

Forensic Veterinary Medicine Methods for Determining Defects in Veterinary Care

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This research paper purpose is to develop forensic veterinary medicine to determine defects in veterinary care. General and special scientific methods were used to achieve the goal. The author's methods of forensic veterinary medicine of defects in veterinary care carried out in five stages: familiarization and training one, managerial and informational ones, research and analytical ones, generalization and evaluation ones and final one. It has been proven that the forensic veterinary examination should determine the defect existence and provide conclusion on availability or lack of a cause-effect relation between the lack of veterinary care and a negative consequence for the animal and the main cause of such a consequence. Attention is focused on the fact that the forensic veterinary commission should assess timeliness, volume and validity of performed diagnostic and medical and tactical veterinary measures, correctness of surgical interventions or veterinary manipulations and their compliance with current regulatory documents. It is substantiated that the proposed author's methods unify approaches to forensic research, minimizes subjectivity of forensic assessment of actions of veterinarians; expands the cognitive capabilities of pre-trial investigation bodies and the court; contributes to improvement of criminal and administrative legislation of Ukraine in terms of legal responsibility of veterinary workers for professional offenses. The key issues arising due to improper performance of professional duties by veterinarians are highlighted and ways to their solving are proposed.

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Keywords: forensic veterinary medicine; forensic veterinary examination; examinee animals; defects and shortcomings of veterinary care; negative consequences for health and life of animal; methods and stages of forensic veterinary research.

Research Problem Formulation

Forensic expert activity is generally regulated both in Ukraine and in the rest of the world¹. At the same time, in the field of domestic forensic veterinary medicine, process of forming a theoretical base, developing forensic methods and guidelines, and creating reference literature continues up to day, since it was introduced in Ukraine only in 2019.

Arsenal of forensic veterinary medicine was quickly replenished with the latest researches². In particular, scientists of Kharkiv Scientific School of Forensic Veterinary medicine developed guidelines: *Rules of Forensic Veterinary Determination*

*of the Severity of Damage Caused to Animal Health*³, *Methods of Forensic Veterinary Examination of Animal Corpses*⁴ and *Methods of Forensic Veterinary Examination of Animals in order to Establish their Injury*⁵; analyzed in detail the practice of forensic veterinary examination of live animals that have suffered serious bodily injuries, resulting in injury⁶.

All these scientific achievements led to formation of one more, if not the most difficult and most important, area of forensic veterinary medicine that is determination of defects in veterinary care (hereinafter referred to as VC) and veterinary sanitary measures. The number of such offenses, unfortunately, tends

- 1 Синоверська Т. І. Міжнародний досвід розслідування жорстокого поводження з тваринами та напрями його запровадження у вітчизняну практику. *Науковий вісник публічного та приватного права*. 2019. Вип. 1. Т. 1. С. 222–228. DOI: 10.32844/2618-1258.2019.1-1.38 (date accessed: 07.10.2023) ; Cooper J. E., Cooper M. Veterinary involvement in forensic medicine. *The Veterinary Record*. 2021. Vol. 189. Is. 6. Pp. 249–250. DOI: 10.1002/vetr.1004 (date accessed: 07.10.2023).
- 2 Skrypka M., Panikar I., Boyko Yu., Dmytrenko N., & Kurales O. Pathogenesis and pathomorphology of distraction trauma in the framework of pre-trial investigations of cruelty to animals. *Scientific Horizons*. 2023. Vol. 26. No. 4. Pp. 54–64. DOI: 10.48077/scihor4.2023.54 (date accessed: 07.10.2023) ; Сердюков Я. К., Шкундя Д. Ю. До питання про з'ясування давності настання смерті у свійських котів. *Ветеринарія, технології тваринництва та природокоористування*. 2021. № 8. С. 65–69. DOI: 10.31890/vttrp.2021.08.09 (date accessed: 07.10.2023).
- 3 Яценко І. В., Парилівський О. І. Правила судово-ветеринарного визначення ступеня тяжкості шкоди, заподіяної здоров'ю тварини (методичні рекомендації). Харків, 2022. 47 с.
- 4 Яценко І. В., Казанцев Р. Г. Методика судово-ветеринарної експертизи трупів тварин. Харків, 2022. 336 с.
- 5 Яценко І. В. Методика судово-ветеринарного дослідження тварин з метою встановлення їх каліцтва. Харків, 2021. 50 с.
- 6 Idem. Вплив новітніх наукових здобутків Харківської наукової школи судово-ветеринарних експертів на ефективність призначення та проведення судово-ветеринарної експертизи. *Progressive research in the modern world*. Proceedings of the VI International Scientific and Practical Conference (March 2–4, 2023). BoScience Publisher. Boston, USA. 2023. Pp. 27–44. URL: <https://sci-conf.com.ua/wp-content/uploads/2023/03/PROGRESSIVE-RESEARCH-IN-THE-MODERN-WORLD-2-4.03.23.pdf> (date accessed: 07.10.2023).

to increase. In view of this, the expert's opinion becomes an important piece of evidence in initiated case (proceeding) against veterinarians in connection with their improper professional activity.

Instead, peculiarities of forensic veterinary medicine in case of detection of defects in veterinary activities in regulatory documents, rules and methods are mentioned only fragmentarily. The lack of theoretical substantiation and special methodological support of forensic veterinary medicine regarding defects in veterinary activities in case of negative consequences of professional activity of veterinarians does not meet modern requirements of legal proceedings, causes unreasonable refusals to conduct forensic examination, substitution of forensic examination with other procedural actions,

formulation in the procedural document on appointment of forensic examination of issues beyond forensic expert competence, as well as the subjectivity of such forensic examinations.

Analysis of Recent Researches and Publications

The issues of defects in veterinary activity are detailed in particular in research papers by : R. Munro ⁷(Integrity and Limitations of Forensic Veterinary Evidence); C. Oxtoby ⁸, B. Gartrell i B. White ⁹, C. A. Alexander-Leeder with co-authors¹⁰, R. Low i A. W. Wu ¹¹(various errors in veterinary practice); J. Wallis with co-authors ¹², G. M. Hayes with co-authors ¹³ (harm from professional errors of veterinarians); E. H. Hofmeister i L. Love ¹⁴, M. Turner ¹⁵;

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- 7 Munro R. Viewpoint: Integrity and Limitations of Forensic Veterinary Evidence. *Journal of Comparative Pathology*. 2022. Vol. 199. Pp. 86–87. DOI: 10.1016/j.jcpa.2022.10.003 (date accessed: 07.10.2023).
 - 8 Oxtoby C. Getting it right on mistakes. *The Veterinary Record*. 2019. Vol. 185. Is. 14. Art. 453. DOI: 10.1136/vr.l5967 (date accessed: 07.10.2023).
 - 9 Gartrell B., White B. Surviving clinical errors in practice. *New Zealand Veterinary Journal*. 2021. Vol. 69. Is. 1. Pp. 1–4. DOI: 10.1080/00480169.2021.1840740 (date accessed: 07.10.2023).
 - 10 Alexander-Leeder C. A., Guess S. C., Waiting D. K., Davidow E. B. Medical errors: Experiences, attitudes and perspectives of incoming and outgoing final-year veterinary students in the USA. *The Veterinary Record*. 2022. Vol. 191. Is. 3. Art. 1735. DOI: 10.1002/vetr.1735 (date accessed: 07.10.2023).
 - 11 Low R., Wu A. W. Veterinary healthcare needs to talk more about error: For the wellbeing of our patients and medical teams. *Journal of Veterinary Internal Medicine*. 2022. Vol. 36. Is. 6. Pp. 2199–2202. DOI: 10.1111/jvim.16554 (date accessed: 07.10.2023).
 - 12 Wallis J., Fletcher D., Bentley A., Ludders J. Medical Errors Cause Harm in Veterinary Hospitals. *Frontiers in Veterinary Science*. 2019. Vol. 6. Art. 12. DOI: 10.3389/fvets.2019.00012 (date accessed: 07.10.2023).
 - 13 Hayes G. M., Bersenas A. M., Mathews K., Lane W. G., LaLonde-Paul D. F., Steele A., Avellanda A. A multicenter observational study investigating care errors, staffing levels, and workload in small animal intensive care units. *Journal of Veterinary Emergency and Critical Care (San Antonio, Tex.)*. 2020. Vol. 30. Is. 5. Pp. 517–524. DOI: 10.1111/vec.12991 (date accessed: 07.10.2023).
 - 14 Hofmeister E. H., Love L. Patient safety culture is needed in veterinary medicine. *Journal of the American Veterinary Medical Association*. 2023. Vol. 1. Pp. 1–5. DOI: 10.2460/javma.23.07.0370 (date accessed: 07.10.2023).
 - 15 Turner M. Improving veterinary patient safety through systems analysis of clinical incidents. *The Veterinary Record*. 2022. Vol. 191. Is. 12. Pp. 496–498. DOI: 10.1002/vetr.2559 (date accessed: 07.10.2023).

K. M. Whipple with co-authors¹⁶ (veterinary patient safety culture); M. L. Daly¹⁷, C. O. Cummings with co-authors¹⁸ (advanced VC quality).

