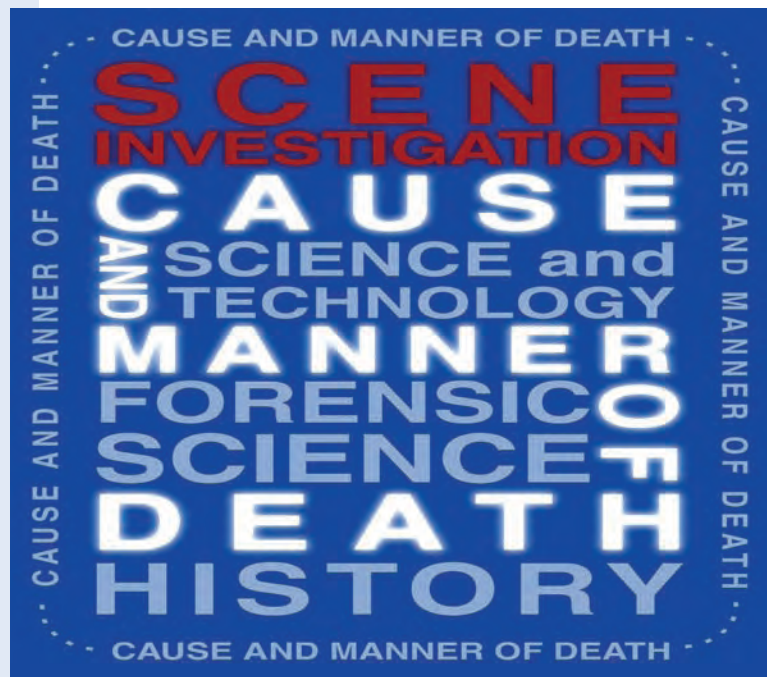


chapter 6



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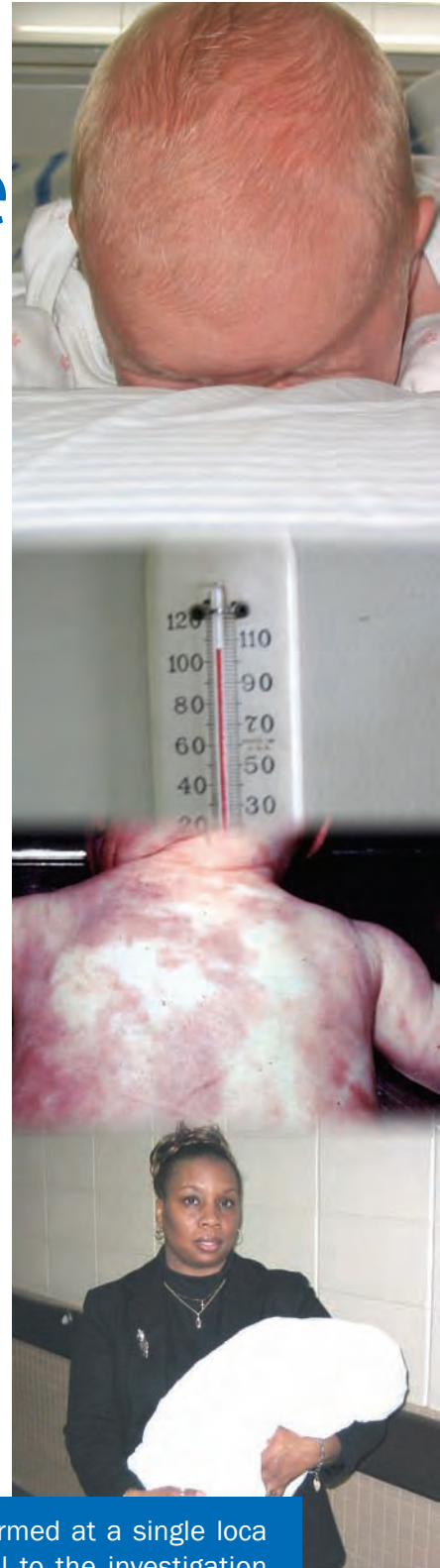
Conducting Scene Investigations

Residence-Incident Scene-Death Scene

Unit 16: Document the Scene and Body

Unit 17: Document Items Removed from the Scene

Unit 18: Document Day Care/Babysitting Scene



The infant scene investigation is seldom performed at a single location. Although the incident scene is essential to the investigation, the infant's primary residence and the location where the death was pronounced all hold key pieces of investigative information that may provide the answers to cause and manner of death questions. This chapter covers the investigation of multiple scenes and the specific information each may hold regarding the circumstances of death.

OVERVIEW

Chapter 4 detailed the collection of investigative data by interviewing various witnesses. This chapter focuses on investigating the "scene" and "body" (when present), working with some of those same witnesses. The infant death scene investigation often requires the investigator to investigate multiple scenes. In some cases, three scenes need to be investigated: (1) the primary residence, (2) the scene of the incident, and (3) the scenes where the body is observed.

For example: An infant was taken to a babysitter, subsequently became unresponsive at the babysitter's residence, and was taken to the hospital where the infant was eventually pronounced dead. You have three scenes that require investigation: the infant's home (the primary residence), the babysitter's home (the scene of the incident), and the hospital (the scene of death).

This chapter covers the major tasks associated with conducting a thorough scene investigation, beginning with the initial scene tasks, basic scene management, evidence and property documentation, and removal of material from the scene.

SUPPORT MATERIALS

The SUIDI Reporting Form (or a jurisdictionally approved equivalent) is used in this chapter. It is suggested that you determine the various languages that are used in your jurisdiction and make a list of resource people available to serve as interpreters, including name and 24/7 contact numbers.

CHAPTER OBJECTIVES

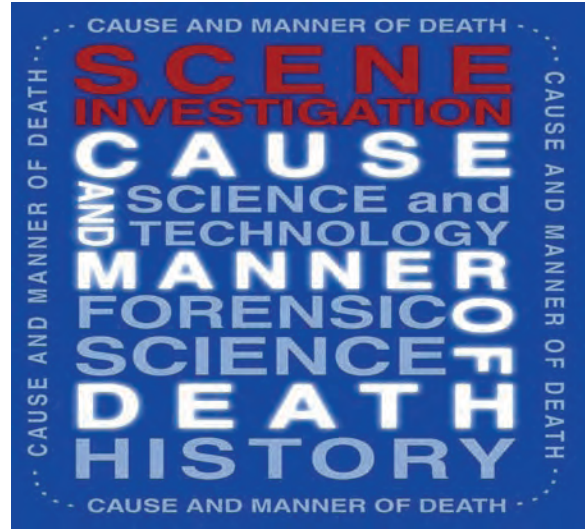
By the end of this chapter, students will be able to:

1. Perform initial scene tasks.
2. Secure the scene.
3. Establish rapport with individuals at the scene.
4. Document the scene.
5. Document items removed from the scene.
6. Document day care/babysitting scene.

Each task must be performed in a professional and sensitive manner consistent with local laws, statutes, and customs.

16 unit

Document the Scene and Body



INTRODUCTION

Arriving at an infant death scene can be surreal, even for the most seasoned investigator. The range of emotions, the number of witnesses, and the surroundings can be overwhelming, and the single most important piece of evidence—the body—is most likely gone, whisked away by EMS to the hospital. The initial behavior exhibited by the investigator in the aftermath of an infant death is critical to the success or failure of the investigation. Once the initial interviews have been started, or in some cases completed, the investigator must begin investigating the scene and body. The SUIDI Reporting Form and the additional investigative forms will assist the investigator in recording important scene details.

DOCUMENT SCENE DEMOGRAPHICS

Scene Location(s)

The location of **each scene** must be documented **exactly** as it appears on a map (outdoor scenes) or building. Addresses should be precise enough so that the U.S. postal service could deliver a letter to the location. This should include the street address (with apartment number if necessary), city, county, state, and zip code. Such documentation allows for follow-up and sharing of information with other agency representatives. This becomes especially critical in cases involving multiple agencies, each having their own unique case numbering system, which makes finding and discussing a specific case difficult. The scene or dispatched to address is stored by almost every responding agency, making it a common piece of data for all participants.

INVESTIGATION DATA				
Infant's Primary Residence Address:				
Address _____	City _____	County _____	State _____	Zip _____
Incident Address:				
Address _____	City _____	County _____	State _____	Zip _____

Fig. 6.1: Each scene location should be documented on an investigative scene form.

Investigators should learn to use the mapping programs available on the Internet (e.g., google.com/maps, yahoo.com/maps, mapquest.com, etc.). The exact location of a scene can be verified, printed, and placed in the case file without difficulty, and the accuracy is amazing.

