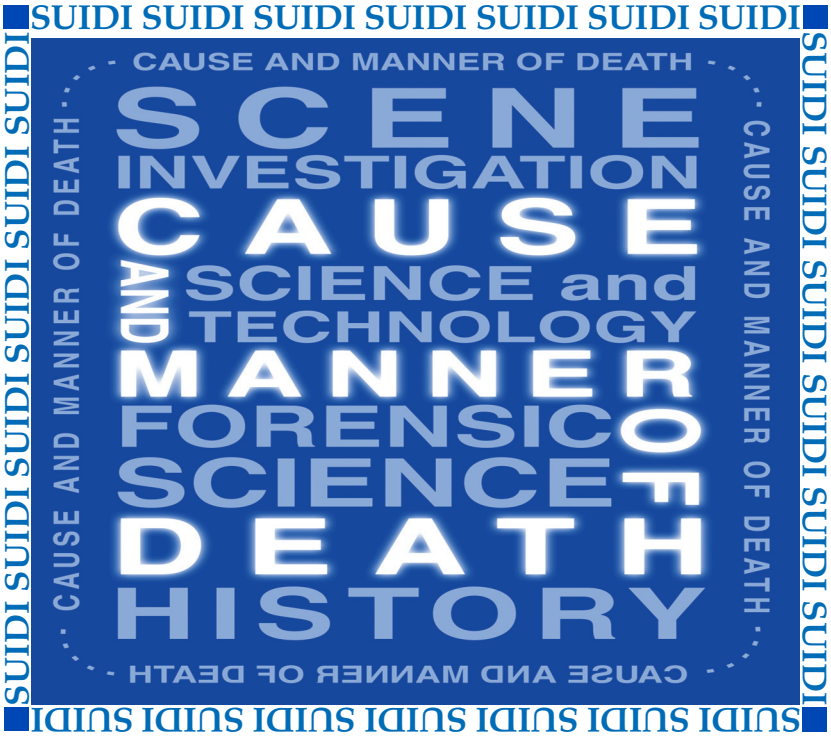
Sudden Unexplained Infant

Death Investigation



A Systematic Training Program for the Professional
Infant Death Investigation Specialist

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Maternal and Infant Health Branch
Division of Reproductive Health
Centers for Disease Control and Prevention
Atlanta, Georgia 30333

HOW TO USE THIS TRAINING TEXT

This training text is designed as a general resource for the Sudden, Unexplained Infant Death Investigation (SUIDI) Specialist trainee. Each topic has been verified and determined essential to the on-the-job success of the investigator and should be reviewed often during the training program.

LIVING DOCUMENT

As modifications in the workplace occur, and process improvements take place, new and additional information should be provided to the students. During the classroom portion of the program, individual instructors may supply additional "handouts" during their specific section of the class. These handouts should be inserted into a trainee notebook as a resource for future review and application.

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The following individuals are recognized for their tireless efforts in the development of this text and all associated SUIDI training materials:

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INTRODUCTION

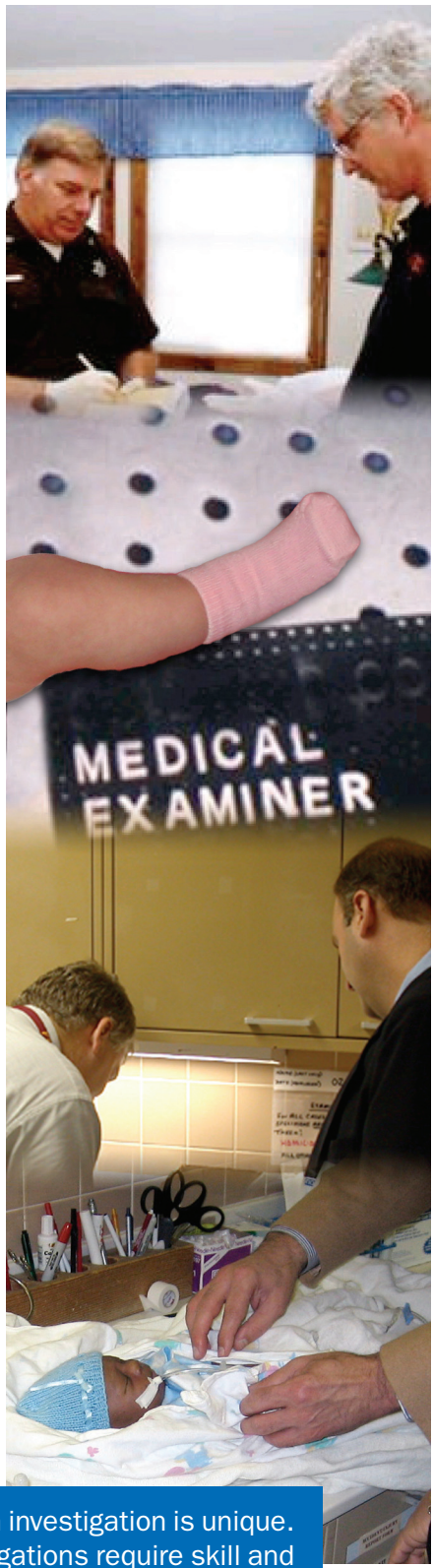
This section consists of three knowledge-building chapters written specifically to expose the student to information considered essential for successful performance of an infant death investigation. The material covered will be supplemented and referenced throughout the remaining chapters of the training text.

chapter 1

Carrie Shapiro-Mendoza, Ph.D., M.P.H.

Sudden, Unexplained Infant Deaths

Introduction



Unit 1: Types of Sudden, Unexplained Infant Death
Unit 2: Data Collection and Reporting Tools

In the world of death investigation, infant death investigation is unique. From scene through certification, these investigations require skill and knowledge drawn from disciplines outside those typically considered a part of medicolegal education. This chapter presents an overview of sudden, unexplained infant death, its typical causes, and the importance of the death scene investigation to accurate cause and manner of death determination.

OVERVIEW

The sudden, unexplained death of an infant is a tragic family event. Families experiencing such grief have the right to receive a thorough investigation, so they can understand the true medical causes of such deaths. In addition, parents and other caregivers deserve an investigation that is sensitive to their grieving state and not one that is accusatory or insensitive to the emotions they are feeling.

Sudden infant death syndrome (SIDS) is just one of several causes of sudden, unexplained death in infancy, but it is the most frequently reported. Since the early 1990s, SIDS rates have declined by more than 50%, in large part due to the national Back-to-Sleep Campaign's efforts to increase the number of infants placed on their backs to sleep. Despite this success, SIDS is still the third leading cause of infant mortality in the United States and remains an important public health priority.

Two recent U.S. studies provide evidence that cause-of-death reporting and classifying of sudden, unexplained infant deaths (SUID) may be unreliable. These studies found that the decline in the SIDS rate since 1999 was offset by an increase in mortality rates for accidental suffocation and strangulation in bed and for unknown/unspecified causes (Shapiro-Mendoza, Tomashek, Anderson, & Wingo, 2006; Malloy & MacDorman, 2005). Some deaths that were previously reported as SIDS are now reported as deaths due to accidental suffocation or unknown cause. This finding suggests that changes in reporting of cause of death might account for part of the recent decrease in rates of SIDS.

To address this change in reporting, we need (1) standardized data collection at infant death scene investigations and (2) consistent translation of DSI findings into cause-of-death on the death certificate. Standardizing and improving data collection at infant death scene investigations is essential to help the medical examiner and coroner accurately report the cause of death. Having accurate and reliable national reporting of SUID, including SIDS, is a priority goal for the Centers for Disease Control and Prevention (CDC). To achieve this goal, CDC collaborated with national organizations to develop comprehensive guidelines and training for death scene investigators.

To prevent these infant deaths, valid and reliable data are needed to support research and prevention efforts. Inaccurate reporting and non-standard practices of classifying infant deaths hinder the ability to (1) monitor trends in SUID, (2) conduct research to identify risk factors, (3) design interventions to prevent these deaths, and (4) evaluate programs aimed at prevention.

This chapter lists each of the leading causes of SUID and describes some scene data collection tools.

SUPPORT MATERIALS

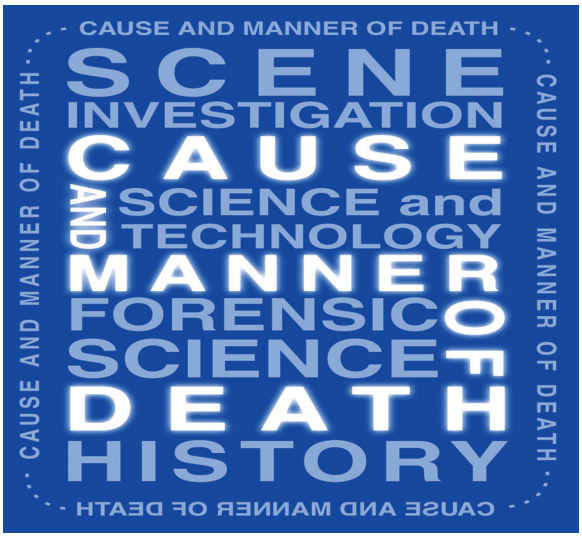
In addition to the SUIDI Reporting Form or jurisdictionally approved equivalent, the following support materials are suggested:

1. *Forensic Autopsy Performance Standards*. Atlanta, Ga: National Association of Medical Examiners. 2005.
2. *Clark SC. Death Investigation: A Guide for the Scene Investigator*. Washington, DC: US Dept of Justice, National Institute of Justice; 1999.
3. Clark SC, Ernst MF, Haglund WD, Jentzen JM. *The Medicolegal Death Investigator: A Systematic Training Program for the Professional Death Investigator*. Big Rapids, Mich: Occupational Research and Assessment; 1996.
4. *Sudden, Unexplained Infant Death Investigation Guidelines*. Atlanta, Ga: Centers for Disease Control and Prevention; 1996.

CHAPTER OBJECTIVES

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

1. Recognize different types of SUID.
2. Identify the tools available for collecting and reporting infant death scene data.



unit

1 Types of Sudden, Unexplained Infant Death

INTRODUCTION

Sudden unexplained infant death (SUID) is the sudden and unexpected death of an infant due to natural or unnatural causes. Sudden infant death syndrome (SIDS) is one of several causes of SUID. However, SIDS, unlike the other SUID causes, is a diagnosis of exclusion. Although most conditions or diseases usually are diagnosed by the presence of specific symptoms, SIDS is a diagnosis that should be given only after all other possible causes of sudden, unexplained death have been ruled out through a careful case investigation, which includes a thorough examination of the death scene, a complete autopsy, and a review of the infant's medical history (Willinger, James, & Catz, 1991). Suffocation (asphyxia), drowning, electrocution, hyperthermia, hypothermia, carbon monoxide poisoning, and homicide are examples of other causes of SUID that can be explained after a careful case investigation. A thorough death scene investigation (as described in this text) is often the only way to make a distinction between SIDS and suffocation as a cause of death (Hanzlick, 2001).

Having knowledge about the many causes of SUID, in addition to SIDS, is of utmost importance for the death scene investigator. At the scene, the investigator will gather evidence as well as information from the parents or caregivers who were with the infant and who may be in a great deal of distress. All of this information is crucial for distinguishing between a natural death, an accidental death, or a homicide.

SUDDEN, UNEXPLAINED INFANT DEATH

Below is a description of the most common causes of SUID. Each cause is referred to thoughout the text and detailed specifically to the application under discussion.

Sudden Infant Death Syndrome (SIDS)

In the United States, SIDS is the most common cause of death in infants aged one month to one year and the third leading cause of infant mortality, after congenital anomalies and short gestation/low birth weight. SIDS currently accounts for about 2,300 deaths per year. Combining deaths attributed to SIDS with all other explained causes of SUID yields 4,600 deaths per year. This number is similar to the number of deaths per year due to birth defects, the leading cause of infant mortality in the United States. The incidence of SIDS has declined more than 50% since the 1990s. SIDS occurs most commonly in infants two to four months of age and rarely after eight months of age. SIDS also occurs more frequently in African Americans, American Indians, and Alaska Natives than in Caucasians.

Modifiable risk factors for SIDS include

- Stomach and side sleeping positions.
- Overheating.
- Soft sleep surfaces.
- Loose bedding.
- Inappropriate sleep surfaces (such as a sofa or water bed).
- Sharing the same sleep surface (such as a bed) with an individual other than a parent or sharing the same sleep surface with an individual who is overly tired or under the influence of alcohol or drugs.
- Maternal and secondhand smoking.

Interventions aimed at modifying these risk factors are the focus of the Back-to-Sleep Campaign, which was initiated in 1994.

SIDS occurs suddenly without warning, often during periods of sleep. It is not caused by suffocation, aspiration, abuse, or neglect. SIDS occurs during a critical period of rapid growth and development of the brain during the first six months of life. This period accounts for 90% of all SIDS-related deaths. The cause of SIDS is unknown.

Knowledge acquired during the last decade supports the general “triple-risk hypothesis,” which proposes that infants who die from SIDS are born vulnerable (with certain brain stem abnormalities that make them susceptible to sudden death) and, during a critical developmental period, are exposed to an exogenous stressor (such as overheating, secondhand smoke, or entrapment from stuffed animals or pillows) (Guntheroth & Spiers, 2002).

The following is a brief overview of known causes of infant death that are oftentimes overlooked during investigation, resulting in the cause of death being listed as SIDS on the death certificate. Chapter 8 gives a more detailed treatment of each cause and the investigative strategies that may be used to verify and document each.

Asphyxia or Suffocation

Asphyxia or suffocation is caused by the inability to breathe. This condition leads to a lack of oxygen in the body, which can lead to loss of consciousness and death. Asphyxia can be caused by choking, constriction of the chest or abdomen, strangulation, narrowing of airway passages (severe allergic reaction or reactive airway disorders), or the inhalation of toxic gases. Common objects that are involved with asphyxia or suffocation include plastic bags, soft pillows, and soft materials such as bedding or stuffed animals. These objects can occlude the mouth and nostrils, causing suffocation. The most commonly reported cause of asphyxia in infants is accidental suffocation and strangulation in bed.

If the investigator is very observant, knows what to look for, and is particularly careful in talking with the caregiver, he/she may pick up some clues that will help determine the specific cause of asphyxia or suffocation and determine whether the manner of death was accidental or intentionally inflicted. A thorough death scene investigation can help answer questions about environmental factors that may have interfered with breathing (e.g., covering of the nose and mouth) or hazards related to aspiration, choking, electrocution, excessive heat or cold, and other external factors.

There are a number of risk factors associated with asphyxia and suffocation. The following is a list of the typical causes of infant asphyxia and/or suffocation. Again, each is detailed in Chapter 8 of this text and described in the Glossary.

- Overlaying or accidental suffocation on a shared sleep surface.
- Accidental strangulation from unsafe surroundings.
- Wedging or entrapment.
- Immersion in water or drowning.
- Choking.
- Rebreathing.
- Neck compression.

There are a number of risk factors associated with the infant's environment that may be connected with the death. The following is a list of causes typically associated with the environment or death scene. Each is detailed in Chapter 8 of this text and described in the Glossary.

- Poisoning or intoxication.
- Electrocution.
- Hypothermia.
- Hyperthermia.

Metabolic Error

Inborn errors of metabolism are rare genetic disorders that stop or prevent the body from turning food into energy. These disorders are usually caused by defects in the enzymes that help break down foods in the body. When the body cannot process these foods, a buildup of toxic substances or a deficiency of substances needed for normal body function can occur. This buildup can be fatal if not controlled with diet or medication. Some metabolic diseases are inherited. Medium chain acyl-CoA dehydrogenase deficiency is one type of metabolic disorder thought to account for a small percentage of SUID. Other examples of metabolic disorders and conditions are maple syrup urine disease, phenylketonuria, G6PD deficiency, and galactosemia.

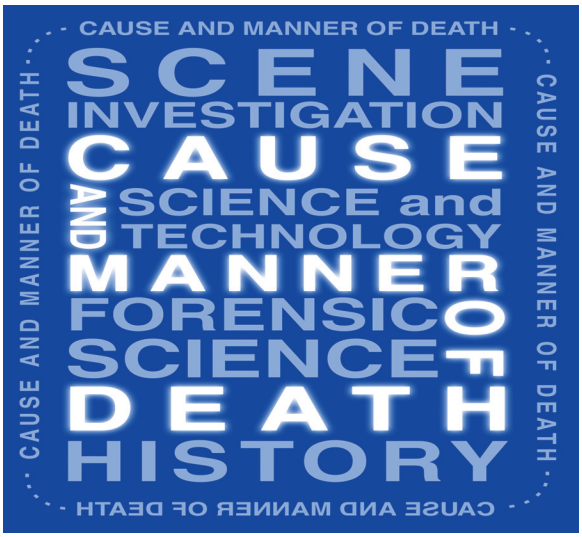
Injury or Trauma

Injuries can be fatal or nonfatal, and they can occur unintentionally or intentionally (because of purposeful acts of harm). It is often difficult to determine whether an infant's injury was a result of an unintentional or intentional act. Examples of unintentional injuries include the infant choking on a small toy or rolling over in bed onto the infant. An adult physically abusing an infant is an example of an intentional injury (Deal, 2000).

Injuries account for approximately 5% of infant deaths or 1,100 deaths yearly in the United States (Tomashek, Hsia & Iyasv, 2003). Shaken baby syndrome (SBS) is one form of abusive head trauma that occurs when an infant or young child is violently shaken or struck against a hard or soft surface. Shaking may cause bleeding over a large portion of the brain. SBS can cause severe brain damage as well as death. In cases where a child receives a head injury from a fall or other impact, there may be external signs of injury, such as bruising or abrasions on the scalp. In SBS, there may be no signs of injury on the infant.

Unknown or Unclassified Causes

"Unknown" or "Unclassified" is assigned as a cause of death if the death scene investigation and/or autopsy were incomplete or not done and the death certifier has insufficient evidence to record a more specific cause of death. The way the cause and manner of death are reported on the death certificate depends on the circumstances of the case. The various methods for reporting cause of death on the death certificate are discussed in Chapter 9.



unit 2

Data Collection and Reporting Tools

INTRODUCTION

An infant death scene investigation that follows the guidelines and forms outlined in this text is imperative to help the medical examiner and coroner establish an accurate cause and manner of death. The death scene investigation provides important insight into the infant's sleep environment, clinical and medical history, and family history, including genetic and environmental risk factors. A thorough infant death scene investigation should include interviewing witnesses, examining the death scene, staging a doll reenactment, reviewing medical history, and carefully assessing the infant's exposures prior to death. Because infant deaths are such tragic family events, investigators must learn how to carry out a thorough investigation while remaining sensitive and non-accusatory toward the grieving family and caregivers.

IMPORTANCE OF THE DEATH SCENE INVESTIGATION FOR SUID

Without information from a complete death scene investigation and a review of the clinical history, it is difficult to determine cause and manner of death. Pathologists and those conducting autopsies who receive a corpse without this information are at a great disadvantage compared to those who receive this information. Imagine having your internist or healthcare provider examine you without getting any medical history first. In addition, information from a carefully conducted death scene investigation and clinical history can make the death certificate more accurate, which will ultimately help to prevent infant deaths.

Several studies provide evidence to support the hypothesis that SIDS and other SUID are more accurately diagnosed when information from a death scene investigation is used to make the diagnosis (Bass, Kravath, & Glass, 1986; Byard, Carmichael, & Beal, 1994; Valdes-Dapena, 1992). The goal of the infant death scene investigation is to gather information about the circumstances surrounding the death so that pathologists can use it to interpret autopsy findings, determine the cause of death, and establish the manner of death. Those investigating the scene should gather information concerning all potential causes of SUID, including suffocation (e.g., from wedging, overlying, or obstructed airway), homicide (e.g., from child abuse and neglect), poisoning, and unintentional injury.

THE CENTERS FOR DISEASE CONTROL AND PREVENTION—SUDDEN, UNEXPLAINED INFANT DEATH INVESTIGATION (SUID) REPORTING FORM

In 1996, CDC released the Sudden, Unexplained Infant Death Investigation Guidelines and Reporting Form, a uniform protocol for conducting an infant death scene investigation. Before this time, a uniform protocol for conducting an infant death scene investigation did not exist although a 1989 redefinition of SIDS included the need for a thorough death scene investigation. National evaluations of the effectiveness of the 1996 SUIDI Reporting Form after its release showed that the form was cumbersome, not user friendly, and not widely used. In response to this unfavorable evaluation, CDC began the effort to revise the old form. The Sudden, Unexplained Infant Death Investigation (SUIDI) Reporting Form was released on March 1, 2006 (See Appendix A).

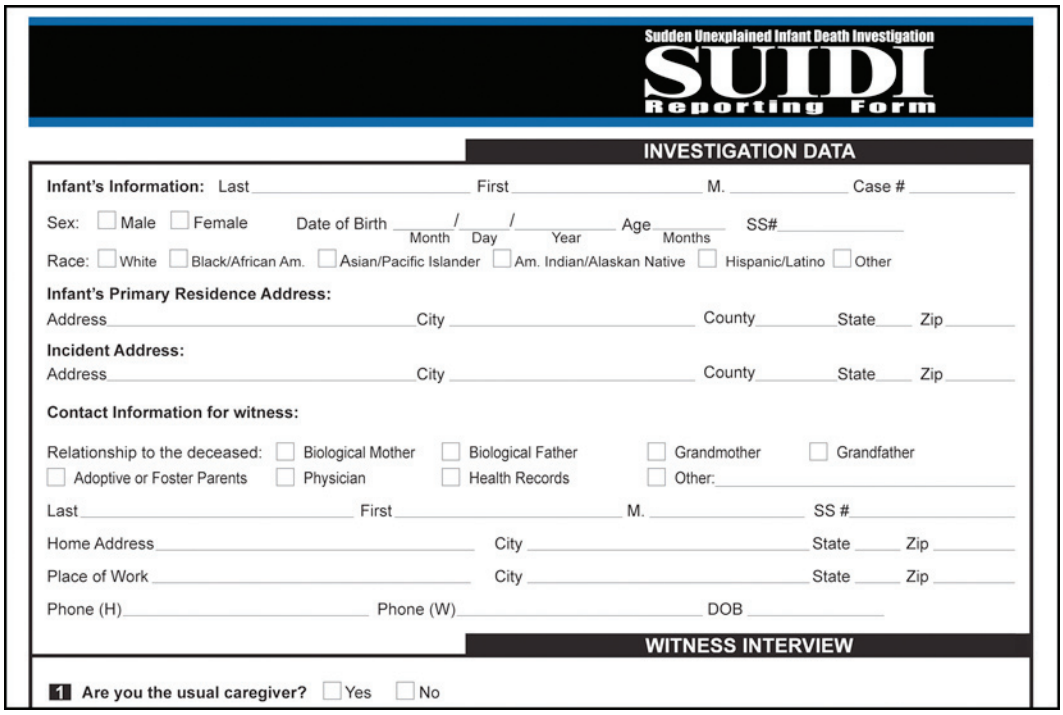
The eight-page SUIDI Reporting Form is designed to guide the investigator in the questioning of witnesses during the infant death scene investigation. The data gathered using the SUIDI Reporting Form is considered critical to the determination of cause of death. If used consistently throughout the United States, the SUIDI Reporting Form will provide standardized collection of data, which will improve the classification of SIDS and other SUID.

The SUIDI Reporting Form was written by a national workgroup made up of medical examiners, coroners, death scene investigators, law enforcement, infant death researchers, and SIDS parent organizations. The new form includes questions deemed necessary to establish cause and manner of death by a 2004 national survey of medical examiners and coroners (S.C. Clark, PhD, unpublished data, 2005), as well as new questions about recently recognized risk factors for SIDS. It is shorter, simpler, and more user friendly compared with the 1996 form. For example, most questions can be answered by placing an X in the corresponding checkbox or filling in the blank provided.

