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Standard for Veterinary Forensic Postmortem Examination

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Standard for Veterinary Forensic Postmortem Examination

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Foreword

These minimum requirements are designed to guide veterinarians who perform postmortem examinations. An ad hoc committee was struck after the need for veterinary postmortem animal examination standards was identified and voted upon at the 2018 International Veterinary Forensic Sciences Association business meeting.

This document provides minimum requirements for ~~postmortem animal examinations. The standard covers preliminary procedures, evidence documentation, external and internal postmortem examination and documentation, lesion and injury descriptions, ancillary tests, and the postmortem examination report. This document also lists all the information a veterinarian needs in the formulation and consideration of opinions and interpretation of a forensic case.~~forensic postmortem animal examinations

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This document was revised, prepared, and finalized as a standard by the Wildlife Forensics Consensus Body of the AAFS Standards Board.

Questions, comments, and suggestions for the improvement of this document can be sent to AAFS-ASB Secretariat, asb@aafs.org or 401 N 21st Street, Colorado Springs, CO 80904.

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Standard for Veterinary Forensic Postmortem Examination

1 Scope

This standard defines services rendered by a veterinarian acting in a forensic capacity and performing veterinary forensic postmortem examinations. The standard establishes minimum practices and procedural requirements for receipt of the body, external and internal examinations, identification, documentation, and sets ancillary testing and diagnostic support requirements. The standard also provides a reference for legal or law enforcement professionals.

2 Normative References

There are no normative references. Annex A (Bibliography) contains informative references.

3 Terms and Definitions

For purposes of this document, the following terms and definitions apply.

3.1

alternate light source

Equipment used to produce light at various wavelengths to enhance or visualize potential items of evidence.

3.13.2

cause of death

A medical opinion stating which disease, injury, or physiological derangement was responsible for initiating the lethal sequence of events that resulted in an animal's death.

3.23.3

chain of custody

~~The procedures and documents that account for Chronological record of the possession of an item of evidence by tracking its~~ handling and storage of an item from its point of collection to its final ~~disposition.~~return or disposal.

3.4

veterinarian's "designate"

Any individual who carries out duties under the direction or authority of the veterinarian. Individuals performing these various duties may be technicians, other veterinarians, veterinary medical students or law enforcement personnel.

3.33.5

veterinary forensic postmortem examination

A postmortem examination performed by a veterinarian for the documentation of legal cases.

3.43.6

veterinary postmortem examination

A diagnostic procedure consisting of the dissection of a deceased animal by a veterinarian for the purpose of determining the cause of death. Synonyms include necropsy and autopsy.

~~3.51.1~~

~~veterinarian's "designate"~~

~~Any individual who carries out duties under the direction or authority of the veterinarian. Individuals performing these various duties may be technicians, other veterinarians, veterinary medical students or law enforcement personnel.~~

4 Responsibilities

A veterinarian shall conduct the postmortem animal examination. The veterinarian shall:

- a) investigate cooperatively with, but independent from, law enforcement and prosecutors;
- b) operate without any undue influence from law enforcement agencies and prosecutors;
- c) evaluate the circumstances of the reported death;
- d) determine the order of examination and sample collection based on the individual case.

5 Receipt of the Body

5.1 The veterinarian shall review the circumstances of the death or clinical history prior to the postmortem examination.

5.2 The veterinarian or designate shall document who submitted the animal.

5.3 The veterinarian or designate shall document how the animal was received.

5.4 The veterinarian or designate shall document packaging and contents of the package received if the submission is designated as a medico-legal case by the submitter.

5.5 The veterinarian or designate shall document if a chain of custody form was received.

5.6 The veterinarian or designate shall begin a chain of custody form at their facility if a chain of custody form was not received with the body.

5.7 The veterinarian or designate shall photograph the packaging and contents of the package with a unique case number.

5.8 The veterinarian or designate shall establish and document the intended and final disposition of the remains with the submitter.

6 External Postmortem Examination

6.1 Animal Identification

The veterinarian or designate shall:

- a) record the date the animal was received;

- b) scan the body for the presence of an implanted microchip, using an appropriate microchip reader(s), in animals that are likely to be micro-chipped or if a microchip has been identified with diagnostic imaging;
- c) document the findings of the microchip scan and the microchip number if found, if unreadable, the microchip shall be saved as evidence;
- d) document anything not native to the body including, but not limited to: tattoos, collars, halters, radio collars, medical devices, leg bands or tags attached to the animal;
- e) record the body weight;
- f) record the sex;
- g) document the species of animal and breed, or breed-type if known;
- h) document the actual age, if available, or the approximate age based on phenotypic characteristics;
- i) retrieve and document ~~trace~~ evidence on the body or items that accompanied the body if indicated;
- j) take documentary photographs of the animal in right and left lateral recumbency, dorsal, ventral, cranial and caudal views with the case number and date;
- k) document if diagnostic imaging was done and the date and place of diagnostic imaging;
- l) document if samples for DNA analysis were collected for animal identification purposes and the source of those samples.