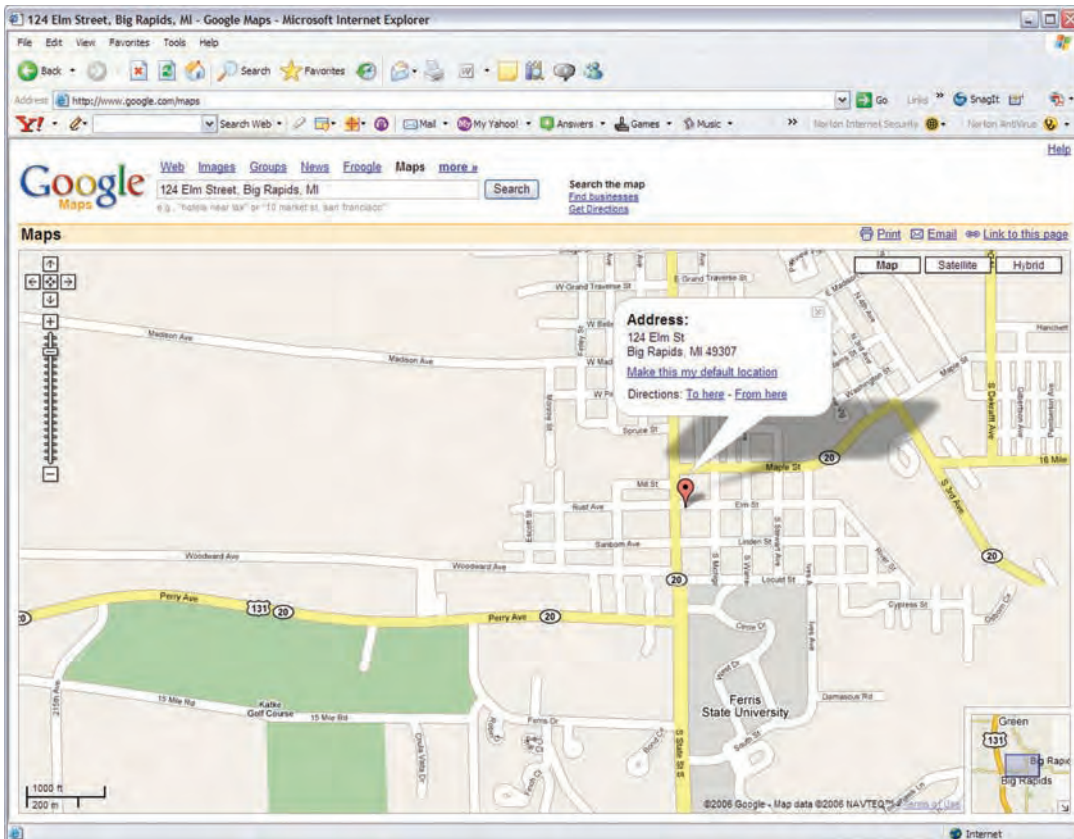


Fig. 6.2: Today's Internet technology allows investigators to pinpoint scene locations.

Type of Building

Keep this simple and straightforward. First, the building is either commercial or residential, then single story or more, and the exterior (i.e., brick, wood siding) can be described if necessary. The number of stories a building has might be a factor in cases where access to the infant was problematic or there is some question about falls or other factors that would implicate multistory structures. If the type of building fails to describe what the investigator encounters, additional information that describes the building in more detail (e.g., disrepair, cluttered, etc.) may be added to the investigative report.

Photograph the Building

Exterior photographs should be taken to support the investigator's description of the building and/or scene. The number of photographs may vary; however, there should be enough to visually locate entry and exit points as well as issues of general and specific concern to the investigator.



Fig. 6.3: Exterior photographs of the scene help support written descriptions and sketches.

Building Layout

The number of rooms in the building is important investigative information. Large numbers of family members living in a small, unventilated space could spread illness and may be a factor in sleep surface sharing (co-sleeping). Large numbers of rooms in a larger building may reveal a significant distance between living space and bedrooms. The investigator should document this information during the scene walk-through or consult with law enforcement to determine the type and number of rooms at the scene. Building layout includes such things as bedrooms, bathrooms, living rooms, kitchen, garage, and so on. Determining access to the immediate scene and ultimately the infant is an initial task performed within the first few minutes after entering the scene.

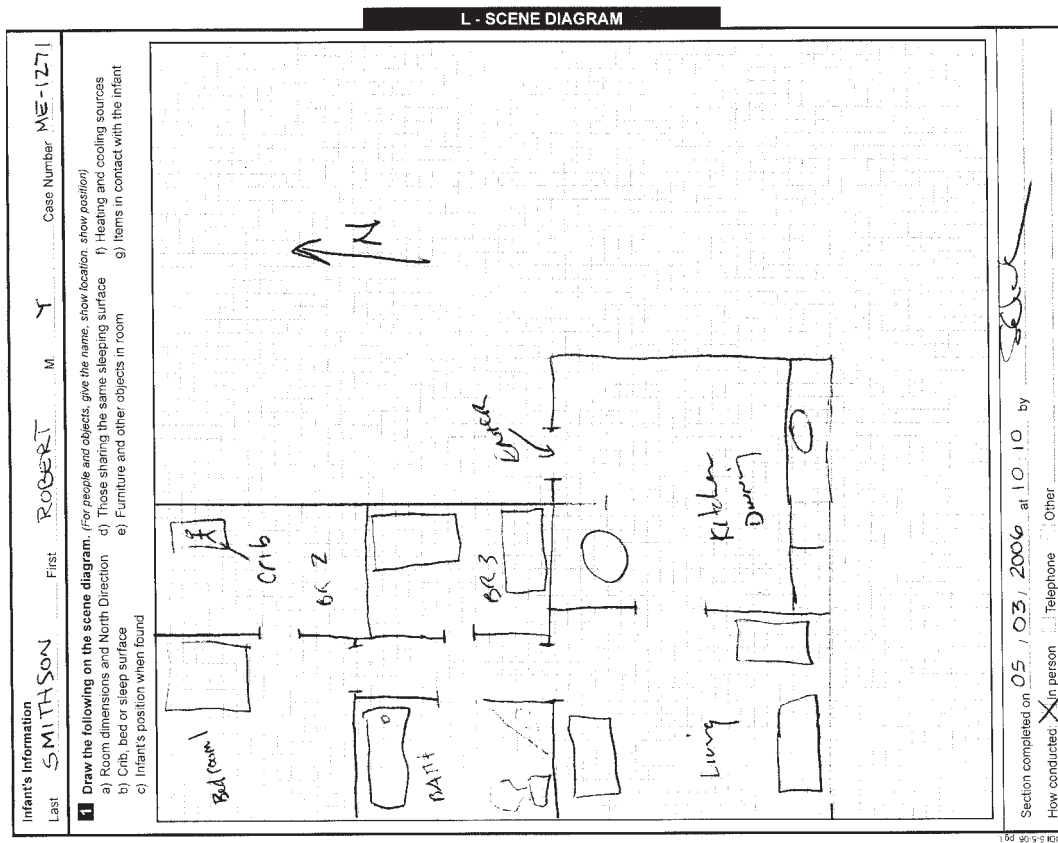


Fig. 6.4: A sketch depicting building layout will support photographs and descriptions.

Building Ownership and Use

Single-family homes and multiple-family homes can look the same from the outside. As the words seem to imply, a single-family home should have one family in residence. This is not necessarily the case as many day care operations run out of single-family homes. When attempting to describe a home as a single-family home, the investigator needs to determine the number of entryways into the house. A single-family home can have multiple doors, but if you enter one door you should be able to exit through any one of the others. If parts of the house are "sealed" by walls or locked interior doors, it may be a multiple family home or duplex. It is important to know this when attempting to separate residents, nonresidents, and employees to determine who had direct access to the infant.

INCIDENT SCENE INVESTIGATION	
1	Where did the incident or death occur? _____
2	Was this the primary residence? <input type="checkbox"/> Yes <input type="checkbox"/> No
3	Is the site of the incident or death scene a daycare or other childcare setting? <input type="checkbox"/> Yes <input type="checkbox"/> No → Skip to question 8 below.
4	How many children were under the care of the provider at the time of the incident or death? _____ (under 18 years old)
5	How many adults were supervising the child(ren)? _____ (18 years or older)
6	What is the license number and licensing agency for the daycare? License number: _____ Agency: _____
7	How long has the daycare been open for business? _____

Fig. 6.5: Building use (i.e., day care) should be documented on the appropriate scene form.