THE SUIDI REPORTING FORM

Because of the hard work of the revision workgroup and the numerous pilot-testing activities, the revised SUIDI Reporting Form has simplifed the data collection by presenting

- Only questions deemed critical for establishing cause and manner of death, as well as supporting investigators' findings in court.
- New questions about recently identified risk factors.
- Answers to questions that can be checked off quickly, allowing for easy, consistent data collection.
- Questions in a sequence that works well for infant death investigators.
- Sections to break down the responsibilities of particular members of the death investigation team.
- Supplemental forms for collecting information about contacts and evidence for jurisdictions that do not have their own.


Sudden Unexplained Infant Death Investigation
SUIDI
Reporting Form

INVESTIGATION DATA

Infant's Information: Last First M. Case #

Sex: Male Female Date of Birth / / Age SS#
Month Day Year Months

Race: White Black/African Am. Asian/Pacific Islander Am. Indian/Alaskan Native Hispanic/Latino Other

Infant's Primary Residence Address:
Address City County State Zip

Incident Address:
Address City County State Zip

Contact Information for witness:

Relationship to the deceased: Biological Mother Biological Father Grandmother Grandfather
Adoptive or Foster Parents Physician Health Records Other:

Last First M. SS #
Home Address City State Zip
Place of Work City State Zip
Phone (H) Phone (W) DOB

WITNESS INTERVIEW

1 Are you the usual caregiver? Yes No

Fig. 1.1: SUIDI Reporting Form helps standardize data collection at the scene.

The basic form addresses the most common information considered necessary to conduct an adequate SUID scene investigation. In addition to the basic form, there are a number of *additional investigative forms* that may be attached, if the specific scene circumstances require that additional information be collected. The additional forms include the following:

- Body diagram.
- EMS interview.
- Hospital interview.
- Immunization record.
- Infant exposure history.
- Informant contact.
- Law enforcement interview.
- Materials collection log.
- Non professional responder interview.

- Parental information.
- Primary residence investigation.
- Scene diagram.

Some investigative agencies may wish to supplement their own scene forms with any or all of the SUIDI Reporting Forms. At a minimum, it is recommended that each investigative agency use the SUIDI forms as a reference to compare the content of their current forms with the content of these newer data collection tools.

STANDARDIZED PRE-AUTOPSY REPORT

Too often, critical scene information fails to reach the forensic pathologist before the autopsy is performed. In an effort to remedy this communication gap and to provide the forensic pathologist with critical scene data before the autopsy, there is now a standardized pre-autopsy report (PAR) that can be generated electronically through the SUIDI Reporting System (mdilog.net). Included in the electronic reporting system is a post-autopsy conclusions (PAC) feedback loop that allows the forensic pathologist to report autopsy findings back to the scene investigator for case updating, review, and printing of the death certificate.

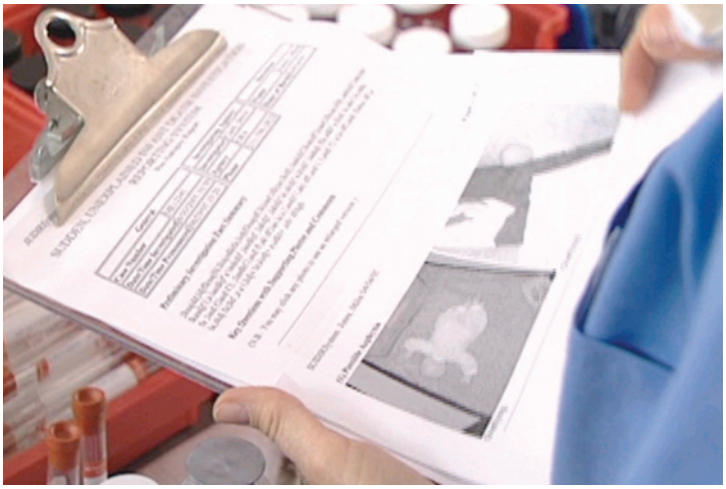


Fig. 1.2: Forensic pathologist reviewing a pre-autopsy report.

Summary

DISCUSSION QUESTIONS

1. Discuss how SIDS is different from other causes of SUID, such as asphyxia, inborn errors of metabolism, and homicide.
2. State reasons why the SUID scene investigation is important for distinguishing between SIDS and other SUID as causes of death and to determine manner of death.
3. Discuss the differences in the types of asphyxia deaths—hanging, strangulation, overlaying, choking—and give examples of each.
4. Distinguish between intentional and unintentional injury.

SAMPLE QUESTIONS

1. What causes of death are difficult to distinguish from one another if only an autopsy, but not a death scene investigation, was completed?
    A. Overlaying.
    B. Wedging.
    C. SIDS.
    D. All of the above.

2. Which of the following statements would NOT be considered a part of a SIDS description?
    A. Occurs most often between 12 and 18 months.
    B. Results in a negative autopsy finding.
    C. No significant clinical history.
    D. No unusual scene findings.

3. Which is NOT a type of asphyxia death?
    A. Poisoning.
    B. Wedging.
    C. Obstruction of the nose or mouth by a stuffed animal.
    D. Overlaying.

4. Which is an example of a wedging death?
    A. The infant's body is stuck between a crib railing and a crib mattress.
    B. Accidental drowning when an infant is left unattended in the bathtub.
    C. The infant's nose or mouth is covered by a stuffed animal.
    D. Inborn errors of metabolism.

5. Which is NOT a component of the death scene investigation?
    A. Information about the infant's sleep environment.
    B. Infant and family clinical and medical history.
    C. Family history in terms of genetic and environmental risk factors.
    D. Autopsy.

chapter 2

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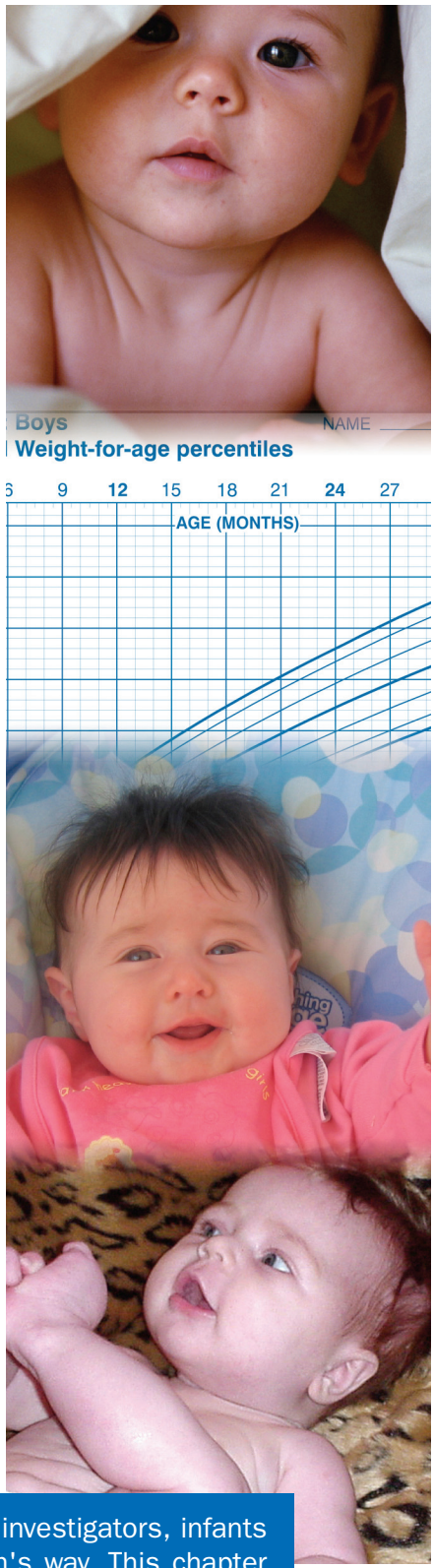
Infant Growth and Development

Birth to One Year of Age



Unit 3: Infant Growth
Unit 4: Infant Developmental Milestones
Unit 5: Infant Feeding, Diet, and Risks

Unlike most decedents encountered by death investigators, infants have limited ability to put themselves in harm's way. This chapter covers basic human growth and development, and dietary issues as applicable to infants from birth to one year of age, and information and technologies that can assist the investigator in evaluating the plausibility of witness accounts and observations as they pertain to infant abilities and purported actions prior to death.

OVERVIEW

One of the most difficult tasks the infant death investigator has to perform is sorting the numerous details each case produces. Often, these details are part of a witness account of infant activity prior to the incident that preceded the death. Investigators must understand normal infant abilities—based on age—and be able to correlate these with those activities reported by witnesses. This chapter details normal, and abnormal infant growth and development. The student will also be introduced to the most common growth charts and developmental screening tests used in the United States.

SUPPORT MATERIALS

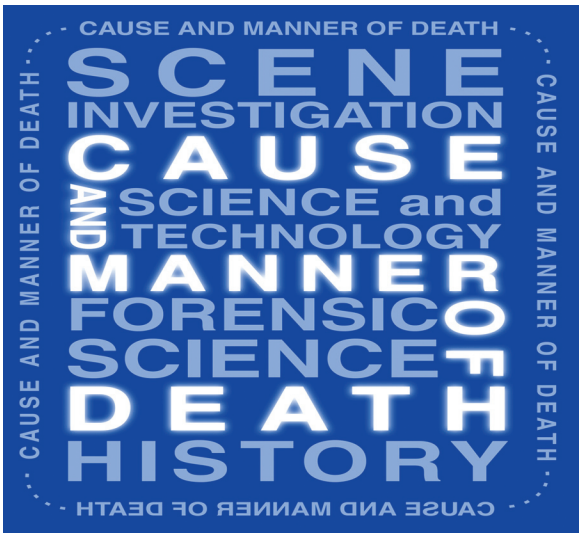
In addition to the SUIDI Reporting Form or jursidictionally approved equivalent, the following support materials are suggested:

1. Denver Developmental Screening Test-II (DDST-II). Denver Developmental Materials, Inc., P.O. Box 371075, Denver, CO 80237-5075, (303) 355-4729 or 1 (800) 419-4729.
2. CDC Growth Charts: United States. Advance Data No. 314, Vital and Health Statistics of the Centers for Disease Control and Prevention. National Center for Health Statistics; 2000. Available at http://www.cdc.gov/growthcharts.
3. Pediatric Nutrition Handbook. 4th ed. Elk Grove Village, Ill: American Academy of Pediatrics; 1998; 168–169.
4. Dietz WH, Stem L. American Academy of Pediatrics Guide to Your Child's Nutrition: Making Peace at the Table and Building Healthy Eating Habits for Life. New York, NY: Random House; 1999.
5. Block RW, Krebs NF, Committee on Child Abuse and Neglect, Committee on Nutrition. Failure to thrive as a manifestation of child neglect. Pediatrics. 2005;116:1234–1237.
6. Zenel JA Jr. Failure to thrive: A general pediatrician's perspective. Pediat Rev. 1997;18: 371–378.
7. Growth Charts Training. Washinton, DC: US Dept of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau; 2000. Available at http://depts.washington.edu/growth/index.htm.
8. Mitchell EA, Thach BT, Thompson JM, Williams S. Changing infants' sleep position increases risk of sudden infant death syndrome. Arch Pediatric Adolesc Med. 1999;153:1136–1141.

CHAPTER OBJECTIVES

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

1. Identify normal versus abnormal infant growth.
2. Describe infant growth charts.
3. Describe developmental screening tools.
4. Apply infant developmental milestones.
5. Apply basic feeding and dietary concepts.
6. Describe dietary concerns.



unit 3

Infant Growth

INTRODUCTION

Infants (children aged 0 to 12 months) have a wide range of birth weights. However, there is a normal range of weights and lengths for age, such that most one-month-old male infants born at term (born at or after the end of the 37th week of pregnancy) should weigh between 7 pounds, 3 ounces and 12 pounds. It is important for the infant death scene investigator to recognize when an infant's weight and length are below what is expected for his or her age. Infants whose weight is less than the 5th percentile for age may have an underlying disease or condition that may have contributed to their death. Alternatively, if no underlying cause can be found for the infant's growth failure, the infant may have an environmental or psychosocial cause for his or her growth failure that may also have placed him or her at risk for death.

NORMAL INFANT GROWTH

Infancy, the period of time from birth to a child's first birthday, is a time of tremendous physical growth. It is common for infants to lose weight (less than 8% to 10% of birth weight) during their first week of life. However, by two weeks of age, an infant's weight should be back to their birth weight. Typically, an infant will weigh twice their birth weight by 4 months of age and three times their birth weight by 12 months of age. Length will often increase by 50% by 12 months of age. Infants tend to grow in spurts, so it may be common to see a significant increase in length followed by a slower growth period when weight catches up and vice versa. Growth rates may differ between breastfed and formula-fed infants. Infants that are breastfed only (no infant formula) often gain more weight more rapidly in the first three months of life than formula-fed infants. However, by 6 to 12 months of age, breastfed infants often weigh less than formula-fed infants.

The following tables list the normal growth (weight and length) by age in months for the 5th to 95th percentile of the population. For example, a female infant who is 13 pounds at two months of age is at the 95th percentile for weight for her given age. Or in other words, she is heavier than 95 out of 100 two-month-old female infants. On rare occasions, an infant's growth may fall outside of this range, but they still have normal growth overall. So it is important to monitor overall trends in growth over time and to assess weight-for-length. Weights are listed in both pounds and kilograms, and length is listed in both inches and centimeters. Length is measured with the infant lying down from the top of the head to the bottom of the heel of the foot. In contrast, height is measured in children older than 12 months with the child standing upright.

INFANT GROWTH CONCERNS

Documenting and tracking an infant's weight, length, and head circumference over time is important for assessing nutritional status. The growth of a term infant typically follows the same percentile rank, such that if the infant is at the 25th percentile for age at four months the infant should be at or near the 25th percentile at six months. If there is a decrease in the expected rate of growth based on the infant's previously defined growth curve, or if the infant's weight is consistently below the 5th percentile for age or decreases to below the 5th percentile, the infant should be evaluated for failure to thrive.

Some infants' growth is always outside of the normal range. There are a number of health conditions that affect the timing and rate or speed of growth. For example, infants with Down syndrome, very low birth weight (weight of less than 3 pounds, 5 ounces or 1,500 grams), or who were born preterm (born before the end of the 37th week of pregnancy) often have a different growth pattern than healthy term infants with normal birth weight (weight of 5 pounds, 8 ounces or more, or greater than or equal to 2,500 grams). There are special growth charts that may be used for infants affected by these conditions. The age of the infant needs to be adjusted by his or her gestational age when using the CDC growth charts and other specialized growth charts, such that a five month old born two months early should be monitored as a three-month-old infant.

FAILURE TO THRIVE

Failure to thrive (FTT) is a sign of unexplained weight loss or poor weight gain in an infant or child. FTT is most often defined as a weight-for-age or a weight-for-length that is below the 5th percentile on more than one occasion or a decrease in the expected rate of growth based on the infant's previously defined growth curve. (Some nutrition experts believe that when weight-for-age is used to detect FTT, other indices such as weight-for-length should also be examined.) Typically, an infant loses weight first, before their length or head circumference are affected. This means that an infant with FTT may be growing appropriately in terms of their length and head circumference.

A term infant's growth typically follows the same percentile rank on the growth chart. A decline in the expected rate of growth can be identified when an infant's weight decreases across two or more major percentiles regardless of whether their weight drops below the 5th percentile. Major percentiles include: 95th, 90th, 75th, 50th, 25th, 10th, and 5th. For example, if an infant's weight is at the 75th percentile for age at two months and then it declines to the 25th by the infant's four-month clinic visit, the infant may have FTT. In addition, a decrease in the expected rate of growth can occur when an infant's rate of daily weight gain is less than expected for age. Infants are expected to gain between 26 to 31 grams per day at 0 to 3 months, 17 to 18 g/day at 3 to 6 months, 12 to 13 g/day at 6 to 9 months, and 9 g/day at 9 to 12 months of age.

FTT is often described as organic or non-organic. However, an infant may have both an organic and non-organic reason for their FTT. Organic FTT refers to growth failure that is due to an acute or chronic disorder known to interfere with normal nutrient intake, absorption, metabolism, or excretion. Non-organic FTT refers to growth failure due to environmental neglect (e.g., lack of food) or other psychosocial factors.

CAUSES OF FAILURE TO THRIVE

Undernutrition is the immediate underlying cause of FTT. Alternatively, the infant may have adequate caloric intake for age but their body either cannot digest or use the food effectively or they need more calories then they are able to eat. The healthcare provider needs to find out why the infant is undernourished in order to have any effect on the infant's growth. The following is a list of causes of FTT.

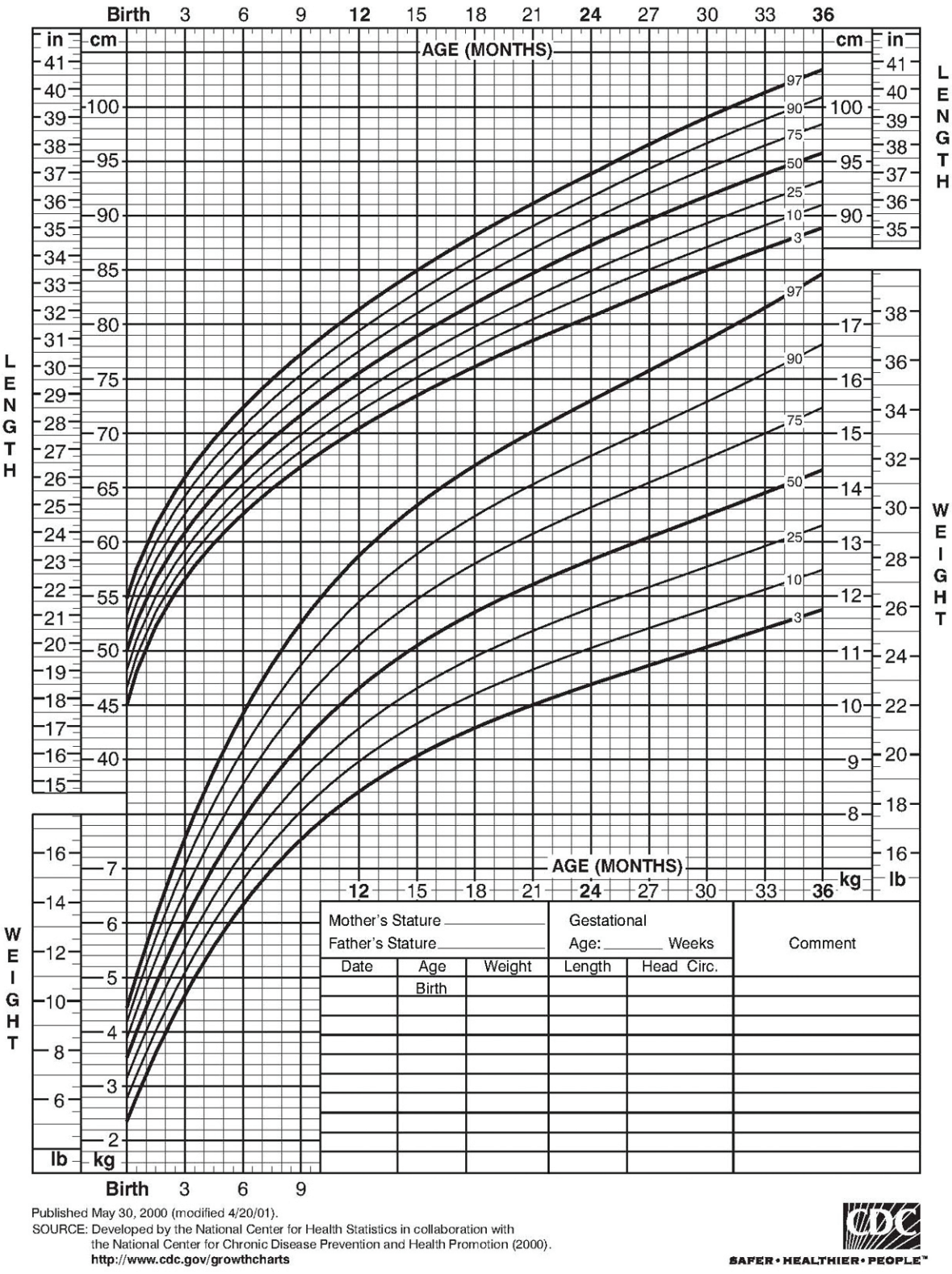
- Inadequate nutrient intake.
  - Not enough foods given to the infant to eat.
    - Intentional withholding of food by caregiver.
    - No food available in the home.
  - Poor quality food given to the infant to eat.
    - Too much juice or empty calorie "junk" foods.
    - Dilution of infant formula.
  - Infant with lack of appetite.
    - Chronic infection (e.g., HIV/AIDS).
    - Chronic anemia.
  - Feeding difficulties.
    - Poor suck due to medical condition involving brain, nerves, or muscles (e.g., cleft palate, cerebral palsy [CP]).
    - Shortness of breath due to heart and/or lung disease.
    - Skull and/or facial malformation (e.g., cleft lip and palate).
    - Vomiting and/or reflux (e.g., food allergies).
- Food not getting absorbed in the infant's gut.
  - Chronic disease (e.g., cystic fibrosis, liver disease).
  - Intestinal problems (e.g., short gut syndrome).
- Increased need for food (increased metabolism).
  - Hyperthyroidism.
  - Chronic infection or disease (e.g., cancer, heart or lung disease).
- Poor use of food.
  - Genetic condition (e.g., Down syndrome).
  - Metabolic disease (e.g., medium chain acyl-CoA dehydrogenase deficiency [MCAD]).

Normal Range for Age (5th–95th Percentile): Female				
Age	Weight		Length	
	lbs	kg	in	cm
Birth	5.7-9.2	2.6-4.2	18-21.1	45.7-53.5
1 month	7-11.2	3.2-5.1	19.5-22.75	49.5-57.8
2 months	8.5-13	3.8-5.9	20.75-23.8	52.7-60.5
3 months	9.5-15	4.4-6.8	21.75-24.8	55.2-63
4 months	11-16.3	5-7.4	22.5-25.75	57.2-65.4
5 months	12-17.8	5.5-8.1	23.4-26.6	59.4-67.5
6 months	13-19	5.9-8.6	24-27.2	61-69
7 months	14-20.2	6.4-9.2	24.6-28	62.5-71.1
8 months	14.7-21.4	6.7-9.7	25.2-28.7	64-72.9
9 months	15.5-22.5	7-10.2	25.75-29.25	65.4-74.3
10 months	16.3-23.3	7.4-10.6	26.25-29.75	66.75-75.6
11 months	17-24.2	7.7-11	26.75-30.3	67.9-77
12 months	17.6-25	8-11.4	27.2-30.9	69-78.5

Figures taken from the NCHS/CDC Growth Charts: United States at http://www.cdc.gov/growthcharts. For example: 5 out of 100 (5%) one-month-old female infants in the United States weigh 8.5 pounds or less, and 5% weigh 13 pounds or more.

