcare professional. The consequence is a highly significant element of this criminal offense, as the type and severity of the consequence directly determine the gravity of the offense itself, as well as the range of penalties available to the court if the defendant is found guilty.⁵ It follows that this is a material criminal offence. From the statutory description, it is clear that the criminal offence of negligent medical treatment may be committed by commission (the application of an obviously inappropriate means or method of treatment) and by omission (manifest failure to act in accordance with the rules of the profession or otherwise manifestly negligent conduct). Where an offence may be committed both by commission and omission, it is defined as an improper omission offence;⁶ accordingly, the criminal offence of negligent medical treatment is classified also as an improper omission offence.

The criminal offence of negligent medical treatment medical treatment may be committed with intent or through negligence. Intent is possible only with regard to the negligent manner of treatment. It exists where the perpetrator is aware that he or she is acting contrary to the rules of the profession and wishes to act in such a manner (direct intent of the first degree); where the perpetrator is certain that a particular course of conduct will violate professional rules and nevertheless undertakes it (direct intent of the second degree); or where the perpetrator is not entirely certain that the conduct is contrary to professional rules but accepts such a possibility and proceeds regardless (indirect intent).⁷

Advances in medical science and technological development have simultaneously increased the risks inherent in medical treatment, thereby automatically increasing the responsibility of healthcare professionals who provide treatment and healthcare protection.⁸ On the other hand, the development of law has resulted in the enactment of numerous legal provisions guaranteeing individuals the right to healthcare and, in connection therewith, the right to the protection of life and bodily integrity in the course of receiving such care. The objective is to reconcile these two developmental trends. If the standard of liability is set excessively high, one may speak of a tendency toward the establishment of objective liability, which is inconsistent with the development and achievements of criminal law. For this

⁵ Mrčela M., Vuletić I., *Liječnik i kazneno pravo*, Narodne novine, 2019., p. 17.

⁶ Martinović I., *O kriteriju razlikovanja pravih i nepravih kaznenih djela nečinjenja*, Zbornik Pravnog fakulteta u Zagrebu, Vol. 65 No. 1, 2015., p. 131.

⁷ Mrčela M., Vuletić I., *Granice nehajne odgovornosti za kazneno djelo nesavjesnog liječenja*, Zbornik radova Pravnog fakulteta u Splitu, 3, 2017., p. 689.

⁸ Roksandić Vidlička S., *Aktualna pitanja pojedinih kaznenih djela protiv zdravlja ljudi*, Hrestomatija hrvatskog medicinskog prava, Pravni fakultet sveučilišta u Zagrebu, 2016., p. 819.

reason, the element of reasonableness must remain an essential component in determining the applicable standard.⁹

Today, there is, on the one hand, a tendency to expand as far as possible the liability of healthcare professionals for harm; on the other hand, there are demands that, due to the specific characteristics of this professional activity, they be granted immunity from liability.¹⁰ For this reason, the Croatian Criminal Code confines entry into the criminal sphere exclusively to manifestly negligent acts and omissions. Contemporary tendencies prescribed at the legislative level are reflected in their practical application before Croatian courts. Thus, in 2018 there were 78 criminal complaints filed for the criminal offence of negligent medical treatment, of which 68 were dismissed, and no convictions were rendered. Accordingly, while the number of criminal complaints is increasing, the number of indictments remains small and the number of convictions even smaller.¹¹ One of the principal reasons for acquittals lies precisely in the question of the existence or absence of causation as an objective element of the criminal offence of negligent medical treatment.

3. CAUSATION

In material offences, causation constitutes an objective element of the criminal offence and consists in the fact that it was precisely the unlawful act that brought about the consequence prescribed by statute. The purpose of causation is to ensure that the perpetrator is held responsible for those changes in the external world that are the result of his or her conduct, but not for those that merely coincidentally follow upon it.¹² In philosophical literature, causal responsibility is attributed to an individual for an outcome when that individual's conduct causes the outcome.¹³ Throughout history, with the development of all sciences—particularly the natural sciences—the concept of causation has become increasingly complex. This is most clearly visible in the development of the natural sciences, especially physics, chemistry, biology, astronomy, and medicine. The culmination of this complexity

⁹ *Ibid.*, p. 829.