Investigative Scope

To determine the scope of the investigation, the investigator needs to communicate initial scene findings to other official agency responders. This is typically done during the initial scene briefing and will set the stage for any follow-up activities and dictate whether or not the medical examiner or coroner will establish medicolegal jurisdiction over the scene and body.

Describing the scene will help the pathologists and any other persons reviewing the case file to understand what the scene looked like. Although you will take photographs and draw diagrams, this information will support those forms of documentation.

The furnishings, cleanliness, neatness, and state of repair of the immediate environment should also be described and documented so that the actual living conditions of the infant will be known to all interested parties (e.g., pathologists, toxicologists, etc.). If the infant's drinking water is not clean and healthy, medical problems may occur. The source of the infant's water should be determined and documented to rule out any dangerous exposures. Each of these scene factors play a role in setting the investigative scope.



Fig. 6.6: Medical examiner/coroner investigators should work together with law enforcement at the scene.

DESCRIBE SCENE ENVIRONMENT

The physical environment of the death scene may play an important role in the cause and manner of the infant's death. Some research has indicated that the change of seasons, which requires turning on or off heating or cooling devices (furnace, fireplace, air conditioner, ceiling fan), might precipitate an apneic event. Therefore, it is important to determine, describe, and document the specific environmental conditions of the scene such as room temperature and other factors that may affect the microenvironment of the infant at the time of death (e.g., air current from ceiling fan, humidity levels in a spa, water temperature in a hot tub).

The medicolegal death investigator should personally inspect the death scene to gain a thorough understanding of the possible environmental hazards to which the infant might have been exposed. He or she, together with law enforcement officials, should observe and document the furnishings in the room/area where the infant was found dead or unresponsive. In addition, the investigator should describe the general state of the room/area; if there is evidence of rodent, insect, or animal activity or a generally unkempt situation, this should be documented as accurately and objectively as possible. The scene should be documented with photographs, diagrams, and descriptions.

Fumes that are noticed at the scene might have contributed to or been the cause of the infant's death and should be noted in the investigative report. A description of the fumes might provide forensic scientists with clues that will assist them in ordering laboratory tests. The investigator should describe the fumes and their intensity and attempt to ascertain the source of the fumes. If necessary, local fire department personnel should be contacted to ensure that the scene's air is clear of harmful substances.

The smell of smoke may indicate a live-fire situation or tobacco use at the scene. Smoke might have contributed to or been the cause of the infant's death. A description of the smoke smell may provide forensic scientists with clues that will assist them in ordering laboratory tests. The investigator should describe the smoke smell, its intensity, and its possible sources.

Mold growth at the scene may have exposed the infant to dangerous airborne pathogens. A description and location of mold growth may provide forensic scientists with clues that will assist them in ordering laboratory tests. The investigator should describe the mold growth and its location in relation to the infant's sleeping/activity area. Photographs of any suspicious material should be taken at this time.

The observance and documentation of peeling paint at the scene may indicate an infant's exposure to dangerous lead-based materials. A description of the room and the location and size of the peeling paint area can provide forensic scientists with clues that will assist them in ordering appropriate laboratory tests. The location and size of the peeling paint and its location in relation to the infant's sleeping/activity area should be described as accurately as possible. The investigator should contact the local health department if the problem presents safety concerns to persons in the vicinity.

PHOTOGRAPH SCENE

Photographing, videotaping, and sketching the scene are all good techniques for properly documenting the scene and supporting the written description. The investigator's photographs will support both scene sketch and written descriptions. Every effort should be made to record and document the scene for purposes of reconstruction; many who view the case's report later will rely on this documentation to see what the investigator saw. In addition, if it is necessary for the investigator to go to court in the future on this case, a set of photographs will help him or her to recall the scene.

The following list details the various photographs that should be taken by the investigator:

- General scene appearance.
- Sleeping room and general area.
- Sleeping surface.
- Bedroom furnishings.
- Any powered appliances in sleep area.

Death investigators should always take their own photographs of the scene. Even though working together with law enforcement is advisable, each investigator should make every effort to document the scene of death photographically from their own perspective. Sharing photographs between agencies is typically not an issue; however, each agency should have their own set of case photographs should issues arise.



Fig. 6.7: Photographs of the scene support written documentation and scene sketches.

DESCRIBE SCENE ACTIVITIES

Illegal Activity

The investigator should look for any exposure to drugs (illicit, prescription, or over-the-counter medications), cigarettes, or alcohol that could have contributed to the cause and manner of death. It is important that all substances ingested by the infant be identified, documented, and collected. In cases of language difficulties, or if the investigator questions the caregivers' understanding, have the caregiver demonstrate how much of the drugs or medicine was administered and the manner of administration.

All drugs identified at the scene should be photographed by the investigator. He or she should look in trashcans, both inside and outside, for alcohol containers, drug containers, or remains. Check medicine chests for prescriptions, kitchen cabinets for drugs and alcohol, and used ashtrays. The investigator's sense of smell is a key component of this search. After documenting the drugs, the investigator should collect and transport them to the office for the forensic pathologist's evaluation and toxicology analysis. If medications were not prescribed for the infant, the investigator should identify and document for whom they were prescribed. Further information regarding the prescribing physician, pharmacy contact information, and quantity and type of medication may be very important in helping the forensic scientist identify lethal substances.

If illicit or prescription drugs, drug paraphernalia, drug-manufacturing items, prostitution, stolen goods, or guns are observed at the death scene, an investigator should be alerted that the infant was possibly living in a dangerous environment. Drug ingestion/inhalation must be considered as a contributing factor in (or the cause of) the infant's death.



Fig. 6.8: Illegal activity and drugs observed at the scene should be photographed and reported to the appropriate authorities.

Domesticated and Undomesticated

The observance of vermin (rodents and insects) at the scene may indicate an infant's exposure to a dangerous environment. A description of the animals and insects may provide forensic scientists with clues that will assist them in ordering appropriate laboratory tests. The investigator should describe the type, number, and size of the vermin observed and their location in relation to the infant's sleeping/activity area. The local health department should be contacted if the problem presents safety concerns to persons in the vicinity.

Likewise, the observance of pets (dogs, cats, snakes, etc.) at the scene may indicate an infant's exposure to a dangerous environment that the animals have produced. A description of the types and number of animals may provide forensic scientists with clues that will assist them in determining the infant's cause and manner of death. This information may assist them in ordering appropriate laboratory tests. The investigator should describe the type, number, and size of the pets observed and their access to the infant's sleeping/activity area. He or she should also determine and document their usual encounters with the infant (e.g., cat had previously been found sleeping in the crib with the infant). The investigator should ask about the recent health of any pets that are present or have recently been in the residence. Local authorities should be contacted if excessive numbers of animals are found on the premises.

Sick People

An infant's immune system might not be fully developed for a year. If an infant is exposed to ill people, the infant also might become ill. The investigator should identify and document any ill people who have recently been in contact with the infant. When interviewing people who are knowledgeable about the infant's daily activities, the investigator should identify and document any ill people who have been in close contact with the infant.

DESCRIBE HEATING AND COOLING SYSTEMS

Environmental risks at the scene may not be immediately obvious to the investigator. Carbon monoxide or other dangerous inhalants might have contributed to the cause of the infant's death. The investigator should determine whether basic utilities (electricity, water, etc.) are operating, whether a heating or cooling device is currently operating, and what the specific settings are (temperature, auto start, etc.). If no devices are operating, he or she should ask whether anyone altered the scene environment after the death occurred (e.g., opened window because room was hot). Additionally, the investigator should determine whether any other devices are affecting the scene's microenvironment, such as a heated waterbed, oscillating fan rotating, bed over an open heat duct, and so on.

Temporary sources of heating/cooling may contribute to the death of an infant. These temporary sources (i.e., oscillating fan, space heater) can easily be removed from a death scene by residents or emergency personnel. It is important to identify all heating/cooling sources that were actually present at the time of the infant's death. If possible, determine, document, and photograph all portable heating/cooling sources that contributed to the environment of the scene.

Studies have shown that there is an increase in sudden, unexpected deaths in children when the weather and seasons change and alternate heating/cooling devices are started. It is important to determine whether a heating or cooling device is currently operating and what the settings are (temperature, auto start, etc.). Central air, A/C window unit, ceiling fan, floor/table fan, window fan, gas furnace or boiler, electric furnace or boiler, electric space heater, electric baseboard heater, electric (radiant) ceiling heat, wood burning fireplace, coal burning furnace, kerosene space heater, wood burning stove, oven, charcoal grills, and open windows are possible heating and cooling energy sources whose presence at the scene should be documented. All such appliances that may be involved in determining the scene's microenvironment should be photographed and documented.