Normal Range for Age (5th–95th Percentile): Male				
Age	Weight		Length	
	lbs	kg	in	cm
Birth	5.5-9.7	2.5-4.4	18-21.3	45.7-54
1 month	7.3-12	3.3-5.5	19.9-23.1	50.5-58.5
2 months	9-14.1	4.1-6.4	21.3-24.5	54-62.2
3 months	10.5-16	4.8-7.3	22.4-25.6	57-65
4 months	12-18	5.5-8.2	23.4-26.6	59.4-67.6
5 months	13.2-19.5	6-8.9	24.1-27.5	61.2-69.9
6 months	14.3-21	6.5-9.5	24.8-28.2	63-71.6
7 months	15.2-22.5	6.9-10.2	25.4-28.8	64.5-73.2
8 months	16.3-23.5	7.4-10.7	26-29.5	66-74.9
9 months	17-24.6	7.7-11.2	26.5-30.1	67.3-76.5
10 months	17.8-25.5	8.1-11.6	27-30.7	68.6-78
11 months	18.5-26.4	8.4-12	27.5-31.2	69.9-79.3
12 months	19-27.5	8.6-12.5	28-31.7	71.1-80.5

Figures taken from the NCHS/CDC Growth Charts: United States at http://www.cdc.gov/growthcharts. For example: 5 out of 100 (5%) male infants in the United States have a birth weight of 5.5 pounds or less, and 5% have a birth weight of 9.7 pounds or more.


Birth to 36 months: Boys
Length-for-age and Weight-for-age percentiles
NAME
RECORD #
AGE (MONTHS)
LENGTH
WEIGHT
97
90
75
50
25
10
3
Mother's Stature
Father's Stature
Gestational Age: Weeks
Date
Age
Weight
Length
Head Circ.
Comment
Birth
Published May 30, 2000 (modified 4/20/01).
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts
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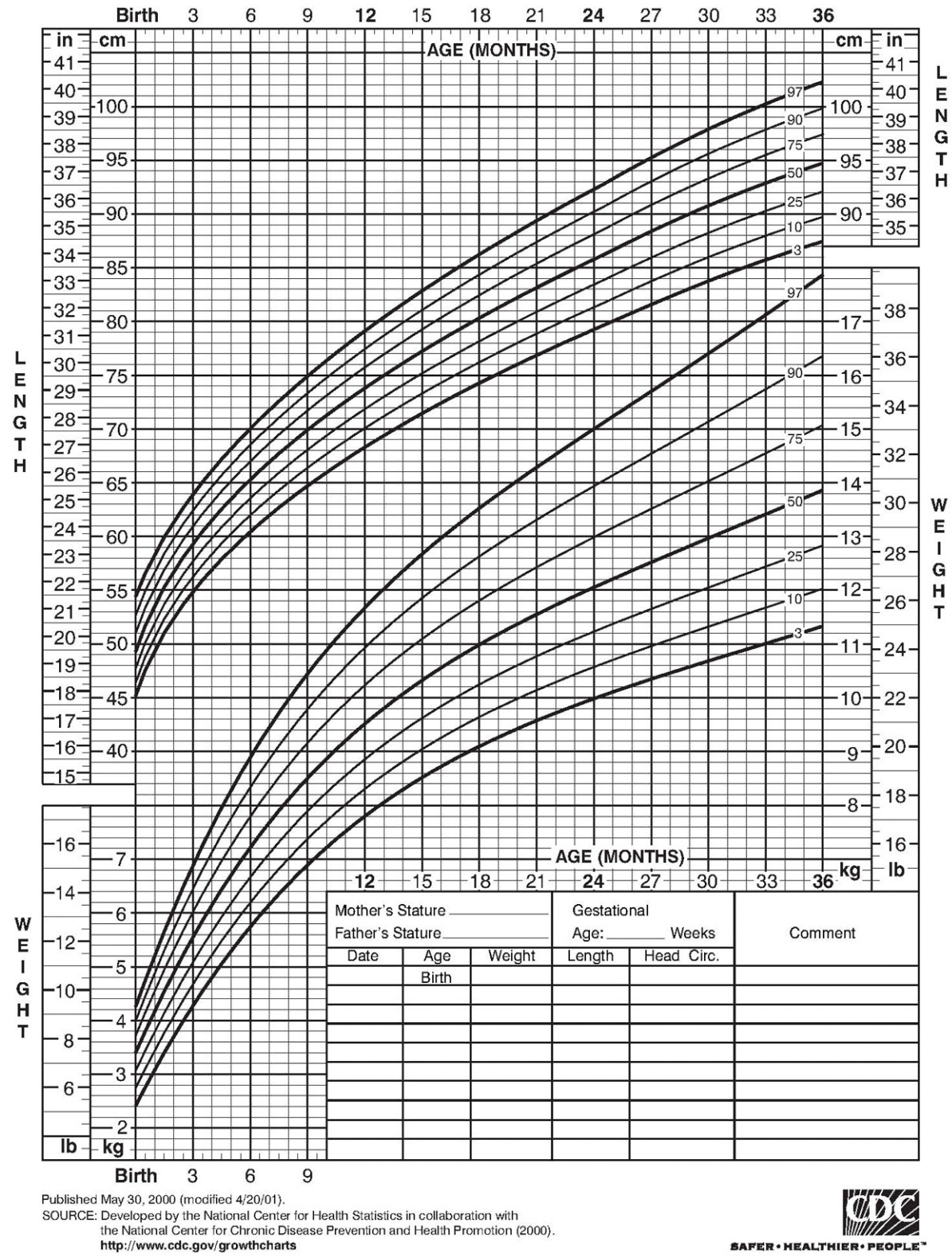
Birth to 36 months: Girls
Length-for-age and Weight-for-age percentiles
NAME
RECORD #
AGE (MONTHS)
LENGTH
WEIGHT
97
90
75
50
25
10
3
Mother's Stature
Father's Stature
Gestational Age: Weeks
Comment
Date
Age
Weight
Length
Head Circ.
Birth
Published May 30, 2000 (modified 4/20/01).
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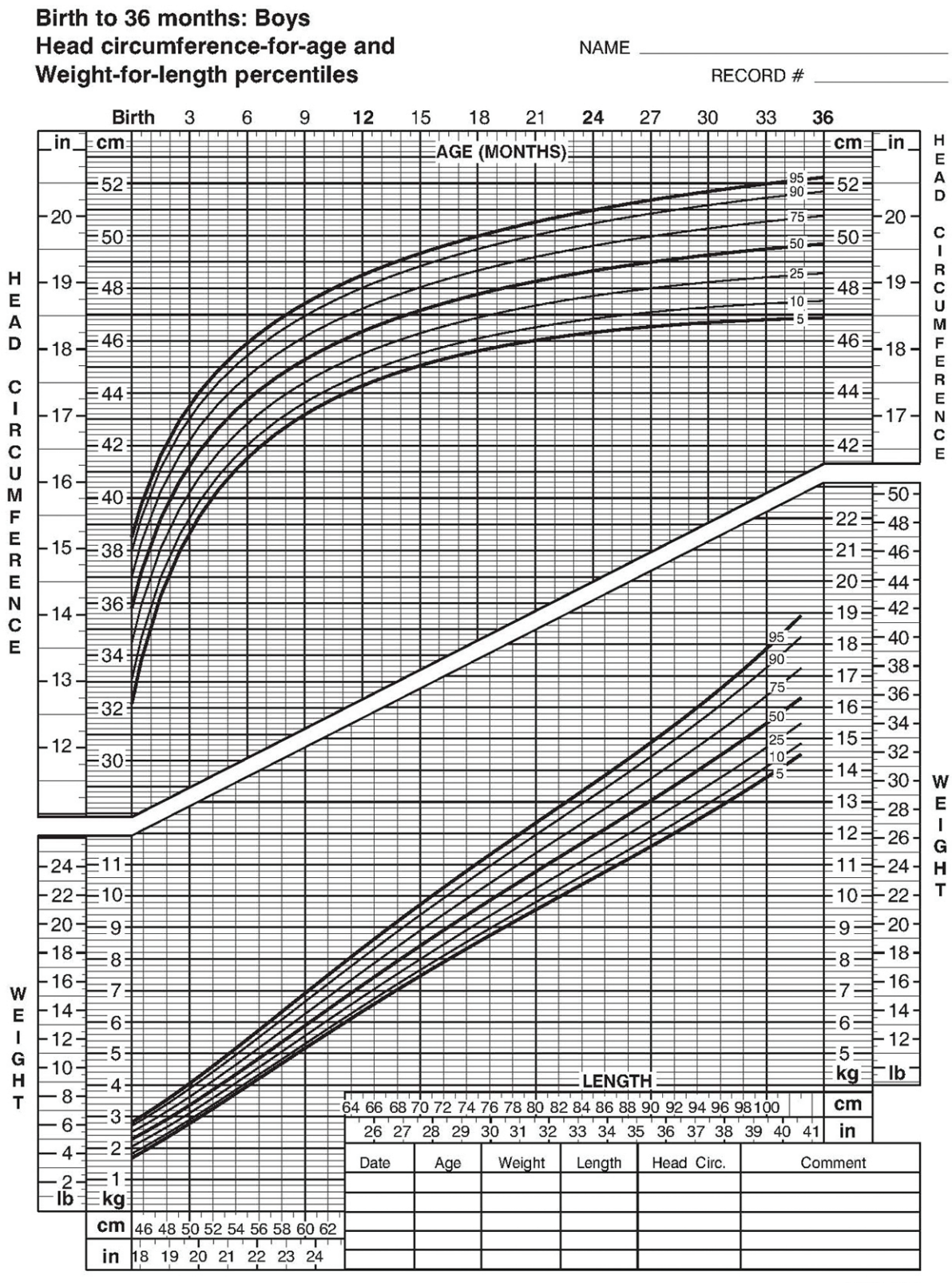

Published May 30, 2000 (modified 10/16/00).
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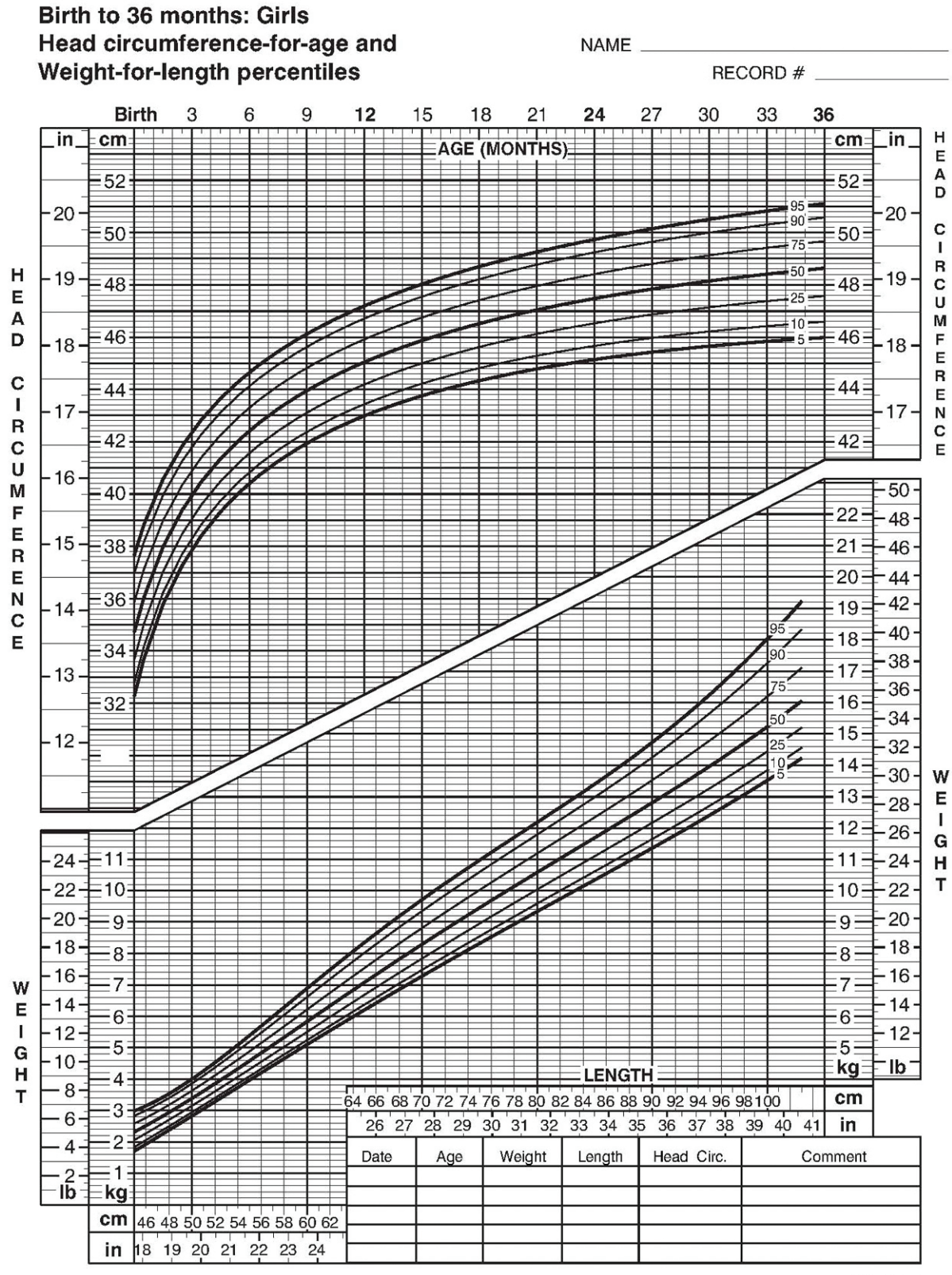
Birth to 36 months: Girls
Head circumference-for-age and
Weight-for-length percentiles
NAME
RECORD #
AGE (MONTHS)
HEAD CIRCUMFERENCE
WEIGHT
LENGTH
95
90
75
50
25
10
5
Date
Age
Weight
Length
Head Circ.
Comment
Published May 30, 2000 (modified 10/16/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts
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INFANT GROWTH CHARTS

Understanding the basics of growth monitoring (i.e., documenting and tracking an infant's weight, length, and head circumference over time) is important for infant death investigators because these skills enable them to assess an infant's nutritional status. Applying these skills will enable investigators to ask appropriate questions to determine whether the infant's growth and development are within the expected normal range for age. It will also help investigators assess the accuracy of the information provided by the parents or caregivers concerning the circumstances surrounding the infant's death. Investigators' knowledge of normal growth and development will enable them to identify potentially dangerous environmental situations for an infant of a given age.

STANDARD INFANT GROWTH CHARTS USED IN THE UNITED STATES

In the United States, many healthcare professionals use the 2000 CDC Growth Charts. These charts were created using information from a large national survey that has been collecting information about Americans since the 1960s. There are different growth charts for boys and girls and for children 0 to 36 months of age versus those who are 2 to 20 years old. To document and track an infant's growth, the 0- to 36-month-old growth charts should be used. These include weight-for-age, length-for-age, weight-for-length, and head circumference-for-age growth charts.

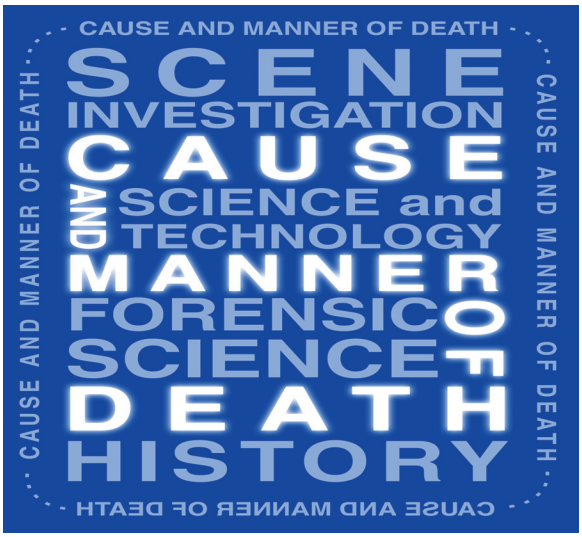
Weight-for-age growth charts help identify infants who are underweight or overweight for their age. Weight-for-length charts are useful in identifying failure to thrive. An infant whose weight-for-length is less than the 5th percentile is considered underweight. Length-for-age growth charts identify infants who are short or tall for their age. An infant whose length is less than the 5th percentile for the infant's age is considered to have short stature. Head circumference-for-age less than the 5th percentile or greater than the 95th percentile may be an indicator of developmental problems.

Infant growth, assessed by using a growth chart, is described using percentiles. Percentiles tell us what percentage of the reference population the infant's weight or length would be less than, be equal to, or exceed. For example, an infant whose weight is at the 5th percentile for age weighs the same or more than 5% of all infants of the same age and weighs less than 95% of all infants of the same age. An infant that is at the 50th percentile length-for-age would be considered of average length (i.e., 50% of infants the same age would be taller, 50% would be shorter).

HOW TO USE THE GROWTH CHARTS

After obtaining the infant's weight and age in months, locate the weight (in either pounds or kilograms) on the left side of the chart and the infant's age at the bottom of the chart. Draw a horizontal line or use a straight edge to trace the line from the infant's weight across the chart until you are directly over the infant's age. Draw or trace a vertical line straight up from the infant's age at the bottom of the chart to their weight, and pinpoint the spot on the chart where the two lines meet. This spot tells you what percentile the infant's weight falls within.

Often, the infant's weight will not fall exactly on one of the percentile lines but rather in between two percentiles. For example, a nine-month-old girl that weighs 17 pounds would fall between the 10th and 25th percentile. Now try to plot this infant's growth on the chart yourself. Did you find the same answer? Use the same method for the length-for-age, head circumference-for-age, and weight-for-length growth charts, except when plotting weight-for-length—the length is at the bottom, instead of the infant's age. The following website offers more information about growth charts: http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules.



unit 4

Infant Developmental Milestones

INTRODUCTION

An infant will accomplish many developmental milestones before his or her first birthday. A developmental milestone is a set of functional skills or age-specific tasks that most children can do within a certain age range. The actual age when a normally developing infant achieves a given milestone can vary quite a bit. For example, infants can walk well alone between 11 and 14¾ months. If an infant was born preterm, the infant will reach various milestones based on the infants' due date, not the infant's birthday. A five-month-old infant born two months early would be expected to have the same developmental skills as a 3-month-old who was born at term.

Motor development happens in a predictable pattern such that control and use of an infant's body parts generally proceeds from head to foot. For instance, infants develop head control before they learn to sit. Infants generally have good trunk (torso) control and use their arms and hands before they can walk. Motor development skills are attained within a predictable age range so that a parent, healthcare provider, or investigator can estimate what motor skills an infant might have at a given age. For example, at birth an infant is unable to hold his or her head steady when help upright. Newborns spend most of their time sleeping on their backs with their fists clenched and their legs flexed. By six months of age most infants can sit without assistance, and by one year, most children are standing alone for a few seconds without hanging onto anything.

Developmental milestones are traditionally divided into five skill areas: (1) gross motor, (2) fine motor, (3) social, (4) language, and (5) cognitive. For the purposes of this training, we will not review cognitive development of the infant. We will cover gross motor, fine motor, social, and language skills.

GROSS MOTOR SKILLS

Gross motor skills can be defined as the ability to move and control large muscles in the body or groups of muscles (e.g, muscles in the arms, legs, or torso). Examples of gross motor skills are sitting, crawling, standing, and walking.

FINE MOTOR SKILLS

Fine motor skills can be defined as the movement and control of the small muscles of the body (e.g., muscles in the hands, fingers, neck, and head) that act in an organized manner to accomplish more difficult and delicate tasks, especially those requiring eye-hand coordination. Examples of fine motor skills include reaching, grasping, and manipulating objects with one's hands.

SOCIAL SKILLS

Social skills can be defined as an infants ability to interact with his or her environment and the individuals who care for him or her.

LANGUAGE SKILLS

Language skills can be defined as the ability to understand language and to vocalize, babble, and ultimately say words. Language abilities depend on an infant's ability to hear. All infants in the United States should have a hearing screening done at birth.

UNACCUSTOMED PRONE (ON THE STOMACH) SLEEP

The supine (on the back) sleeping position is associated with the lowest risk of SIDS. An infant is at increased risk when placed on their stomach (prone) or side to sleep. Unaccustomed prone sleep position occurs when an infant who is typically placed to sleep on their back is placed on their stomach to sleep. Unaccustomed prone sleep places infants at a higher risk for SIDS. Studies have found that non-parental caregivers (e.g., grandparents, babysitters, child care providers) may be more likely to place an infant in an unaccustomed prone sleep position. Part of the risk may be because infants who typically sleep on their back develops upper body strength later than infants who typically sleep on their stomach. If these infants are placed on their stomach and they get into a suffocating or low-oxygen situation, they cannot lift or move their heads to get out of that situation.

It is important for an infant's development to have supervised "tummy time." Tummy time is playtime with the infant while he or she is positioned on their stomach. Tummy time promotes normal infant development by giving the infant an opportunity to learn to lift and turn his or her head and strengthen his or her neck, arm, and shoulder muscles. This will help ensure that the infant will reach their developmental milestones at the expected time.

DEVELOPMENTAL SCREENING TOOLS

The Denver Developmental Screening Test II (DDST-II) tests a child's development of gross and fine motor, language (including understanding and verbal skills), and social skills from birth to six years. It is used by healthcare providers to monitor a child's development and to identify children who have developmental delay or disabilities. It is important that infant death scene investigators have a general knowledge of infant development so that they are able to evaluate the accuracy of the circumstances surrounding the death of the infant and are able to assess safety concerns related in the witness account of when the infant was last seen alive. For example, if a two-month-old infant was last seen alive sitting alone on the sofa and later found unresponsive with their face down on the sofa, the investigator would know that infants do not sit without support until 5 ¼ to 6 ¾ months. Sitting on a soft surface like a sofa would be a potentially dangerous situation for a two-month-old infant who has poor head control and cannot sit unassisted.

Knowledge of normal infant development will also allow investigators to ask more informed questions about an infant's abilities and skills and identify items in the infant's environment that need to be examined more carefully.

MONITORING PROCESS

An infant's development is monitored at well-child clinic visits. Healthcare providers typically ask the parent/caregiver if he or she has any concerns about the infant's development. They also ask specific questions about the infant's development. For example, "Is your infant talking?" Healthcare providers also interact with the infant to evaluate what gross and fine motor, language, and social skills the infant has acquired. For example, the healthcare provider may place a six month old in a sitting position to see if the infant is able to sit unassisted. If developmental delays are suspected based on the healthcare provider's history (including findings from the DDST-II) and physical examination, follow-up is planned for further testing.

APPLYING THE DDST-II

The DDST-II is the most commonly used test to monitor development in the United States. The average age and age ranges at which skills are acquired in each area of development are the basis of the DDST-II. It is a one-page chart with the child's age in months along the bottom and top. The DDST-II has 124 test skills divided into four categories: gross motor, language, fine motor, and social skills. The skills categories are listed at the left side of the DDST-II. Each skill is represented by a rectangle that spans the ages at which 25%, 50%, 75%, and 90% of the sample population of children were able to do the skill.

The DDST-II is used by first finding the infant's age (in months) at the bottom of the chart. If the infant was born preterm, the age must be adjusted by subtracting the number of weeks he or she was born early from his or her age. Then a straight vertical line is drawn from the bottom to the corresponding age at the top of the chart. This line will cut through all the skills that the infant has accomplished or is working toward. Remember that there is an age range at which these skills are acquired. The skills to the left of the line represent skills that he or she has already accomplished, and skills to the right of the line represent skills that he or she will acquire in the future. The healthcare provider then asks the parent or caregiver whether the infant has mastered the skills that are appropriate for the infant's age. The healthcare provider works with the infant to evaluate the infant's gross and fine motor skills and some social skills. The DDST-II is placed in the child's chart next to the infant growth chart and ideally is used throughout the child's first six years.