¹⁰ Mišić Radanović N., Vukušić I. *Odnos različitih vrsta deliktne odgovornosti zdravstvenih radnika*, Zbornik radova s međunarodnog kongresa "2. Kongres KOKOZA i 4. Hrvatski kongres medicinskog prava s međunarodnim sudjelovanjem", 2020.

¹¹ Mišić Radanović N., *Prijepori o kaznenoj odgovornosti medicinskih djelatnika za stručnu pogrešku*, Godišnjak Akademije pravnih znanosti Hrvatske, Vol. XI. No. 1, 2020., p. 42.

¹² Novoselec P., Bojanić I., *Opći dio kaznenog prava*, Pravni fakultet Sveučilišta u Zagrebu, Zagreb, 2013., pp. 150–151.

¹³ Firkins G., *Rethinking Causation in English Criminal Law*, The Journal of Criminal Law 2023, Vol. 87(1), 2023., p. 24.

is reflected in the theory of deterministic chaos. Deterministic chaos is defined as the unpredictable, chaotic behaviour of nonlinear dynamic systems governed by deterministic laws. At first glance, this appears paradoxical, as the concept intertwines two notions usually regarded as incompatible: determinism and chaos. Many systems behave in an unpredictable (chaotic) manner even though they are relatively simple, the forces acting upon them are known, and they are described by deterministic equations of motion.¹⁴ Although it may be possible to control the initial conditions of an event, over time the connection between those initial conditions and subsequent states of affairs weakens. Ultimately, over a sufficiently long period, the nonlinearity of the dynamic systems involved means that it is no longer possible to predict or model how an event will unfold. Consequently, the contribution of the initiator of an action becomes immeasurably small, leading to the conclusion that continuity is absent.¹⁵

For these reasons, causation in both the natural sciences and philosophy is increasingly viewed as a functional concept. Metaphysical interpretations are being abandoned, as is the classical deterministic, or deductive-nomological, model according to which causation is a real, empirical phenomenon that could, following Galileo's original conception, be fully expressed mathematically. Of course, the law cannot and need not concern itself with such physical subtleties. At the same time, it should not be misled into believing that causation in law can be ontologically grounded in various simplified formulae.¹⁶ Precisely because of the complexity of the concept of causation, there have been historical attempts to define it strictly or to absolutise it.

Two principal currents emerged in this regard. One is represented by traditional metaphysicians who, broadly speaking, continue the Cartesian tradition and classical German idealism. Their understanding of causality may be illustrated by Descartes' well-known statement that "nothing comes from nothing"; for them, the hierarchy of causes ultimately culminates in a final cause. The second current inclined toward the absolutisation of causation consists of proponents of the classical philosophical, Laplacean deterministic model of causation. For them, causation is measurable, indisputable, reducible to natural laws, and ultimately expressible in the formula *conditio sine qua non*.¹⁷

¹⁴ Croatian Encyclopedia, online edition, Miroslav Krleža Institute of Lexicography, 2013–2024, <https://www.enciklopedija.hr/>, 10 February 2026.

¹⁵ Simester, A., *Causation in (Criminal) Law*, Law Quarterly Review, 133(3), 2017., p. 420.

¹⁶ Martinović I., *Problem uzročnosti u kaznenom pravu*, Hrvatski ljetopis za kazneno pravo i praksu, Vol. 19 No. 1, 2012., p. 78.

¹⁷ *Ibid.* p. 86.

Just as other sciences have failed to provide a single, unequivocal concept of causation, criminal law theory has likewise not arrived at a uniform definition. Consequently, the Criminal Code contains no normative definition of causation. Three dominant theories have developed within criminal law doctrine.