6.2 Photo-documentation of Injuries

The veterinarian or designate shall:

- a) photograph major injuries and wounds with a reference scale in at least one photograph;
- b) photograph external injuries prior to removing hair or feathers, blood or foreign matter;
- c) photograph injuries unobstructed by blood, foreign matter, hair or feathers.

6.3 Postmortem Changes

The veterinarian shall:

- a) describe livor mortis if visible;
- b) describe presence or absence of rigor mortis if the body was not frozen;
- c) describe decompositional changes;
- d) document if the animal was frozen prior to postmortem examination;

- e) document presence of insects and if insects were collected at postmortem examination;
- f) document postmortem scavenging of the body;
- g) describe other postmortem changes.

6.4 General Condition of the Body

The veterinarian shall:

- a) describe the muscle mass and fat stores;
- b) document if a species-specific body condition scoring system was used and the name of the scoring system;

~~e) document the condition of the integument including ears;~~

~~d)c) examine the condition of the nails, claws, hooves, foot pads, or beak; document the condition of the integument (e.g., skin, fur, feathers, scales) including ears;~~

~~e)d) document the presence of ectoparasites;~~

~~f)e) document the condition of the dentition.~~

6.5 General Documentation of Injuries

The veterinarian shall:

- a) describe injury by type;
- b) describe injury by location;
- c) describe injury by size;
- d) describe injury by shape;
- e) describe injury by pattern;
- f) describe other features of the injury.

6.6 Firearm and Projectile Injuries

The veterinarian shall:

- a) describe injuries;
- b) measure wound size;
- c) locate cutaneous wounds of the head, neck, thorax, abdomen, and limbs by measuring from two fixed anatomic reference points;

- d) descriptively locate wounds in an anatomic region;
- e) describe the presence of soot, burns, and stippling of the hair or skin;
- f) describe the presence of abrasion ring, searing, muzzle imprint, or lacerations;
- g) the veterinarian or designate shall photograph recovered projectiles with a scale.

6.7 Sharp Force Injuries

The veterinarian shall:

- a) describe the wound;
- b) locate cutaneous wounds of the head, neck, thorax, abdomen, and limbs by measuring from two fixed anatomic reference points;
- c) measure wound size;
- d) estimate the depth of the wound;
- e) determine organs and structures involved;
- f) estimate the direction of stab wound tracks.

6.8 Burn Injuries

The veterinarian shall:

- a) describe the appearance of the burn;
- b) describe the distribution and extent of the burn.

6.9 Patterned Injuries

The veterinarian shall:

- a) measure the injury size;
- b) describe the location of the injury;
- c) describe the injury pattern;
- d) document if samples for DNA analysis were collected from bite marks and the location of the bite marks sampled.

6.10 Suspected Sexual Abuse

Prior to cleaning the body, the veterinarian or designate shall:

- a) collect swabs and/or flushes from the oral, vaginal, preputial, rectal, and/or cloacal cavities;

- b) collect nail scrapings or clippings;
- c) utilize an alternate light source to search for foreign fibers and/or biological stains, and preserve discovered evidence.

7 Internal Postmortem Examination

7.1 Examination of the Subcutis

The veterinarian shall document and describe injuries to the subcutis.

7.2 Examination of the Oral Cavity

The veterinarian shall:

- a) describe dental abnormalities;
- b) describe lesions in the oral cavity;
- c) describe foreign material in the oral cavity.

7.3 Examination of the Neck

The veterinarian shall:

- a) examine in situ muscles and soft tissues of the ventral aspect of the neck;
- b) ensure ~~proper~~ removal of the neck organs and airways;
- c) examine the neck organs and airways;
- d) palpate the hyoid bone and larynx in mammals;
- e) dissect the dorsal aspect of the neck in cases of suspected occult neck injury;
- f) perform ventral neck dissection in neck trauma cases.

7.4 Examination of the Thoracic and Abdominal Cavities

The veterinarian shall:

- a) examine internal organs in situ;
- b) describe adhesions and abnormal fluids;
- c) describe evidence of surgery;
- d) remove organs from the thoracic, abdominal, and pelvic cavities;
- e) dissect organs;

- f) describe abnormalities of examined organs;
- g) list examined organs with no gross abnormalities.

7.5 Examination of the Head

The veterinarian shall:

- a) examine the eyes including palpebra, conjunctiva, sclera, and globe;
- b) document any epidural, subdural, or subarachnoid hemorrhage;
- c) examine the brain in situ;
- d) describe abnormal fluids;
- e) remove and examine the brain.

7.6 Penetrating Injuries Including Projectile and Sharp Force Injuries

The veterinarian shall:

- a) correlate internal injury to external injury;
- b) describe and document the track of the wound;
- c) describe and document the direction of the wound;
- d) recover foreign bodies of evidentiary value;
- e) describe and document recovered foreign body.

7.7 Blunt Impact Injuries

The veterinarian shall:

- a) correlate internal injury to external injury;
- b) describe and document injuries to the skeletal system;
- c) describe and document injuries to internal organs, structures and soft tissues.

7.8 Examination of the Bone Marrow

The veterinarian shall examine bone marrow in all emaciated animals.