Type of Motor Skill	Age at which Some (25%) and Most (90%) Infants Can Do Skill	
	25% of infants	90% of infants
Gross Motor Skill		
Lifts head and chin slightly (and briefly) when lying on stomach on a flat surface		Birth
Lifts head (45 degrees) off surface when lying on stomach	1 month	2 ¾ months
Lifts head (90 degrees) off surface when lying on stomach	1 ½ months	3 ½ months
Holds head up steady without support when held upright in standing position	1 ½ months	3 ¾ months
Bears some weight on legs when held upright in standing position	1 ¾ months	4 ¼ months
Rolls over from lying on stomach to back first, then from back to stomach	2 months	5 ½ months
Raises chest and supports self on outstretched arms when lying prone on stomach	2 ½ months	4 ½ months
Keeps head level with body when pulled to sitting position when lying on back	2 ¾ months	6 months
Sits without support on hard, flat surface	5 ¼ months	6 ¾ months
Stands holding onto low chair or table	6 ½ months	8 ½ months
Crawls or moves using hands and arms to move across the floor	7 months	9 months
Gets into sitting position from lying, crawling, or standing position	7 ½ months	9 ¾ months
Pulls to standing posiition from sitting	7 ¾ months	9 ¾ months
Stands for ten seconds or more without hanging onto anything	10 ½ months	13 ¼ months
While standing, stoops and picks up an object	11 months	14 ½ months
Walks alone well	11 months	14 ¾ months

Type of Motor Skill	Age at which Some (25%) and Most (90%) Infants Can Do Skill	
Fine Motor Skill	25% of infants	90% of infants
Keeps hands in fist (closed tightly)	Birth	2 months
Eyes or eyes and head follow object moved in an arc about 8 inches above face to midline (straight ahead)	Birth	1 ¼ months
Eyes or eyes and head follow object moved in an arc about 8 inches above face to past midline (straight ahead)	¾ month	2 ¾ months
Brings both hands together while lying on back	2 months	4 months
Eyes or eyes and head follow object moved in an arc about eight inches above face 180 degrees	2 ¼ months	4 ½ months
Grasps (holds onto) rattle placed in hand for few seconds	2 ½ months	3 ¾ months
Reaches for an object	4 ½ months	5 ½ months
Passes object from one hand to the other	5 months	7 ¾ months
Picks up object using a raking grasp	5 ¾ months	7 ¼ months
Picks up two objects, one in each hand	5 ¾ months	9 months
Bangs together objects held in hand	6 ¾ months	10 ¾ months
Uses thumb and finger to pick up object	7 months	10 months
Puts object in cup	9 ¾ months	13 ¾ months

INFANT DEVELOPMENTAL MILESTONES BY MONTH

The infant death investigator may need to know the basics of infant development (e.g., when an infant can sit upright without support) during death scene interviews when witnesses recount events involving an infant's movements and actions. The investigator must be aware of typical infant abilities and correlate those abilities in light of witness accounts during interviews. For example, the investigator is told that the two-month-old infant crawled to the corner of the bed where they were later found face down, wedged between the mattress and the bed. An investigator with a general knowledge of infant development would know that infants typically do not crawl until seven to nine months of age. The investigator would then know to ask more questions concerning the infant's skills and would ask to examine the mattress and bed. This knowledge may prove invaluable to the investigator who is attempting to determine the circumstances surrounding the infant's death.

ONE-MONTH DEVELOPMENTAL MILESTONES

Fig. 2.1: One-month-old infant.

One-month-old infants vary in their level of development. However, when born at term, most (90% or 9 out of 10) one-month-old infants should be able to do the following:

- Lifts head and chin slightly (and briefly) when lying on stomach on a flat surface.
- Keeps hands in fist (closed tightly).
- Eyes or eyes and head follow object moved in an arch about six inches above face to midline (straight ahead).
- Smiles in response to another person's smile or being talked to.
- Responds to a bell by startling, crying, or becoming quiet.
- Vocalizes in other ways than crying (e.g., "eh", "ah".)

TWO-MONTH DEVELOPMENT MILESTONES

Two-month-old infants vary in their level of development. However, when born at term the following are skills that most (90% or 9 out of 10) two-month-old infants should be able to do:

- Lifts head (45 degrees) off surface when lying on stomach.
- No longer clenches fist tightly all of the time.
- Eyes or eyes and head follow object moved in an arc about six inches above face past midline (straight ahead).
- Recognizes parents.
- Smiles spontaneously before being talked to, smiled at, or touched.
- Makes vowel "cooing" sounds (e.g., "ooh," "aah," "ooo").

THREE-MONTH DEVELOPMENT MILESTONES

Fig. 2.2: Three-month-old infant.

Three-month-old infants vary in their level of development. However, when born at term the following are skills that most (90% or 9 out of 10) three-month-old infants should be able to do:

- Lifts head 90 degrees off surface when lying on stomach.
- Holds head upright and steady without support when held in sitting position.
- Holds hand open at rest.
- Grasps (holds onto) rattle placed in hand for few seconds.
- Laughs out loud.

FOUR- TO FIVE-MONTH DEVELOPMENT MILESTONES

Fig. 2.3: Four- to five-month-old infant.

Four- to five-month-old infants vary in their level of development. However, when born at term, most (90% or 9 out of 10) four- to five-month-old infants should be able to do the following:

- Raises chest and supports self on outstretched arms when on stomach.
- Rolls over from stomach to back and then from back to stomach.
- Bears some weight on legs when held upright in the standing position.
- Brings both hands together when lying on back.

- Reaches for objects placed in front of him or her.
- Eyes or eyes and head follow object moved in an arc about eight inches above face 180 degrees.
- Works to get toy by reaching or stretching arm or body toward object.
- Turns toward rattling sound.
- Pays attention to (discovers) their own hands.

SIX-MONTH DEVELOPMENT MILESTONES

Fig. 2.4: Six-month-old infants.

Six-month-old infants vary in their level of development. However, when born at term, most (90% or 9 out of 10 infants) six-month-old infants should be able to do the following:

- Put feet in mouth when lying on back.
- Sit upright without support (without props) on hard surface.
- Keep head level with body when pulled to sitting position when lying on back.
- Begin to feed self.
- Turn to voice.

SEVEN- TO EIGHT-MONTH DEVELOPMENT MILESTONES

Fig. 2.5: Seven- to eight-month-old infant.

Seven- to eight-month-old infants vary in their level of development. However, when born at term, most (90% or 9 out of 10) seven- to eight-month-old infants should be able to do the following:

- Stands holding on to a low table or chair for support.
- Picks up object using raking grasp.
- Passes object from one hand to the other.
- Imitates sounds and speech.
- Says “ba,” “da,” “ga,” “ma,” or similar vowel-consonant combinations.
- Makes razz sound (wet, razzing sound with bubbles coming out mouth).

NINE-MONTH DEVELOPMENT MILESTONES

Nine-month-old infants vary in their level of development. However, when born at term, most (90% or 9 out of 10) nine-month-old infants should be able to do the following:

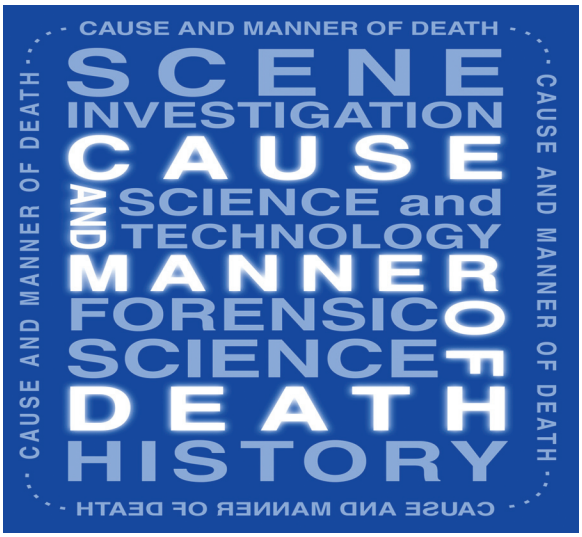
- Gets into sitting position from lying, crawling, or standing position.
- Pulls self to a standing position from sitting position.
- Crawls or moves across floor using both legs and arms.
- Holds bottle and feeds self using fingers.
- Picks up two objects and holds one in each hand at the same time.
- Says dada/mama indiscriminately (not specific).

TEN- TO 12-MONTH DEVELOPMENT MILESTONES

Fig. 2.6: Ten- to 12-month-old infant.

Ten- to 12-month-old infants vary in their level of development. However, when born at term, most (90% or 9 out of 10) 10- to 12-month-old infants should be able to do the following:

- Stands without hanging onto anything for two seconds.
- Begins to walk (walks well by 14 ¾ months).
- Bangs two blocks held in hands together.
- Uses thumb and finger to pick up small objects (pincer grasp).
- Plays patty-cake (clap hands).
- Indicates what they want.
- Combines syllables (e.g., “dadada,” “gagaga”).
- Jabbers or uses unintelligible conversation to self using inflection and pauses.



unit 5

Infant Feeding, Diet, and Risks

INTRODUCTION

What an infant is able to eat varies by his or her age and developmental skill level. For example, newborn infants do not eat solid food. Instead, they are breastfed or bottle-fed infant formula. Developmentally, newborns are not meant to eat solids. If you try to put solid food in a young infant's (typically less than four months of age) mouth, his or her tongue will reflexively push it out. It is important for an investigator to know what a typical infant's diet consists of at various ages so that he or she can evaluate the circumstances surrounding the death. The investigator should be aware of foods that are a choking risk for infants so that he or she can ask the caregiver about these foods in an interview. Investigators will benefit from knowing about food allergies, cultural remedies, and food-borne illnesses, such as infant botulism, because these conditions may contribute to the infant's death.

TYPICAL FEEDING PERIODS IN THE UNITED STATES

Nursing Period

The nursing period is defined as the period of time when an infant is given only breast milk and/or infant formula to eat. This period typically lasts for the first four to six months of life. According to the American Academy of Pediatrics (AAP), "adequate intake of human milk or a commercial infant formula meets all of the known nutritional requirements of infants for the first six months of life, with the possible exception of vitamin D in dark-skinned or sun-deprived breastfed infants." (Pediatric Nutrition Handbook, 2005).

Physically and developmentally, infants are not ready to eat solid foods until they are four to six months old. Before this time, infants' digestive systems are still maturing. Infants lose the tongue-thrust reflex (when their tongue is touched, they will react by pushing their tongue outward or forward) by about four to six months. Most infants also learn how to hold their head steady while in the sitting position and develop the coordination needed to chew and swallow solid foods by 3 ¾ months. Most infants (90%) can sit unsupported on a hard surface by 6 ¾ months. By five to six months, infants can show a desire for food by opening their mouth and leaning forward. They can also show their parents/caregivers their disinterest in food by turning their head away or leaning back.

Transitional Period

The transitional period is defined as the period of time when soft, pureed foods and cereals are introduced into the infant's diet. Controversy still exists about the optimal timing of the introduction of solid foods. However, until infants lose the tongue-thrust reflex and are able to swallow nonliquid foods, it will be difficult to feed them by spoon. After four to six months, most infants' coordination has advanced sufficiently that they can swallow pureed solids.

In the United States, solid foods usually are introduced into an infant's diet between four and six months of age. Recommended first solids include vitamin-fortified infant cereals and pureed vegetables and fruit (e.g., baby foods). Food items should be introduced one at a time so that the parents/caregivers can watch for signs and symptoms of food allergies.

By 8 to 10 months, infants can begin to eat finely chopped foods (i.e., finger foods) because the likelihood of choking is decreased (Pediatric Nutrition Handbook, 2005). Teething biscuits can also be offered at this age. Foods that can break off and cause choking should be avoided.

Modified Adult Period

The modified adult period is defined as the period of time when most of an infant's nutrients come from table foods. This period generally begins after 10 months. Children may be taken off infant formula and given whole cow's milk after their first birthday.

DIETARY RISK FACTORS

Choking Risks

Children less than four years old are at greatest risk for choking on food, which can lead to death by asphyxiation (i.e., obstructive suffocation). Foods that are round, hard, and difficult to dissolve in saliva are most likely to cause problems. Infants and toddlers should not be given nuts, seeds, hard candies, round candies, grapes, raw carrots, popcorn, or hot dogs. These food items are easy to choke on. Choking also can occur if too much food is stuffed in an infant's mouth, if a child runs while eating, or if the child eats while unsupervised. Medications that are used to numb the gums and ease teething pain can increase a child's risk of choking. Children who receive medications should be observed carefully while eating. Children who have facial or oral abnormalities such as cleft lip or palate, esophageal anomalies, history of brain damage, or cerebral palsy are at increased risk of swallowing problems and choking.

Food Allergies.
A food allergy is an exaggerated immune response triggered by food. Reactions to foods may vary from mild to fatal. Food allergies can produce a variety of signs and symptoms, including scratchy throat, stomach pain, diarrhea, vomiting, shortness of breath, wheezing, difficulty swallowing, hives, angioedema (swelling of the eyelids, face, lips, and tongue), or anaphylaxis (a severe whole-body allergic reaction that can result in low blood pressure and death). Most reactions happen soon after contact with the food. While first-time exposure to the food may only produce a mild reaction, repeated exposures may lead to more serious reactions. Once the infant has had a previous reaction to food, even a very limited exposure to a very small amount of the food can trigger a severe reaction. It is important to ask the parent or caregiver if the deceased infant had any known food allergies. Common food allergies include dairy products (e.g., cow's milk), eggs, peanuts, nuts and seeds, wheat, soy, corn, shellfish, and fish. Also, the investigator should ask if anyone in the immediate family (especially siblings of the deceased infant) has a history of food allergies since they occur more frequently in infants with a positive family history.

Cultural Remedies
A cultural remedy can be defined as a non-regulated, non-prescription medicine, supplement, or treatment that may have been purchased or made by the caregiver. Many cultural remedies contain herbs and are technically considered food products under the U.S. Dietary Supplements Health and Education Act of 1994. Unlike prescription medicines and over-the-counter products (e.g., Tylenol), herbal products don't have to be tested to prove that they work well and are safe before they are sold. Because of this, herbal products may contain contaminants (e.g., benzodiazapines) that could make the infant sick or lead to his or her death. It is important for the investigator to ask the caregiver if the deceased infant was ever given cultural remedies in the past and if he or she was given one in the 24 hours prior to death. If so, the remaining sample should be collected for testing.

Food-Borne Illnesses
Food, and waterborne illnesses may be caused by a variety of bacteria, viruses, parasites, or toxins and can affect infants, children, and adults. Illness is often caused by consuming contaminated foods or beverages and could result from the ingestion of a microorganism (this is often referred to as an infection) or from the ingestion of a toxin that was produced by a microorganism (often called an intoxication). A few examples of organisms that may cause foodborne illness in infants include Salmonella and Clostridium botulinum.

Salmonella
A bottle-fed infant may be at high risk for severe infections with Salmonella or other bacteria that can grow in a bottle of warm formula if it is left at room temperature for many hours. Particular care is needed to be sure that the baby's bottle is cleaned and disinfected and that leftover milk formula or juice is not held in the bottle for many hours.

C. botulinum
Botulism is a rare but serious illness that is caused by a bacteria called Clostridium botulinum. There are three main kinds of botulism: food-borne botulism, wound botulism, and infant botulism. Infant botulism is caused by consuming the spores of the C. botulinum bacteria, which then grow in the intestines and release toxin. All forms of botulism can be fatal and are considered medical emergencies. Of the approximately 110 cases of botulism that are reported on average each year in the United States, 72% of these are infant botulism. Infants with botulism appear lethargic, feed poorly, are constipated, and have a weak cry and poor muscle tone. These are all symptoms of the muscle paralysis caused by the bacterial toxin. If untreated, these symptoms may progress to cause paralysis

of the arms, legs, trunk, and respiratory muscles. The risk factors for infant botulism are poorly described, but possible sources of spores include foods and dust. Honey should not be fed to infants less than one year of age because it has been identified as a botulism source.

Summary

DISCUSSION QUESTIONS

1. You are interviewing the parents of a six-week-old infant and they tell you that the infant was sleeping alone in her crib near the top and in the middle of the mattress. They tell you that the baby rolled over and was found face down on a small pillow on the side of the crib. When the infant was found by Dad, she was unresponsive. What is unlikely about this scenario? What further questions should you ask?
2. The mother of the infant tells you she knew that her four month old was last alive when she checked on him in his crib. She said that the infant was sitting up in bed unsupported playing with his baby rattle. When she checked on him an hour later, she found him lying down face up and not breathing. What is unlikely about this scenario? What additional information do you need?
3. What are the three infant feeding periods, and when are infants typically introduced to solid foods?
4. What types of solid foods are associated with choking? Describe the types of food and give examples.
5. What are the common causes of food allergies? List the main categories of food.

SAMPLE QUESTIONS

1. Which statement is false about normal growth?
    A. An infant's weight may drop below the 5th percentile for age when the infant starts weaning.
    B. An infant's length often increases by 50% from birth to one year.
    C. An infant's weight often doubles by four months and triples by one year.
    D. A newborn loses weight in the first week of life.

2. Which of the following infants may be underweight?
    A. Has weight-for-length greater than 95%.
    B. Has weight-for-length less than 5%.
    C. Has length-for-age less than 25%.
    D. Has a weight at 50% for age.

3. Which infant's growth is abnormal and should raise concern?
    A. A newborn who has lost weight in the first week of life.
    B. An infant whose birth weight was 6 pounds is 12 pounds at four months of age.
    C. An infant whose birth weight was 8 pounds is 24 pounds by 12 months of age.
    D. A female term infant who is 8 pounds at two months or weighs less than 5% for age.

4. What infant does not need evaluation for failure to thrive?
    A. An infant whose weight is consistently below the 5% for age.
    B. An infant whose weight drops to below the 5% for age.
    C. An infant whose growth has declined or stopped.
    D. An infant whose weight is consistently at the 5% for age.

5. Developmental milestones include
    A. Gross and fine motor skills.
    B. Gross and fine motor, social, and language skills.
    C. Gross motor, social, language, and cognitive skills and abilities.
    D. Gross and fine motor, social, language, and cognitive skills.

6. Gross motor skills can be defined as
    A. The ability to move and control large muscles in the body or groups of muscles.
    B. The ability to move and control small muscles in the hands, fingers, neck, and head.
    C. The ability to interact with the environment and caregivers.
    D. Involuntary movements or reflexes that an infant is born with.

7. At what age can most infants (90%) sit?
    A. Two months.
    B. Six months.
    C. Four months.
    D. Three months.

8. At what age can most infants (90%) roll over both ways?
    A. Five months.
    B. Two months.
    C. One month.
    D. Three months.

9. What types of growth charts are available for U.S. term infants?
    A. Weight-for-age, weight-for-length, and head circumference-for-age.
    B. Weight-for-age, length-for-age, and weight-for-length.
    C. Weight-for-age, length-for-age, weight-for-length, and head circumference-for-age.
    D. Weight-for-age.

10. What infant may have a different growth pattern compared to the majority of U.S. infants?
    A. An infant who just had a cold but is typically healthy.
    B. An infant born at the 28th week of pregnancy.
    C. An infant whose birth weight was 6 pounds.
    D. An infant who was born at the 40th week of pregnancy.

chapter 3

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Interviewing Psychology

Basic Interviewing Concepts

Unit 6: Interviewing Awareness
Unit 7: Assessing Content and Behavior
Unit 8: The Investigative Interview

The stress and anxiety associated with death scene investigation multiplies when the decedent is an infant. Multiple witnesses, multiple agencies, scenes, and caretakers make for a confusing situation. This chapter covers the psychological considerations associated with interviewing witnesses as well as the significant differences between interviewing and interrogation, which are two entirely different methods of data gathering.

OVERVIEW

This chapter highlights the basic tasks associated with conducting investigative interviews with parents, caregivers, and other witnesses. This includes all interactions between the investigator and individuals identified as the person who last placed the infant (placer), the person who last knew the infant was alive (LKA), and the person who discovered the infant dead or unresponsive (finder). Additional emphasis is placed on data-collection methods and instruments.

SUPPORT MATERIALS

The following support materials are suggested:

1. Ekman P. *Emotion in the Human Face*. Oxford: Oxford University Press; 2005.
2. Fleisher WL, Gordon NJ. *Effective Interviewing and Interrogation Techniques*. San Diego: Academic Press; 2002.
3. Wilson C, Powell M. *A Guide to Interviewing Children.* New York: Routledge Press; 2001.
4. Schafer JR, Navarro J. *Advanced Interviewing Techniques: Proven Strategies for Law Enforcement, Military and Security Personnel.* Springfield, Ill: Charles C. Thomas; 2004.
5. Rabon D. *Interviewing and Interrogation.* Durham, NC: Carolina Academic Press; 1992.
6. Esposito, L. SIDS Center of New Jersey (various educational materials developed). 2005.
7. Bronheim S. *Infusing Cultural and Linguistic Competence into the Multiple Systems Encountered by Families Following the Sudden, Unexpected Death of an Infant*. Washington, DC: National Center for Cultural Competence; 2003.
8. Registry of Interpreters for the Deaf. (703) 838-0030 Voice, (703) 838-0459 TTY. http://www.rid.org.

CHAPTER OBJECTIVES

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

1. Differentiate between interviewing and interrogation.
2. Explain how cultural differences may affect an interview.
3. Assess content and behavior.
4. Plan an interview.
5. Perform an interview.

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

unit

6 Interviewing Awareness

INTRODUCTION

As stressed earlier, the sudden and unexplained death of an infant is a tragic family event. Families and caregivers experiencing such grief deserve and have the right to receive a thorough investigation that is sensitive to their grieving state. An investigation that is accusatory or insensitive to the emotions that they are feeling, such as an interrogation, is inappropriate.

The most effective tools for the investigator are curiosity and a desire to learn the truth. This portion of the training deals with the process of the interview and how to use interpersonal interaction to gain the data needed and evaluate the quality of the information obtained. Culture is a key part of how we interact with others and how we assess their behaviors. Understanding how cultural factors impinge on the interviewing process is vital to making appropriate and informed conclusions about the process and data obtained.

INTERVIEWING AND INTERROGATION

The terms *interviewing* and *interrogating* are not interchangeable. Periodically, concerns are voiced that the concept of interrogation carries with it the specter of the so-called third-degree or some other mode of abusive conduct that is unreasonable and inappropriate when questioning an individual. These uniquely different processes have particular relevance when there is recognition of cultural differences between the interviewee and the investigator.

In an interview, information is garnered from a person who generally has no interest or motive in providing inaccurate information. An interview is a planned conversation with a specific goal in mind. The purpose of an interrogation is to obtain information from an individual to determine whether he or she was responsible for, or involved in, the matter under investigation. Unlike an interview, it is a controlled conversation that is designed to elicit information from individuals who may have an interest in being untruthful.

CROSS-CULTURAL CONSIDERATIONS

Culture is an integrated pattern of human behavior that includes, but is not limited to, thought, communication, languages, beliefs, values, practices, customs, courtesies, rituals, manners of interacting, roles, relationships, and expected behaviors of a racial, ethnic, religious, spiritual, social, or political group; the ability to transmit the above to succeeding generations; and dynamic in nature (Cross, Bazron, Dennis, & Isaacs, 1989). Cultural factors that reflect diversity among individuals and groups involve much more than race and ethnicity. Such factors include, but are not limited to, language, national origin, tribal or clan affiliation, gender, age, education, literacy, socioeconomic status or class, sexual orientation and sexual identity, religious or spiritual beliefs, geographic or regional patterns, legal status, acculturation, and assimilation. Thus, for example, a middle-aged man interviewing a teen mother is engaging in a potentially cross-cultural communication process.

To be effective as an interviewer in cross-cultural situations takes an awareness and knowledge of both one's own cultural beliefs, values, behaviors, and assumptions and those of persons from other cultures. Without this awareness, the interviewer runs the risk of viewing the behaviors and ways of interacting of others through a lens of incorrect assumptions about their meaning and imposing biases on the interview process that lead to inaccurate data and conclusions. In addition, the interviewer's ignorance about others' customs and practices may lead to serious cross-cultural *faux pas* that may seriously jeopardize the rapport needed for a good interview. Behaving in ways that are seen as insensitive or insulting, due to lack of knowledge about other cultures, can compromise the interview process.