The first is the theory of equivalence. Its criterion is purely natural-scientific (naturalistic): in determining causation, no selection of causes is made according to their legal significance, nor are they otherwise evaluated. No distinction is drawn between essential and non-essential, direct and indirect, or proximate and remote causes. It is commonly associated with the formula *conditio sine qua non*.¹⁸ The usual objection raised against this theory in criminal law doctrine is *regressus ad infinitum*, that is, the fact that the search for causes may extend infinitely into the past. It is therefore evident that the formula *conditio sine qua non* leads to absurd results; ultimately, it renders causally relevant virtually every human action in the entire history of humankind.¹⁹

In an attempt to overcome the shortcomings of the theory of equivalence, the theory of adequacy was developed. The theory of adequacy requires that the change in the external world must be a typical consequence of a given act. Human conduct must be, according to general experience, suitable to bring about a particular consequence—otherwise, causation does not exist. Roxin objects to this theory on the ground that it is not a genuine theory of causation, since it does not demonstrate when a circumstance is causal for a consequence, but rather attempts to answer the question of which causal circumstances are legally relevant and may be imputed to the perpetrator.²⁰

These two theories demonstrate that, due to their limitations—and given that they directly pertain to the constituent elements of a criminal offence—they result in indeterminacy, which is contrary to the principle of *lex certa*. Determinacy and foreseeability are necessary in order for citizens to understand and plan their conduct.²¹ In this context, the principle of the rule of law is likewise significant, as criminal liability may become excessively unpredictable if anyone who contributes to a prohibited outcome is exposed to criminal conviction.²²

¹⁸ Novoselec P., Bojanić I., *op. cit.*, note 12, p. 151.

¹⁹ Martinović I., *op. cit.*, note 16, p. 8

²⁰ *Ibid.*, pp. 84–85.

²¹ Vukušić I., *Lex certa u poredbenom pravu*, Zbornik radova pravnog fakulteta u Zagrebu, Vol. 73 No. 1., 2023.

²² Firkins G., *op. cit.*, note 13, p. 26

As a consequence of attempts to narrow causation as much as possible in a natural-scientific sense, while at the same time excluding the understanding of causation as purely legal causality, the theory of objective imputation emerged. This theory answers the question under what conditions a consequence will be objectively imputed to the perpetrator as his or her own act. If such imputation is not possible, the constituent elements of the criminal offence are not fulfilled.²³

According to this theory, conduct may be objectively imputed to the perpetrator where, by that conduct, a danger was created for the protected object which exceeded the limits of permissible risk, provided that precisely that danger materialised in the consequence prescribed by law as an element of the criminal offence.²⁴

4. CAUSATION AS A CONSTITUENT ELEMENT OF THE OFFENCE OF NEGLIGENT MEDICAL TREATMENT IN LEGAL THEORY

The criminal offence of negligent medical treatment, as previously noted, constitutes an offence of endangerment and a material criminal offence. Errors in diagnosis and therapy are necessary preconditions for criminal liability. However, even if such errors are established, this is still insufficient for a conviction. The prosecution must prove two additional requirements of liability: the occurrence of a consequence and the existence of a causal link between the medical errors and that consequence. The consequence may consist of an aggravation of the illness, a deterioration of health, termination of pregnancy, or the death of the patient.²⁵ Croatian legal theory adheres to the teaching of three fundamental theories of causation: the theory of equivalence, the theory of adequacy, and the theory of objective imputation.

In medicine, it is generally impossible to establish with absolute certainty that a particular medical error directly caused the consequence. In other words, a causal link between a medical error and injury to health or body, or the death of a patient, exists only if the court, on the basis of expert medical testimony, concludes that

²³ Novoselec P., Bojanić I., *op. cit.*, note 12, p. 15

²⁴ Martinović I., *op. cit.*, note 16, p. 93.

²⁵ Vuletić I., *Medical Malpractice as a Separate Criminal Offense: a Higher Degree of Patient Protection or Merely a Sword Above the Doctors' Heads? The Example of the Croatian Legislative Model and the Experiences of its Implementation*, *Medicine, Law & Society*, Vol. 12, No. 2, pp. 39–60, October 2019, p. 44.

treatment *lege artis* would have saved or prolonged the patient's life with a probability consistent with certainty. Probability consistent with certainty denotes a degree of certainty that excludes reasonable doubt.²⁶

Although the case law of European states generally accepts the theory of equivalence, the question nevertheless arises whether a criminal court may convict a physician if the harm suffered by the patient is characterised merely as a "loss of a chance of recovery or survival."²⁷ Due to the weaknesses of the theory of equivalence, and taking into account the specific nature of the constituent elements of the offence of negligent medical treatment, Croatian legal theory applies the theory of objective imputation to this particular offence.