Ukrainian doctors and lawyers also devoted some attention to the problem of medical errors: I. Seniuta¹⁹ (concept and types of defects in the provision of medical care); O. Mostovenko²⁰ (concepts, signs and classification of medical errors); A. Serdiuk²¹ with co-authors (concept of forming a strategy for preventing defects in the provision of medical care in the domestic

health care system); V. Khyzhniak²² with co-authors (forensic support of “medical cases”).

Defects in provision of medical care are analyzed in the scientific works of foreign medical scientists: V. Grenon with co-authors²³, D. Ostrovsky with co-authors²⁴, T. Miyagami with co-authors²⁵ (diagnostic medical errors due to negligence); A. Ünal i Ş. S. Intepeler²⁶ (bibliometric analysis of world sources on medical errors).

Thus, the issue of defects in veterinary activity did not attract proper attention of

- 16 Whipple K. M., Leissing M. K., Beatty S. S. Frequency and classification of errors in laboratory medicine at a veterinary teaching hospital in the United States. *Veterinary Clinical Pathology*. 2020. Vol. 49. Is. 2. Pp. 240–248. DOI: 10.1111/vcp.12851 (date accessed: 07.10.2023).
- 17 Daly M. L. The case for quality improvement in veterinary medicine. *Journal of Veterinary Emergency and Critical Care (San Antonio, Tex.)*. 2022. Vol. 33. Is. 1. Pp. 11–15. DOI: 10.1111/vec.13264 (date accessed: 07.10.2023).
- 18 Cummings Ch. O., Krucik D. D. R., Carroll J. P., Eisenbarth J. M. Improving within-team communication to reduce the risk of medical errors. *Journal of the American Veterinary Medical Association*. 2022. Vol. 260. Is. 6. Pp. 600–602. DOI: 10.2460/javma.21.09.0407 (date accessed: 07.10.2023).
- 19 Сенюта І. Я. Дефекти надання медичної допомоги: поняття і види. *Медичне право*. 2017. № 1 (19). С. 55–66. URL: http://medicallaw.org.ua/fileadmin/user_upload/pdf/Journal_19.pdf (date accessed: 07.10.2023).
- 20 Мостовенко О. Поняття, ознаки та класифікація лікарських помилок. *Підприємництво, господарство і право*. 2018. № 10. С. 37–40. URL: <http://pgp-journal.kiev.ua/archive/2018/10/8.pdf> (date accessed: 07.10.2023).
- 21 Сердюк А. М., Скалецький Ю. М., Ріган М. М. Концепція формування стратегії запобігання дефектам надання медичної допомоги у вітчизняній системі охорони здоров'я. *Environment & Health*. 2020. № 1. С. 4–11. DOI: 10.32402/dovkil2020.01.004 (date accessed: 07.10.2023).
- 22 Хижняк В. В., Ольховський В. О., Моргун А. О., Куценко К. В., Моргун О. О. Судово-медичний супровід «лікарських справ». *Теорія та практика судової експертизи і криміналістики*. 2018. Вип. 18. С. 558–567. DOI: 10.32353/khrife.2018.65 (date accessed: 07.10.2023).
- 23 Grenon V., Szymonifka J., Adler-Milstein J., Ross J., Sarkar U. Factors Associated with Diagnostic Error: An Analysis of Closed Medical Malpractice Claims. *Journal of Patient Safety*. 2023. Vol. 19. Is. 3. Pp. 211–215. DOI: 10.1097/PTS.0000000000001105 (date accessed: 07.10.2023).
- 24 Ostrovsky D., Novack V., Smulowitz P. B., Burke R. C., Landon B. E., Isbell L. M. Perspectives of Emergency Clinicians About Medical Errors Resulting in Patient Harm or Malpractice Litigation. *JAMA Network Open*. 2022. Vol. 5. Is. 11. Art. 2241461. DOI: 10.1001/jamanetworkopen.2022.41461 (date accessed: 07.10.2023).
- 25 Miyagami T., Watari T., Harada T., Naito T. Medical Malpractice and Diagnostic Errors in Japanese Emergency Departments. *The Western Journal of Emergency Medicine*. 2023. Vol. 24. Is. 2. Pp. 340–347. DOI: 10.5811/westjem.2022.11.55738 (date accessed: 07.10.2023).
- 26 Ünal A., Intepeler Ş. S. Scientific View of the Global Literature on Medical Error Reporting and Reporting Systems From 1977 to 2021: A Bibliometric Analysis. *Journal of Patient Safety*. 2022. Vol. 18. Is. 7. Pp. 1102–1108. DOI: 10.1097/PTS.0000000000001025 (date accessed: 07.10.2023).

a wide range of Ukrainian researchers, which, on the one hand, indicates relevance of our research, and on the other hand, requires active research, since the lack of methods for forensic veterinary medicine in administrative and criminal proceedings and civil cases adversely affects the practice of forensic veterinary medicine, causing unreasonable refusals to its conducting; substitution of forensic examination with other procedural and non-procedural actions; raising questions to forensic expert that fall outside his competence, etc.

Article Purpose

Develop a method of forensic veterinary examination to determine the defects of the VC in administrative and criminal proceedings and civil cases initiated as a result of improper performance by veterinary workers of their professional duties.

Research novelty lies in the fact that for the first time in world practice, the author of this research paper proposes a method of forensic veterinary medicine in order to determine VC defects, which will have a positive impact on forensic expert activity, will contribute to improvement of legislation on offenses against health and life of animals (in particular, due to improper performance of professional duties by veterinarians).

Research Methods

Research methodological basis is a systematic approach, namely: general scientific and special scientific methods, which is due to specifics of the topic under consideration.

Main Content Presentation

Forensic veterinary medicine specifics for the purpose of determining VC defects are determined by treatment specifics, diagnostic and preventive activities, special list of issues for mandatory resolution, scope of materialized examined objects, requirements for the forensic veterinary expert and/or members of forensic veterinary commission.

Based on the research of conclusions of the forensic veterinary examination compiled during 2015-2022 by specialists of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» of the Ministry of Justice of Ukraine (hereinafter referred to as NSC «Hon. Prof. M. S. Bokarius FSI») and the Bureau of Forensic Veterinary Research of the Kharkiv State ZooVeterinary Academy, and taking into account their own expert experience, developed methods of forensic veterinary examination to determine defects in veterinary activity.

Forensic veterinary medicine methods for determining VC defects in and their negative consequences for animals

The *topic* of forensic veterinary examination for the purpose of determining defects in veterinary medicine is a set of factual data and circumstances of proceedings (case), in particular: poor performance of diagnostic, medical and tactical, resuscitation, rehabilitation and other procedures by a veterinarian; low-quality implementation of preventive measures, associated with improper performance or non-performance by veterinarian of his professional duties that caused or could cause negative consequences for health of the animal(s) in the form of a health disorder (diseases, injuries, mutilations, etc.) or death that forensic veterinary expert determines by

applying special veterinary knowledge and means (methods) based on results of a comprehensive research on tangible and materialized objects for the purpose of solving diagnostic and situational tasks²⁷.

The *objects* of forensic veterinary examination of VC defects are tangible and materialized sources of information about the offense case, recorded in case files, that forensic expert comprehensively, fully, objectively and directly examines during forensic veterinary examination on the basis of special veterinary knowledge within the scope of subject of forensic research, using a set of methods, methods and tools for solving diagnostic and situational expert tasks set in procedural document on appointment of a forensic veterinary examination (forensic expert recruitment)²⁸.

The *materialized (information) objects* of forensic veterinary examination in order to determine VC defects of include: veterinary documents, inspection minutes of scene and interrogation of witnesses and victims; schemes, photo and video documents, phonograms; conclusions of primary forensic examinations; protocols of investigative experiments; job descriptions of veterinarians; charter of veterinary institution where VC was provided, etc.

Subjects of forensic veterinary examination for the purpose of determining defects of veterinary medicine are

doctors of veterinary medicine who have qualification of a forensic expert majoring in 18.1 *Veterinary researches*²⁹.

The *content* of forensic veterinary examination for the purpose of determining defects is VC elements (institution and document management, diagnosis, medical and tactical, prevention, rehabilitation, resuscitation, deontological), the stages of its provision (at pre-hospital, hospital or post-hospital stage), nature of the defects (insufficient, untimely, incorrect, or VC non-submission); timeliness, volume, justification of conducting diagnostic and medical-tactical veterinary visits, correctness of surgical interventions or veterinary manipulations and compliance with current regulatory documents; the result of the determined defect and the conclusion about availability or lack of cause-effect relation between it and a negative consequence for health and life of the animal, as well as a conclusion about the main cause of negative consequence.

Forensic research is cognitive activity of forensic expert, in particular a forensic expert, which foundation is the latest achievements in science and technology, his knowledge of modern effective research methods, and personal skills. In the process of forensic-veterinary expert research of materialized objects, it is appropriate to distinguish four stages (*q.v. Fig. 1*).

27 Яценко І. В. Предмет судово-ветеринарної експертизи та його значення в теорії і практиці судової експертизи. *Науковий вісник Ужгородського національного університету. Серія: Право*. 2022. Вип. 73. Ч. 2. С. 154–173. DOI: 10.24144/2307-3322.2022.73.55 (date accessed: 07.10.2023).

28 Idem. Правовий статус та гносеологічна характеристика об'єктів судово-ветеринарної експертизи. *Теорія та практика судової експертизи і криміналістики*. 2023. Вип. 2 (31). С. 63–102. DOI: 10.32353/khrife.2.2023.05 (date accessed: 07.10.2023).