How to Understand One's Own Cultural Lens

It is often difficult to recognize one's own cultural beliefs, values, and practices because they are so automatic and seem natural—"that's how it is." Typically, one only begins to sense one's own culture when one encounters another culture. Thus, creating opportunities to experience other cultural groups is part of preparing to be an effective interviewer. Good interviewers also take time to examine their own beliefs, values, and practices. The following questions (not an exhaustive list) could help an interviewer identify their own cultural issues that might impinge on the interview process:

What Do I Believe about...

1. How people should act when experiencing grief?
2. Death from my own religious and cultural perspective?
3. What constitutes an appropriate family structure (married/single parent, etc.)
4. What constitutes "good parenting"?
5. How a well-ordered household looks?
6. How people should react to strangers, authority figures, or members of the opposite sex?

7. People who are at a different socioeconomic level (richer or poorer) than I am?
8. How people act when telling the truth?
9. Roles for men, women, and children in a family?
10. People of different ages (elders, children, teens, etc.)?
11. People who do not speak English?

How to Learn about Other Cultures

Part of preparation for interviewing is learning about the cultural beliefs, values, and practices of groups that live in the area served. The most effective strategy is to identify individuals or organizations from the diverse community and seek out knowledge. It is also helpful to develop a relationship with a cultural broker who can provide ongoing input on the cross-cultural issues involved in working with a particular population.

> **Cultural brokering** is defined as the act of bridging, linking, or mediating between groups or persons of differing cultural backgrounds for the purpose of reducing conflict or producing change (Jezewski, 1990).
>
> The cultural broker needs an awareness of his or her own culture and the culture and systems of those involved in the death scene investigation. This person can help the interviewer learn about beliefs, values, practices, and customs that impact the interviewing process. Cultural brokers can help interviewers avoid cultural missteps that can compromise rapport and cooperation of witnesses

An effective interviewer will also learn about health practices of other cultural groups in the area, religious beliefs related to how the dead are treated (autopsies, who may touch the body, etc.), and their history of bias and discrimination with health, child welfare, and law enforcement agencies that may impact their comfort and willingness to cooperate in interviews.

The goal for the interviewer is to check one's own cultural assumptions and assumptions about the interviewee based on cross-cultural issues at the door. At the same time, the interviewer still needs to evaluate behaviors and the interaction as part of the process. It is a delicate dance between avoiding the intrusion of inappropriate cross-cultural interpretations and using the important information gained through the interactions of the interview to inform the conclusions of the report and to evaluate the information gained. Organizations that employ death scene investigators should provide the resources and opportunities for cross-cultural learning and make it part of structures and practices of the organization.

Interviewing Preschool Children (up to Five Years of Age)

Young children's accounts of events tend to be rambling and disjointed as they may have difficulty making distinctions between relevant and irrelevant data. They tend to have short attention spans and focus on one issue at a time. They have difficulty combining their thoughts into an integrated whole. The child's ability to recall information and events, whether short-term, long-term, or sensory, is underdeveloped.

Very young children have underdeveloped perceptual abilities, which tend to result in occasional problems in differentiating between what they have heard, what they have seen, and what others (e.g., parents, siblings, adults) have told them. They may have difficulty distinguishing fact from fantasy. Investigators must understand that even young children are capable of lying. However, they generally are incapable of supporting the lie.

Interviewing School-Age Children (5 to 17 Years of Age)

As children advance in age, their verbal ability improves with increased vocabulary, which is strongly influenced by peer groups, parents, and others interacting with the child/adolescent.

Young children's ability to work with and develop abstract concepts improves with age; however, these concepts tend to be simple and perfunctory. Their ability to recall ideas and events improves with maturity but tends to complement male/female-oriented criteria.

Deception is often aligned toward "separation" from adults or establishing an "identity." Children in this age bracket tend to be more aligned to the concept of "right" versus "wrong," not "moral" versus "immoral" or "just" versus "unjust."

A Closer Look at Bereavement and Grieving

When a child dies, the grief that enfolds parents is characterized by feelings of intense loss, sadness, emptiness, and failure. Parents often perceive themselves as having failed in some way to protect their child from death. It is important that the investigator begins the delicate process of counseling the parents of the deceased infant during the investigative process.

The loss may be the parents' first experience with death. It may elicit parental guilt, magnification of minor omissions, and anger and it may have a profound effect on family function for an indeterminate length of time. The hopes, plans, and dreams for this baby are shattered (McClain & Mandell, 1994). Death becomes the ultimate separation as parents are not able to fill their emptiness, even with another child or children born before or after the deceased.

Skilled counseling can have an enormous impact on parents' ability to cope with grief successfully. This intervention offers multiple benefits for parents themselves and for their families and communities, now and in the future. Like grief itself, counseling has numerous dimensions and should take place over time. The healthcare professional should prepare in advance, using the following steps as a guide.

Counseling Bereaved Parents: Basic Skills

1. Listen and attend to the story of the baby's life and death; pay attention to parents' expressions of grief within their cultural context.
2. Convey a sense of empathy.
3. Gain knowledge about cause of death, family development, and family dynamics.
4. Assess the following:
   a) Grief response of family members, including suicide ideation and risk.
   b) Availability and appropriateness of social support networks.
   c) Parental knowledge and understanding of cause of death.
5. Provide anticipatory guidance for grief process, explaining how grief is expressed and what to expect in the days and weeks ahead.
6. Make appropriate referrals for grief therapy (community health, social service programs, etc.).

Depending on the circumstances of the death, parents may be in contact with medical professionals, police investigators, medical examiners, and coroners. Their reactions will be influenced by the circumstances of the death as well as the sensitivity and intrusiveness of the professionals involved (Longchamp, Hall, & Arnold, 2003). As such, it is important that the investigator, as the first on-scene professional, give the family members a sense of comfort and privacy

Adapted from McClain M, Arnold J, Longchamp E, Shaefer J. *Bereavement Counseling for Sudden Infant Death Syndrome (SIDS) and Infant Mortality: Core Competencies for the Health Care Professional.* McLean, V: Association of SIDS and Infant Mortality Programs; 2004: 13–18.

unit 7

Assessing Content and Behavior

INTRODUCTION

The process of verbal communication is based on a basic structure of language and interpretations that we begin learning in childhood. Although this structure is firmly imprinted during childhood, it is in a state of constant modification. As an example of the modification of language, significant changes in syntax and words can be seen as teenagers mature into young adults. Even in adults, modification of verbal language occurs as a consequence of reinterpretation based on how we respond to the messages of others and how others respond to the messages we send to them. All investigators who interview witnesses need to understand the basic concepts of content and behavior assessment.

INTRODUCTION TO CONTENT AND BEHAVIOR

The vocal characteristics of speech, or **paralanguage,** may often reveal the emotional state of the witness and can carry more meaning than the words the witness chooses to use. Paralanguage may include such aspects as (1) the witness's tone of voice (e.g., a high or low pitch); (2) the volume of speech; (3) the rapidity of speech; (4) the frequency and duration of pauses and silence; and (5) the frequency of nonfluencies, including non-pathological stuttering and stammering.

The words used by the witness that may communicate distress and possibly deception can include such things as (1) odd or unusual syntax (the ways words are put together), (2) imprecise choice of words, and (3) words that are nonresponsive to a posed question. Occasionally, an investigator may misinterpret or mischaracterize a witness's observations and believe that the witness is being deceptive when, in fact, the person's observations may have been influenced by various elements of perceptual distortion. Body language is probably the oldest form of communication. Witnesses may use a wide spectrum of nonverbal gestures involving facial expressions, body movements, eye contact, hand gestures, clothing, hair styles, personal space, and even positioning of furniture to send messages to others.

Nonverbal behavior is a significant mechanism that can aid in the evaluation of honesty, trustworthiness, and sincerity. Although we are taught to prefer words over gestures, research has indicated that we trust our interpretation of nonverbal messages more than we do verbal messages. The majority of the information from a face-to-face communication is gleaned from facial gestures.

ASSESS VERBAL CONTENT

Paralanguage and Clues to Distress:

- Tone of voice.
- Volume of speech.
- Rapidity of speech.
- Pauses and silence.
- Nonfluencies.

Elements of Perceptual Distortion

This area pertains to the need for interviewers to be alert to those factors that can compromise eyewitness acuity. Among these elements are (1) selectivity; (2) expectation; (3) prejudices, biases, and personal needs; (4) psychological stress; (5) physiological distress; (6) environmental conditions; and (7) limitations of human memory.

Selectivity: Human beings can perceive only a limited amount of data at a time. Investigators often require witnesses to describe events that, at the time of their occurrence, were afforded little or no significance concerning the infant's death.

Expectation: Witnesses should be able to describe how the infant looked, smelled, or felt and apply this knowledge in their perception of the events.

Prejudices and biases: This multifaceted area deals with the predisposition that some individuals may have in their perceptions of another's activities. The proclamation, "They all look alike to me" may have some basis in fact if the witness has had only limited exposure to the group in question. Some witnesses may tend to correlate certain physical characteristics (e.g., thickness of lips, distance between eyes, width of nose, height, weight, length and style of hair, type of clothing, etc.) with social acceptance. Mainstream appearance and average-sized proportions tend to suggest reliability and worth. The death scene investigator should be aware of his or her

own perceptions of prejudices and biases when conducting an investigation. Professionalism must be maintained at all times. Information must be gathered using a nonjudgmental attitude to ensure all possibilities of the infant's death are taken into consideration.

Psychological stress: Individuals tend to project their own feelings onto their perceptions of others. Recent studies have illustrated that an individual who experiences severe stress will report details less accurately than another individual reporting the same event under less stressful circumstances.

Physiological conditions: These conditions are manifested by (1) fatigue, (2) visual problems, (3) auditory disturbances, and (4) other sensory problems.

Fatigue: Perceptual data from individuals who have gone without sleep for 24 hours should be viewed with caution. Perceptual data from individuals who have not slept for 36 hours are unreliable.

Visual problems: Interpretation/organization—retinal images are fundamentally ambiguous. Ambiguity results because the world is three dimensional and the retina is two dimensional.

- Negative aftereffect is an impression that remains after a fixed gaze.
- Multistability is seen in pictures and figures that spontaneously change in appearance.
- Visual distortion may be the result of near/farsightedness, impaired night vision, monocular vision, and color distortion.

Auditory disturbances: Such disturbances may affect a witness's ability to distinguish speed, distance, and directionality of sound. Other disturbances may include acuity notches, tinnitus, and loss of hearing due to aging.

Other sensory problems: These problems include (1) gustation (taste), which includes four basic stimuli (sweet, salty, sour, and bitter); (2) olfaction (smell), which includes six primary odors (fragrant, ethereal, spicy, putrid, resinous, and burned); and (3) touch, which includes sensitivities to pressure, pain, cold, and warmth.

Environmental conditions: These conditions may result in mistaken perception due to (1) the duration of the observation; (2) lighting conditions; and (3) other distracting influences.

Duration of the observation: The length of time that an incident was under observation is directly related to the accuracy of its perception.

Lighting conditions: Perception may be limited due to the amount of visual information stimulating the retina of the eye. In addition, ambient lighting may influence the acuity of color perception.

Distracting influence: Collateral noise (peripheral events) may generate misinformation.

ASSESS NONVERBAL BEHAVIOR

Nonverbal Clues of Possible Distress and/or Deception

The context of the message is **verbal** (7% of the message). The **vocal** aspect (38% of the message) refers to the speaker's tone of voice (e.g., a high or low pitch), the loudness or softness at which someone is speaking, the rapidity of the individual's speech, the frequency and duration of pauses and silence, and the frequency of nonfluencies. **Facial** data (55% of the message) pertain to (1) eye contact and movements, (2) asymmetrical facial gestures, (3) mouth and lip movements, and (4) nasal reactions (Mehrabian, 1971).

Eye contact and movements: Reactions to stress may include excessive blinking, eye fixation, and/or failure to maintain eye contact.

Asymmetrical facial gestures: An asymmetrical facial gesture is seen in facial expressions that do not appear balanced. In these instances, the expression on one side of the face does not match the expression on the other side of the face. This happens because the muscles on one side of the face are stronger than those on the other, and when the individual, while under stress, tries to fake an emotion (e.g., indifference), they tend to over-flex those muscles that control this emotion. As a consequence, the muscles on one side of the face may be over-tensed, which results in an asymmetrical facial expression.

Mouth and lip movements: Reactions to stress may include bruxing (grinding of the teeth), clenching of the teeth, frowning, biting the inside of the mouth or lips, pursing the lips, or chewing on objects.

Nasal reactions: Reactions to stress may include flaring of the nostrils and touching or pinching the nose.

Autonomic Reactions to Stress

Autonomic reactions are those behaviors that are either difficult or beyond the ability of most human beings to control. Examples of these reactions are seen in pupillary dilation and micro-gestures.

Pupillary dilation: Research has confirmed that, when one is under stress, the pupils of the eyes may dilate. Pupillary dilation is a part of the fight-or-flight reaction or General Adaption Syndrome (Selye, 1956). However, in an interview/interrogation scenario, this phenomenon has been linked to both positive stress and negative stress. Therefore, it is difficult to interpret the meaning of the reaction.

Micro-gestures: According to research by Paul Ekman (1985), micro-gestures are autonomic reactions that last less than one-quarter of a second and signal (1) distress, (2) fear, or (3) anger.

Distress: This reaction may be linked to feelings of shame, humiliation, guilt, embarrassment, and so on, and is manifested by a lifting of just the inner portion of the eyebrows. Less than 15% of the population can duplicate this movement.

Fear: This reaction is manifested by a lifting and then pulling together of the eyebrows.

Anger: This reaction is manifested by a narrowing and tightening of just the red margin of the lips.

Problems Associated with the Interpretation of Nonverbal Behavior

Body language gestures and actions that can be consciously controlled are unreliable as an indicator of stress. Cultures vary greatly in the use and meaning of aspects of body language. For example, direct eye contact may mean engagement or honesty in some cultures and may be perceived as a hostile threat in others.

There may be very little uniformity of body language gestures and actions even among individuals of common background and lineage. Within-group cultural differences may be as great as between-group differences. For example, individuals living in different parts of the United States who were born and raised in the same community in their native country may have entirely different body language gestures.

ASSESSING THE ACCURACY OF WITNESSES' STATEMENTS

Assessing the testimonies of surviving family members and witnesses is not an easy task. An interviewer might easily overlook some of the basic signs of deception or misinterpret nervousness, shock, disbelief, and other crisis-related emotions as deception. Dealing with the death of an infant is difficult for interviewers as well. Interviewers should be sure to take time to assess their own reactions and biases that may impact the interview process.

It is absolutely essential to recognize that a parent may verbalize feelings of anger and self-blame through emotional rather than factual statements. The interviewer should be aware that it is common for a mother or father to say such things as, "It's all my fault!" or even to go so far as to state, "I killed my baby!" The response must be carefully assessed, and interviewers should be careful not to jump to conclusions. Guilt is expected and common for cases involving deaths of infants and young children. These utterances should be documented; however, the investigator should save his or her judgment for later in the interview and during further analysis.

That said, the investigator still must be able to detect deception when it occurs. One of the best ways to assess statements is by using what Joe Navarro (Schafer & Navarro, 2004) referred to as the Four Domain Model of Detecting Deception. This model simplifies the process of detecting deception by describing domains or clusters of behaviors rather than attaching a specific meaning to a single nonverbal or verbal display. The four categories:

1. **Comfort/discomfort**: Assessing a witness's comfort zone while being interviewed is an important step in measuring the genuineness of his or her responses. Determinants of comfort include, but are not limited to, posture; barriers placed between you and the informant, such as cans, desk items, and furniture; nervous twitching; and fidgeting or doodling. When using an interpreter, part of the pre-planning and debriefing should address this issue.

2. **Emphasis**: Multiple actions occur when one is being interviewed, and it is important to recognize and assess how much emphasis is placed on words, tone, and statements.

3. **Synchrony**: Due to the complexity of cultural factors and the differences among individuals, it is important to identify whether the interviewer and the informant are seeing eye to eye and how this relationship is affecting the flow of the interview. It is important not to misinterpret cultural behaviors, such as eye contact and body language, as lying, discomfort, and/or deception.

4. **Perception management**: It is necessary to determine which witnesses are likely to be lying and which are actually telling the truth under crisis conditions. Perception management includes paying particular attention to body language and semantics. Poor performance in two of the four domains of this model is not unusual. However, if there are negative responses in each of the categories, the witness should be "flagged" for further follow-up.

Consider Individual Components of the Witness's Statements

The interviewer should not take any statement made by the witness for granted. The witness may very well change what he or she said a few moments earlier, but that is acceptable, as this can be part of what you are gauging for assessment. The interviewer should take note of the time of day. Answers vary based on how long you have been interviewing, as well as natural mood swings during mornings, afternoons, and evenings.

It is important to select key components from the statement and not make rash judgments about the witness's character or manner or about the witness in general. This is not to say that the investigator should shut off his or her observational skills, but rather keep them in check.

Review Each Element of the Statement in Context of Other Sources
It is important to compare statements made by the primary witness and another witness or informant. Ask similar and appropriate questions, comparing the responses.

Truth-telling style: This pertains to the caregiver's responsiveness to questions, tone of voice, rapidity of speech, eye contact, body language, nonfluencies, and the frequency and duration of pauses in answering questions. There may be cultural variations in body language, so the investigator must become familiar with such differences for the populations served. If the interviewer is unsure of the cultural meaning of body language for a given subject, then these doubts should be noted in the record, and follow-up to learn more about interpreting them should be done for the final reporting of data. Factors such as immigration status should also be taken into account. An interviewee might be concerned that being interviewed might impact immigration status, and thus responses might be impacted by a desire to hide such information as where one works, social security number, etc. In addition, speech cues in some languages may be difficult to judge for nonspeakers. For example, tonal languages, where word meaning is set not only by the sounds, but also by tonal inflection, can make judgments about speech difficult. The expertise of the interpreter will be invaluable in understanding speech-related cues.

USE PROXEMICS (DISTANCE FACTORS), BODY LANGUAGE, AND CULTURAL SENSITIVITY

Proxemics and body language are tools for helping to assess whom to interview, determining how to approach them, and listening to assess their statements. Proxemics refers to intimate, personal, social, and public distances at which people stand or sit in relation to another person(s) (Schafer & Navarro, 2004, p. 73). Body language refers to the way a person holds his or her body and the physical stance taken, for example, arms folded across chest, making eye contact or not.

The investigator must be open minded when taking cultural factors into consideration. Often an interviewer will misread an informant because of a lack of knowledge of the informant's cultural background. Cultural and ethnic background may affect proxemics and body language, so it is important to know the background of the people involved and assess any cultural and/or special needs of informants. For example, a Latina may not use direct eye contact because in her culture this could be perceived as rude. A Middle Eastern man might choose not to be interviewed in the same room as a woman due to his cultural beliefs and values regarding gender. The investigator should test the waters and assess the reactions that he or she gets by infomants' body language when he or she stands or sits near them before the interview.

unit 8

The Investigative Interview

INTRODUCTION

The interviewer should encourage free narrative responses by interviewees and ask clarifying questions after the interviewee completes his or her account of the event under investigation. It is reasonable and appropriate for the interviewer to be assertive, without being aggressive, and to impose control over the interview while giving it guidance and structure. By structuring an interview so that the caregiver describes events that occurred within the following phases of involvement, there is a greater likelihood of obtaining more relevant data from the interview. This unit covers the three basic investigative interviewing phases.

The **entry phase** concerns those events that brought the witnesses and/or victim(s) into contact with the event that resulted in their injuries. In reference to a SUID, it pertains to the details of *what* Placers and Finders were doing leading up to their respective actions, *when* these actions were taking place, and *where* and *why* these actions were taking place.

The **event phase** is unfortunately where most interviews begin and end. This aspect of the interview concerns exactly *what* Placers and Finders did at the time of their respective actions, precisely *when* and *where* these actions took place, and *why* these particular Placers and Finders were the individuals so involved.

The **escape phase** is the point at which the witness decided to disengage from the matter under investigation, depart and/or flee from the scene, and call for assistance.

PLANNING THE INTERVIEW

People who have never conducted an SUID interview often take the skills involved for granted. Experienced forensic death scene investigators agree that planning the interview in advance contributes to its success. Having a plan comprised of realistic goals and objectives will assist you tremendously with infant death scene investigation (DSI).

Review and Understand Local Medical Examiner/Coroner Statutes

The United States is made up of some 2,285 county- or parish-level medical examiner or coroner jurisdictions. States are typically said to be "medical examiner states" or "coroner states," but some states are mixed with both medical examiners and coroners operating on a county by county basis. The requirements to be a medical examiner or coroner also vary widely across the country. Some states require an M.D. forensic pathologist, while others fill the constitutional office of the coroner by a vote of the people in that jurisdiction.

Infant death investigators should know and understand the type of medicolegal system they work in and the state death investigator statutes that govern their work. Although state statutes vary with regards to the types of deaths that must be investigated and autopsied, most require that SUID be investigated by the medical examiner or coroner office, and some require autopsies in these types of cases.

Regardless, infant death investigators must share responsibility for interviewing witnesses at the scene with law enforcement and often defer to one another based on the laws and statutes that govern a specific jurisdiction. The goal remains the same: to conduct a complete and professional infant death investigation.

Determine the Need for Cross-Cultural Information and Interpretation

Before beginning any interview, it is essential to determine if there may be cultural and language considerations that could impact the effectiveness and accuracy of the interview. If the investigator and the interviewee are from different cultural backgrounds, the interviewer will need to learn about possible cultural conflicts or misunderstandings that might arise. In addition, it is important to learn about issues, such as culturally based norms related to body language, emotional displays and mourning customs, and verbal expressions (direct answers or stories to answer questions); perceptions of health and law enforcement agencies; and gender roles and modesty issues related to interacting with members of the opposite sex. Investigators should learn this information about the populations in the areas they serve before any interviews are done. Engaging local racially, ethnically, culturally, and linguistically diverse communities is a key to gaining this cross-cultural knowledge. Working with local community organizations or cultural brokers are key approaches. It is also vital to determine whether an interpreter will be needed for the interview and to work with the interpreter in the preparation phase.

Review Available Case Information

Reviewing all available case information before conducting an interview will provide a general snapshot of the situation. Case information such as the caregiver's relationship to the infant, involvement in the placement and/or discovery of the infant, who called for emergency assistance, and a critical review of specific language used may prove essential to the interview's success or failure. Having accurate information before your interview will make the process easier.

Develop an Interview Plan

An interview plan allows you to use your time on the scene efficiently. A plan allows you to adjust the time of the interview according to the person interviewed, choose the appropriate location for each interview, remain sensitive to the family members/care providers, and preserve the death scene. A plan also provides an opportunity for appropriate follow-up.

To develop your plans, decide who will be interviewed, what their roles were, and what information you would like to obtain from them. Determine the appropriate official to conduct the interview.

Standardize the Interview
Interview standardization allows you to measure the effectiveness of the interview protocol. Standardized interviews increase efficiency, enhance communication and work flow, and ensure consistent evaluation of information.

PERFORMING THE INTERVIEW'S ENTRY PHASE

NOTE: If at any time the investigator determines the possibility of criminal intent, the interview should end, and interrogation, according to the protocol of your local jurisdiction, should begin.

Present an Atmosphere of Professionalism
Introducing yourself to any potential witness in a positive, controlled manner sets a tone of professionalism for all future communication. Simply explaining who you are, why you are there, and how you hope to help can pay untold dividends for you as an investigator.