According to this theory, conduct may be objectively imputed to the perpetrator where, by that conduct, a danger was created for the protected object that exceeded the limits of permissible risk, but only provided that precisely that danger materialised in the consequence prescribed by law as an element of the criminal offence. The first requirement is that the perpetrator exceeded the limits of permissible risk, thereby creating a danger to the protected object. The second requirement is the realisation of that risk in the consequence prescribed by law as an element of the criminal offence.²⁸ The consequence must reflect precisely the danger that arose due to the breach of the required standard of care.

This requirement will not be fulfilled if, had the perpetrator complied with the required standard of care (or in the case of so-called lawful alternative conduct), the same consequence would certainly have occurred. It should further be noted, bearing in mind the nature of the offence of negligent medical treatment, that in cases of improper offences by omission only hypothetical causality is possible. That is, omission and consequence may be regarded as lawfully connected only where the required action would have prevented the consequence. In this context, the formula *conditio sine qua non* is likewise applied, albeit in a modified form—not as a hypothetical process of eliminating an actually performed act, but as a hypothetical process of adding the omitted act. If it is established that the consequence would not have occurred, it is to be imputed to the perpetrator; if it would have occurred in any event, it is not to be imputed.²⁹

²⁶ Mišić Radanović N., Vukušić I., *Causation in medical malpractice, EU and Comparative Law Issues and Challenges Series* (ECLIC), 2020. p. 784.

²⁷ *Ibid.* p. 783.

²⁸ Martinović I., *op. cit.*, note 16, pp. 93–94.

²⁹ Novoselec P., Bojanić I., *op. cit.*, note 12, pp. 158–159.

The most controversial situation in which the risk does not materialise in the consequence prescribed by law is that in which the same consequence would have occurred even if the perpetrator had complied with the required standard of care (so-called lawful alternative conduct). Theoretically, however, it remains disputed what should be done where the court cannot determine with certainty what would have occurred had the perpetrator fulfilled the requirements of due care.

Roxin's theory of risk increase, as well as its variations, maintains that compliance with the prescribed standard of conduct should be insisted upon even where it does not protect the legal good with certainty, but merely increases the possibility of protection. Accordingly, Roxin argues that the consequence should be imputed to the perpetrator as soon as, by breaching the rules of proper conduct, he or she increases the legally relevant risk, that is, the danger of the occurrence of the consequence. Ambrož justifiably objects that, under this assumption, it becomes impossible to compare the perpetrator's conduct with the hypothetical lawful conduct. Nor should one accept Roxin's more extreme position, according to which the limitations of the court's epistemic capacities would effectively operate to the detriment of the accused.

From a criminal policy perspective, in such complex cases imputation should be limited to situations in which the risk has been increased in a legally relevant manner. What constitutes the precise threshold of such relevance remains an open question in legal theory.³⁰

5. CAUSATION AS A CONSTITUENT ELEMENT OF THE OFFENCE OF NEGLIGENT MEDICAL TREATMENT IN CROATIAN JUDICIAL PRACTICE

This paper analyses two criminal cases in which the issue of causation in the offence of negligent medical treatment was specifically addressed. The author conducted a search of all publicly available judicial decisions relating to the offence of negligent medical treatment in the case law database of the Supreme Court of the Republic of Croatia and additionally requested the delivery of final judgments in the same matters from the County Court in Zagreb and the County Court in Split. Through a review of the available decisions, the author established that the issue of causation in the offence of negligent medical treatment was problematised in only two judgments. The first case dates from 2012 and the second from 2022. By analysing these judgments, the paper seeks to determine

³⁰ Martinović I., *op. cit.*, note 16, p. 96.

which theory of causation Croatian courts apply in practice in cases concerning the criminal offence of negligent medical treatment.

In the first case, concluded by the judgment of the County Court in Bjelovar (No. KŽ-443/2011-3 of 16 February 2012), the accused, acting as the senior on-call surgeon, was charged with having failed to perform a complete clinical examination of a patient brought in after a traffic accident; despite radiological findings indicating a suspicion of aortic rupture, he failed to consult a cardiac surgeon in accordance with professional standards and did not arrange for the patient's urgent transfer to a specialised clinic in Zagreb. Nor did he undertake appropriate monitoring measures, even after the patient's condition deteriorated. As a result, the patient bled out due to a ruptured aorta and died.