COLLECT DATA ON SCENE TEMPERATURE

Room by Room

The environmental temperature at the specific death scene (e.g., in crib on west wall of northeast bedroom) is the most reliable and accurate information that can be determined about the infant's exact environment. The measurement should be taken at the exact location in the specific room in which the infant was discovered. This temperature should be accurately measured by using a thermometer that is in good working order. The temperature should be documented, along with the date and time the assessment was made. Descriptors such as warm, hot, cool, cold, or extremely cold should be used if no thermometer is available.

The thermostat setting will offer specific information as to the operation of the scene's heating/cooling system. However, the temperature also should be measured to determine the actual environment of the scene; it will not necessarily depict the temperature at the location where the infant was discovered. The investigator should determine the thermostat setting and the temperature near the infant, note the physical location of each, and document these findings.

Hypothermia and hyperthermia are two common causes of infant death. The room temperature where the infant was found, the outdoor temperature, and the temperatures collected by initial responders need to be compared for verification. In colder climates, by the time the investigator arrives at the scene the exterior door to the home may have been open for a period of time with EMS and family members going in and out, causing the inside temperature to drop significantly. This should be documented as a part of the scene investigation for consideration in the case.

Outdoors

The outdoor temperature should be considered in relation to the scene-environment temperature. If the outdoor temperature is remarkably different from the scene (room) temperature, the room temperature in poorly constructed dwellings/locations might be influenced. Therefore, it is important to determine, describe, and document the outdoor temperature.

DESCRIBE ROOM/AREA IN WHICH INFANT WAS FOUND

Sleeping Environment

The sleeping environment must be viewed and documented graphically (scene diagram), photographically, and descriptively in the investigative report. All details should be accounted for in the description: The overall clutter, lighting, temperature, cleanliness, odors, animals, toys, all sleeping surfaces, and appliances (running or not). Dangers such as electrical cords draped over the sleeping area, open windows near the bed, overstuffed bedding, toys, as well as the number of children in residence compared to the number of available sleeping surfaces are important details to include, as they may be contributing factors to (or causes of) the infant death. Anything that appears out of place in a bedroom should be documented for later review.

All furnishings in the infant's immediate environment should be described in the investigator's written report. Details of interest should be things such as general cleanliness, state of repair, mattress fit and crib frame, etc. The investigator should assess the sleeping surface on which the infant was found to determine whether it is a safe location and whether it appears as described by the witnesses. The investigator should observe the surface firsthand, if possible, or through photographs. He or she should document, through photographs, not only the top layer of bedding, but all layers. Any secretions on the bedding or items that are in or on the sleeping surface that may have contributed to the death should be collected and inventoried. The investigator should document cleanliness, secretions found, temperature of the room, and the location of the sleeping surface. It is also necessary to document any general environmental conditions that may have affected the infant.

Sleeping Surfaces

Special attention should be paid to the number of sleeping surfaces available, compared to the number of people residing at the scene. The investigator should perform a scene walk-through to calculate the number and type of sleep surfaces available to occupants of the scene.

INCIDENT SCENE INVESTIGATION	
1	Where did the incident or death occur? _____
2	Was this the primary residence? <input type="checkbox"/> Yes <input type="checkbox"/> No
3	Is the site of the incident or death scene a daycare or other childcare setting? <input type="checkbox"/> Yes <input type="checkbox"/> No ⇨ Skip to question 8 below.
4	How many children were under the care of the provider at the time of the incident or death? _____ (under 18 years old)
5	How many adults were supervising the child(ren)? _____ (18 years or older)
6	What is the license number and licensing agency for the daycare? License number: _____ Agency: _____
7	How long has the daycare been open for business? _____
8	How many people live at the site of the incident or death scene? _____ Number of adults (18 years or older) _____ Number of children (under 18 years old)
9	Which of the following heating or cooling sources were being used? (Check all that apply.)
<input type="checkbox"/>	Central air
<input type="checkbox"/>	Gas furnace or boiler
<input type="checkbox"/>	Wood burning fireplace
<input type="checkbox"/>	Open window(s)
<input type="checkbox"/>	A/C window unit
<input type="checkbox"/>	Electric furnace or boiler
<input type="checkbox"/>	Coal burning furnace
<input type="checkbox"/>	Wood burning stove
<input type="checkbox"/>	Ceiling fan
<input type="checkbox"/>	Electric space heater
<input type="checkbox"/>	Kerosene space heater
<input type="checkbox"/>	Floor/table fan
<input type="checkbox"/>	Electric baseboard heat
<input type="checkbox"/>	Other ⇨ Specify: _____
<input type="checkbox"/>	Window fan
<input type="checkbox"/>	Electric (radiant) ceiling heat
<input type="checkbox"/>	Unknown
10	Indicate the temperature of the room where the infant was found unresponsive: _____ Thermostat setting _____ Thermostat reading _____ Actual room temp. _____ Outside temp.
11	What was the source of drinking water at the site of the incident or death scene? (Check all that apply.)
<input type="checkbox"/>	Public/municipal water source
<input type="checkbox"/>	Bottled water
<input type="checkbox"/>	Other ⇨ Specify: _____
<input type="checkbox"/>	Well
<input type="checkbox"/>	Unknown
12	The site of the incident or death scene has: (check all that apply)
<input type="checkbox"/>	Insects
<input type="checkbox"/>	Mold growth
<input type="checkbox"/>	Odors or fumes ⇨ Describe: _____
<input type="checkbox"/>	Smoky smell (like cigarettes)
<input type="checkbox"/>	Pets
<input type="checkbox"/>	Presence of alcohol containers
<input type="checkbox"/>	Dampness
<input type="checkbox"/>	Peeling paint
<input type="checkbox"/>	Presence of drug paraphernalia
<input type="checkbox"/>	Visible standing water
<input type="checkbox"/>	Rodents or vermin
<input type="checkbox"/>	Other ⇨ Specify: _____
13	Describe the general appearance of incident scene: (ex. cleanliness, hazards, overcrowding, etc.) _____ _____

Fig. 6.9: Scene data can be collected on the SUIDI Reporting Form in the Incident Scene Investigation section.

THE SCENE DIAGRAM

A Scaled Diagram

The SUIDI Reporting Form or a jurisdictionally approved equivalent should be used by the investigator to create a scene sketch. Necessary tools should be acquired to help in mapping out the scene, including appropriate measuring devices (ruler, measuring tape) and writing tools. The investigator must keep in mind that a rough sketch is all that is required, but measurements should be accurate to provide for scene reconstruction at a later date.

The diagramming process should begin with alignment. Indicate what direction north is and draw a rough diagram of the room, generally showing doors, windows, etc. If graph paper or a provided scene sketch are being used, the investigator should indicate the drawing's scale. (e.g., 1 inch equals 4 feet, etc.). He or she must be sure to include lengths of walls and

distances between doors and windows, including all important landmarks. All measurements should be taken from fixed points such as walls, doors, windows, etc.

Show Body and Objects to Scale

The investigator should continue the sketch by adding objects found in the room. In some cases this might be as easy as positioning a body in an empty room. In other cases, the room might be filled with furniture or debris. The investigator should document the body, all major items found at the scene, and other items found in the room. Items placed in the sketch should be numbered, and a legend should be provided that describes the articles in the sketch associated with their numbers. Once again, the investigator should ensure that measurements are taken from fixed points.