You must be authoritative (in control of your emotions), yet sympathetic at the same time. Although the interviewer must be authoritative, displaying too much dominance might cause the witness to perceive the official as insensitive and arrogant, creating significant communication barriers. Treat informant(s) with respect and **do not assume** they are guilty of anything before the interview takes place. This type of prejudice greatly influences the communication process and outcome. Introduce the interpreter if using one.

Direct Witness into Position
Ask the witness where he or she would be most comfortable and assess the appropriateness of this area for the interview. Lead your witness to the area by asking (not ordering) him or her to go to that part of the room with you right behind. In this way, you are being respectful by asking, but at the same time you are sending the message that you have control of the situation.

Make the Witness as Comfortable as Possible
Even though you have chosen an interview location you think is comfortable, be prepared to move to an alternate location if necessary. Ask the witness where he or she spends the most time and find out why that location is comfortable; for instance, is it a location where the person watches television, relaxes, or works out? Once you have selected a comfortable location, be aware of your eye contact. It is important not to show dominance at a SIDS-related scene. **Express a "death scene" rather than a "crime scene" mentality.**

Determine the Appropriate Vocabulary Level
Knowing your audience is vital to a successful interview. As such, it is important to speak the appropriate language and use the appropriate vocabulary. Begin by talking to the witness in a general manner on basic conversational topics. You may get a good sense of the person's education by quickly scanning the walls for any degrees or certificates of recognition. In addition, you can directly ask about educational level, although such a query should be woven into the interview rather than being a focal point.

Be careful not to assume that your witness is uneducated or has poor verbal skills based on his or her emotional responses. At these types of scenes, it is not uncommon to observe broken speech and stuttering by someone who is in a crisis situation.

In addition, it is essential to determine whether English is the witness's first language. If it is not, you may need assistance from an interpreter before you even begin the interview process. Do not assume that a lack of English proficiency means a low educational level in the native language.

Rapport-Building

The process of developing rapport begins with

1. Identifying yourself.
2. Introducing the interpreter if one is present, and explaining the process of interpretaion.
3. Providing a very *brief* explanation of what you need to accomplish.
4. Making a request for permission to talk to the interviewee.
5. Obtaining relevant background information from the individual being questioned.

The primary subject of the interview is *temporarily* abandoned during the rapport-developing phase of the interview process. The rapport-building phase is multifaceted and is intended to develop a comfort level between the interviewee and the interviewer. It is also intended to afford the interviewer an opportunity to assess the interviewee's cognitive level, recall ability, ability to orient, ability to reconstruct, emotive triggers, and truth-telling style. When working with an interpreter, this phase provides an opportunity to adjust to the process and make any changes if needed.

Acknowledge the Victim's Plight

It is important to recognize and appreciate what the surviving family members and anyone else who may have been involved are currently feeling. The interviewer should acknowledge the crisis and empathize with the informant. Use the child's name and avoid using pronouns such as he, she, him, or her.

Be careful not to appear too suspicious on a death scene investigation for infants and young children. If family members or care providers sense that you are pointing the finger at them before you begin the interview, your job will become even more challenging because you have erected a wall by displaying initial mistrust.

Use Forms and Notepads

The types of forms and notepads used in interviews may greatly affect informants' reactions and attitudes during their interactions with officials. Avoid using materials that are commonly linked to legal or law enforcement appearances. For example, do not use yellow legal pads as they are often associated with lawyers and courtrooms (Schafer & Navarro, 2004, p. 9). Carry an extra set of nondescript notepads in your vehicle. Be careful not to write down too much information as this may be distracting to the individual whom you are attempting to interview.

PERFORMING THE INTERVIEW'S EVENT PHASE

The event phase of an interview differs from the entry phase. Whereas the goal of the entry phase is to make the informant comfortable and gain his or her trust, the goal of the event phase is to gather more detailed information. You might need to direct the line of questioning by using the three techniques described below.

Basic Investigative Questioning Techniques

The three key investigative techniques are

- Active and passive listening.
- Using open-ended questions.
- Using nonjudgmental questions.

Active listening: Active listening is the most effective communication strategy for interviewing. When you conduct an interview, it is important to show obvious signs of attentiveness and caring by actively listening to what your informant is disclosing. It is essential that you interject a remark every couple of minutes to reflect and acknowledge what is being said. For instance, after the mother of the infant explains what time she last witnessed her daughter breathing, then you would say, "So, if I understand you correctly, the last time you saw Samantha breathing was at 3:30 a.m., when you last checked on her." This type of feedback ensures you have heard

the informant correctly and assures the informant that you are listening, thereby building trust. When using an interpreter, there may be a greater proportion of this type of interaction to assure that the accuracy of the information is not being affected by the interpretation process.

Passive listening: Passive listening requires no specific feedback. When an interviewer uses passive listening, it is usually because he or she feels rushed, is disinterested in what is being said, or is inexperienced. In some cases, passive listening is not considered to be negative. Using body language is another method of active listening and can be used during yes/no questions or when gathering basic facts.

Open-ended questions: During any interview, the investigator should never tell the story for the witness or talk over him or her. By asking the witness to describe the situation and explain his or her responses, the investigator will gain more complete information and can identify any inconsistencies that need to be resolved. Asking open-ended questions allows for a free flow of information, creates great opportunities for active listening, and depicts trust and respect to the witness.

Nonjudgmental questions: The tone for an interview is dictated by the questions asked. During a death scene investigation, it is vital that the investigator chooses his or her wording carefully, making sure to be nonjudgmental. The following lists illustrate the difference between judgmental and appropriate questions. The goal of each appropriate communication is to display active listening and compassion and to establish trust, respect, and rapport.

Judgmental questions:

- Did you spank the baby?
- Did you drop the baby?
- Don't you check on the baby?
- Are you sure the baby was not sick?
- Why didn't you take him to the doctor?
- Didn't you do CPR?
- Didn't you do anything?

Appropriate questions:

- Has Amy suffered any injury?
- How was John when you last checked him?
- Did you notice anything different about Bobby?
- Has Mike been to a doctor recently?
- When you found Ely, what did you do?

Have the witness tell you the story, and be patient with the person. After all, these cases usually involve innocent witnesses who are experiencing a host of emotions and reactions that may be misread as something different from what the person may actually be telling you.

Gathering Information from Witnesses

The following tips may help in gathering information from witnesses:

- Use the child's name; identify any nickname(s), if this is acceptable to the family.
- Show empathy.
- Ask questions in a nonjudgmental manner.
- Never become hostile or angry.
- Use a calm and directive voice.
- Be clear with instructions and answers to questions.
- Provide explanations to caregivers about treatment and transport.

- Repeat yourself when necessary.
- Allow the caregiver to accompany the baby if the situation permits.
- Avoid asking questions in a checklist format. The questions do not have to be asked in the same order as they appear on the form.

The Guided-Conversation Principle

Although you should allow the witness to tell the story in his or her own words, sometimes it is necessary to lead or guide the conversation in order to obtain needed information. Forms such as the SUIDI Reporting Form and other similar, jurisdictionally approved documents set the parameters for asking questions that will guide the conversation in an organized and thorough manner. However, be careful not to be consumed by the content of the form. Even the most experienced interviewers may depend more on the precise words on the form, rather than infusing them into natural conversation. Relying too heavily on the form itself risks losing the rapport established during the entry phase. Use the form as a guide and periodically rehearse how you would ask the questions from the form in a conversational way.

Record Information while Interviewing

Gathering data and recording information are the basic purposes of conducting an interview. Make sure that your form does not appear intimidating or too closely identified with legal agencies or organizations. It is best to have the forms printed without any attention-getting logos or descriptive features that could distract the informant. When starting to use the form, be sure to refer to it only when you need to gather specific information, rather than when you are asking a witness to explain anything emotional or personal. It is important to emphasize that you must display attentiveness and compassion during investigations involving the death of an infant or young child. Use common sense; appear as genuine as possible during the interview.

PERFORMING THE INTERVIEW'S ESCAPE PHASE

No matter what the outcome, an informant or witness reaches a point at which enough information has been collected. At that point, the witness begins anticipating a termination point or escape phase of the interview.

Ask a Final Question

Asking a final question sends a clear message that the interview is officially over. The final question should summarize the interview and end it on a positive note. This will leave the witness with a positive feeling and encourage subsequent contact. You might end by asking the witness to retell his or her version of what happened, but avoid being too repetitive.

It is always beneficial to ask an interviewee the following two questions at the conclusion of an interview:

- Is there anything else you think I should know about this incident that maybe I do not know about?
- Can you think of any other questions I should ask you that I haven't asked you yet?

These two questions often elicit new information. The questions also allow people to feel that they have played an active role in their own interview. These questions also reduce the opportunities for individuals to modify their statements later if incriminating evidence is found.

Thank the Witness

It is important to terminate the interview with a simple expression of gratitude. Simply say, "Thank you for your time and information; we will do everything possible to find out why Johnny died. I know this must have been extremely difficult for you and your family."

Never stand over a witness when saying thank you. Always establish eye contact at eye level. If you must stand while the witness remains seated, bend down to his or her level and respect that the person might be too emotionally drained to stand or move due to shock and disbelief.

Don't make your expressions of gratitude sound so final that it seems you are not interested in returning. Also, if you are at the immediate scene, be sure to emphasize that there will be subsequent interviews and follow-up as necessary. Try to frame your statement in a supportive rather than factual manner.

End the interview on a positive note, encouraging future contact and expressing your sorrow and willingness to do everything in your power to help the family find support and obtain the final results of the autopsy, if applicable. (Not all states and jurisdictions have mandatory autopsies on infants and young children.) Smile and be upbeat; indicate to the informant that the interview went well, regardless of how you personally feel about the process and the outcome.

Providing hope does not mean that you will definitely be able to solve family members' problems and obtain answers to all of their questions. Be positive but don't be unrealistic, and certainly don't mislead them into false hope.

Provide Opportunity for Further Contact

Make a plan for subsequent contact after the initial visit. Once again, reiterate to the witness that future contact will be made, and try to frame it in supportive and compassionate language, so he or she is encouraged to hear back from you rather than dreading the contact.

Talk about other families who may have benefited from follow-ups in the past. This is a good time to mention locally available resources as well. Be cautious about referring the witness for assistance if you are dealing with a highly complex death scene investigation. If it is a complex case, say you will help find support in a general manner, not specifying any particular organization or agency.

Exiting

Exiting is the last step of the interview process and provides closure on a proper and productive interview. This step is done while you thank the person and direct yourself to the exit. This is the time to bring the family member with you in your vehicle (depending on manner of death) or to assess whether the witness is emotionally stable enough to be alone or should be in the company of others. As you are walking toward the exit, speak with the witness about his or her feelings and emotional state after the interview. Be aware of emotional flooding and what those in the mental health field refer to as "doorknob therapy." It is common to see a witness who has been in a crisis that same day express a host of emotions and thoughts as you begin to make your exit. Do not misjudge this reaction as deception or think the person may have lied to you. If using an interpreter, plan how to choreograph this portion of the interview.

POTENTIAL PROBLEM AREAS

There are four types of problems involving the interviewing process. These are shortening interviews, failure to accurately record data (e.g., an interviewee's statement), mischaracterization or misinterpretation of data, and difficulties using an interpreter.

Shortening Interviews

Problems in this area occur when the interviewer terminates the interview prematurely. Exacerbating circumstances may involve such aspects as (1) having difficulty in comprehending the individual being questioned (e.g., mental disorder, intoxication, foreign languages, etc.); (2) fatigue on the part of the investigator; and (3) assuming that it is not necessary to continue the interview because the investigator has already obtained the information from another source.

Failure to Accurately Record Data

A significant problem that contributes to this concern is sloppy note-taking or using a tape recorder that is not functioning properly.

Mischaracterization/Misinterpretation of Data

This problem is a consequence of failing to ask for clarification when ambiguous information is received from an interviewee.

Difficulties with Using an Interpreter

Nuances of word meanings can differ from language to language, and interviewers must double check with interpreters that the data is accurate.

TAKE-HOME MESSAGE

It is essential that the infant death investigator recognize that:

1. The infant death investigation is the one case type that is **not** treated as a homicide from the onset of the investigation.
2. The interview is the **best** opportunity the get the type of information that leads to accurate establishment of the cause of death.
3. Cultural differences must be recognized and accommodated for accurate information gathering.
4. Interviewing is a skill that requires planning, focus, and practice.
5. Interviews are conducted by death investigators from various agencies.
6. Interrogations are conducted by sworn law enforcement officers.

Summary

DISCUSSION QUESTIONS

1. Describe the difference between a death scene and a crime scene.
2. Discuss why it is important to role play before interviewing.
3. Describe the main things to know before an interview.
4. Discuss the potential difficulties associated with interviewing children and what can be done to alleviate such difficulties.
5. Discuss various methods of establishing rapport with an individual being questioned.
6. Describe how bereavement affects the interviewing process at the scene.
7. Why do people handle death differently?
8. What is the most important thing grieving parents need to understand about the interviewing process?
9. Describe the six skills associated with working with bereaved parents.
10. How does your attitude toward other cultures affect your ability to interview?

SAMPLE QUESTIONS

1. The most important part of interviewing is
   A. Parting.
   B. Planning.
   C Polarizing.
   D. Parturient.

2. Which of the following is NOT one of the phases for interviewing?
   A. Escape.
   B. Entry.
   C. Evolution.
   D. Event.

3. Establishing rapport is important to
   A. Get through the interview as quickly as possible.
   B. Build trust and openness between the interviewer and the informant.
   C. Gain insight from witnesses.
   D. Assess the dynamics of lying.

4. Which of the following is NOT a good interview venue option?
   A. Living room with other family members.
   B. Official vehicle such as a police car.
   C. Quiet space on porch in backyard.
   D. Kitchen table without others in room.

5. All but one of the following is a measurable cue for comfort:
   A. Tone of voice.
   B. Fidgeting.
   C. Singing to self.
   D. Breathing.

6. Which of the following is ***NOT*** a primary consideration in a pre-interview phase?
    A. Choosing a proper environment for the interview.
    B. Organizing and prioritizing individuals to be interviewed.
    C. Determining the amount of time to devote to the interview.
    D. Establishing the parameters for the interview.

section 2

CASE INTERVIEWS

CHAPTER FOUR:
Interviewing and Investigative Data Collection

CHAPTER FIVE:
Conducting Witness Interviews

INTRODUCTION

This section consists of two chapters devoted to witness interviewing. The first chapter covers the types of interviews that must be conducted with witnesses at the scene or associated with the decedent. The second chapter focuses on information provided by other agency professionals at various scenes. The success of each interview depends on the investigator's ability to know who to interview, what to ask, and how to ask the questions.

chapter 4

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Interviewing and Investigative Data Collection

Family-Caregivers-Healthcare Providers

Unit 9: Initial Case and Witness Information Gathering
Unit 10: Recent Infant Activities and Behavior
Unit 11: Medical Information and Pregnancy History
Unit 12: Dietary and Feeding Information

Information gathering is essential to a successful death investigation. Family members, caregivers, and healthcare providers typically have the most vital background information about the infant. The SUIDI Reporting Form is a useful investigative tool for this task, as each of the key topics is presented in separate sections. Regardless of the scene form used, the issues covered in this chapter are considered critical to the establishment of cause and manner of death.

OVERVIEW

This chapter covers the skills and data collection techniques necessary for conducting field interviews with parents, caregivers, and other civilians at the scene. This includes all interactions between the investigator and individuals identified as the person who last placed the infant (placer), the person who last knew the infant was alive (LKA), and the person who discovered the infant dead or unresponsive (finder). Special attention is given to the most recent activities and actions involving the infant and others associated with the infant. In addition, data collection methods and instruments for documenting medical, dietary, and pregnancy history are detailed.

SUPPORT MATERIALS

In addition to the SUIDI Reporting Form or the jurisdictionally approved equivalent, the following support materials are suggested for this chapter:

1. Schafer JR, Navarro J. *Advanced Interviewing Techniques: Proven Strategies for Law Enforcement, Military and Security Personnel.* Springfield, Ill: Charles C. Thomas; 2004.
2. Rabon, D. I*nterviewing and Interrogation.* Durham, NC: Carolina Academic Press; 1992.
3. Dix J. *Handbook for Death Scene Investigators.* Boca Raton, FL: CRC Press LLC; 1999.

CHAPTER OBJECTIVES

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

1. Understand general interview questions.
2. Understand finder, placer, and LKA interview questions.
3. Document parental information.
4. Document other primary caregiver(s) information.
5. Document medical history.
6. Document dietary and pregnancy history.

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

unit 9

Initial Case and Witness Information Gathering

INTRODUCTION

The ability to interview witnesses is a skill that all successful infant death investigators must attempt to master. While such interviews are difficult for any investigator, the interviewer must be prepared to ask non-accusatory questions that are sensitive to the grief and emotions that family members are feeling. Initial contact with individuals at the scene is the first step toward a successful interview. There are some very general lead-in questions that can get the interview started successfully and avoid back-tracking due to a poor first impression. The tone established at the beginning of the interview will have a direct impact on the cooperation that the interviewee is willing to offer. Using standard data collection tools, such as SUIDI Reporting Form and an investigative notebook (for additional information), is the preferred method for collecting data during interviews. This unit covers the initial questioning that takes place at every scene using the SUIDI Reporting Form as a guide.

BEFORE THE INTERVIEWS—ENSURE SCENE SECURITY

Preferred Language

Scene security and safety is critical, not only to ensure that items of evidence are not tampered with and that the scene is preserved, but to make sure everyone remains safe during the investigation. Every effort should be made to help the residents understand what the investigator and other personnel are doing and why. However, language problems make communicating requests extremely difficult, and misinterpretations of actions and tone of voice have been known to turn an already emotionally charged environment into chaos.

In jurisdictions where known language issues exist, some investigative offices have produced pocket cards with key terms and phases on each in the various languages common to the area. These cards allow individuals at the scene to scan until they find the card with the terms presented in their preferred language, which allows the investigator to quickly identify the language spoken in the home and call for assistance. Once an agency-sponsored interpreter arrives, the investigation can begin.

Interpreters

If the investigator does not speak the preferred language, he or she needs to find someone who speaks *his or her* language *and* the preferred language. In many cases, other adults present or in the vicinity might be able to assist. It may be necessary to enlist the help and/or assistance of other family members or residents of the household to act as interpreters until official agency representatives arrive. This task can be accomplished by either the investigator or the law enforcement officer, who can initiate a simple conversation with other members of the household to determine whether or not anyone present can assist. Exercise extreme care when using a minor child for interpretation. Some words may not be easily translated into another language.

This situation may not be ideal; however, the difference between control and chaos may be seconds, and waiting for an official interpreter to be located and dispatched to the scene may not be realistic. While working with the volunteer interpreter, the investigator's goal is to communicate basic information about what is going on at the scene and possibly identify the lead member of the household.

Safety

Law enforcement should identify and remove all weapons, identify individuals who are under the influence of alcohol or drugs, and identify and secure individuals who appear to be highly agitated. If the scene becomes unsafe or has the potential to become unsafe, additional backup should be requested by law enforcement.

The investigator should minimize access to the scene by nonessential personnel, bystanders, and arriving family members. There will likely be many individuals present at the scene, including the parents/caregivers, other children, other family members, and neighbors. To maintain control, the investigator will have to sort the individuals, requesting that some remain and others leave. The investigator should realize that his or her role in the first initial minutes of the investigation may seem more like emotional defuser than investigator.

IDENTIFY AND REQUEST ADDITIONAL RESOURCES

When dispatched to an infant death scene, the investigator should not be surprised to find that other official agency representatives are already on-scene. These might include emergency medical services, law enforcement, fire, and the medical examiner/coroner and their investigators. It is essential to identify and develop rapport with these individuals and to establish the various roles and responsibilities of each, as they have vital information regarding the identities of witnesses at the scene, their relationships to the decedent, and possible involvement in or knowledge of the circumstances surrounding the death.

Introductions at the scene allow the investigator to establish formal contact with other official agency representatives. Establishing contact with the agency representative allows the investigator an opportunity to gather information regarding the current situation and to begin determining which individuals need to be interviewed. Upon arrival on the scene, the investigator should approach the first official he or she sees and ask what agency is in charge of the investigation. He or she should then locate the agency representative in charge of the scene and get an overview of the case.

The investigator should work cooperatively with all agency representatives on scene and determine if additional resources should be dispatched to the scene. Such resources may include the following:

- A chaplain or appropriate clergy.
- Forensic specialists (i.e., pathologists).
- Child welfare and/or social services.
- Appropriate family members.
- For institutions such as a day care, contact supervisors or management.
- Mental health professionals (e.g., victims' advocates, SIDS support resources).

BASIC SCENE MANAGEMENT

Control Emotions and Control the Scene

The investigator will likely encounter a wide range of emotions at the scene. He or she will need to remember that individuals will express their emotions in various ways throughout the incident, including anger, denial, shock, and complacency. It will be necessary to address not only the emotions of others at the scene, but also the investigator's own emotions in responding to the infant's death (Mitchell & Resnik, 1981).

If the investigator is to manage the scene and collect the information necessary to complete the investigation, then he or she must remain in control, alert, and focused on the investigative tasks ahead. No one set of rules will apply to all scenes, as the locations themselves may dictate the procedure. Whether the scene is the infant's primary residence, the babysitter's house, a day care center, a hospital emergency room, or even the morgue. What might be appropriate for one location might not work at another. The investigator must remain flexible and adjust his or her approach and scene management style accordingly.

The scene will probably be chaotic, and the investigator's role will be to manage this chaos, while at the same time securing the scene or even conducting the investigation. The emotional state of the individuals present may vary by scene type, but there is one constant: different people handle stressful situations differently. It is essential that the infant death investigator understand this idea and not react inappropriately to someone's inability to handle genuine grief. Bereaved individuals act differently than they would in almost any other situation. Investigators should have the same basic approach to scene management and understand it is possible to be organized, in control, and systematic—and still be flexible.

DETERMINE WHO STAYS AND WHO GOES

Witnesses vs. Bystanders

Anyone standing around the scene is a potential witness. The challange is for the investigator to identify the witnesses from those individuals who have nothing positive to offer the investigation. The sorting process begins by collecting pertinent contact information, including relationship/association to the infant and knowledge of the death and/or circumstances, from all persons who

- Are present at the scene.
- Arrive at the scene during your investigation.
- Had contact with the infant during the past 24 hours.

This introductory conversation and information gathering task will lead to some persons being asked to stay and some persons being asked to step outside for a minute. This is all a part of maintaining control of the scene. In addition to bystanders, the investigator might even need to ask nonessential professionals and family members to leave the area. The persons most likely to make the witness list in the investigation include:

- Persons who had contact with the infant within the past 24 hours.
- Person who placed the infant to sleep (placer).
- Person who found the infant (finder).
- Person who last saw the infant alive (LKA).
- The mother and father or other primary caregivers.

It may be necessary for the investigator to establish the boundaries of the scene and determine where persons should be asked to go. For example, neighbors may be asked to depart the scene boundaries. While grandparents who arrive at the scene may have had no contact with the infant in the last 24 hours, they might be useful in defusing emotions and controlling the scene and be asked to stay. The investigator might also consider asking certain individuals to remain at the scene to assist in caring for persons and pets or to perform other tasks.

The persons who have been identified as necessary to the investigation should be asked to stay. If the investigator is unable to keep them at the scene, he or she should at least make sure that valid contact information has been gathered for later reference. When asking persons to stay, the investigator should attempt to do this in a non-accusatory manner by keeping them informed about why they are being asked to stay. These persons should be assured that the information they provide will be vital to helping the investigator and other officials understand why the infant died. If necessary, the investigator should try to provide them with a comfortable place to wait.