8 Ancillary Testing and Support Services

8.1 Diagnostic Imaging

8.1.1 Diagnostic imaging shall be performed in all cases of gunshot injuries in animals ≤ 70 kg.

- 8.1.2 Diagnostic imaging shall be performed in all charred remains in animals ≤ 70 kg.
- 8.1.3 Diagnostic imaging shall be performed when decomposition obscures or causes loss of identifying features and/or evidence of trauma in animals ≤ 70 kg.
- 8.1.4 Diagnostic imaging should be performed in cases of gunshot injuries in animals >70 kg.
- 8.1.5 Diagnostic imaging of charred remains should be performed in animals >70 kg.
- 8.1.6 Diagnostic imaging of decomposed remains should be performed in animals >70 kg.

8.2 Specimens for Laboratory Testing Including Histopathology

- 8.2.1 The veterinarian or designate shall collect, package, label, and preserve biological specimens.
- 8.2.2 The veterinarian or designate shall document if collected blood is central, peripheral, or from a cavity.
- 8.2.3 The veterinarian or designate shall collect samples for bacteriology, parasitology, molecular biology, virology, clinical pathology, forensic entomology, bone marrow fat analysis, and/or toxicology, if deemed necessary.
- 8.2.4 Histopathology shall be performed in cases having no reasonable explanation of death following gross postmortem examination, ancillary diagnostic testing, and scene/circumstance evaluation, unless the remains are skeletonized or severely decomposed.
- 8.2.5 Histopathology shall be performed if the age of the injuries has evidentiary value.

8.3 Access to Scientific Services and Equipment

The veterinarian shall have access to:

- a) a histology laboratory;
- b) a radiologist;
- c) diagnostic imaging;
- d) toxicology testing;
- e) on-site body and organ weight scales.

8.4 Content of Toxicology Laboratory Report

The veterinarian shall require the toxicologist or toxicology report to provide the:

- a) source of the sample;
- b) type of screen;

- c) test results;
- d) method of analysis.

9 Evidence Processing

The veterinarian or designate shall:

- a) collect, package, label, seal in a tamper-evident manner, and preserve all evidentiary items;
- b) create and/or maintain a chain of custody of all evidentiary items.

10 Documentation

The following shall be documented:

- a) those attending~~assisting in~~ the forensic postmortem examination;
- b) medical history, if available;
- c) crime scene findings, if available, and the source of the findings (law enforcement agent, personal observation);
- d) chain of custody form;
- e) photographs taken as part of the postmortem examination;
- f) communication history with external parties;
- g) communication history of consultations;
- h) disposition of the body;
- i) justification of itemized deviation(s) from elements within this standard.

11 The Forensic Postmortem Report

11.1 Content of Report

The veterinarian shall:

- a) prepare a written narrative report for each forensic postmortem examination;
- b) indicate if the animal was euthanized and the method of euthanasia;
- c) include the case number;
- d) include the date, place, and time of the examination;
- e) include the investigating agency, lead officer, the agency's case number, and animal identification number, if applicable;

- f) include the name and affiliation of the veterinarian;
- g) include documentation of identity of the animal (e.g., microchip, tattoo);
- h) include age (if known, or estimate), sex, species, breed, or breed-type;
- i) include postmortem changes;
- j) include observations of the body condition;
- k) include observations of the coat condition;
- l) include observations of the external examination;
- m) include observations of the internal examination;
- n) include a description of internal and external injuries;
- o) include descriptions of findings in sufficient detail to support diagnoses, opinions, and conclusions;
- p) include a copy of any ancillary test reports with the forensic postmortem report;
- q) include a list of the diagnoses and interpretations in the forensic postmortem report;
- r) include cause of death;
- s) include the name and title of the veterinarian performing the postmortem examination;
- t) sign and date the finalized report.

11.2 Interpretation and Opinions

11.2.1 The veterinarian shall review and interpret all requested laboratory results from the forensic postmortem examination.

11.2.2 The veterinarian shall review all requested ancillary and consultative reports.

11.2.3 The veterinarian shall review the investigative reports, medical records, medications (where applicable), and scene imagery that the veterinarian deems relevant in his/her professional opinion.

11.2.4 The veterinarian shall determine the cause of death.

Annex A

(informative)

Bibliography

The following bibliography is not intended to be an all-inclusive list, review, or endorsement of literature on this topic. The goal of the bibliography is to provide examples of publications addressed in the standard.

- 1] Davis, Gregory and McDonough, Sean P. "Writing the Necropsy Report", *Veterinary Forensic Pathology*, Volume 2, pp 139-149, Springer, 2018.
- 2] Dolinak, David, Matshes, Evan and Lew, Emma. *Forensic Pathology: Principles and Practice*, Elsevier Academic Press, 2005.
- 3] Kagan, Rebecca and Brooks, Jason W. "Performing the Forensic Necropsy" *Veterinary Forensic Pathology*, Volume 1, pp 27-42, Springer, 2018.
- 4] National Association of Medical Examiners, *Forensic Autopsy Performance Standards*, September 2016.

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