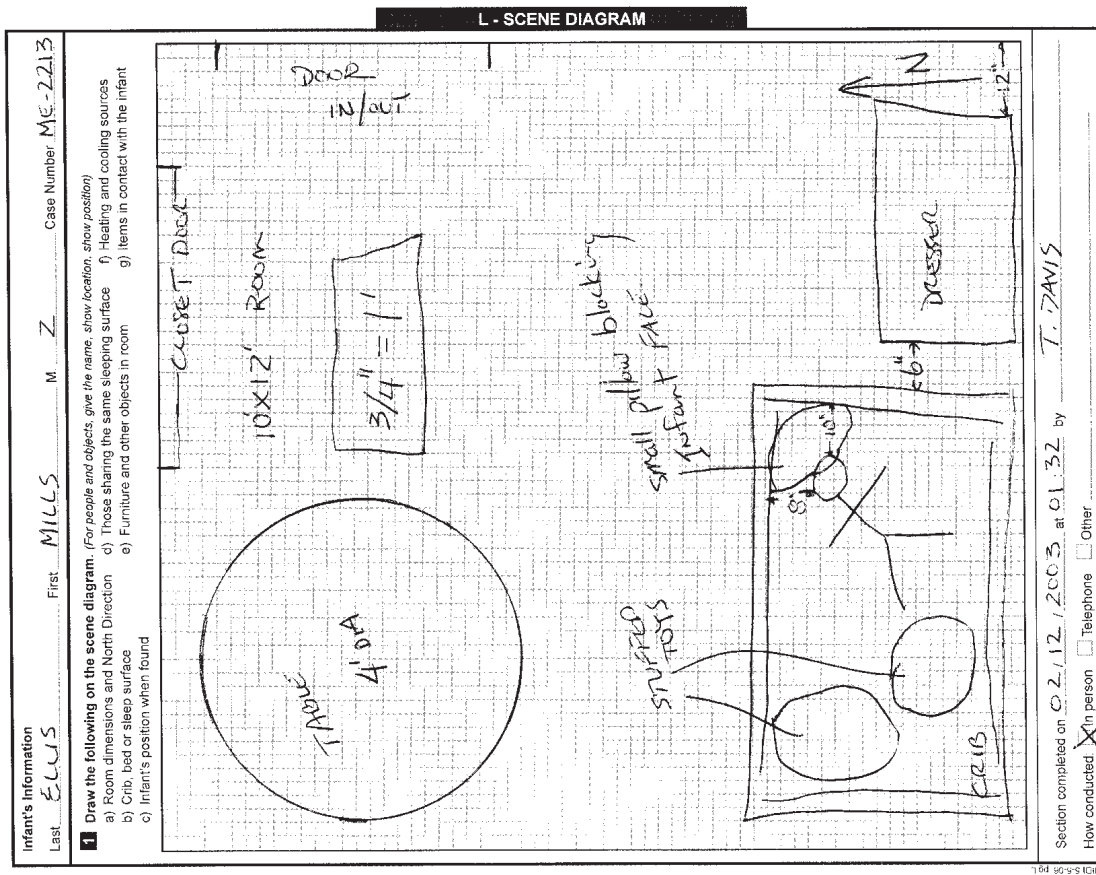


Fig. 6.10: The scene sketch is drawn to scale and shows the body in relation to other objects. The scene diagram form is from the additional investigative forms in the SUIDI Reporting Forms.

The investigator should draw a sketch of the body as found in the scene. Measurements that locate the body in relation to other objects at the scene should be included (e.g., the body of the infant with respect to the sleeping surface where the body was found or, if the body was removed from the scene, the general location of the body as determined by the finder through a doll reenactment).

PHOTOGRAPH THE BODY

The photographic documentation of the infant at the scene creates a permanent historical record of the body and the infant's terminal position, appearance, and any external trauma. When the infant's body has been moved, the doll reenactments allow for the visualization and documentation of the initial placed position and position in which the infant was discovered.

The following list details the various photographs that should be taken by the investigator:

- Body and immediate area.
- Infant's face.
- Sleeping area where body was found.
- Sleeping surface where body was found.
- Surface under the body.
- Any items/objects that may have been in bed with the infant.

The investigator should conduct a walk-through of the entire scene with a law enforcement representative to evaluate whether any items or objects are present that might match an impression on the infant's body that would have contributed to the infant's death. He or she should identify, collect, and properly package objects and items from the scene that might have been used to inflict injuries, impressions, or marks on the infant.



Fig. 6.11: The forensic autopsy begins at the scene; photographs assist the forensic pathologist during autopsy.

DOCUMENT INDICATIONS OF ASPHYXIA OR TRAUMA

The investigator should examine the infant's body for injuries that may be consistent with mechanical asphyxiation. He or she should look for skin coloring, discoloration around the mouth and nose, petechiae on the infant's body, position of the body or how the finder described the location of the head and body when the infant was found, and obvious marks that should not be on the body. The scene should be examined for any other contributing factors, as well as for secretions on the bedding.

The investigator should look for bruising around the ear, lacerations, abrasions, and any other injuries to any portion of the body. This is best accomplished, when appropriate, by removing all of the infant's clothing, including the diaper, and looking at the palms of the hands, bottoms of the feet, inside the mouth, and in nasal passages. The investigator should look at old scars or marks on the body that have healed. If there are prior injuries that look suspicious, the pathologist should be notified. Photographing the body, completing a body diagram (denoting any obvious trauma), and looking over the entire scene will not only assist the investigator, but help the pathologist should a forensic autopsy be required.



Fig. 6.12: If possible, photograph signs of asphyxia and trauma at the scene.

ASSESS RIGOR MORTIS

Rigor mortis (rigor, stiffening of the body) is the gradual onset of rigidity of the muscles after death (DiMaio & Dana, 1998). As the pH falls, the actin in the muscle is physically changed. It is a chemical process that heat accelerates and cold decelerates. Acidosis, uremia, or other medical or physical conditions promoting a lowered pH accelerate the process.

All of the muscles are affected at a similar rate, but rigor is evident in smaller muscles sooner than in larger muscle masses. This situation leads to the mistaken belief that the process starts at the top of the head and works down the body. Muscles become rigid in the position in which they are situated during the development of rigor. They do not shorten or contract, as people also once thought.

Once the physical change establishing rigor of the muscles has been disrupted or "broken" by forceful movement, stiffness will not reoccur. However, if that process has not been completed before it is broken, subrigor will continue to form in the new position of the muscles.

In adults, rigor generally is manifested in one to six hours, becoming maximum in 6 to 24 hours; it disappears in 12 to 36 hours or more. In children, rigor mortis has wide variability, typically with early onset and rapid disappearance. Rigor may be poorly formed in infants who have little muscle mass. Rigor is a useful aid in determining whether a body has been moved after being in another position for an extended period of time after death. Rigor should not be relied on as a single indicator of the time of death.

The degree of rigor mortis should be evaluated at every death scene at which the infant is not decomposed. One method used to evaluate the state of rigor is to hold the infant's hand and then attempt to move the hand in a downward motion, noting the degree of resistance at the elbow as the hand is moved. A numerical or descriptive classification can be used to do so. An example of such a numerical classification is as follows:

1. Rigor mortis is not present.
2. Slight rigor mortis—just beginning in an extremity, with only slight resistance to bending at a joint.
3. Moderate rigor mortis—extremity bends with some difficulty.
4. Advanced rigor mortis—extremity bends with much difficulty.
5. Complete or full rigor mortis—extremity will NOT bend.

The time at which rigor was assessed and the degree of rigor mortis should be documented in the investigative report.

ASSESS LIVOR MORTIS

Livor mortis (livor, postmortem lividity) is the settling of blood to the dependent parts of the body in accordance with gravity once circulation of the blood has ceased. (DiMaio & Dana, 1998). The onset of livor mortis is immediate, perhaps beginning even before the time of death; it is well manifested in two to four hours and is at its maximum or “fixed” level in 8 to 12 hours.



Fig. 6.13: Blanching of the face indicating infant remained in a prone position after death.



Fig. 6.14: Blanching of the posterior, indicating infant remained in a supine position after death.

In individuals with dark skin pigmentation, lividity in the skin can go unnoticed. (Spitz, 1993). Postmortem lividity also might be difficult to recognize in cases of severe anemia or following extensive blood loss. Poor scene lighting also can hinder an investigator’s detection of livor mortis. If the body is moved when development of livor is incomplete, some of the livor pattern may remain in the primary location while another portion of it may shift with the change in position of the body.

It should raise the investigator's suspicions when the livor mortis pattern does not correlate well with other time-of-death factors (rigor mortis, algor mortis) or with a stated scenario. To evaluate livor mortis, the investigator should locate an area of livor mortis on the dependent portions of the infant's body. With personal protective equipment (PPE) precautions in place, the investigator should gently press his or her index finger into the area of livor mortis. If a whitened area appears on the infant's skin when the investigator removes his or her finger, then the livor is not fixed.

ASSESS ALGOR MORTIS

Algor mortis is the cooling of the body after death. Although this condition once was thought to give an accurate indication of the postmortem interval, especially within the first few hours, anecdotal as well as documented evidence has suggested that body cooling can vary markedly from the norm (DiMaio & Dana, 1998). Activity, illness, infection, absorption of heat, and decomposition can maintain or raise body temperature after death. The use of stimulants, such as cocaine, has a similar effect. Scene environmental temperature, air movement, body size, and clothing are all factors that might affect the postmortem body temperature.