In many cases, the infant may be removed from the scene (e.g., transported to a hospital). Parents/primary caregivers are likely to demand that they accompany their infant. Every effort should be made to honor the family's desires, but the investigator must balance these desires against the circumstances, any legal requirements, and the investigating agency's protocols. If the family accompanies the infant, ensure that they have an escort, and notify the receiving facility that they are in route, so arrangements for their reception and control can be made.

EVALUATE THE POTENTIAL FOR A PRODUCTIVE INTERVIEW AT THIS TIME

It may become clear to the investigator that persons at the scene are in such an agitated state that they are in no condition to undergo a formal interview. However, the investigator should document their behavior and all comments they make. Dead infants' caregivers often retain strong feelings of guilt and sometimes a sense of responsibility for what happened. The investigator should be watchful for and document excited utterances, but he or she must also be sure to document the context in which these utterances were made.

If the investigator will not be conducting an interview with certain persons at the time, he or she should make sure that their contact information has been documented in order to schedule a later interview. However, the investigator should not expect distraught persons to recall any scheduled interview times.

ABOUT THE WITNESSESS

Adult Witnesses

As stated above, it is important to identify who was present at the time the infant was discovered dead or unresponsive and who has arrived since that time. The investigator should ask the official in charge who was present when he or she arrived at the scene and who has subsequently arrived. The official may also know who the civilian witnesses are, including the placer, AKA, and finder as well as the official's assessment of those individuals. The first law

enforcement official on the scene can complete a log of persons in the area. In addition, the investigator may attempt to identify the “calm” family member and introduce him- or herself. The investigator should ask that person to identify all of those present and request to be introduced to immediate family members, including the person who found the infant.

Once the individual acting as the primary contact or spokesperson (i.e., father, mother, caregiver, etc.) has been identified, both the investigator and law enforcement, working together, will document the person's name and contact information. This way, both agencies will have the same contact person, as some medicolegal investigations take years to complete. Officials working the investigation may change, and the person assigned the case needs to know who the primary family contact is and how to contact them.

Determining how all adults in the household are related to the infant can help establish who might have had contact with the infant at any given time and whether or not that contact was significant. The mother’s "significant other" may not be related to the infant but might have been living with the mother and discovered the infant to be unresponsive. Together with law enforcement and working with the primary contact person, the investigator should determine how all adults at the scene of death are related to the infant.

The investigator should collect detailed information on all adults residing in the household, including names, dates of birth, contact information, and sex. This information will help the pathologist determine any risk factors that might exist in determining cause and manner of death. It will also allow the investigator and law enforcement to go back and further question or assess individuals who might have had contact with the infant.

When collecting information on adults, name changes might be relevant in determining past criminal history or other significant problems. This might include a name change that resulted from a previous domestic violence situation or moving to another locale and changing one’s name in order to avoid prosecution in another jurisdiction. Together with law enforcement and working with the primary contact person, the investigator should determine whether any residents present at the death scene have an alias, maiden name, or AKA.

Witnesses

Determining how other children in the household are related to the infant can help establish who might have had contact with the infant. Together with law enforcement and working with the primary contact person, the investigator should determine how all children at the scene of death are related to the infant. Each child's name, date of birth, contact information, and sex should be documented for future reference by the investigator, pathologist, and other agency personnel.

It is common to find multiple children moving around the scene. As discussed previously, the investigator must determine which individuals present at the scene actually live there and who is visiting or being cared for by one of the adults. This is important for a number of reasons, the most important of which is to attempt to ensure their health and safety.

Others

Other adults and children in the household might have contributed in some way to the death of the infant or have information that can help you in your investigation. It will also be important to determine whether there were any visitors (family or otherwise) in the 24 hours preceding the incident or death and who might have visited following the death.

Day cares may have the largest number of individuals present at the time of the incident or death, and each could be a factor in determining the cause and manner of death. Seriously ill or unsupervised children could be a significant issue as well as adults or student assistants. The investigator should determine how many individuals were present at the time of the incident or death and why.

If it is discovered that other children were sharing a bed or sleeping surface with the infant prior to death, the following items should be documented for each child:

- Age
- Date of birth
- Size
- Impairments
- Behavioral problems
- Schools attended

Together with law enforcement, the investigator should create or obtain a list of all individuals present at the time of the incident or death. This list—including both adults and children—can be a very helpful investigation tool. With such a list available, the investigator is able to go back and talk to or identify individuals later for any reason.

IDENTIFY POTENTIAL PROBLEMS

The investigator should be prepared to manage a wide variety of potential problems at the scene of an infant death. These problems might include emotional responses, scene control, patient care, investigative issues, and agency interactions. Of these problems, the most difficult to manage will be emotional states; these can seem to distort the scene. In addition to his or her initial role on the scene, the investigator needs to have a heightened sensitivity to problems that might develop. He or she should also expect some disorganization among responders, and there may be disagreement over who has control of the scene. If there is heightened suspicion of criminal action, special steps related to the control and movements of primary individuals might be necessary (e.g., isolating caregivers from each other).

Depending on the emotional state of the individuals present, the investigator may need to take steps to defuse or control their heightened emotions. Reactions of grieving parents may seem overly intense, self-absorbed, contradictory, or even puzzling. For bereaved parents, the death of a child is so overwhelming that their responses are often baffling not only to others but to themselves as well. Securing the scene emotionally means providing emotional first aid; it does not mean that the investigator is responsible for any sustained mental health service.

In summary, the investigator should expect the following:

- A wide range of emotions and behaviors.
- Resistance by the family to removing the infant from the scene.
- An influx of bystanders and family members.
- More than one move of the infant and a distorted scene.
- Disorganization among responders: EMS, police, and medical investigators.
- An unsecured scene.

Depending on the investigator's own medical protocols and level of expertise, he or she may need to initiate patient first aid. There may be pressure from family members or bystanders to initiate care. It is important to follow appropriate protocols and respond to the emotional and situational needs of the family or bystanders. For example, if the investigator knows that the infant is obviously dead based on his or her agency's protocol, yet the family is pressuring him or her to "do something," it is imperative that appropriate action is taken.

SETUP THE INTERVIEW (REMEMBER ENTRY PHASE)

Introduce Yourself and Identify Your Role

Introduce yourself to the witness, giving your name, title, agency you represent, the purpose of the interview, and who the contact person will be after this phase of the investigation has ended. Explain that this will be a lengthy procedure and that you need to ask a lot of personal questions, some of which will be difficult to answer. Explain that if the witness needs a break, he or she simply needs to ask, and time will be provided.

Document General Interview Data

Document the date and time of your contacts and interviews with witnesses. In addition, document any additional individuals who may have been present at the time of your contact. It is important to assign and record the case number on all documents linked to the case.

Initiating the Interview

Begin your interview by attempting to gather *general investigation data*. This data includes infant information and general witness contact information. This procedure helps to establish rapport with the interviewee because these are questions the interviewee can easily answer. These questions also give you an opportunity to assess the interviewee's educational level, sobriety, and any disabilities or language barriers. The person's demeanor during these questions will let you know whether this is a good time for the interview and whether special intervention by a translator, counselor, and/or clergy member is needed. Observe and document the witness's appearance, answers to biographical information, and willingness to cooperate.

GENERAL INVESTIGATION DATA

Infant Information

Once the scene is controlled and the primary caregiver is identified, the investigator should begin the process of documenting the infant's personal information. Full name (first, middle, and last—ask for correct spelling) date of birth, age in months, sex, race, and Social Security number all need to be collected and entered into the case file or scene reporting form. It is important to document the complete address of the infant's primary residence and incident address, if different. This information is essential to the investigation and will assist the investigator during the interviewing process as rapport is established with the parent, guardian, or primary caregiver. Experienced investigators recommend that interviewers should refer to the deceased infant by his or her first name when interviewing parents or caregivers.

Witness Information

Document the full name of the witness: first, middle, and last; ask for the correct spelling. Also, ask for other names that he or she has used; the birth mother may have used a different name at the time of the infant's birth. This information is important when requesting data from hospitals and agencies. Inquire about names and AKAs from law enforcement and Child Protection Services as well. Dates of birth and Social Security numbers are helpful in locating records from other agencies and are searchable in many agency databases.

Relationship to the Deceased

The infant's caregivers might or might not be the biological parents. Information about the infant's caregivers could be useful in locating additional records relevant to the investigation and in determining circumstances of death. Preferably, the information is collected by questioning the caregivers, but it can be obtained from others. Record how the witness is related to the deceased or why the person has specific information about the deceased as well as how long the person has known or had a relationship (as babysitter, day care provided, etc.) with the decedent.

Witness(es) Address(es)

Document current and previous address(es) of witnesses as well as work address if available. Investigators may need this information for local law enforcement agencies to ascertain prior involvement. Previous addressess will assist in determining whether witnesses had contact with the decedent when living elsewhere. This is especially important if the deceased has moved from another state or locale. You will also need this information to gather information from out-of-county or out-of-state law enforcement or child protection agencies, as well as vital records.

Phone Numbers
Include any and all phone numbers, including area codes. You should note whether these are work, home, cellular, or pager numbers. Record any information that may be helpful to reach these contacts (i.e., works nights, etc.).

INVESTIGATION DATA

Infant's Information: Last _____ First _____ M. _____ Case # _____

Sex: ☐ Male ☐ Female Date of Birth ____/____/____ (Month / Day / Year) Age _____ (Months) SS# _____

Race: ☐ White ☐ Black/African Am. ☐ Asian/Pacific Islander ☐ Am. Indian/Alaskan Native ☐ Hispanic/Latino ☐ Other

Infant's Primary Residence Address:

Address _____ City _____ County _____ State _____ Zip _____

Incident Address:

Address _____ City _____ County _____ State _____ Zip _____

Contact Information for Witness:

Relationship to the deceased: ☐ Birth Mother ☐ Birth Father ☐ Grandmother ☐ Grandfather
☐ Adoptive or Foster Parent ☐ Physician ☐ Health Records ☐ Other: _____

Last _____ First _____ M. _____ SS # _____

Home Address _____ City _____ State _____ Zip _____

Place of Work _____ City _____ State _____ Zip _____

Phone (H) _____ Phone (W) _____ Date of Birth ____/____/____ (Month / Day / Year)

Fig. 4.1: General Investigation Data section of the SUIDI Reporting Form.

ADDITIONAL INVESTIGATION DATA (CASE DEPENDENT—RECORD IN INVESTIGATIVE NOTES)

Time period in which contact occurred: If event chronology is questioned, specific event timing may need to be recorded to establish a timeline documentating who has had contact with the infant and when. Many times, recorded and documented injuries can be delayed, and it is imperative that you know who had "hands-on" access to the infant during those times to determine whether a pattern can be established.

Involvement with decedent: This documents or verifies the relationship between witness and infant and the information being provided. In other words, "how do you know this information?" For example, the day care provider might relay information that the deceased had a history of chicken pox because she had to send the deceased home when the pox occurred. Other day care providers may also have this information because it is common practice to inform parents/caregivers when their child is exposed to chicken pox.

Involvement with family: As above, this information should be recorded to document the relationship between the interviewee, the infant, and the family. At times, children who are abused/neglected are sheltered from extended contact with one person to avoid diagnosis/detection of trauma. Sample responses: "cared for the decedent when the decedent was sick with the flu and unable to go to regular day care"; "boyfriend of deceased's 16-year-old sister and babysat with her two days prior to death."

Employer information: This is especially helpful when tracking medical insurance, correct dates of birth, or Social Security numbers of witnesses. Depending on the state from which information is being sought, this may be the only way to gather necessary information.

Marital status: It is imperative to determine marital status from those persons who identify themselves as the infant's parents or significant permanent caregivers. A significant relationship can sometimes rule someone in or out if a manner of death other than "natural" is considered.

Educational level: Educational levels of the infant's parents or significant caregivers should be noted. By ascertaining the individuals' levels of education, the death investigator will be better able to assess the appropriateness of specific words.

WITNESS INTERVIEW QUESTIONS

When you ask the witness, "Are you the usual caregiver?" The initial "yes" or "no" is recorded. However, the follow-up, "Tell me what happened" produces details that must be documented in your investigative notes for later use in the narritive report.

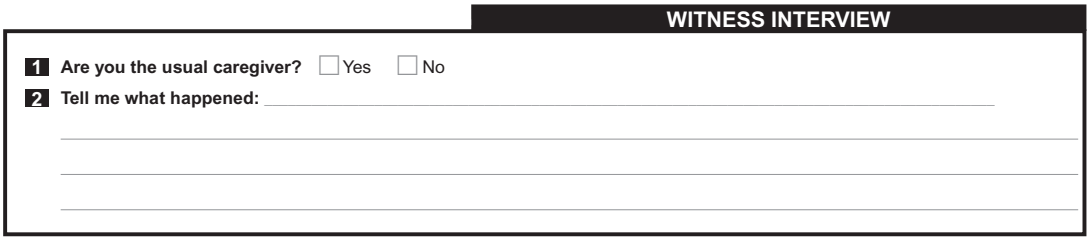


Fig. 4.2: The initial questions in the Witness Interview section of the SUIDI Reporting Form begin to establish "circumstances of death" data for later use in the investigator's narrative report.

Changes in Caregivers

Changes in the caregivers of an infant may indicate differences in the infant's normal patterns and behaviors, which could be a contributing factor to the cause of death. Find out the names of all caregivers for the child within the past 48 hours, and ask whether they are regular caregivers. If there was a change in caregivers during that time, find out why. Interview all caregivers who had contact with the infant during the last 48 hours.

Document Witness's Involvement with Family (if Not a Family Member)

Ask open-ended questions that focus on the interaction and relationship the witness had with the infant and if appropriate, the infant's family. Determine how the witness became involved with the family and document the history and any unusual circumstances surrounding the relationship.

Sometimes the person closest to the caregiver is the one most likely to harm/hurt the child. Document why the witness was involved with the caregiver. Note the period of time(s) the person was with the decedent and for what reasons. Those who care for the decedent are the most likely to make subtle observations about the physical, feeding, and emotional status of the infant. Accurately record dates/times pertinent to the witness's contacts with the infant.

Ask the witness to describe their relationship to the infant. This might provide insight into the amount of responsibility the witness has toward the infant and could also indicate motivation for his or her actions. If the witness is not the primary caregiver, ascertain whether he or she cares for the infant on a regular basis.

Specifically, ask questions similar to the following:

- What is your relationship to Johnny?
- Are you a primary caregiver for Shannon?
- How often do you care for Jake and under what circumstances?

Sometimes young males will say, "It's my girlfriend's baby." Ask whether he is the father. If this is a grandparent, aunt, or uncle, establish whether he or she is on the maternal or paternal side of the family. Often friends are referred to as an aunt or uncle even if they are not actually related. References such as these are common among family infrastructures, especially in nontraditional families.

It is vital to record factual information relating to a very young decedent. Reviewing this data may yield trends and focus the investigation toward the underlying cause of death. Unusual circumstances should be questioned when obtaining information from any witness.

Specifically, ask the following questions:

- Did you experience any difficulties while caring for Jane?
- Did you notice any injuries/behavior changes during the time you spent with Kim?
- Did anyone ever relay information about Jimmy to you?

Many times witnesses will expand on answers to questions, so be sure to record any additional data. For instance, "The babysitter called me and had me pick Jane up, as she was unable to reach the mom; babysitter said this wasn't the first time that this occurred." Did anyone notice that the child was fussier after eating certain foods or expossure to different environments? Document this information in the investigative notebook.

RECENT CONTACTS, ACTIVITIES, AND BEHAVIORS

In cases of inflicted traumatic deaths, persons with access to the infant before the infant's death might be responsible for the injury or might be able to provide a history of changes in behavior that can aid in determining the timing of injury. In cases of death due to an infectious disease, human contacts may be the source of the infection or need to be informed regarding risk of infection and necessity of prophylaxis because of exposure to the infectious infant. In natural death (including inherited conditions such as glutaric aciduria), those having contact with the infant might be able to provide information about the general health status and activity level of the infant before his or her death.

Recent Human Contacts with Infant

As with all individuals interviewed, identify their relationship to the infant. Documentation of family structure might be important in cases of inherited disorders that result in death occuring in the home environment. Previous deaths might alert the investigator and pathologist to this possible etiology, and living siblings might need further medical evaluation if an inherited condition is identified as the cause of death. In traumatic deaths, family structure might have played a role in the event because even when multiple children are present in an abusive home, one child is usually singled out as the "target child." Understanding such family dynamics may aid the investigator in assessing information provided by various family members and in gathering ancillary information.

The age of witness and date and time of the contact is important in four general scenarios:

- Infectious diseases routinely affecting pediatric populations.
- Accidental deaths involving bed or sleep surface sharing.
- Traumatic injuries.
- Elderly or nonprimary caregivers.

It is important to document the chronology and location of contacts. Temporal information is most important in cases involving infectious disease scenarios or traumatic deaths. In the case of infectious diseases, persons with recent contact may be

- The source of the infection.
- At risk for development of the infection.

Describe Signs and Symptoms

Ask the caregiver if the infant exibited any signs of illness, and attempt to determine if the infant was sick or seemed ill prior to death. Ask the caregiver to describe any symptoms, such as coughing, fever, runny nose, diarrhea, vomiting, lethargy, and/or other changes in behavior. If the caregiver states that the child had a fever, ask him or her what the temperature was and how it was taken. Many times the caregiver will just feel the infant's skin rather than use a thermometer, so document their description (felt fine, hot, burning up, etc.). If a specific temperature was recorded, document it and report the information to the pathologist. Be aware that interviewees from other cultures may have a different approach to describing signs and symptoms of illness, and additional questioning may be needed to clarify information.

Ask what the caregiver did to relieve the symptoms—went to the doctor, called the doctor, provided home remedies. If any medications or substances were given, ask to see the item, and collect the material if necessary. Ask what dosages were given, and determine whether they were appropriate for this infant. If home remedies were administered, be sure to get a list of all ingredients and ask how the caregiver knew about this home remedy.

Document Other People Who May Have Gotten Sick

This is of importance when the autopsy indicates an infectious cause of death. In such cases, exposure is important, in that one of the persons in contact with the infant might be the source of infection, or persons having direct contact with an infectious infant might need to seek medical advice and/or prophylactic treatment.

If the investigation determines that the infectious agent is either virulent or extremely contagious, or if the etiologic agent is designated as one requiring mandatory reporting, the local health department should be notified as early as possible. The pathologist will be able to communicate with the health department regarding the pathologic findings at autopsy. The investigator should be ready to provide the health department with the names and contact information of those persons who have had recent direct contact with the infant.

Describe Any Recent Injuries or Falls

If the infant sustained any injuries from accidents, falls, or trauma, the caregiver should describe the injuries to the investigator, including the time, location where the injury occurred, under what circumstances it occurred, and what treatment was provided. You may need to investigate the alleged incident by going to the location and measuring the height of the fall and the type of surface the infant landed on. If there was a motor vehicle accident, determine the date, time, and location of the accident, and obtain the police report. Individuals present at the time of the injury should also be interviewed.

This information should be documented on the appropriate scene form and detailed in the investigator's notebook for writing the narrative report to the pathologist. Infant exposure history is also essential for documenting public health concerns and contacting the appropriate agency if additional interaction is required. Remember, if there are other small children in the home who may be at risk, it is your responsibility to contact child protective services and report the issue.

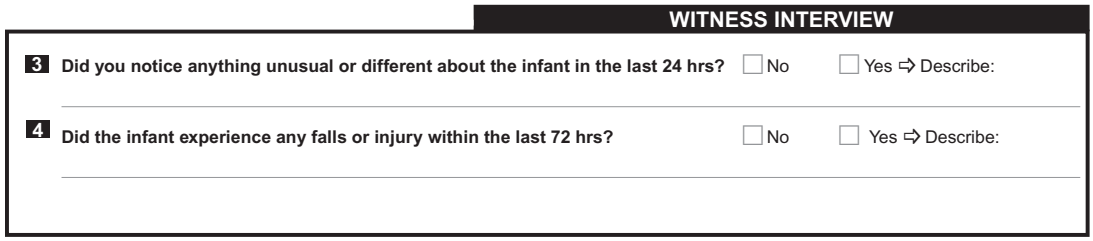


Fig. 4.3: Recent infant activities and behavior are addressed in the Witness Interview section of the SUIDI Reporting Form.

QUESTIONS FOR THE PLACER/LKA/FINDER

By this time, the investigator should know which individual placed the infant down last (**P**lacer), last knew the infant was alive (**L**KA), and found the infant dead or unresponsive (**F**inder). If the placer, finder, and LKA is the same person, then the interviewer begins the process of documenting times, locations within the scene, and positions of the infant in each instance (placed-LKA-found).

Times and locations: The date and time the infant was last placed down, last known alive, and found are recorded on the investigative scene form and in the investigator's notebook. This information is critical to the investigation and the pathologist, who may use the data to establish timelines that detail infant and witness activity during the period between life and death. The location of both placement and discovery could be critical to the cause of death, as some objects and locations within the environment may have been hazardous to the infant.

WITNESS INTERVIEW

5 **When was the infant *LAST PLACED*?** ..... _____/_____/_____ _____:_____ _____
Month Day Year Military Time Location (room)

6 **When was the infant *LAST KNOWN ALIVE(LKA)*?** _____/_____/_____ _____:_____ _____
Month Day Year Military Time Location (room)

7 **When was the infant *FOUND*?** ..... _____/_____/_____ _____:_____ _____
Month Day Year Military Time Location (room)

8 **Explain how you knew the infant was still alive.** _____

9 **Where was the infant - (P)laced, (L)ast known alive, (F)ound** (circle P, L, or F in front of appropriate response)**?**

P L F Bassinet	**P L F** Bedside co-sleeper	**P L F** Car seat	**P L F** Chair
P L F Cradle	**P L F** Crib	**P L F** Floor	**P L F** In a person's arms
P L F Mattress/box spring	**P L F** Mattress on floor	**P L F** Playpen	**P L F** Portable crib
P L F Sofa/couch	**P L F** Stroller/carriage	**P L F** Swing	**P L F** Waterbed

P L F Other _____

Fig. 4.4: Specific date, time, and location gathered from the placer, LKA, and finder.

Position of body, neck and face: The investigator should ask the placer, LKA, and finder to describe and demonstrate if possible (see Chapter 7, Doll Reenactment) infant positioning when placed, last known alive, and found. It is also essential to document the position of the face and neck during this part of the interview.