29 Idem. Концептуальні засади професійної підготовки судово-ветеринарних експертів у державних спеціалізованих експертних установах України. *Криміналістика і судова експертиза*. 2023. Вип. 68. С. 731–766. DOI: 10.33994/kndise.2023.68.71 (date accessed: 07.10.2023).

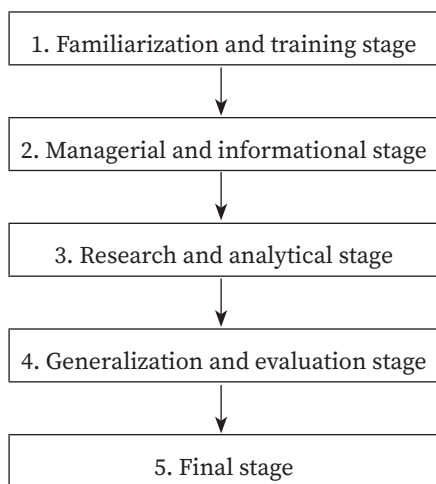


Fig. 1. Stages (algorithm) of determining defects in veterinary care

Step-by-step forensic veterinary examination for the purpose of identifying VC defects will enrich forensic expertise with new data, increase the requests of pre-trial investigation bodies and courts and their opportunities for well-founded qualification of crimes and misdemeanors against health and life of animals, and will satisfy society with the results of fair legal proceedings.

The proposed phasing of conducting a forensic veterinary examination during performance of a specific forensic expert task is determined by the need to use certain research methods, methods and means that belong to forensic expert competence³⁰.

Specifics of each stage of forensic veterinary examination depend on specifics of the topic and objects of research. At each stage, patterns are identified for acquisition of new knowledge about offense case, since the basis of any stage is expert procedures, characteristics

of the object of forensic examination, the practice of solving similar expert tasks, etc. Compliance with algorithm for conducting forensic veterinary research at each stage will allow obtaining reliable, objective and effective results embodied in their effectiveness, verification and admissibility from law standpoint³¹.

Let us characterize each stage and highlight its importance in general algorithm for the forensic veterinary determination of VC defects.

1. Familiarization and training stage

It begins with the receipt of a procedural document (resolution or decision) on appointment of forensic veterinary examination (application for involvement of forensic veterinarian) at the forensic institution. The head of institution or his deputy for Forensic Examinations examines received materials.

The head of forensic science institution can directly involve forensic veterinarian and determine the term of the examination or entrust it to his deputy in charge of forensic examinations. The latter instructs the appropriate structural subdivision of the expert institution to organize the examination (at NSC «Hon. Prof. M. S. Bokarius FSI» it is the laboratory of physical, chemical, biological and veterinary research), which head forms the composition of the forensic veterinary commission and appoints its chairman from among commission members.

The Chairman of forensic veterinary commission accepts materials, material evidence and other documents for the case for signature in registration log, stores them in a safe sealed after the end of working day.

30 Yatsenko I. Theoretical justification and praxeological significance of the stages of expert research of a living animal. *Law. Human. Environment*. 2023. Vol. 14. No. 1. Pp. 107–131. DOI: 10.31548/law/1.2023.107 (date accessed: 07.10.2023).

31 Ibidem.

Forensic Veterinary Commission:

- studies the procedural document submitted for research;
- determines the object to be investigated (most often these are materialized objects: veterinary documents, photo and video documents, protocols of scene inspection and interrogation of witnesses and victims; schemes, conclusions of primary forensic examinations, job instructions of veterinary medicine workers, statute of a veterinary medicine institution);
- studies provided materials (their type, title). In accordance with clause 4.3 of Section IV of Instruction on appointment and conducting forensic examinations and researches (hereinafter referred to as *specialized Instruction*), if received materials are issued with violations “that exclude possibility of organizing forensic examination, the head of forensic science institution shall immediately notify the body (person) who appointed the examination (involved forensic expert) in writing”³². If “body (person) that appointed the examination (involved forensic expert) does not take appropriate measures to eliminate these obstacles, the head of forensic science institution shall return the materials to him (her) after thirty calendar days from the date of sending the notification”³³;
- verifies compliance of provided materials and objects with those specified in the procedural document on forensic examination appointment (forensic expert involvement);
- examines the list of questions asked in procedural document on forensic examination appointment;
- highlights forensic examination topic, taking into account the content of posed questions in procedural document on its appointment and checks its relationship with forensic research object³⁴;
- draws up a petition to the subject of forensic examination appointment for the provision of additional case files, in particular, for provision of additional veterinary documents; conclusion of primary examination; animals for research; histological preparations, etc.³⁵

In case of non-fulfillment of the expert's petitions for provision of additional materials or non-payment of forensic examination cost within 45 calendar days from the date of sending petition, *Notice of impossibility to provide forensic expert conclusion* is drawn up, and case materials are returned to the subject of the examination appointment indicating the motivated reasons for impossibility of it

32 Інструкція про призначення та проведення судових експертиз та експертних досліджень : затв. наказом Мін'юсту України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 20.10.2023).

33 Ibidem.

34 Яценко І. В. Предмет судово-ветеринарної експертизи ... DOI: 10.24144/2307-3322.2022.73.55 (date accessed: 07.10.2023).

35 Idem. Теоретико-праксеологічне обґрунтування форм і напрямів реалізації експертної ініціативи під час проведення судово-ветеринарної експертизи. *Аналітично-порівняльне правознавство*. 2023. № 4. С. 501–518. DOI: 10.24144/2788-6018.2023.04.81 (date accessed: 07.10.2023).

conducting it (Paragraph 5 of Clause 1.13 of Section I of the specialized Instruction ³⁶).

Forensic veterinary examination in order to determine VC defects can be carried out only if the person who appointed examination provides all necessary case files. *“Forensic examination term begins from the working day following the day of receipt of materials by forensic science institution and ends on the day of expert’s conclusion (notification of the impossibility of providing conclusion)”* (Paragraph 1, Clause 6, paragraph 1.13, Section I of specialized Instruction ³⁷).

Forensic examination term should not exceed 90 calendar days (Paragraph 1 of Clause 1.13 of Section I of specialized Instruction³⁸).

As noted above, in order to provide forensic expert conclusion on results of commission forensic veterinary examination in order to determine the VC defects in a categorical form, issues correctly formulated in procedural document are important, that it is desirable for the subject of examination appointment to agree with forensic veterinary experts of institution where the examination is supposed to be appointed. In view of the above, the author of this publication proposes a selection of such questions for the first time.

Questions about the VC defect associated with objective factors:

- 1) “Was the animal injury (disease) diagnosed correctly, timely and to a sufficient extent?”;
- 2) “Did veterinarians prescribe correct treatment for animal and could they predict negative consequences of disease (injury) in advance?”;

- 3) “Did sick animal have objective indications for urgent surgical intervention?”
- 4) “Was surgical intervention in animal carried out methodically and correctly?”;
- 5) “Was veterinary assistance provided to animal in a timely manner? If not, what are consequences of such lateness?”;
- 6) “Is veterinary care provided in sufficient volume? If not, what are consequences of such a deficiency?”;
- 7) “Is the complex of medical measures prescribed to animal by forensic veterinarian correctly defined?”;
- 8) “At what stage of veterinary care did complication of the disease (injury) begin?”;
- 9) “Were resuscitation measures performed on animal correctly, in a timely manner and to a sufficient extent?”;
- 10) “Are there a causal relationship between shortcomings of providing veterinary care and occurrence of negative (severe) consequences for health and life of the animal?”;
- 11) “What is the cause of animal death and are there a causal relationship between the defects of veterinary care and the onset of death?”;
- 12) “What is severity of animal injuries?”;
- 13) “Is onset of animal death related to the effect of veterinary drugs administered to?”;
- 14) “Is onset of animal death related to incorrectly defined treatment scheme?”.

Questions about the VC defect associated with subjective factors:

36 Інструкція про призначення та проведення URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 20.10.2023).

37 Ibidem.

38 Ibidem.

- 1) “Would animal have survived in case of timely and correct provision of qualified veterinary care?”;
- 2) “Could veterinarian have prevented animal death if he had provided it with qualified veterinary assistance in a timely and correct manner?”;
- 3) “Could veterinarian have prevented the death of animal fetus(es) by performing a caesarean section?”;
- 4) “Could veterinarian detect disease of animal during its veterinary examination?”;
- 5) “Was veterinarian able to provide appropriate veterinary care, taking into account the level of his professional training and qualifications?”;
- 6) “Did veterinarian violate his job instructions while providing veterinary care (fulfilling his professional duties)?”

The given lists are not exhaustive. The forensic veterinarian can be asked other questions within the scope of forensic research topic.

We emphasize that while asking questions to the forensic veterinary commission about VC defects, forensic examination subject should avoid the following questions:

- duplicated ones;
- incorrect or provocative in content ones;
- able to cause a wrong assessment of veterinarian actions;
- not belonging to competence of forensic veterinarians (in particular, legal qualification of specific actions of veterinarian(s) and their legality, his (their) culpability and responsibility);

- difficult in wording, cumbersome in structure, unclear in content, overloaded with unnecessary details, with complex grammatical constructions;
- impractical to find out, as they are general and do not have any significance for proper assessment of veterinarian(s) actions;
- combination of these errors.