It is important that the ambient temperature of the room where the infant was found is measured at the beginning of the investigation to establish the temperature of the microenvironment where the infant is located. The temperature, time taken, and location where measurement was taken should be documented on the appropriate form and described in the investigator's narrative report. The investigator should note the settings of any thermostats in the area. The infant's body temperature should also be assessed both qualitatively and quantitatively. The investigator should document whether the infant's body felt hot, warm, cool, or cold to the touch. If circumstances warrant, an actual temperature of the infant's body may be taken using a rectal thermometer. **Note: Investigators must be aware of parents and caregivers feelings if this procedure is used.** The time of this evaluation should be documented in the investigative report.

In cases of suspected sexual abuse, the death investigator SHOULD NOT insert a thermometer into any of the infant's orifices (i.e., rectum, mouth, or axilla) as this procedure could remove or transfer important trace evidence from these areas. Some offices permit the taking of liver temperatures where the thermometer is inserted directly through an incision into the infant's liver.

Body temperature, rigor mortis, and livor mortis should be assessed and the findings documented at the scene investigation for every infant death. This information can be useful to the forensic pathologist when time-of-death issues arise.

THE BODY DIAGRAM

During the superficial examination of the body at the scene, it is important to remember that you must wear your PPE, including gloves, mask, and eye protection. Once you have put on your PPE, it is appropriate to lay out your paperwork, using writing materials and supplies that you have reserved for use during this kind of examination. These materials should be kept in a plastic bag and marked appropriately so that they are not confused with materials you use when not wearing PPE.

If the infant is clothed, lift the clothing and examine underneath the clothing. Be sure to follow office procedures for conducting a body survey, and try to disrupt the clothing as little as possible. It is good practice to photograph the infant during this process, as photographs will support all markings placed on the diagram. In some cases, infants showing no trauma at the scene have been "dropped" during transport and arrive in the autopsy facility with obvious trauma. Your photographs and documentation of what you see or do not see at the scene will be important in making these evaluations.

Conduct a complete body survey to ensure that you do not miss anything. This includes an examination of the extremities (arms, hands, legs, feet, etc.), looking for any evidence of injury or lack thereof. Starting with the infant in a supine (S-up-ine—faceup) position, the investigator should document the infant as found. Be sure to include (photograph, draw, and describe) any marks, scars, trauma or lack of trauma, and evidence of blood or fluids (i.e., blood, froth, or fluids coming out of the mouth, nose, ears, and other visible parts of the body).

Many investigators make the mistake of not looking at both sides of a body, whether it is that of an infant or an adult. At the scene, it is always appropriate to look at both surfaces of the body to ensure that nothing is missed. If the investigator does not roll the infant over, he or she might miss the drug paraphernalia that the infant was lying on top of and might have had access to, or there might be a bruise or injury on the back that would be missed otherwise.

Beginning this time with the infant in a prone (Pr-on-e—on one's face, or face down) position, the investigator should document the infant's back. He or she should be sure to include (photograph, draw, and describe) any marks, scars, trauma or lack of trauma, and evidence of blood or fluids.

The investigator must be sure to use appropriate labeling on all diagrams so that anyone who reads it can see exactly what is being described. Care must be taken to avoid abbreviations and, whenever possible, to describe details as clearly and accurately as possible. If the investigator is not an artist, it is perfectly acceptable to circle the area in question and draw a rough approximation of what is seen. If there is a rash on the infant's chest, for example, the investigator can draw a circle on his or her diagram around the chest and use words like *rash* to describe the area. He or she can also provide a general description of the size of the area covered, using a ruler. The investigator must be sure to photograph the body as it was found to back up his or her diagrams whenever possible.

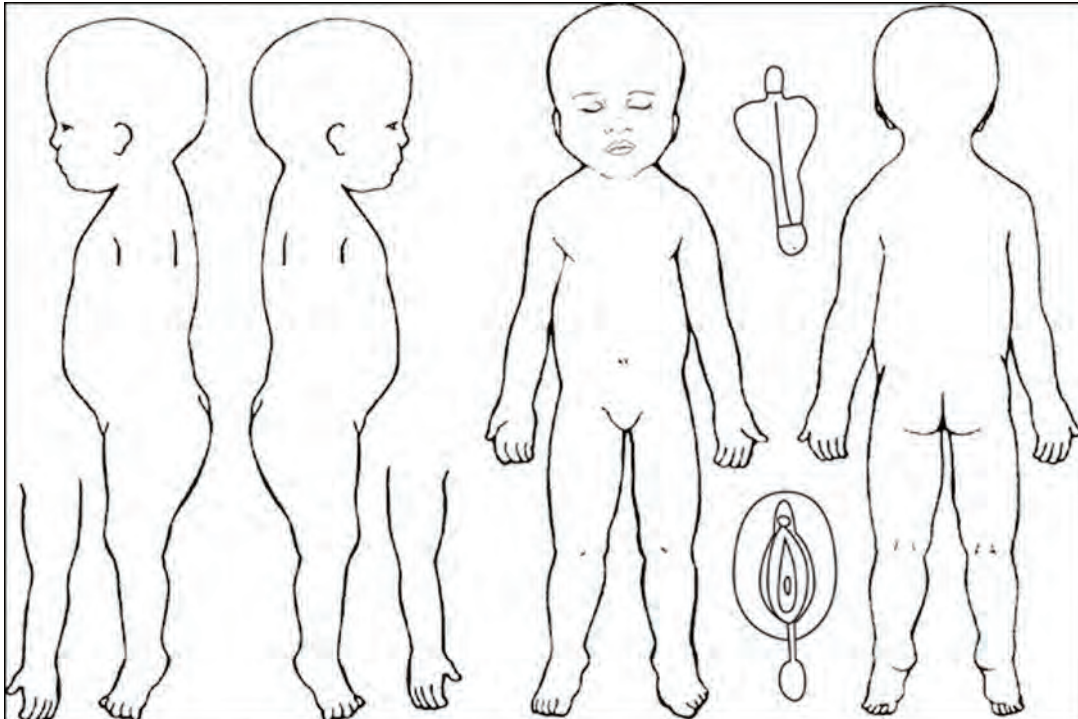
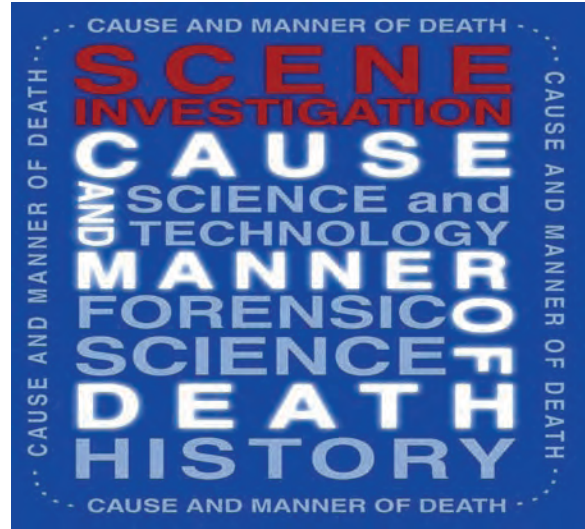


Fig. 6.15: Use the body diagram to indicate areas of trauma and other markings on the body.



17 unit

Document Items Removed from the Scene

INTRODUCTION

To ensure that a legal chain of custody is maintained over all property and evidence confiscated and removed from a scene, each item must be documented on an official evidence log. The person taking the items must sign and provide the date and time the materials were confiscated. Each item must be listed on the evidence log, packaged, and labeled appropriately. Items should be handled with respect and care, and parents and caregivers should be informed that the items will be returned as soon as possible.

CHAIN OF CUSTODY

The chain of custody log is critical to all medicolegal investigations; however, in the majority of infant death investigations, the log is most important for ensuring the proper return of items to the family once the investigation is complete. Never underestimate the sentimental value that the smallest toy, or oldest blanket may have to the family. This personal property must be accounted for and returned in as close to the removed condition as possible.

In most infant investigations chain of custody documentation is maintained for the infant, evidence, and personal property. Include any clothing the infant was wearing, diapers, and blankets. If the infant was in an apparatus such as a personal baby sling at the time of death, you should collect such items as well. Personal items gathered at the scene might provide important information regarding the death of an infant. Types of bedding, blankets, and sleepwear may give useful clues, as will the amount of skin exposure. Remember to return all evidence obtained at the scene, unless it is retained by law enforcement, to the parents or caregivers once the cause and manner of death have been determined and the case has been closed.

Important information contained in the medical record might need thorough review sometime after the initial investigation. Examination of clothing is important to assess cleanliness, the nature of urine or stool, or because other evidence may be associated with clothing. It might be important to obtain blood and other samples taken as specimens at the hospital for subsequent tests as part of the postmortem investigation, especially if the infant's survival time in the hospital was prolonged. Other items of property, such as baby bottles, also might be important for evaluation of potential toxins or food- or water-borne diseases.