In that case, the courts held that even if it were established that the accused had acted negligently, the results of the evidence did not support a reliable conclusion that the deterioration of the victim's health and his death were consequences of those omissions. From the complex expert opinion of the Faculty of Medicine of the University of Zagreb, it followed that mortality in operated cases of aortic rupture was up to 40%. Although a supplementary expert opinion indicated that mortality in cases involving injuries such as that sustained by the victim might be lower (15–20%), the court accepted the interpretation more favourable to the accused. It concluded that a 60% chance of survival did not provide a sufficient basis for establishing a causal link between the accused's omission and the fatal consequence, since it could not be reliably excluded that the same outcome would have occurred even if the victim had undergone surgery at the most favourable moment.³¹ The accused was therefore acquitted of the offence of negligent medical treatment.

This case demonstrates that Croatian judicial practice applies the theory of objective imputation. In cases of omission—such as the present one, which constitutes an improper offence by omission—only hypothetical causality is possible. It can never be asserted with absolute certainty that the omitted act would have prevented the consequence; probability therefore suffices. However, not just any degree of probability is sufficient. A high degree of probability, or probability bordering on certainty, is required. In the absence of such probability, the principle *in dubio pro reo* must be applied, and it must be assumed that the required act would not have prevented the consequence,³² that is, that causation is lacking.³³

³¹ Judgment of the County Court in Bjelovar, Case No. KŽ-443/2011-3, 26 February 2012.

³² Novoselec P., Bojanić I., *op. cit.*, note 12, pp. 159–160.

³³ Mrčela M., Vuletić I. *op. cit.*, note 5, p. 19.

In the second case, concluded by the judgment of the County Court in Zagreb (No. KŽ-634/2021-7 of 29 November 2022), the accused, an emergency physician, was charged with having examined an intoxicated person found lying on the road, determined that there were no visible injuries, and arranged for the person to be transported home rather than to hospital, despite the fact that the individual lived alone in neglected conditions. The following day, complications of a severe cranio-cerebral injury developed, resulting in death.

The appellate court held that the first-instance court had correctly acquitted the accused because it had properly found that the commission of the offence had not been proven with complete certainty. The evidence showed that, at the scene, the accused had detected no signs or symptoms indicating severe head trauma. The fact that such injuries were diagnosed the following day did not exclude the possibility that they had been sustained either before or after the examination. The crucial issue was the establishment of a causal link between the accused's conduct and the fatal consequence.

After analysing the entire proceedings, the appellate court agreed that it had not been proven with complete certainty that the accused's conduct, or the omissions attributed to him, were the acts that led to the harmful consequence. Nor was it established that the accused had failed to apply protective measures in accordance with the rules of the medical profession and that this omission subsequently resulted in the victim's death. The court further emphasised that it could not be disregarded whether the fatal outcome would have been avoided—and with what degree of certainty—had the victim been hospitalised, monitored, and operated on earlier, given the severity of the injury and other relevant factors such as age, general health, pre-existing conditions, and intoxication.³⁴

The first-instance court elaborated extensively on causation. It noted that the accused could not have known of the victim's pre-existing illnesses because he did not have access to medical documentation. The death occurred several months after surgery and was associated with numerous illnesses and complications, including pneumonia caused by inadequate lung ventilation during recovery. According to the expert in neurosurgery, mortality in cases of such cranio-cerebral injuries exceeds 80%. Although earlier surgical intervention increases the chances of survival, the likelihood of survival—and of complications leading to death—depends significantly on the patient's overall health condition. The victim had a documented history of psychiatric disorders, gastrointestinal surgery, and pulmonary inflammation, indicating a weakened immune system and a heightened

³⁴ Judgment of the County Court in Zagreb, Case No. KŽ-634/2021-7, 29 November 2022.

susceptibility to infection. The experts concluded that, given the victim's comorbidities and the time elapsed between injury and death, the fatal outcome could not be excluded even if he had been referred to surgery at the first examination and the injuries had been immediately diagnosed.³⁵

An analysis of this more recent case confirms that Croatian judicial practice is consistent in applying the theory of objective imputation in cases of negligent medical treatment, specifically through the concept of so-called lawful alternative conduct. The courts examine whether the same consequence would certainly have occurred even if the accused had acted with due care. It is noteworthy that legal scholars, including Novoselec, employ the standard of probability bordering on certainty, whereas judicial practice refers to complete certainty, which appears to represent an even higher standard of proof of causation required in criminal proceedings.