Answers should be formulated according to the principles of legality of expert procedure, independence and competence of forensic expert, comprehensiveness, completeness, scientific validity, verification, admissibility and reliability, maximum clarity; they should be based on specific factual data discovered while studying veterinary documents³⁹.

Plurality of questions developed by the author of this research paper enables:

- detect specifics of illegal activity or inaction of veterinarians, assess their harmful (negative) consequences in order to clarify cause-effect relations between such actions (inaction) and their consequences, i.e., to establish objective side of the offense;
- determine possibilities of veterinarian(s) to foresee harmful (negative) consequences of their actions or inaction, i.e., to find out subjective side of the offense;
- reveal correspondence or inconsistency of the level of professional training of veterinarian(s) to job position held (level of education, specialization, educational program, professional qualification).

³⁹ Шепітько М. В. Дотримання принципу незалежності судово-експертної діяльності в Україні. *Актуальні питання судової експертизи та криміналістики* : зб. мат-лів міжнар. наук.-практ. конф., присвяч. 100-річ. від дня народж. д-ра юрид. наук, проф., засл. діяча науки і техніки України М. В. Салтевського (Харків, 07–08.11.2017). Харків, 2017. С. 80–81 (date accessed: 07.10.2023).

2. Managerial and informational stage

In accordance with Clause 4.5 of Sec. IV of specialized Instruction: “forensic expert appointed by the head of the commission does not have advantages over other co-executives in solving the issues raised”: he performs only managerial functions⁴⁰.

The chairman of forensic veterinary commission can simultaneously be reporter in the case and can appoint one of the commission members as the reporter.

If it is impossible to hold a meeting of expert commission, each member of the commission has the right to individually familiarize himself with case files and then express his conclusion in writing.

At this stage, the expert commission draws up an algorithm for solving the tasks set before forensic examination, that should contain correct, justified and appropriate sequence and content of actions, in particular, with sequence determination and deadlines for the execution of separate researches in order to achieve the final result of forensic research (*q.v.* Fig. 2). If necessary, they agree on managerial issues regarding involvement of specialists who are not employees of forensic science institution in work of the expert commission.

Forensic experts involved in the commission examination who do not work in state specialized institutions, but on a professional basis carry out forensic expert activities, provide research in accordance with the requirements of the Instruction on the peculiarities of forensic expert activity by certified forensic experts

who do not work in State specialized forensic science institutions⁴¹.

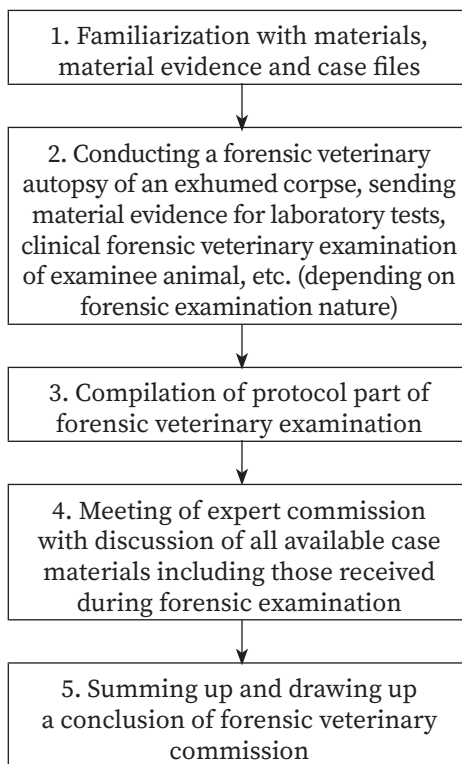


Fig. 2. Algorithm for conducting commission forensic veterinary examination of veterinary care defects

For his part, the reporter in the case selects from official information resource current legal acts, methods, instructions, rules, guidelines, methodological recommendations, monographs, scientific articles, as well as other modern sources of special literature that will be used while forensic examination and processes them with expert commission members.

40 Інструкція про призначення та проведення URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 20.10.2023).

41 Інструкція про особливості здійснення судово-експертної діяльності атестованими судовими експертами, що не працюють у державних спеціалізованих експертних установах : затв. наказом Мін'юсту України від 12.12.2011 р. № 3505/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z1431-11#Text> (date accessed: 20.10.2023).

3. Research and analytical stage

This stage of forensic veterinary examination for the purpose of determining VC defects consists in research and analysis of the case files is direct research on veterinary documents as materialized objects submitted for forensic veterinary examination. Conditionally, it can be divided into two stages: the *1st* – assessment of sick animal state in the dynamics of course of the disease and the *2nd* – determination of VC defect (*q.v.* 3).

The state of sick animal is assessed by the forensic veterinary commission at the time of initial application for VC while its provision.

At the first stage of this stage, taking into account information provided in veterinary documents provided for research, forensic veterinary commission analyzes registration and anamnestic data of examinee animal, as well as examines veterinary documents available in case files. Next, he states in which period of time the animal was given medical care (pre-hospital (ambulatory), hospital or post-hospital).

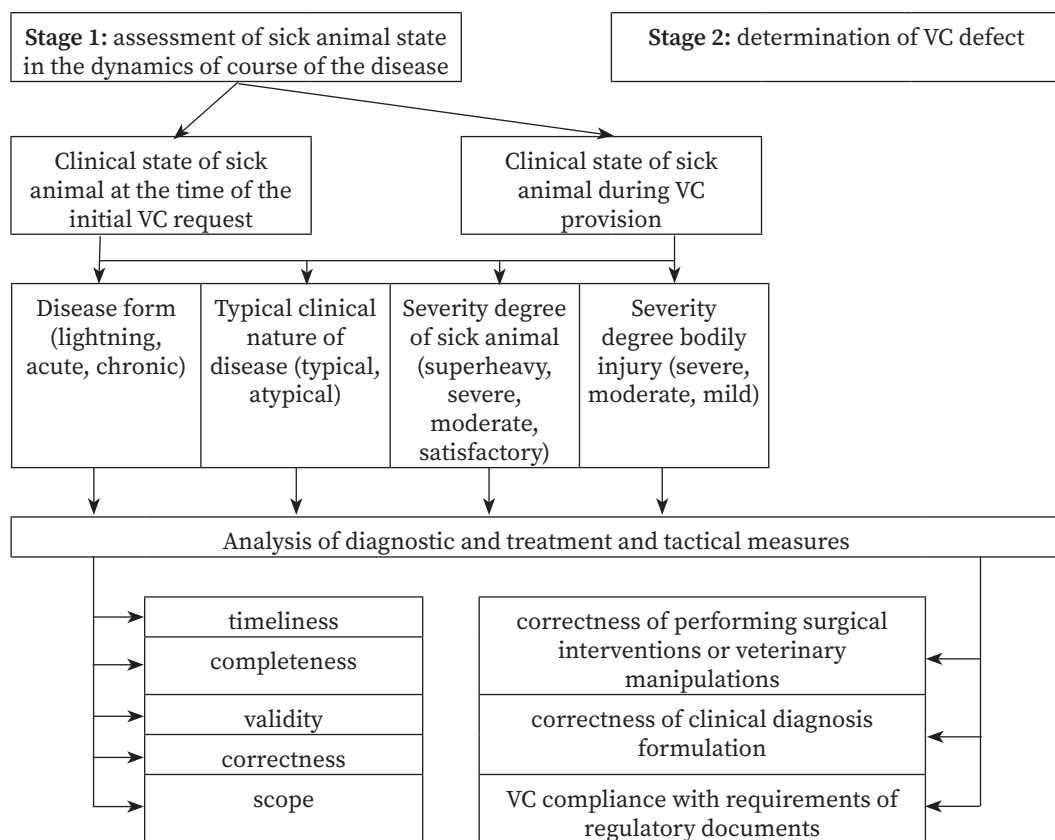


Fig. 3. Algorithm for carrying out research and analytical stage of forensic veterinary determination of a VC defect

If research object is a living examinee animal, forensic veterinary expert commission carries out its clinical examination, revealing scars on the skin, lameness, places from performing veterinary manipulations, obvious signs of mutilation (traumatic amputation of a part of the body or organ, traumatic enucleation, traumatic extirpation teeth, etc.). If necessary, they perform instrumental, imaging and laboratory researches. According to the results of forensic examination of the animal, it is necessary to determine formation age of injuries and to find out whether they coincide with the time of providing VC to this animal.

The issues of formation of bodily injuries, especially in various species of animals, has not been sufficiently investigated and experimentally confirmed to date, therefore it is appropriate to use actual data developed by clinical veterinary surgery and traumatology. Forensic expert can state that it is not possible to find out how long ago the animal was injured. If the experts find a sufficient number of signs indicating the time of injury to the animal, then it can be categorically stated that injury to the examinee animal occurred at the time and under the circumstances specified in the procedural document on appointment of forensic veterinary examination. According to veterinary documents, it is necessary to analyze clinical condition of the sick animal in the dynamics of course of the disease (determine clinical condition of examinee animal at the time of initial application for veterinary care and with a certain frequency during VC provision or until its complete recovery, or formed mutilation, or the onset of death), in the same method determine the degree of severity of damage

caused to the animal health, in accordance with guidelines⁴².

At the research and analytical stage, the results of the analysis of any biological fluids (blood, urine, milk, etc.) should be immediately grouped into three groups: 1) increased indicators, 2) reduced indicators, 3) unchanged indicators, within physiological norm.

