

## Post-Mortem Investigation at the Scene of Death in Thailand

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### Abstract:

Investigating a scene of death is a legal procedure that requires the participation of medical professionals and cannot be avoided. This article aims to provide essential information about the basic procedures for investigating a crime scene and conducting a post-mortem examination in accordance with Thai laws, to ensure that readers can perform their jobs correctly and with confidence. The topics covered include the reasons for conducting a post-mortem examination according to Section 148 of the Criminal Procedure Code, the role of physicians and the post-mortem examination team, the preparation process before post-mortem examinations, data inquiry when a doctor arrives at the location where a corpse is found, techniques for photographing and collecting evidence, the forensic examination of a corpse, how to evaluate the time of death using rigor mortis, livor mortis, and the stages of decomposition, and recommendations for providing detailed feedback on post-mortem examination reports. In summary, examining the scene of death is a necessary procedure that all doctors must be able to carry out within the framework of the law. It is an important mechanism for promoting justice in society, relying on medical and scientific knowledge for the benefit of the general public.

**Keywords:** Corpse; Crime Scene; Criminal Procedure Code; Post-Mortem Examination

### Introduction

The process of investigating a crime scene and conducting a post-mortem examination is a legal procedure, in which medical professionals are necessary to participate and cannot be avoided. In many homicide cases, it is necessary to rely on evidence obtained from the investigation of the crime scene and the autopsy to convict the perpetrator. Sometimes, this can lead to the exoneration of the accused. This article will present essential information about the

basic procedures for investigating a crime scene under the Thai laws, to ensure that readers have confidence and can perform their jobs correctly.

### Reasons for Conducting Post-Mortem Examinations

According to Section 148 of the Criminal Procedure Code, “When it is clear or suspected that a person has died unnaturally, or died while in the custody of

an officer, a post-mortem examination shall be conducted, unless the death was caused by lawful execution.

Death by unnatural causes means:

1. Suicide.
2. Homicide.
3. Death by animal attack.
4. Death by accident.
5. Death by unknown causes.”<sup>1</sup>

In accordance with this provision, in cases of death by unnatural causes, which include the five aforementioned circumstances, it is necessary to conduct a post-mortem examination at the location where the incident occurred. Similarly, in cases where death occurs while in the custody of an officer, such as in prison or while under arrest, it is necessary to conduct a post-mortem examination at the location where the incident occurred.

### **Physicians and the Post-Mortem Examination Team**

Physicians in government hospitals are considered government officials according to the Criminal Code, Section 1 (16), which defines “government officials” as individuals who are legally established or appointed by law to perform official duties, whether regularly or occasionally, and regardless of whether they receive compensation or not. Therefore, if a doctor fails to perform his or her duties as assigned, he or she may be liable under the Criminal Code, Section 157, which states that “Any government official who performs or fails to perform his or her duties without authorization, causing damage to another person, or who performs or fails to perform his or her duties dishonestly, shall be punished with imprisonment from one year to ten years or a fine from twenty thousand THB to two hundred thousand THB or both.”<sup>2</sup>

However, doctors can delegate the task of attending post-mortem examinations to hospital staff or staff of the Provincial Public Health Office who have received legal medical training only in cases of death under the Criminal Code Sections 148 (3), (4), and (5).”<sup>3,4</sup>

### **Preparing Before Post-Mortem Examinations**

When notified by investigators to attend a post-mortem examination procedure, medical personnel must prepare various equipment before traveling to the scene, including equipment necessary for the current situation, such as:

1) Recording and document signing equipment, such as pens, personal computers, and printers (in case of printing reports) and others.

2) Photography equipment (DSLR camera recommended).

3) Measuring equipment for object length, such as rulers, steel tapes, and laser distance meters.

4) Personal protective equipment, such as rubber gloves, shoe covers, respirators, and face and eye protection equipment.

5) Equipment for collecting samples for examination, such as syringes, blood collection tubes, cotton swabs, plastic bottles, paper bags, scissors, and scalpels.<sup>5</sup>

Always remember that medical personnel must assess the safety of the scene first. If it is determined that it is dangerous for themselves, such as collapsed buildings, fire, deaths in poorly ventilated areas, and deaths on the road without cordoned off areas to prevent danger from vehicles, then should refrain from examining the body until it is confirmed safe to enter the area. If it is not possible to do so, the person responsible for ensuring the safety of the scene should take photographs of the body and then move it to a safe area for further examination.

## Data Inquiry

When a doctor arrives at the location where a body is found, they should conduct a preliminary inquiry with the person who witnessed the event or the person who found the body first. The objective is to obtain information about the cause of death, similar to taking a patient's medical history. However, unlike a patient, the deceased cannot provide information about the incident. Therefore, the doctor should ask about the following topics:

- 1) Name and surname of the deceased.
- 2) Who was the deceased? What was their occupation? Where did they live? Did they have any underlying medical conditions?
- 3) Who is the person answering the questions? How are they related to the deceased?
- 4) Describe the events that occurred from before the deceased's death until after their death (if witnessed).
- 5) The last time the deceased was seen and what they were doing at that time.
- 6) Was the body moved or handled in any way? If so, how?
- 7) If foul play is suspected, inquire about the motive and weapon used in the incident.
- 8) If the information provided does not match the evidence found on the body or at the scene, ask the person providing the information to explain the reason for the discrepancy.