THE MATERIALS LOG

A materials log that lists all items that might be relevant to the death should be developed. This list will be used to identify items taken and to maintain the chain of custody of those items. Develop an evidence log or select an evidence log from the SUIDI Reporting Form packet. Complete the following log information: name, case number, date, time, and witness/collector name. The investigator should list collected items that might be related to the infant's death, such as baby bottles, pacifiers, formula, clothing, bedding, apnea monitor, medications, malfunctioning products, unsafe cribs/railings, swings, car seats, walkers, and so on. The investigator should also search the area for items that need to be collected and analyzed. Such items need to be documented, collected, and brought to the medical examiner's or coroner's office for inspection by the pathologist.

The following list, while not exhaustive, should provide a sound outline of items to be collected as evidence:

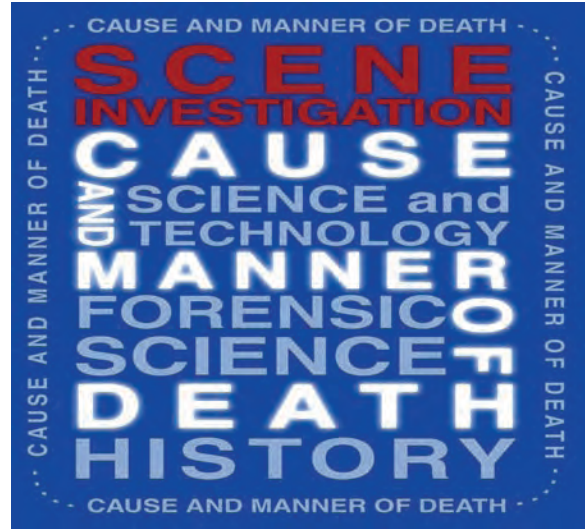
- Feeding-related devices.
 - Formula containers and any prepared formula.
 - Pacifiers (broken or not).
 - Bottles that still contain formula.
- Bedding in the infant's sleeping surface area.
- Infant's clothing.
- Apnea monitors.
- Infant medications.
- Any item used by the infant that may have malfunctioned.

The SUIDI Materials Collection Log is an example of the type of form that should be completed if **any** material is removed from the scene. Once the investigator has documented items of evidence in the evidence log they can be removed from the scene for evaluation. To maintain the chain of custody, have the receiving agent sign for all items received from the investigator.

Infant's Information						
Last _____	First _____	M. _____	Case Number _____			
1 Describe all items recovered from the site of the incident or death scene:						
Item	Evidence #	Origin	Description	Disposition	Name of person collecting	
1) Baby bottles.....	_____	_____	_____	_____	_____	
2) Pacifier.....	_____	_____	_____	_____	_____	
3) Formula	_____	_____	_____	_____	_____	
4) Bedding	_____	_____	_____	_____	_____	
5) Infant's last diaper	_____	_____	_____	_____	_____	
6) Clothing	_____	_____	_____	_____	_____	
7) Apnea monitor	_____	_____	_____	_____	_____	
8) Infant sleep surface	_____	_____	_____	_____	_____	
9) Medicines	_____	_____	_____	_____	_____	
<i>(include home remedies)</i>						
10) _____	_____	_____	_____	_____	_____	
11) _____	_____	_____	_____	_____	_____	
12) _____	_____	_____	_____	_____	_____	
13) _____	_____	_____	_____	_____	_____	
14) _____	_____	_____	_____	_____	_____	
15) _____	_____	_____	_____	_____	_____	
16) _____	_____	_____	_____	_____	_____	
17) _____	_____	_____	_____	_____	_____	
18) _____	_____	_____	_____	_____	_____	
19) _____	_____	_____	_____	_____	_____	
20) _____	_____	_____	_____	_____	_____	
21) _____	_____	_____	_____	_____	_____	
22) _____	_____	_____	_____	_____	_____	
23) _____	_____	_____	_____	_____	_____	
24) _____	_____	_____	_____	_____	_____	
25) _____	_____	_____	_____	_____	_____	
26) _____	_____	_____	_____	_____	_____	
27) _____	_____	_____	_____	_____	_____	
28) _____	_____	_____	_____	_____	_____	
Section completed on ____/____/____ at ____:____ by _____						
How conducted: <input type="checkbox"/> In person <input type="checkbox"/> Telephone <input type="checkbox"/> Other _____						

H - MATERIALS COLLECTION LOG

Fig. 6.16: Sample SUIDI Materials Collection Log.



18

unit

Document Day Care/Babysitting Scene

INTRODUCTION

A number of situations might be present in day care facilities that could result in an infant's death. Improper facilities that do not provide adequate heating or cooling during extreme temperatures or facilities that use inappropriate heating and/or cooling appliances may cause harm. Similarly, improperly prepared or stored food may also harm infants. Inability to care for sick children who might infect other children is also a significant problem in day care facilities. In cases involving a day care or babysitting situation, the investigator not only has to conduct an investigation into the death of a child, but also has to seek to protect the lives of other children who may also be at risk.

LEVEL OF CARE

In cases where babysitters are present or discover the infant dead, there are always concerns about the level of care the infant was receiving before death or when the infant was discovered. Inexperienced teens and disabled adults might not be able to care for the infant appropriately, or there may be issues of trauma or abuse. Working with law enforcement, the investigator should determine whether the infant was being cared for in a babysitting situation either before or at the time of death.

If the infant was cared for in a relative's home, the natural assumption would be that the infant was known to the caregiver and that the parent(s) were familiar with the caregiver. This could provide significant information about the level of care provided and the degree of trust and comfort the parent(s) have with the caregiver. Working with law enforcement, the investigator should determine whether the infant was being cared for in a relative's home.

The infant's exposure to other sick children and/or adults in a day care setting is another major concern in determining the cause and manner of death. The investigator should determine whether the people in charge of the infant were licensed, trained, and providing appropriate care. Also of concern is the appearance and adequacy of the facility itself. Working with law enforcement, the investigator should determine whether the facility is, in fact, licensed by contacting the appropriate licensing agency (Department of Health, etc.).

IDENTIFY SUPERVISING ADULTS

Identifying adult caregivers allows the investigator to run the necessary background checks that will help determine whether there is any history of criminal activity and could help in establishing and documenting any licensure and/or training for child care. Working with law enforcement, the investigator should determine the names of all supervising adults.

LEARN DETAILS OF DAY CARE OWNERSHIP AND OPERATION

The individual who owns the day care facility or building in which the infant died may be important for the investigation of cause of death and possible criminal or civil action. Dangerous buildings and environmental hazards should be recorded and reported to the owner and other authorities. Local building codes dictate building "usage," and the owner may be able to assist the investigator in determining whether or not the day care is operating legally. Building owners will also be able to assist the investigator in gaining access to parts of the building not typically used by tenants.

Since licensed day care facilities are generally regulated to provide a certain standard of care, verifying that the facility is properly licensed is of utmost importance. Sometimes individuals present themselves as licensed child care providers but have not actually been licensed to provide this service and are not regulated or inspected. Licenses, though, do not override trained observations. Together with law enforcement, the investigator should ask the owner/operator of the day care facility to provide his or her license. This information should be documented and verified with the appropriate licensing agency.

Next, the investigator should verify that the license issued to the day care facility is current. An expired license might indicate that the facility applied for and was denied renewal or violated rules established by the licensing agency, which resulted in the license being revoked. The investigator should contact the licensing agency to determine whether the child care facility has a current license, what locations are covered in the license, and whether the owner(s) have operated day care centers in the past or in another state. If there are multiple centers in operation under the same license, the investigator should ask the licensing agency about any similar problems at the other centers.

The current owner/operator may be the sole proprietor of the facility, but he or she may employ others who have had experience running day care facilities. If that is the case, it is important to run a check on them as well to determine whether they were operating those facilities appropriately and that there is no question of suspicious circumstances. The investigator should interview all such employees to determine whether they have ever run licensed day care facilities and follow up by checking with the licensing agencies in the jurisdictions provided. The day care facility might already have performed background checks on employees, but it is important to make sure that those checks were performed by a reputable agency and that the owner/operator also has had a proper background check.