Let us illustrate grouped indicators with an example from our own practice. From the blood analysis of examinee cat that was treated in veterinary clinic due to a wound from a throwing weapon: *“Among clinical parameters of the blood, number of erythrocytes was increased — 6.5×10^{12} M/uL (standard: $4.0-6.0 \times 10^9$), number of leukocytes — 16.1×10^9 M/uL (standard: 16.1), segmented neutrophils — 80% (standard: 55–72). Decreased: hematocrit — 27% (standard: 30–47), share of lymphocytes — 9% (standard: 30–60). Other indicators, in particular, hemoglobin, color indicators, myelocytes, eosinophils, rod-nuclear neutrophils, young neutrophils, monocytes, platelets are within the physiological norm.”* According to the same principle, it is advisable to group the results of biochemical blood tests, for example: *“Among biochemical indicators of the blood, the following are elevated: glucose — 9.2 mmol/l (standard: 3.6–6.5), total bilirubin — 20 IU/l (standard: 0–17). Decreased: ALT — 3.8 Units/L (standard: 10–74), AST — 5.1 Units/L (standard: 10–60). The rest of the indicators, in particular, total protein, albumin content, urea, creatinine, alkaline phosphatase is within the physiological norm”.*

For assessment the scoop and quality of VC provision, diagnostic procedures are carefully analyzed, paying attention to the name, technical and instrumental support, informativeness for formulating clinical diagnosis.

42 Яценко І. В., Парилівський О. І. Оп. cit.

In the minutes of imaging researches (ultrasonography, magnetic resonance or computer tomography, etc.), it is advisable to divide all examined organs into two groups: 1) without changes, 2) with changes, and emphasize conclusions of the relevant clinical or pathomorphological researches.

Examining ambulatory card (medical history) of the subject animal, forensic veterinary expert commission should find out:

- disease date or date of injury to the animal;
- time that has passed from illness or injury to the initial application for medical care;
- whether VC was provided to the animal before application to veterinary institution;
- primary diagnosis;
- nature and results of diagnostic researches and treatment measures.

Analyzing drug prescriptions during VC provision, forensic and veterinary expert commission should pay attention to the following criteria: titles of veterinary drugs; their compatibility with simultaneous use; peculiarities of sensitivity to the drug of a certain species of animals, intolerance, age and species restrictions; dosage of veterinary medicines; frequency and duration of their use, etc.

In case of animal death, it is necessary to carefully analyze completeness and quality of the post-mortem examination of the corpse, which is given in the *Minutes of post-mortem examination of the animal corpse* and contains the results of post-mortem examination and additional researches (pathohistological, microbiological, toxicological, parasitological ones, etc.). Based on case files, it is necessary to examine pathomorphological preparations made from the organs and tissues of animal corpse under examination with

their description, added by pathologist. If the treatment of animal ended in its death, then the forensic veterinary examination for the purpose of determining VC defects should include research of such veterinary documents as *Extracts from the medical history* or *Extracts from the card of ambulatory sick animal*.

During research on pathological autopsy minutes of the corpse, forensic veterinary expert commission focuses on the description of traces of veterinary manipulations during the intravital VC administration, in particular: surgical wounds, intubation tubes, catheters, drains, probes, traces of injections or infusions, and compares clinical data provided in veterinary documents about the treatment of the animal, and the pathomorphological picture set out in the protocol of corpse autopsy and determines their correspondence (inconsistency). It is appropriate to check correspondence of injuries described by veterinarian in veterinary documents provided for research, traumatic changes in soft tissues, bones of the skeleton, and internal organs, outlined in the protocol of the post-mortem examination of animal corpse.

Thus, as research result of veterinary documents, forensic veterinary commission distinguishes two groups of specifics: 1) those characterizing the physiological norm of the examinee animal; 2) those characterizing its injury or disease. The latter will be analyzed and used to make a forensic veterinary diagnosis and draw up forensic expert conclusion.

At the analysis stage of all documents provided for research, forensic veterinary expert commission should analyze whether clinical diagnosis is correctly formulated: the main disease (injury), complications of the main disease (injury), concomitant diseases (injury) are distinguished. It is imperative to take into account existence

in the animal of one or more diseases other than the primary one, or the effect of such an additional disease (comorbidity) and find out their possible impact on both the conducted therapeutic and tactical

measures and negative consequences for the animal.

The second stage of the research and analytical stage is detection and analysis of defects in VC provision (*q.v. Fig. 4*).

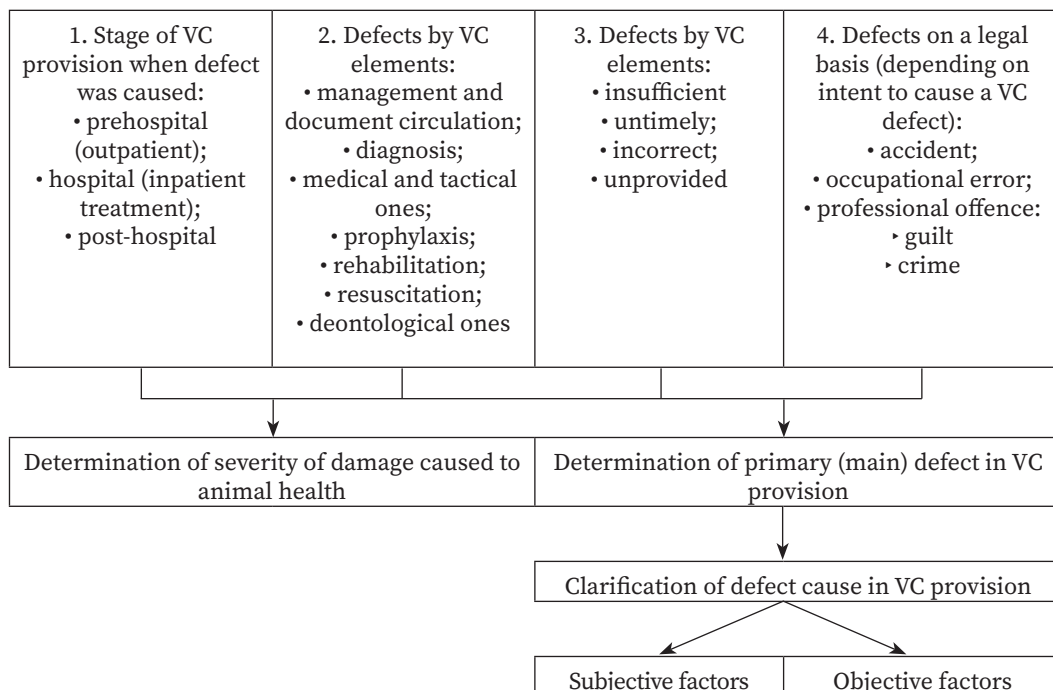


Fig. 4. Algorithm for determining defects in veterinary care at the research and analytical stage of forensic veterinary examination

The results of this stage are decisive for ascertaining the main death cause, clarifying correspondence of clinical and pathomorphological diagnoses or discrepancies between them, and contribute to objective determination of timeliness, scope and compliance of the chosen diagnostic and therapeutic tactics.

Forensic veterinary diagnosis formulated by the forensic veterinary

commission, is important prerequisite for reasonably compiled, logically interrelated and scientifically substantiated final conclusions. In view of this, forensic veterinary diagnosis is built on the pathogenetic principle in the form of a list of nosological forms set out in a logical sequence, for example: underlying disease (damage), → its complication, → concomitant pathology.

One of important issues of forensic examination of VC defect (which object of is as a living animal as a corpse) is mutilation as a result of injuries caused by diagnostic and/or medical-tactical treatment, since mutilation caused to a vertebrate animal (in particular, by veterinarians during VC) is the topic of a criminal offense under Part 1 of Art. 299 of the Criminal Code of Ukraine⁴³. The conclusion on the lack of animal mutilation after the injury can be reached by studying circumstances of the case under which the injury was caused and arising from the materials of the proceedings (case), as well as provided veterinary documents and the results of the direct clinical forensic veterinary animal examination.

Forensic veterinary expert commission, establishing mutilation of an animal formed as a result of VC defects should adhere to the following algorithm:

- provides morphological damage description (wound, bone fracture, abrasion, etc.);
- determines injury severity;
- finds out injury danger to life;
- establishes whether the damage was not accompanied by physical loss of any organ (part of the body) or its functions (part of the body);
- determines whether the damage to exterior is corrective or irreparable;
- establishes whether the damage caused disfigurement (distortion) of the body⁴⁴.

It should be noted that forensic veterinary commission has opportunity to assess deformation of the animal body

parts as a result of injury 21–30 days from the moment of injury after regression of traumatic soft tissue edema. At the same time, the issue of animal mutilation occurrence due to VC defects is resolved only according to the results that have the final form of post-traumatic injuries without surgical intervention, but not earlier than 60–90 days from the date of injury, since involuntal changes of such scars are possible during a certain period.

According to the *Rules of Forensic Veterinary Determination of the Severity of Damage Caused to the Animal Health*, damage to exterior is⁴⁵ diagnosed that led to mutilation: whether it is corrective or incorrigible, whether it has disfigured (distorted) the exterior or not.