During the process of questioning witnesses, if there are multiple witnesses present, it is recommended to question at least two of them to verify whether their information is consistent or not. At the same time, doctors must observe the characteristics of the information providers to determine whether they are providing false information or not. Testing for deception by comparing human behavior with the use of robots to detect deception has shown that the results trend in the same direction.

1) Eye movements: Individuals who lie have a tendency to have wider pupil dilatation than those who tell the truth.

2) Time to respond: Individuals who lie have a tendency to answer questions more slowly than those who tell the truth.

3) Eloquence: Individuals who tell the truth have a tendency to speak more eloquently than those who lie.<sup>6</sup>

## Photographing the Scene and Collecting Evidence

When taking photographs, the image should be captured from a wide-angle view, then specific details should be captured to the fullest extent possible, including:

- 1) The entrance to the crime scene and the surrounding area.
- 2) The condition of the area where the body was found.
- 3) Various household items.
- 4) Medicines used to treat diseases.
- 5) Evidence found at the scene of death.
- 6) The condition of the body, and so on.

Once the crime scene has been manipulated, it is not possible to go back and take pictures as before. Therefore, if there is equipment to measure the length of an object, it should be placed next to the object to be photographed horizontally. It should not be photographed from a perspective view, as it will not reveal the true proportion of the length of the object when compared to the measuring instrument.

As for the collection of evidence at the crime scene, the assistance of a physician may be necessary to collect and examine the evidence. Recommendations for practice include leaving samples to dry before packing them in paper envelopes, to make it easier for the humidity to be transmitted, and to leave samples to dry before packing them in bags. As for the principles of forwarding evidence, they use "Chain of Custody," and the evidence should be kept

in a safe place and only be accessible to authorized personnel. The details that should appear on the packaging of evidence are as follows:

- 1) Clearly specify the type or category of the evidence.
- 2) Name and signature of the person who collected the evidence.
- 3) Office number and contact information.
- 4) Name of the recipient of the evidence.
- 5) Name and address of the laboratory.
- 6) Date and time of collection and/or analysis.
- 7) Method of analysis.
- 8) Signature of all individuals involved in the process, including the date and time.<sup>7</sup>

If the evidence is not handled completely and correctly at any stage of the transfer process, such as opening the container by an unrelated person who did not sign, it may affect the credibility of the evidence and the consideration of the case in court.

### Forensic Examination of a Corpse

Once the crime scene has been properly photographed, the next step is to examine the condition of the body, with the following important details:

- 1) Photograph the outside of the body, then photograph to identify the characteristics of the person such as clothing, jewelry, skin color, hair style, and other evidence at the scene.
- 2) Photograph wounds or bruises in all parts of the body that can be examined. The photo should be clear enough to identify the location of the wound, such as a laceration on the left arm. At least one photo should be taken, then details of the wound should be photographed up close while measuring the length of the object (if any) placed parallel to the wound.

- 3) Take photos from head to toe, including the face, eye tissues, arms, hands, legs, and feet, as well as the front and back of the body.

When examining the crime scene, the forensic physician should always keep in mind that what is seen may not be the truth. In this case, there are some important points to consider when examining a corpse, such as:

- 1) Examination of eye tissues: In cases where death was due to lack of oxygen, petechial hemorrhages may be found under the eye tissues, due to pressure on the neck and jugular veins. However, petechial hemorrhages may also be found under the eye tissues after death, especially in cases where the body was lying face down.

- 2) Examination of children's bodies: Forensic physicians should ask for clear medical history. If there is no underlying disease that may have caused the death, the examiner should take into account factors such as the age, size, and developmental stage of the child.<sup>8</sup>

- 3) Examination of the body of a deceased person from gunshot wounds and explosions: Since the examination of the body at the scene of the incident is to assess the preliminary cause of death and may not be able to answer legal doubts in all aspects, the body should be sent for autopsy to examine the injuries in detail.