INCIDENT SCENE INVESTIGATION							
1	Where did the incident or death occur? _____						
2	Was this the primary residence? <input type="checkbox"/> Yes <input type="checkbox"/> No						
3	Is the site of the incident or death scene a daycare or other childcare setting? <input type="checkbox"/> Yes <input type="checkbox"/> No ⇨ Skip to question 8 below.						
4	How many children were under the care of the provider at the time of the incident or death? _____ (under 18 years old)						
5	How many adults were supervising the child(ren)? _____ (18 years or older)						
6	What is the license number and licensing agency for the daycare? License number: _____ Agency: _____						
7	How long has the daycare been open for business? _____						
8	How many people live at the site of the incident or death scene? _____ Number of adults (18 years or older) _____ Number of children (under 18 years old)						
9	Which of the following heating or cooling sources were being used? (Check all that apply.)						
<input type="checkbox"/>	Central air	<input type="checkbox"/>	Gas furnace or boiler	<input type="checkbox"/>	Wood burning fireplace	<input type="checkbox"/>	Open window(s)
<input type="checkbox"/>	A/C window unit	<input type="checkbox"/>	Electric furnace or boiler	<input type="checkbox"/>	Coal burning furnace	<input type="checkbox"/>	Wood burning stove
<input type="checkbox"/>	Ceiling fan	<input type="checkbox"/>	Electric space heater	<input type="checkbox"/>	Kerosene space heater		
<input type="checkbox"/>	Floor/table fan	<input type="checkbox"/>	Electric baseboard heat	<input type="checkbox"/> Other ⇨ Specify: _____			
<input type="checkbox"/>	Window fan	<input type="checkbox"/>	Electric (radiant) ceiling heat	<input type="checkbox"/>	Unknown		

Fig. 6.17: Day care license information is collected at the scene from the service provider.

The investigator should continue the investigation by determining who was supposed to be working at the time the infant was present. This will help him or her determine the level of care the infant was receiving. Having too many children for the number of people employed to provide the care, for example, could indicate a problem in the day care setting. Some states may restrict the number of children that a day care can enroll based on a student-teacher ratio, which is designed to establish a level of care that the facility can offer. The investigator should document and confirm work schedules and the number of employees with the owner/operator of the care facility.

Once those working in the day care facility have provided information about their work schedules, it is important to verify that information to rule out the possibility that the owner/operator has coached the staff or they have coached each other to provide incorrect information. The investigator may find it beneficial to carefully question the children and other parents to determine staffing issues independent of the workers.

Finally, it is recommended that the investigator determine the level of training or experience that the facility's employees possess. Determining whether the supervising adults or teenage caregivers were trained or licensed in any way helps to establish whether they were capable of managing an emergency involving the infant, in terms of treating a sick child or providing emergency medical care. The investigator should be cautious when interpreting the actions of caregivers from different cultures.

It is important to determine how long the children in question have been enrolled in the facility and their recent attendance. This will help the investigator to determine each child's degree of exposure to the infant. Together with law enforcement, the investigator should determine the duration of enrollment of those children who were present at the time of the incident or death. The owner/operator should have verifiable information to this effect.

Children with special needs or disabilities may require different care from the general population. This day care facility's failure to provide such care could have led to or contributed to this infant's death. Together with law enforcement, the investigator should talk to the owner/operator of the facility and the parents to determine whether there was a special needs issue with this infant and whether the facility was aware of these needs and was able to meet them. Any information or documentation provided by the owner/operator and/or the parents to this effect should be recorded.

OBTAIN OFFICIAL DOCUMENTATION FOR RE-ENTRY (SEARCH WARRANT) IF NECESSARY

If a death scene is relinquished by all authorities, a search warrant/court order might be required to re-enter the area. The investigator should attempt to complete all investigative activities before leaving the death scene. When information is gained indicating that an additional scene investigation is warranted, the investigator should seek official documentation for re-entry.

When actions are required that are beyond the medicolegal death investigator's authority, assistance from law enforcement may be required; examples include accompanying an investigator on a scene walk-through, obtaining a search warrant, or obtaining a criminal record check of a witness. The investigator may seek assistance from law enforcement personnel to accompany him or her on a walk-through, to obtain official court documentation, or to Mirandize and interview witnesses who are making incriminating statements.

END CONTACT WITH PERSONS, ALLOWING FOR CONTINUING CONTACT

The closure of the investigator's work with parents and/or others is critical. Without closure, persons may feel that they have loose ends that have not been tied together. It is important for the investigator to restate what he or she has heard them say. These individuals should be given an opportunity to contact the investigator or his or her agency again. They should know that the investigator may be in contact with them in the near future. The investigator should always leave a business card or contact information with them. Finally, he or she should give the family some idea of what will happen next and say goodbye before leaving.

Summary

DISCUSSION QUESTIONS

1. Before evaluating the scene where the incident or death occurred, it is important that all individuals conducting or participating in the investigation understand their own role. List the role each of the following individuals plays in the investigation of the scene:
 - a. Law enforcement.
 - b. The medicolegal death investigator.
 - c. The forensic pathologist.
 - d. The crime scene specialist.
2. Assuming that the infant was removed from the scene where the incident occurred and was taken by EMS or family to the emergency room of a nearby hospital where the infant subsequently died, describe your response (as the medicolegal death investigator) when activated and whether you would respond to the hospital as the scene of death or the actual place where the incident occurred.
3. You arrive at a scene where the culture is such that only the matriarch of the family is designated to answer all questions. Although the matriarch was not the placer or the finder of the infant, she is the designated spokesperson when family members are questioned. You suspect that she may be trying to protect one or more family members who might have harmed the infant. How would you then handle asking further questions of her or other family members?
4. You are dispatched to a scene and everyone, including law enforcement, is saying that the death is an obvious SIDS case. You overhear a police chaplain counseling the family, stating that the baby obviously died of SIDS. What is your responsibility as a medicolegal death investigator in this situation?
5. During the course of your investigation, the parents of another infant in the day care center inform you that several children at the facility have reportedly been sick recently and that their own child had been showing signs of lethargy and listlessness. What is your responsibility to these parents at this time?

SAMPLE QUESTIONS

1. You are dealing with a family whose primary language is Chinese; however, no one on site is able to communicate with them. As the medicolegal death investigator, you should
 - A. Attempt to calm the family and ask other individuals present at the scene if they are able to interpret.
 - B. It isn't your job to interview the family; this is law enforcement's responsibility.
 - C. Contact your supervisor and ask that an interpreter be provided to assist with communication.
 - D. Because you might be dealing with Chinese citizens, you should contact the FBI.
2. The following individuals live in the household where the incident or death of the infant occurred. Whom would you attempt to question first?
 - A. The parent who was traveling in Africa recently.
 - B. The aunt who works as a security guard at the airport.
 - C. The two-year-old who played with the child prior to death.
 - D. The grandmother who fed the child last.

3. The following people were documented to be present at the day care when the incident or death of the infant occurred. Of those listed, whom would you be least likely to interview about the events that led up to the death?
 - A. The owner/operator of the day care center.
 - B. The bus driver who delivered the special-needs children.
 - C. The individual who prepared food for the infant/children.
 - D. The adult supervisor who found the infant unresponsive.

4. Which of the following best defines the primary residence?
 - A. The grandmother's home where the infant was cared for regularly.
 - B. The day care center where the infant was cared for daily.
 - C. The residence where the infant lived with the parents.
 - D. The hospital where the infant was pronounced dead.

5. Which of the following pieces of information concerning the children at the day care center would not be considered relevant to the investigation of an infant/child death at the day care center?
 - A. Ages of children present at time of death.
 - B. Number of children present at time of death.
 - C. Health status of children present at time of death.
 - D. Marital status of parents of children present at time of death.

6. Proof of which of the following would you ask of a supervising adult who was working at the day care center at the time of the incident or death?
 - A. Licensure status.
 - B. Marital status.
 - C. Political affiliation.
 - D. Attendance record.

7. During the interview, a day care owner/operator reveals that he operates other day care centers under his license throughout the city. Given that information, as a medicolegal death investigator you should
 - A. Advise law enforcement and suggest that the owner/operator be taken into custody immediately.
 - B. Advise law enforcement and arrange for an inspection of the other facilities.
 - C. Advise law enforcement and suggest that the license be revoked.
 - D. Advise law enforcement and suggest that all of the other facilities be closed.

8. While examining the room where the infant was found dead, you discover several bottles of medication prescribed for one of the supervising adults. As the medicolegal death investigator, you should
 - A. Collect all medications and take them to your office for destruction.
 - B. Document the medications on site and flush them down the toilet.
 - C. Collect the medications and turn them over to law enforcement.
 - D. Notify law enforcement and document what is present.

9. Which of the following would you not record on your body diagram during your examination of the infant at the scene of death?
 - A. Nutritional status.
 - B. Extent of livor mortis.
 - C. Complications of pregnancy.
 - D. Sex.