We emphasize: expert assessment of correctability or incorrigibility of injuries to the animal during the improper VC provision should be carried out according to consequences that are determined over time and which have final (sustainable) form of post-traumatic injuries. In case of obvious, unconditional and undoubted post-traumatic irreparable damage to the animal body, forensic veterinary commission can finally qualify the injury immediately after the injury, without expecting full healing of the injury (for example, traumatic enucleation of the eyeball, traumatic extraction of teeth, traumatic amputation of the auricle, nose or tail, etc.). Deformities (distortions) of body parts can be assessed as animal mutilation, if the grounds are available⁴⁶.

It should be noted that, while determining mutilation of an animal as a result of irreparable damage (mutilation,

43 Кримінальний кодекс України від 05.04.2001 р. № 2341-III (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 07.10.2023).

44 Яценко І. В., Парилівський О. І. Оп. cit.

45 Ibidem.

46 Яценко І. В. Методика судово-ветеринарного дослідження тварин

distortion) to the body during inappropriate VC provision, forensic veterinary expert commission should provide an objective veterinary characterization of the consequences of this damage, depending on their localization, finding out whether surgical treatment is required to significantly reduce severity of post-traumatic pathological changes (scarring, deformation, etc.), for which they can additionally involve a veterinarian who specializes in veterinary surgery, as well as an expert in assessing animal breeds and other professionals.

VC provision appropriateness can be clarified by analyzing job descriptions of employees and the charter of veterinary medical institution where such assistance is provided.

4. Generalization and evaluation stage

At this examination stage, in order to determine VC defects, forensic veterinary expert commission, having studied and analyzed case files (especially available veterinary documents), finds out informative (suitable for formulating expert conclusions) and uninformative (unsuitable for forensic veterinary examination) data, summarizes and evaluates the obtained informative results in order to identify the type of VC defect in accordance with the proposed above classification.

At a joint meeting of the forensic veterinary expert commission, information on clinical course, diagnosis, clinical and forensic veterinary diagnoses, as well as treatment regimens for the sick animal are discussed. As a result of the study of informative veterinary documents, two groups of signs of examinee animal state are distinguished characterizing: 1) physiological norm,

2) damage or disease (the latter will be analyzed and used to draw up a forensic expert conclusion).

Forensic veterinary commission assesses injury signs or painful changes detected in examinee animal consistently: 1) characterizing the main injury or disease that caused animal health disorder, injury or death; 2) which characterize complications of the main injury or disease; 3) that characterize competing, concomitant and background injuries or diseases.

Taking into account this important stage of technologically complex research on VC defects, forensic veterinary commission:

- analyzes the results obtained at previous stages;
- critically evaluates alternatives;
- finally evaluates obtained data, determines their expert significance (informativeness of pathognomonic (most characteristic) signs of VC defect) for solving diagnostic and situational tasks of forensic veterinary examination (in particular, improper (poor-quality) performance of diagnostic, treatment-tactical, resuscitation, rehabilitation and other procedures by veterinarian, as well as improper organization of preventive measures or their missing in general);
- determines the fact of a real cause or a high probability of causing negative consequences for the animal(s) in the form of a health disorder (illness, injury, mutilation, etc.) or death;
- finds out cause-effect relation of VC defects with proper (improper)

performance (non-performance)
by veterinarian of his professional
duties.

At generalization and evaluation stage, it is necessary to apply dialectical method and methods of formal logic (analysis, synthesis, deduction, induction) and form internal conviction of forensic expert as a basis for conclusions ⁴⁷: these results are part of the synthesizing section of the research part of the expert conclusion.

Expert assessment of injuries or diseases detected in a live examinee animal, that became the result of improper performance by veterinarian of their professional duties, should be scientifically substantiated by the latest achievements of evidence based veterinary medicine, forensic veterinary medicine and other related sciences.

At the stage of assessing forensic veterinary research in order to determine VC defects, forensic veterinary commission (among other tasks) should substantiate correctness of the clinical diagnosis made by veterinary medicine employee while providing CV, because incorrectly made clinical diagnosis could be result of a diagnostic defect, as well as cause the choice of erroneous treatment, resuscitation or rehabilitation tactics. For this purpose, forensic veterinary commission substantiates its own forensic veterinary diagnosis, based on objective judgments about the nature of injuries recorded in veterinary documents (abrasion, wound, bone fracture, etc.) with an emphasis on a detailed description of the site of injury (lat. *status localis*) or the injured organ or disease nosology.

For determining the type of VC defect, forensic veterinary commission should

assess nature, location, mechanism; priority, sequence and prescription of damage formation, substantiate the cause-effect relation between damage nature and severity of the damage caused to animal health by this defect.

Correlation between the damage to animal and harm caused to its health as a result of the VC defect is confirmed or refuted by the forensic veterinary expert commission, clarifying cause-effect relation between them and justification of damage severity caused to animal health (that will help the examination subject to reasonably provide a legal assessment and trace relationship between the actions (inaction) of veterinarians and admitted VC defect, as well as negative consequences for health and life of examinee animal).

Answering the question of whether the examinee animal felt pain as a result of a defect in the gastrointestinal tract, and determining duration of pain process, forensic veterinary commission should rely on data on nature of injuries, their number, localization, degree of severity, etc. For example, if an animal is severely injured as a result of surgery or other veterinary manipulations, forensic veterinary commission states that at the time of the injury and in the post-traumatic period, animal felt unbearable pain and suffered from the inflicted physical injuries. If the damage to the animal health caused by VC was of medium or light severity, forensic veterinary commission may note that the animal felt moderate pain and did not suffer for a long time from inflicted bodily injuries.

Evaluating results of forensic veterinary research on establishment of defects in VC provision, forensic veterinary

47 Яценко І. Внутрішнє переконання експерта: судово-ветеринарний аспект. *Теорія та практика судової експертизи і криміналістики*. 2023. Вип. 3 (32). С. 67–88. DOI: 10.32353/khrife.3.2023.05 (date accessed: 20.10.2023).

expert commission should maximally apply special veterinary knowledge and expert experience for correct and objective formulation of the forensic veterinary diagnosis and substantiation of answers to the questions posed in the procedural document on appointment of forensic veterinary examination regarding VD defect existence.

Culmination of summarizing and evaluation stage of forensic veterinary examination is qualification of actions of forensic veterinarians during VC provision (*q.v. Fig. 5*). With this in mind, the actions of the veterinarian(s) can be seen as providing appropriate medical care if the animal health is not harmed and if harm is caused, it is the accident result.

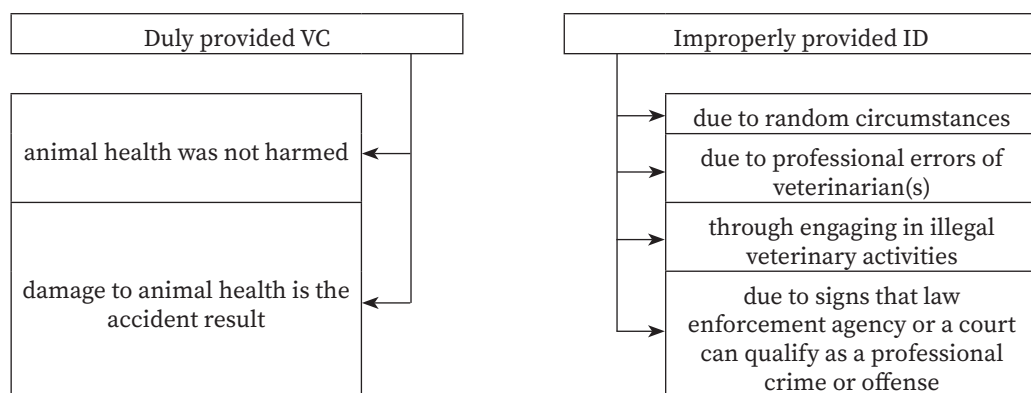


Fig. 5. Qualification of veterinarian actions in the case of providing veterinary care

If veterinary care is provided improperly, forensic veterinary expert commission should determine the signs of VC defect, taking into account materialized and tangible objects examined at previous stages and guided by following general signs:

- 1) improper (low-quality) performance of diagnostic, therapeutic-tactical, resuscitation, rehabilitation and other procedures by veterinarians and improper management of preventive measures or their missing at all;
- 2) fact of real or high probability of causing negative consequences for animal(s) in

the form of health disorders (disease, injury, mutilation, etc.) or death due to VC defects;

- 3) staying VC defects in a direct cause-effect relation with improper (proper) performance or non-performance by veterinarian(s) of their professional duties.

We draw attention to the fact that, having established a defect in VC provision in veterinarian professional actions, the forensic veterinary commission determines its specific type (*q.v. table*), differentiating it according to other defects similar in characteristics.