6. CONCLUSION

The full complexity of the problem of causation in criminal law is most clearly manifested in the offence of negligent medical treatment. Medicine is unique in that it represents a combination of natural sciences and the humanities, both of which are essential to its functioning.³⁶ From the natural-scientific perspective, the principal difficulty lies in the fact that it is impossible to know with one hundred per cent certainty what is true in any given research question, even though medical knowledge is grounded in such research.³⁷ Even in situations where relatively firm knowledge exists regarding the outcomes of specific medical procedures, a certain number of cases will almost invariably result in a negative outcome despite all appropriate medical measures having been undertaken. Such outcomes may occur even where the medical intervention was performed *lege artis*.

This natural-scientific "chaos," in which nothing can be determined with complete certainty, must nevertheless be subsumed under legal norms—specifically criminal law norms—which require strict determinacy, since their violation interferes with the highest legal values, such as personal liberty, as well as with

³⁵ Judgment of the Municipal Court in Zlatar, Case No. K-269/2020-30, 28 April 2021.

³⁶ Dreyfus H. L., *Medicine as Combining Natural and Human Science*, *The Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine*, Volume 36, Issue 4, August 2011, p. 335.

³⁷ Ioannidis JPA, *Correction: Why Most Published Research Findings Are False*, *PLOS Medicine* 19(8), 2022.

the right to continue practising the medical profession as a legal consequence of conviction.

Legal theory applies to the offence of negligent medical treatment the theory of objective imputation, supplemented by the corrective of so-called lawful alternative conduct and the concept of hypothetical causality. However, this accepted theoretical model is itself practically limited by the very fact that it is impossible to determine with absolute certainty whether undertaken or omitted medical procedures would indeed have led to the deterioration of illness or impairment of health. This shortcoming is mitigated by establishing causation at the level of probability bordering on certainty.

An analysis of judicial practice demonstrates that Croatian courts align with the predominantly accepted legal theory by requiring a high degree of probability. It is noteworthy that legal theory employs the notion of probability bordering on certainty, whereas the most recent Croatian case law refers to complete certainty. It may therefore be concluded that Croatian judicial practice demands an even higher standard of certainty than that articulated in legal theory.

Such an approach is both correct and commendable. It is correct from the perspective of the principle *in dubio pro reo*, as it is impermissible to convict any person where there remains cognisable doubt that the consequence would have occurred irrespective of that person's conduct or omission. It is commendable because the offence of negligent medical treatment is a result-based offence requiring the realisation of a harmful consequence stemming from unprofessional conduct. If a lower degree of probability were accepted in linking negligent conduct to the consequence, there would be a risk that the offence of negligent medical treatment would approximate offences of endangerment, which would be unacceptable.

The positive aspect of this principled position in recent judicial practice lies in the fact that, in cases of the criminal offence of negligent medical treatment, only extreme instances of unprofessional medical conduct and omissions—those that with complete certainty result in the deterioration of illness or impairment of another person's health—are subject to criminal punishment. In this manner, human health is protected while medical professionals are enabled to practise their profession in a more relaxed and secure manner, free from the pressures of defensive medicine. They may do so in the knowledge that criminal liability arises only in cases of extreme professional misconduct that with complete certainty cause the prohibited harmful consequence.

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COURT PRACTICE

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2. Judgment of the Municipal Court in Bjelovar, Case No. K-105/09-44, 14 September 2011
3. Judgment of the County Court in Zagreb, Case No. Kž-634/2021-7, 29 November 2022
4. Judgment of the Municipal Court in Zlatar, Case No. K-269/2020-30, 28 April 2021