### Evaluation of the Time of Death

According to the hot weather in Thailand, the measurement of the change in body temperature after death (algor mortis) is not very useful. The following are commonly used methods for assessing the time of death:

- 1) Rigor mortis (the stiffening of muscles after death):
  - a. Usually appears about 3 hours after death or may occur earlier. It is easily observed in small muscles such as fingers, toes, and jaws.

b. It then becomes apparent in large muscles such as elbows, shoulders, knees, and finally in the hip joint, fully stiffening about 6-12 hours after death.

c. If there is movement in the joints of the body before rigor mortis sets in, it may occur in the muscles that have not fully developed rigor mortis. However, if there is movement in the joints after rigor mortis has fully set in, rigor mortis will not occur again.

d. Caution should be taken during the examination to differentiate between muscles that are only partially stiff due to the development of rigor mortis and those that are not fully stiff due to the decomposition process. Other characteristics of the body should be observed as well.<sup>5</sup>

2) Livor mortis (the settling of blood in the lower parts of the body after death):

a. Livor mortis occurs due to the settling of blood to the lowest point of the body after death. These methods can provide important information for determining the time of death, but other factors such as the environment, cause of death, and individual differences should also be considered. It usually appears about 0.5-2 hours after death. In the early stages, if pressure is applied to the affected area, the color of livor mortis will fade. The color will gradually darken over time.

b. The color of livor mortis becomes fully pronounced about 8-12 hours after death.

c. In most cases, it is usually not possible to fade Livor mortis within 12-24 hours after death.<sup>5</sup>

3) Decomposition: Can be divided into 5 stages:

a. Fresh stage: This stage occurs at the beginning of decomposition and often exhibits greenish discoloration on the skin of the lower right abdomen due to the occurrence of livor mortis and rigor mortis, which typically appears about 18 hours

after death. However, from the experience of the author, this may not always occur in the lower right abdomen and may become visible after a longer period of time. For example, in some cases, it may begin to appear 24 hours after death.

b. Bloated stage: This stage is characterized by the appearance of blisters on the skin, skin slippage, marbling, and bloating, which typically begin to appear approximately 24-48 hours after death.

c. Active decay: Hair sloughing and slippage of the scalp skin occurs. The underlying tissue becomes discolored with black pigmentation.

d. Advanced decay: This stage is characterized by the loss of muscle tissue, leading to the appearance of bones.

e. Skeletal stage: At this stage, the bones are clearly visible and show signs of fractures. Soft tissues, ligaments, and cartilage are minimally present.<sup>9</sup>

From the author's experience, the bloated stage usually occurs between 36-72 hours after death, while active decay is typically observed 5-7 days after death. However, it is difficult to assess the time frame of advanced decay and skeletal stage due to the variability of environmental factors and the length of time since death, and therefore requires additional information and evaluation.

### **Recommendations for Providing Detailed Feedback on Post-Mortem Examination Reports**

The recommendations for writing any details on the post-mortem examination reports are shown below.

1) Describe the general condition of the body, such as sex, skin color, hair color, body shape, defects, tattoos, clothing, posture at the time of death, and general location details.

2) Describe findings such as external injuries, rigor mortis, dependent lividity, and putrefaction (if present).

3) Estimate the time of death by providing a time range, such as 2-4 hours.

4) Use the word “suspected” when assessing the cause of death since it is only a preliminary assessment.

5) Normally, Thai doctors do not include the manner of death about the deceased, but if the doctor is very confident, they can indicate it.

6) Provide opinions on how to handle the body, such as whether to hand it over to family members for religious ceremonies or perform an autopsy to investigate the cause of death.

### Conclusion

In summary, examining the scene of death is necessary procedures that all doctors must be able to carry out within the framework of the law. It is important mechanisms in promoting justice for society, relying on medical and scientific knowledge for the benefit of the general public.

### References

1. Royal Thai Government Gazette. Criminal Code Procedure Act, Buddhist Era 2477. Bangkok: Office of the Prime Minister and Royal Thai Government Gazette; 1935.
2. Royal Thai Government Gazette. Criminal Code Procedure Act, Buddhist Era 2499. Bangkok: Office of the Prime Minister and Royal Thai Government Gazette; 1956.
3. Royal Thai Government Gazette. Supplementary Amendment Act on Criminal Procedure Code (Version 21) B.E. 2542. Bangkok: Office of the Prime Minister and Royal Thai Government Gazette; 1999.
4. Royal Thai Government Gazette. Royal Decree Extending the Enforcement Period of Section 7 of the Supplementary Amendment Act on Criminal Procedure Code (Version 21) B.E. 2542 B.E. 2565. Bangkok: Office of the Prime Minister and Royal Thai Government Gazette; 2022.
5. Knight B, Saukko PJ. Knight’s forensic pathology. Fourth edition. Boca Raton: CRC Press, Taylor & Francis Group; 2016.
6. Gonzalez-Billandon J, Aroyo AM, Tonelli A, Pasquali D, Sciutti A, Gori M, et al. Can a Robot Catch You Lying? A Machine Learning System to Detect Lies During Interactions. *Front Robot AI*. 2019 Jul 31;6:64.
7. Badiye A, Kapoor N, Menezes RG. Chain of Custody. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2022 May 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK551677/>
8. Schröder AS, Müller F, Gehl A, Sehner S, Anders S. Post-mortem development of conjunctival petechiae following temporary prone position. *Forensic Sci Int*. 2012; 223 (1–3):e53–5. doi: 10.1016/j.forsciint.2012.08.045.
9. Almulhim AM, Menezes RG. Evaluation of Postmortem Changes. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2022 May 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK554464/>