Types of defects in veterinary care and their causes and symptoms

Defect type	Defect causes and symptoms
1. Accident in veterinary practice	1) Actions of veterinarian as a result of intervention justified by veterinary science and practice under conditions of awareness of such intervention danger; 2) proper and timely performance by the veterinary veterinarian(s) of their professional duties, if in a specific case everything necessary is done to prevent negative consequences in accordance with the principles of veterinary science; 3) provision by veterinarian(s) of qualified VC in accordance with regulatory acts, standards in the field of animal health protection, protocols for treatment of sick animals, instructions on measures for prevention and control of infectious diseases of animals, as well as other regulatory documents; 4) unforeseeable, irresistible and unavoidable coincidence of circumstances; 5) cause-effect relation between VC provision and the damage caused to animal health or occurrence of its death; 6) unsuccessful outcome of veterinary intervention does not depend on VC defects, in particular, mistakes of the veterinarian(s) (occurred due to animal organism specifics, case complexity, the unfavorable environment for VC provision); 7) legality of actions of veterinarian(s) and the lack of error criterion of in his (their) actions, but according to effective factor is a defect in VC provision; 8) lack of legal liability based on the results of legal deed qualification
2. Professional error in veterinary practice	1) Defect caused damage to the animal health; 2) civil liability based on the results of legal deed qualification; 3) error nature is not related to negligent and/or dishonest attitude of the specialist to performance of professional duties; 4) VD defects in the form of deed (active form of behavior) or inaction (passive form of behavior) of veterinarian(s) during performance of his(her) professional duties; 5) thin border with professional offenses (guilt and crimes); 6) veterinarian(s) commit(s) acts contrary to the requirements of animal health standards and protocols, instructions, making mistakes due to subjective (low level of qualification, underestimation or overestimation of advisory conclusion, results consultation, etc.) or objective (severity of the condition of the sick animal, lack of necessary veterinary technical and instrumental support, etc.) factors
3. Defects due to insufficient VC	The VC is provided in a smaller amount than required; improperly; does not meet certain requirements; unsatisfactory, poor
4. Defects due to untimely inspection	VC is not provided when needed, untimely

Defect type	Defect causes and symptoms
5. Defects due to incorrect VC	VC does not meet certain norms, rules, requirements; does not meet the truth, reality; is false is not as it should be; did not contribute to desired consequences
6. Defects due to non-provision of technical specifications	Inactivity of veterinarian(s), while VC provision is his (their) professional duty
7. Defects due to illegal VC provision	VC provided by improper entity: individual without veterinary education and confirming diploma, or in default of a legal entity or an individual entrepreneur license to conduct economic activities in veterinary practice

Thus, generalization and evaluation of materials provided for research is characterized by staging: first, there is an accumulation of interim conclusions, and on their basis, final conclusions are formed that are expert tasks for forensic veterinary commission, answers to asked questions in the procedural document on appointment of a forensic veterinary examination to determine VC defects, as well as the research result.

5. Final stage

This stage of forensic veterinary examination to establish VC defects consists in formulation of final conclusions by forensic veterinary commission and drawing up of *Expert Conclusion* as a procedural document that concludes forensic examination. In order to form the final forensic expert conclusion, sufficient expert grounds are necessary, corresponding to the principles of legality of expert procedure, independence and competence of the forensic expert, verification, comprehensiveness, scientific validity, completeness, and the use of the

maximum amount of means and research methods.

Obtained evidence on the clinical course, diagnosis, clinical and forensic veterinary diagnoses, as well as treatment regimens for the sick animal are discussed at a joint meeting of forensic veterinary commission.

It should be noted that forensic veterinary commission formulates final conclusions based on internal conviction of each of its members, when the commission believes that the objects provided for research are sufficient and they are in a suitable condition, and the results of the forensic researches obtained are sufficient to provide a reasonable and objective conclusion; are confident in its correctness, have no doubts about accuracy of their decision and are ready to act in accordance with ⁴⁸. We state: there is a cause-and-effect relationship between the provision of objective, substantiated, correct and truthful conclusion by the commission of forensic veterinary experts and the internal conviction of experts that this conclusion is exactly the same.

48 Яценко І. Внутрішнє переконання експерта ... DOI: 10.32353/khrife.3.2023.05 (date accessed: 20.10.2023).

At the end of final part of *Expert Conclusion*, the forensic veterinary commission states factual data that are the results of research on materialized objects (most often veterinary documents), places special emphasis on pathognomonic deviations from morphological and physiological norms in organs and tissues directly related to bodily injury or disease, states how justified, motivated, reasoned, visual and convincing they are.

Final conclusions are formed by forensic veterinary commission on the basis of a cumulative research on veterinary documents, taking into account intermediate conclusions. The wording

of final conclusions should be based on the forensic veterinary diagnosis that is a concise veterinary conclusion about what kind of disease or injury examining animal had, about the clinical course and final consequences of the disease or injury (complete recovery, injury or death); at the same time, veterinary interventions should be taken into account.

The final stage of the forensic veterinary examination in order to determine VC defects is drawing up of forensic expert conclusion. We will leave the theoretical discourse on this issue for further research, and we will publish its results in the next research paper.

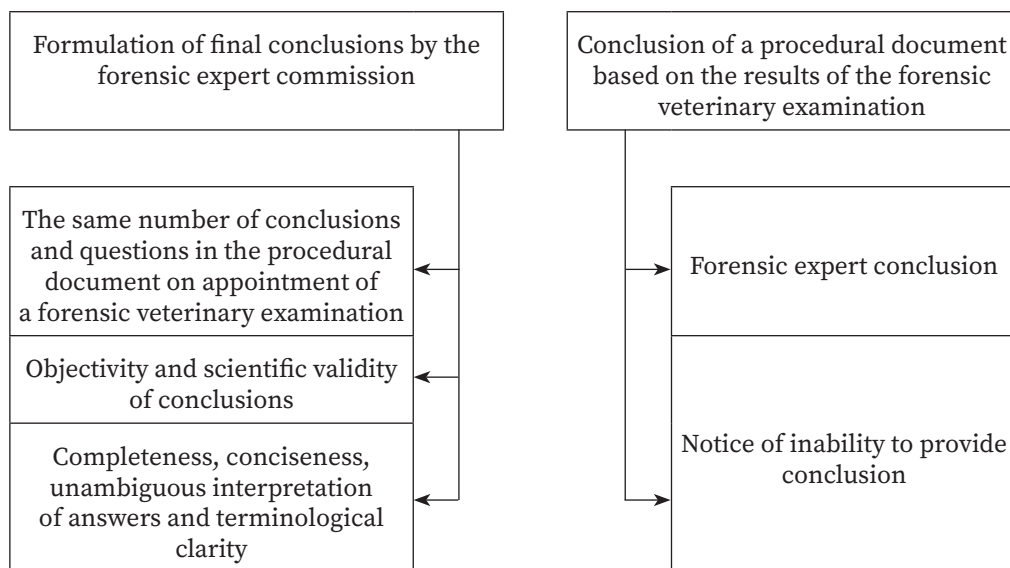


Fig. 6. Algorithm of final stage of forensic veterinary examination of defects in veterinary care

The reporter in the case formulates draft conclusions with answers to the questions raised in the procedural document (resolution) by the subject of appointment

of the forensic veterinary examination (forensic expert recruitment). If forensic veterinary expert commission recognizes that VC provision contains defect signs,

conclusions should indicate the main reason for development of an adverse consequence of VC provision, in particular: unfavorable conditions or circumstances of veterinary intervention (for example, the VC provision in an unequipped room, without sufficient lighting and proper instrumental equipment, laboratory base); VC provision in default of other VC specialists who could provide professional advice; special condition of sick animal (aggression, neglect of treatment, rapid or acute course of the disease, old age and layering of chronic pathologies; individual anomalies of the body structure and functioning of individual organs, non-standard reactions of the body to action of veterinary drugs or performed veterinary procedures (defects occur regardless of veterinarian professionalism in default of intent in his act), atypical development of diseases; allergic reactions that cannot be predicted during veterinary intervention, etc.); insufficient diagnosis (incomplete clarification of animal owner's complaints about the vital activity of the sick animal, failure to take into account anamnestic data, imperfect clinical examination due to the physical impossibility of using the latest diagnostic methods and means, inadequate evaluation of results of clinical and laboratory researches); negligent surgical intervention or performance of other treatment and preventive measures; unjustified professional veterinary risk, which does not belong to the category of force majeure and which is considered as an aggravating case with the inevitability of negative consequences for the health and life of the animal characteristic of it; unsatisfactory management of various VC stages, as at the outpatient as inpatient stages of its provision, in particular, careless management of document management, etc.).

The results of forensic veterinary examination are drawn up in the form of *forensic expert conclusion* or *Notification on impossibility of providing forensic expert conclusion*. Each opinion of experts should contain the following parts: *Introduction, Research and Conclusions*. In the introductory part, the questions posed for forensic examination solution are presented in revision of the person who appointed the examination. In the research part of conclusion, the following are noted: extracts from the procedural document on appointment of forensic veterinary examination; circumstances of the case; necessary information from case files and all available veterinary documents with their long titles; other factual data obtained during examination, provided in the form of quotations (in quotation marks) and containing information necessary to answer the questions posed for the examination; data of the primary forensic examination, as well as (if available) autopsy data of exhumed corpse, laboratory tests of physical evidence, clinical examinations of examinee animal, etc.

Depending on case nature, the following should be recorded from medical history: state of the sick animal at the time of initial VC application; records of the medical history that record animal state during entire treatment period; protocols of operations; clinical diagnoses; schemes of prescribed drug treatment; volume and frequency of administration of medicinal substances; results of laboratory studies of the body's internal environment; nature and volume of resuscitation measures; data of the protocol of the pathological autopsy of the corpse with the results of histological examination or data of the primary forensic veterinary examination, etc.

Strictly speaking, *Forensic expert conclusions* are drawn up in accordance with posed questions. Numbering of the answers should coincide with numbering of the questions of the procedural document on appointment of forensic veterinary examination. At the same time, it is allowed to combine questions that are similar in content and to change their sequence, without changing wording of the questions. If it is impossible to provide an answer on any question, the reason for this is substantiated.

Note that *Forensic expert conclusion* is drawn up on the form of forensic science institution, it is signed by the forensic experts who conducted the research. Signatures in the final part are certified by an imprint of the seal forensic science institution on each page of the text of final conclusions. If photo tables are added to expert conclusion, they are signed by forensic experts; signatures are certified by an imprint of the seal forensic science institution (Clause 4.15 of Chapter IV specialized Instruction⁴⁹).

One copy of expert conclusion after signing it by all members of the forensic veterinary expert commission together with accompanying document shall be sent in the prescribed manner to the person (body) that appointed forensic veterinary examination. The second copy is drawn up as a supervisory proceeding and left in the archive of forensic science institution that conducted the re-examination (Paragraph 4.17 of Section IV of specialized Instruction⁵⁰).

Together with the conclusion of experts, materials, material evidence and other documents related to this proceeding (this case) shall be returned.

Accompanying document should contain: title and number of expert conclusions sent; the case on which the forensic veterinary examination was conducted; the number of the Unified Register of Pre-Trial Investigations; returning physical evidence and other documents related to this case.

We would like to emphasize that currently, requirements for forensic veterinary examination management have been increased as one of the main sources of evidence in cases of offenses in VC. In view of this, it is important to single out the key problems that arise due to improper performance of professional duties by a veterinarian and that do not allow to use all possibilities of forensic veterinary science, since these issues affect evidentiality and objectivity of the conclusions of forensic experts, have a negative impact on assessment of factual data discovered by the trial in the proceedings (case), and complicate or make impossible to find out the truth in the proceedings (case). Experience of forensic evaluation of VC defects testifies to the following ways of solving the outlined issues:

- develop VD standards and protocols for treatment of animals to regulate diagnostic, therapeutic, preventive and other veterinary activities for certain nosological diseases based on the latest achievements of science and technology and introduce them into veterinary activities;
- develop a regulatory framework for VC provision in accordance with the requirements of veterinary science, criminal,

49 Інструкція про призначення та проведення URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 20.10.2023).

50 Ibidem.

- civil, administrative, economic legislation and requests of civil society;
- introduce the study *Forensic Veterinary Medicine* educational component at law faculties majoring in 081 *Law* to improve the professional training of students, in particular during the investigation of cases with a special subject, namely: forensic veterinarian;
 - initiate involvement of specialists in the field of veterinary activity (especially majoring in such areas of veterinary activity as: surgery, reproductive medicine, cardiology, traumatology, endocrinology, neurology, etc.), as well as forensic veterinary experts (as specialists) in investigation of cases regarding improper VC provision and professional cooperation with;
 - create advisory body of forensic veterinarians under State Production and Consumer Service, who would be involved in investigation of offenses (in particular, law enforcement agencies) with a special subject: a veterinary medicine worker and develop a corresponding regulation about this body;
 - in order to prevent terminological confusion and complications in clarifying the necessary circumstances of the event and to facilitate the final establishment of the truth, standardize conceptual and categorical terminology (e.g., *accident in veterinary practice*, *professional error in veterinary practice*, *crime in veterinary activity*, *guilt in veterinary activity*, *failure or improper performance of professional duties by veterinarian*, *engagement in illegal veterinary activity*, *illegal conduct of experiments on vertebrate animal*, *illegal issuance of veterinary prescription*);
 - develop and normatively consolidate forms of branch documents that are mandatory for use by subjects of veterinary activity of various forms of ownership (in particular, *Extract from the outpatient card of the animal*, *Extract from the medical history of the animal*, *Protocol of ultrasonographic examination of the animal*; *Protocol of X-ray examination of the animal*, *Protocol of magnetic resonance examination of the animal*, *Results of clinical and biochemical analysis of blood*, *Results of clinical and biochemical analysis of urine*, *Protocol of pathoanatomical dissection of the animal corpse*, etc.);
 - supplement section X Research guidelines on preparation and appointment of forensic examinations and forensic researches ⁵¹ with a list of developed questions regarding defects of the veterinary medicine, that can be submitted by the subject of appointment of forensic veterinary examination for resolution to the forensic veterinary commission.

51 Науково-методичні рекомендації з питань підготовки та призначення судових експертиз та експертних досліджень : затв. наказом Мініюсту України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 20.10.2023).

Conclusions

Author's five-stage methods of forensic veterinary examination is proposed for the purpose of determining the VC defects: 1) Familiarization and training stage, 2) Managerial and informational stage, 3) Research and analytical stage, 4) Generalization and evaluation stage, 5) Final stage. The specified stages reflect sequence of actions of the forensic veterinary expert commission during the examination, highlight all the main issues that must be resolved for the actual investigation of circumstances of the veterinary incident and its mechanism, and complement each other. Each previous stage is the basis for the next one, and conclusion of the commission of forensic veterinary experts on VC shortcomings and the negative consequences for the health and life of animal(s) is enriched with information and acquires greater validity.

It is proved that use of proposed methods of forensic veterinary medicine in order to determine the VC defects contributes to effective clarification of defects in the VC elements (management and document circulation, diagnosis, treatment and tactical, preventive, rehabilitation, resuscitation, deontological measures), and at what stage of VC provision it occurred (pre-hospital, hospital or post-hospital), the nature of certain defects (insufficient, untimely, incorrect VC or its failure), with obligatory consideration of objective and subjective factors that caused them.

Forensic veterinary examination should state the result of the determined defect and provide a conclusion on the availability or lack of a cause-effect relation between the VC defect and negative consequence for the animal(s), as well as on the main cause of the negative

consequence, namely: an unfavorable coincidence of circumstances, accidents that do not depend on the actions of the veterinarians, as they cannot be predicted and prevented (accident); professional error in veterinary practice (improper performance or non-performance by veterinarian(s) of their professional duties as a result of an objective or subjective error not related to negligent and dishonest attitude towards these duties: insufficient, untimely, incorrect VC provision); random coincidence of unfavorable circumstances; disease incurability or injury severity; unprofessional and unqualified actions in violation of the procedure for granting a license; defects due to VC non-provision or illegal VC provision.

Forensic veterinary commission should assess formulation correctness of clinical diagnosis, i.e., timeliness, scope, validity of the scheme of diagnostic and treatment-tactical veterinary measures, the correctness of the performance of surgical interventions or veterinary manipulations and compliance of VC provision of CD with requirements of current regulatory documents (if any).

It is argued that the determination of VC defects and negative consequences for the health and life of animals(s) according to the methods proposed by the author in this research paper will allow law enforcement agencies and the court to find out veterinary mechanism for development of adverse consequences for the health and life of animals(s).

Application of proposed methods of forensic veterinary medicine for the purpose of determining VC defects will have a positive effect on efficiency of conducting and effectiveness of forensic examination in case of identifying the VC shortcomings and negative consequences for the health and life of the animal(s), as

it unifies approaches to forensic research, minimizes subjectivity of forensic assessment of professional actions of veterinarians becomes a scientific basis for providing a well-founded and objective conclusion of forensic expert(s) in a categorical form as a means of proof in legal proceedings; expands cognitive capabilities of pre-trial investigation bodies and court; creates foundation for improving criminal and administrative legislation of Ukraine in terms of the legal responsibility of veterinarians for professional offenses.

Методика судово-ветеринарної експертизи з метою визначення дефектів ветеринарної допомоги

Іван Яценко

Мета роботи — розробити методику судово-ветеринарної експертизи для визначення дефектів ветеринарної допомоги. Для досягнення поставленої мети застосовано загальнонаукові та спеціальні наукові методи. Наведено авторську методику судово-ветеринарної експертизи дефектів ветдопомоги, здійснюваної у п'ять етапів: ознайомчо-підготовчий, організаційно-інформаційний, дослідницько-аналітичний, узагальнювально-оцінний і завершальний. Доведено, що судово-ветеринарна експертиза має визначити наявність дефекту й надати висновок про наявність або відсутність причиново-наслідкового зв'язку між недоліком ветдопомоги та негативним для тварини наслідком і про основну причину такого наслідку. Увагу акцентовано на тому, що судово-ветеринарна експертна комісія має оцінити своєчасність, обсяг, обґрунтованість проведених діагностичних та лікувально-тактичних ветеринарних заходів, правильність виконання оперативних утручань або ветеринар-

них маніпуляцій і їх відповідність чинним нормативним документам. Обґрунтовано, що запропонована авторська методика уніфікує підходи до експертного дослідження, мінімізує суб'єктивність експертної оцінки дій працівників ветеринарної медицини; розширює пізнавальні можливості органів досудового розслідування та суду; сприяє вдосконаленню кримінального й адміністративного законодавства України в частині юридичної відповідальності працівників ветеринарної медицини за професійні правопорушення. Виокремлено ключові проблеми, які виникають через неналежне виконання працівниками ветеринарної медицини своїх професійних обов'язків, і запропоновано шляхи їх розв'язання.

Ключові слова: *судова ветеринарна медицина; судово-ветеринарна експертиза; підекспертні тварини; дефекти й недоліки ветеринарної допомоги; негативні наслідки для здоров'я та життя тварини; методика й етапи судово-ветеринарного дослідження.*

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Declaration of Competing Interest

The author declares no conflict of interest.

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