WITNESS INTERVIEW

10 **In what position was the infant *LAST PLACED*?** ☐ Sitting ☐ On back ☐ On side ☐ On stomach ☐ Unknown
Was this the infant's usual position? ☐ Yes ☐ No ⇨ What was the infant's usual position? _____

11 **In what position was the infant *LKA*?** ☐ Sitting ☐ On back ☐ On side ☐ On stomach ☐ Unknown
Was this the infant's usual position? ☐ Yes ☐ No ⇨ What was the infant's usual position? _____

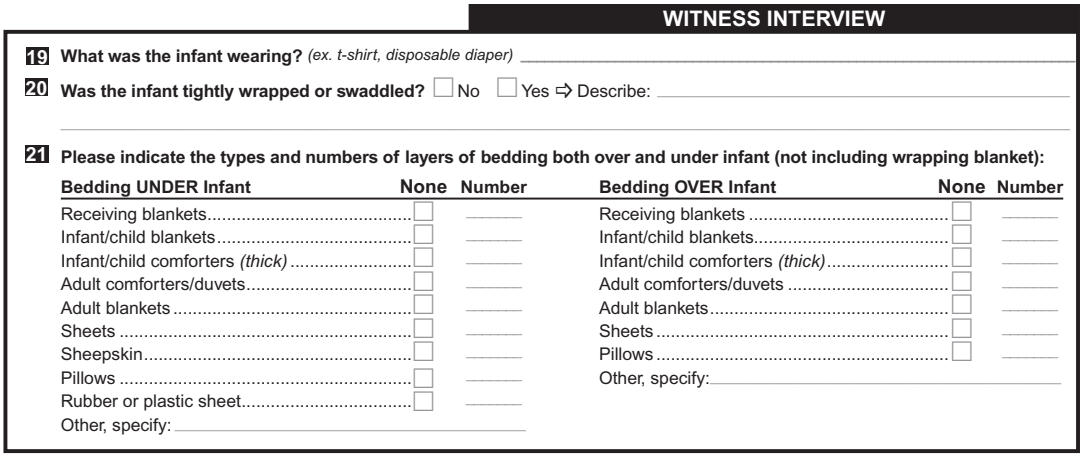
12 **In what position was the infant *FOUND*?** ..... ☐ Sitting ☐ On back ☐ On side ☐ On stomach ☐ Unknown
Was this the infant's usual position? ☐ Yes ☐ No ⇨ What was the infant's usual position? _____

13	**FACE position when *LAST PLACED*?**	☐ Face down on surface	☐ Face up	☐ Face right	☐ Face left
14	**NECK position when *LAST PLACED*?**	☐ Hyperextended *(head back)*	☐ Flexed *(chin to chest)*	☐ Neutral	☐ Turned
15	**FACE position when *LKA*?**	☐ Face down on surface	☐ Face up	☐ Face right	☐ Face left
16	**NECK position when *LKA*?**	☐ Hyperextended *(head back)*	☐ Flexed *(chin to chest)*	☐ Neutral	☐ Turned
17	**FACE position when *FOUND*?**	☐ Face down on surface	☐ Face up	☐ Face right	☐ Face left
18	**NECK position when *FOUND*?**	☐ Hyperextended *(head back)*	☐ Flexed *(chin to chest)*	☐ Neutral	☐ Turned

Fig. 4.5: Infant positioning is documented at different time intervals: placed, last known alive and found.

Changes in sleep location and position: Ask the caregiver to describe where the baby routinely sleeps, in what position, and any changes in sleep routine that occurred during the past 48 hours. Changes in sleep patterns could signify illness, injury, or environmental problems. Determine the infant's normal sleep pattern and find out why any deviations in that pattern occurred. Possible sleep pattern disruptions include moving to a new bed, being moved to a new room, sleeping with another person, and being placed on the stomach or side rather than the back. This additional information should be documented in the investigative report.

Clothing and bedding: Ask the caregiver what the infant was wearing when they were found. In addition to the type and appropriateness of the clothing, document how the infant was wrapped (if applicable). The type of bedding used on the infant's sleeping surface, crib, or bed is also important to determine, describe, and document with photographs.



WITNESS INTERVIEW

19 **What was the infant wearing?** *(ex. t-shirt, disposable diaper)* _____

20 **Was the infant tightly wrapped or swaddled?** ☐ No ☐ Yes ⇨ Describe: _____

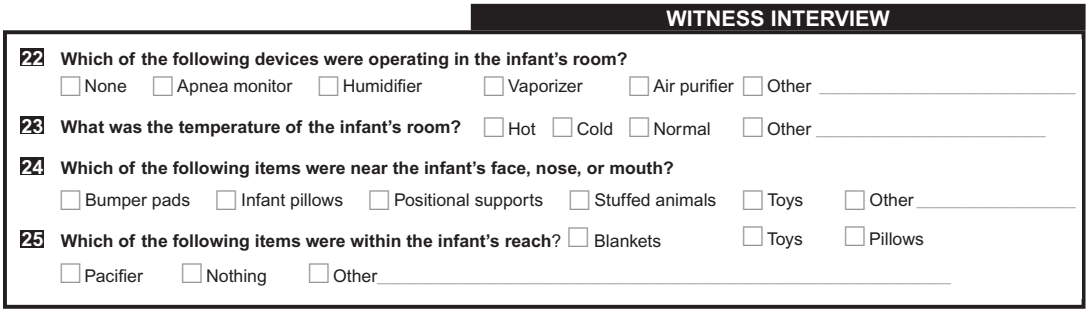
21 **Please indicate the types and numbers of layers of bedding both over and under infant (not including wrapping blanket):**

Bedding UNDER Infant	None	Number	Bedding OVER Infant	None	Number
Receiving blankets	☐		Receiving blankets	☐	
Infant/child blankets	☐		Infant/child blankets	☐	
Infant/child comforters *(thick)*	☐		Infant/child comforters *(thick)*	☐	
Adult comforters/duvets	☐		Adult comforters/duvets	☐	
Adult blankets	☐		Adult blankets	☐	
Sheets	☐		Sheets	☐	
Sheepskin	☐		Pillows	☐	
Pillows	☐		Other, specify:		
Rubber or plastic sheet	☐				
Other, specify:					

Fig. 4.6: Type of clothing and bedding used for the infant must be documented.

At this time the investigator should determine and record the location of these items for inspection and photographing once the interview is concluded or during the doll reenactment portion of the scene investigation.

Items operating or within reach of the infant: Ask the caregiver if anything was operating in the room when the infant was found, and have them describe the room temperature—remember what might be too hot to you might be just right to the witness. Document the caregjver's interpretation as a point of reference.



WITNESS INTERVIEW

22 **Which of the following devices were operating in the infant's room?**
☐ None ☐ Apnea monitor ☐ Humidifier ☐ Vaporizer ☐ Air purifier ☐ Other _____

23 **What was the temperature of the infant's room?** ☐ Hot ☐ Cold ☐ Normal ☐ Other _____

24 **Which of the following items were near the infant's face, nose, or mouth?**
☐ Bumper pads ☐ Infant pillows ☐ Positional supports ☐ Stuffed animals ☐ Toys ☐ Other _____

25 **Which of the following items were within the infant's reach**? ☐ Blankets ☐ Toys ☐ Pillows
☐ Pacifier ☐ Nothing ☐ Other _____

Fig. 4.7: Answers to questions about the infant's general environment are documented here.

Ask the witness to describe the items in the crib or bed with the infant. Again, note the location of these items for documentation during the scene investigation. This is especially important if the interview is taking place at a scene **other than** the actual incident location, such as a hospital.

Sharing of sleep surface: Determine if anyone was sharing the sleep surface with the infant. If yes, document ages, approximate height and weight, location in relation to the infant, and if they were intoxicated or under the influence of any medication or drugs. A considerable risk factor for infants appears to be sharing of sleeping surfaces with other individuals.

WITNESS INTERVIEW

26 **Was anyone sleeping with the infant?** ☐ No ☐ Yes ⇨ Name these people.

Name	Age	Height	Weight	Location in Relation to Infant	Impaired (*intoxicated, tired*)

Fig. 4.8: Questions about sleeping arrangements require the investigator to collect additional information about additional witnessess.

While talking about the infant's sleeping environment and arrangements, it is recommended that the investigator ask about the condition and location (in the bed/crib) of the infant when found. Attempt to determine if the person checked on the infant and why? Find out if the infant was wedged between anything when found, and have them describe what the body looked like and felt like when they first discovered and picked up the infant (e.g., cold, stiff, wet, etc.).

WITNESS INTERVIEW

27 **Was there evidence of wedging?** ☐ No ☐ Yes ⇨ Describe: _____

28 **When the infant was found, was s/he:** ☐ Breathing ☐ Not breathing

If not breathing, did you witness the infant stop breathing? ☐ No ☐ Yes

29 **What had led you to check on the infant?** _____

30 **Describe infant's appearance when found.**

	Unknown	No	Yes	Describe and specify location:
a) Discoloration around face/nose/mouth	☐	☐	☐	⇨ _____
b) Secretions *(foam, froth)*	☐	☐	☐	⇨ _____
c) Skin discoloration *(livor mortis)*	☐	☐	☐	⇨ _____
d) Pressure marks *(pale areas, blanching)*	☐	☐	☐	⇨ _____
e) Rash or petechiae *(small, red blood spots on skin, membranes, or eyes)*	☐	☐	☐	⇨ _____
f) Marks on body *(scratches or bruises)*	☐	☐	☐	⇨ _____
g) Other	☐	☐	☐	⇨ _____

31 **What did the infant feel like when found?** *(Check all that apply.)*

☐ Sweaty ☐ Warm to touch ☐ Cool to touch
☐ Limp, flexible ☐ Rigid, stiff ☐ Unknown
☐ Other ⇨ Specify: _____

Fig. 4.9: Questions about "wedging" and the infant's appearance upon discovery.

Resuscitative efforts: If anyone attempted to resuscitate the infant, it should be documented on the investigative form and in the investigators scene notes. If emergency medical services personnel (EMS/fire/law enforcement) attempted resuscitation, the investigator should note this and follow up with agency representatives after the caregiver interview.

If the caregiver attempted to resuscitatate the infant, some investigators feel this is a good time to ask if they have ever attempted to resuscitate an infant before. That question may be a good "lead in" to asking if they have ever witnessed an infant death or had an infant die while in their care before.

WITNESS INTERVIEW

32 **Did anyone else other than EMS try to resuscitate the infant?** ☐ No ☐ Yes ⇨ Who and when?

Who _____ __ ____/____/_____ _____:_____
Month Day Year Military Time

33 **Please describe what was done as part of resuscitation:**

_____

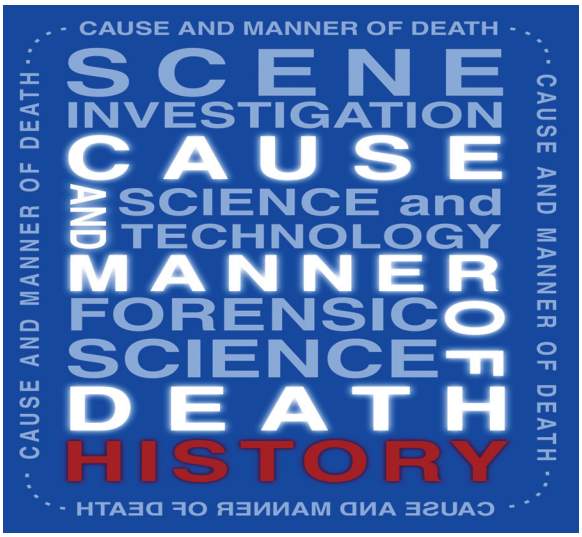
_____

34 **Has the parent/caregiver ever had a child die suddenly and unexpectedly?** ☐ No ☐ Yes ⇨ Explain

_____

_____

Fig. 4.10: Resuscitative efforts by EMS may lead in to questions about other infant deaths the caregiver has witnessed.



unit 10

Recent Infant Activities and Behavior

INTRODUCTION

Identification of any significant changes in an infant's usual behavior may be critical in the ultimate determination of cause and manner of death. Behavioral changes observed by those who knew the infant best warrants detailed but gentle questioning. Infectious diseases, late-presenting congenital anomalies, or metabolic diseases may be indicated by such subtle changes as increased lethargy, and the primary caregiver is the single best source for this information.

OBTAINING ACCURATE INFORMATION

The best and most accurate way to obtain this critical information is through a sensitive interview of ***each individual*** involved in the infant's day-to-day care. It is important to convey your questions in language that is fully understood by the person interviewed. For example, "lethargy" may have to be presented as "more sleepy than usual." Be sure that what you are documenting represents a change. The "colicky" infant who is described as fussy exhibits essentially unchanged, usual behavior.

As with behavioral changes, identifying recent changes in an infant's physical health may be important in determining cause and manner of death, for example, vomiting, difficulty breathing, or weight loss in the infant. These changes are more objective than behavioral changes and can guide postmortem examinations to pinpoint a specific etiology of the infant's sudden death. This important information can be fleshed out during the caretaker interview, but it can also be found in a review of the infant's medical record. Be sure to obtain the healthcare provider's contact information so these records may be reviewed as necessary.

DOCUMENT CHANGES IN INFANT BEHAVIOR AND PHYSICAL HEALTH 72 HOURS PRIOR TO DEATH

History of Lethargy or Sleeping More Than Usual

Newborn infants typically sleep about 16 to 18 hours a day. As the child gets older, this time is broken up with periods of wakefulness and frequent naps (Levine, Carey, & Croker, 1999). Although there is wide variability among infants, what is most important to document is any change in the infant's usual sleep behavior.

Increased sleeping may represent hypoxia caused by lung infections (pneumonia, bronchiolitis, etc.) that can develop very rapidly and without the usual adult symptoms such as cough, wheezing, or fever. Lethargy may be a manifestation of central nervous system depression induced by infection (meningitis), electrolyte disturbance (intestinal diseases, metabolic diseases or unusual feeding practices), or brain injury (accidental or intentional).

Recent History of Fussiness or Excessive Crying

The usually placid infant who displayed excessive crying or fussiness in the 72 hours prior to death is more worrisome than the usually colicky infant because the behavior represents a change in behavior. Crying is the infant's only external response to pain or other discomfort. Pain may be due to intestinal pathology such as gut malrotation or obstruction, bone pathology such as fractures due to abuse or metabolic diseases, or brain pathology such as meningitis or head injury. The infant with hypoxia and "air hunger" from congenital heart disease, pneumonia, or bronchiolitis also might become quite fussy.

Recent History of Vomiting

Vomiting refers to the forceful expulsion of food that has made its way to the stomach. Babies spit up. Wet burps need to be distinguished from true vomiting. A recorded history of "he vomits constantly" is vague and of little value to the autopsy pathologist. Actual vomit tends to be curdled due to the action of gastric acid.

Vomiting accompanied by diarrhea (see below) and/or fever suggests an infectious disease. The (usually male) infant with a history of forceful "projectile vomiting" (literally several feet) may have pyloric stenosis, a narrowing of the lower part of the stomach that can prevent food from emptying. Vomiting alone also might be a sign of metabolic diseases or brain injury.

Recent History of Diarrhea and Change in the Infant's Stool

Diarrhea refers to a specific change in the infant's stool pattern, namely, increase in frequency and liquid content of stool. A history of "she's had diarrhea since she was born" is not helpful. A more important question is: "Does the infant's stool look different? (e.g., blood, mucous, watery, color change)?" The caregiver may be able to give a more definitive answer to the question, "About how many times have you had to change the baby's diaper?" than to a query

about the number of liquid stools. The diarrhea should be described as to water content (totally liquid?) and presence or absence of blood in the stool.

Ancillary information that may be important includes the water source for formula if the infant was formula-fed, and presence of any gastrointestinal symptoms in other household members. If the infant was taken to a healthcare provider in the previous 72 hours for a complaint of diarrhea, a review of the medical record may reveal a stool culture or Rotazyme test. Follow-up of these results may provide a specific infectious etiology.

History of Difficult Breathing

Breathing difficulties can be caused by a range of medical conditions and illnesses that affect the lungs or airways such as viral croup, bronchiolitis, pneumonia, foreign body aspiration, and birth (congenital) abnormalities of the airway. Breathing difficulties may also be due to a head (brain) injury, poisoning, and heart defects.

Infants with breathing difficulties cannot tell you that they are having problems breathing. However, infants with difficulty breathing may be breathing faster than they normally do, and the skin between their ribs may be sucking in when they breathe (called a retraction). The side of their nose may be moving in and out with each breath (called nasal flaring), and infants in respiratory distress may make a grunting sound with each exhalation. Infants with difficulty breathing may have episodes of apnea when they stop breathing for a period of time. They may become cyanotic, that is, have blue-grey discoloration of their lips, mouth, and face. Other signs of difficulty breathing include wheezing and stridor.

Wheezing refers to the audible whistling sound heard during exhalation and caused in most cases by bronchospasm (muscle constriction of the small breathing passages on the lungs). This is distinguished from stridor, which is a coarser sound heard during inhalation, most commonly from partial obstruction of the upper airway by a foreign body, an extrinsic mass, infection, airway edema, or due to congenital “floppiness” of the trachea (tracheomalacia).

The distinction between wheezing and stridor is important as it might indicate the specific cause of death. Wheezing may be a manifestation of viral bronchiolitis or pulmonary edema due to congestive heart failure. The former is likely to be accompanied by fever and/or runny nose; the latter is not. A good description of stridor may alert the forensic pathologist to be on the lookout for tiny foreign objects (i.e., buttons, nuts, etc.) in the infant’s airway, anatomic abnormalities of the upper respiratory tract and surrounding structures, or tumors causing extrinsic compression of the upper airway. Although "difficulty breathing" is a broad general term, with careful and precise questioning, a skilled interviewer can glean a great deal of valuable information.

Any Recent Fever

Fever refers to a measured elevation in body temperature above "normal." The answer provided to the question, “Did the baby have a fever?” might not reflect an objective measured change. Be specific. Did the baby feel warm to the touch? Was the temperature measured? If yes, how was it measured? Rectally? Under the arm? Adhesive strip applied to the forehead? What was the temperature?

Fever, although most commonly associated with infection, can also point to other pathological conditions. Elevated temperature can be observed in an overbundled infant in an overheated room. Overheating due to overdressing or elevated room temperature is a well-documented risk factor in sudden infant death.

Recent Excessive Sweating

Sweating is a nonspecific but potentially important feature of the infant’s recent history. Sweating might be from a fever or environmental overheating, but it might also be reflective of an infant in congestive heart failure, unable to meet his or her metabolic needs. The infant with congestive heart failure tends to sweat during feedings or other exertion.

Recent Choking

Two-thirds of the nearly 4,000 fatal choking episodes annually in the United States involve those under the age of three years. Infants explore their world by putting things in their mouths, and they are just learning to handle solid foods. A partially obstructive foreign body can cause periodic choking, but a shift in its position could lead to a catastrophic occlusion of the airway and sudden death. What may appear to the caregiver to be choking might actually be gagging, from some sort of gastrointestinal pathology such as partial obstruction or gastroenteritis. The infant with known gastroesophageal reflux may seem to choke with some frequency. Although this fact might indeed be important, the new onset of choking episodes may indicate some other disorder.

All potential sources for introduction of a foreign body should be sought. The investigator should ask the following questions:

- Was a sibling alone with the infant?
- Are all buttons, snaps, etc., on the infant's clothing intact and accounted for?
- Are there any possible sources (toys, etc.) in the infant's crib?

Although the source of choking might not be pinpointed, the history of choking is vitally important to the autopsy pathologist as they examine the infant's respiratory tract.

Recent Seizure, Convulsion, or Unusual Movement

A caregiver is less likely to tell the investigator, "The baby had a seizure," but they may try to describe odd movements in one or more of the infant's extremities. It is advisable to avoid using the term "seizure" or "convulsion" unless the caregiver introduces the word into the interview. Inquire about unusual movements of the extremities, and be prepared to request details to characterize those movements (e.g., rapid, jerky, slow, undulating). More subtle signs of seizure activity include eye blinking, lip smacking, or staring spells.

The significance of apparent seizures clearly centers on the central nervous system. An intrinsic seizure disorder is possible, and a family history of seizures should be sought when appropriate. Alternatively, new onset seizures may herald the presence of an inborn error of metabolism, electrolyte disturbance due to formula-mixing errors, odd feeding practices, or head injury. It is estimated that from 40% to 70% of infants with head trauma exhibit seizure activity.

Lack of extremity movement introduces other possibilities in the diagnosis of the infant's sudden death. Pain due to occult fractures may prompt the infant to limit his or her movement. Although rare, lack of extremity movement may reflect a central nervous system disease or injury.

DOCUMENT INJURIES IN THE 72 HOURS PRIOR TO DEATH

Recent Falls

If the infant experienced or was involved in a recent fall, the investigator should document as much data surrounding the circumstances of the fall(s) as possible. Key elements of the history include:

- Height of the fall—Although no one can reasonably claim that short falls (fewer than four feet) never cause death, published literature suggests that such a scenario is rare. The caregiver should be encouraged to demonstrate the height of the fall or point out the location from which the infant is said to have fallen, as opposed to simply stating an estimated height of the fall.
- Impacting surface—If you are unable to view the surface onto which the infant is said to have fallen onto or struck, seek as much detail as possible. Was the surface wood, concrete, or carpet? If carpet, was it padded?

- Surface area of contact—Forces will be distributed much differently when an infant falls from a couch and lands on his or her back on a heavily carpeted plywood floor, as opposed to falling from the same height and landing directly on his or her head on a metal toy car or a concrete floor. Document all details.

Recent Head Injuries

Accidental head injuries in infants are most often ascribed to falls, but occasionally other scenarios arise, such as injuries inflicted by a sibling's accidentally striking the infant's head against some fixed object or the caregiver falling while carrying the infant. Regardless of the mechanism, the investigator's primary responsibility is to gather the information necessary to recreate the circumstances surrounding a described injury.

Recent Extremity Fractures

A history of extremity fracture in the 72 hours before death will most certainly be accompanied by a medical record and radiographic documentation. The explanation of the fracture given during the death investigation should be compared to the history reported on the medical record. Not all fractures are traumatic; metabolic bone diseases such as osteogenesis imperfecta, skeletal dysplasias, and certain syndromes can lead to factures. The nature of fractures in infants, particularly those of an abusive nature, differs substantially from those seen in older children and adults. Abusive fractures in infants tend to involve the ribs and the ends of long bones. There will be no visible deformity, but pain is a feature nevertheless.

Recent Burns

Like fractures, burns experienced in the 72 hours before death should have medical documentation that can be compared to the history offered at the time of the death investigation. If not, the investigator should seek specific details regarding the burn. Different types of burns have different appearances. Burn types include flame, scald, contact, electrical, chemical, and UV radiation. Scalds and contact burns represent the most common types of abusive burns. When dealing with scalding, the investigator should note the pattern of the burn (immersion, splash, pour, or contact) and water temperature measured directly from the faucet. (See figure.) Recommended water heater temperature in homes with young children is 120°; the average in U.S. homes is 140°.

Impact of Water Temperature

From: *Child Maltreatment: A Clinical Guide & Reference*, 1994

Temp (F)	Time to Scald (Adult)
120	5-10 minutes
125	2 minutes
130	30 seconds
135	10 seconds
140	5 seconds
145	3 seconds
150	1-5 seconds
155	1 second or less
158	< 1 second

Fig. 4.11: Water temperature and scalding time chart.

Any Recent Car Crash

If the infant was involved in a recent car crash, the investigator should determine whether or not medical attention was sought and where. If the police responded to the crash, the accident report should be reviewed. If not, the circumstances of the crash should be described in detail, including whether or not the infant was in an approved safety seat and sustained any injury.

Any Recent Submersion in Water

For episodes of submersion or near-drowning in the 72 hours prior to a sudden death, particularly if there was no medical care sought in the aftermath of such an event, detailed history is mandatory. Under what circumstances did the episode occur? What was the timing of the episode? What action was taken? What was the infant's behavior immediately after the submersion? Were there any changes in the infant's usual behavior in the subsequent 72 hours?

Medical Treatments

The investigator should document all medical treatments, including immunizations, medications, or traditional cultural treatments, that were administered to the infant in the past 72 hours. Each must be considered by the pathologist prior to autopsy as possible contributors to the death of the infant. The infant may have had an allergy or sensitivity to those treatments.

In addition to treatments, obtain the name of the healthcare facility that administered the immunization, and obtain a copy of the record. If medications were given, ask caregivers what medication was given, for what reason, the dosage, and the time. Ask to see the packaging of the medication, and collect it, if necessary.

INFANT MEDICAL HISTORY

1 **Source of medical information:** ☐ Doctor ☐ Other healthcare provider ☐ Medical record
☐ Mother/primary caregiver ☐ Family ☐ Other:_____

2 **In the 72 hours prior to death, did the infant have:**

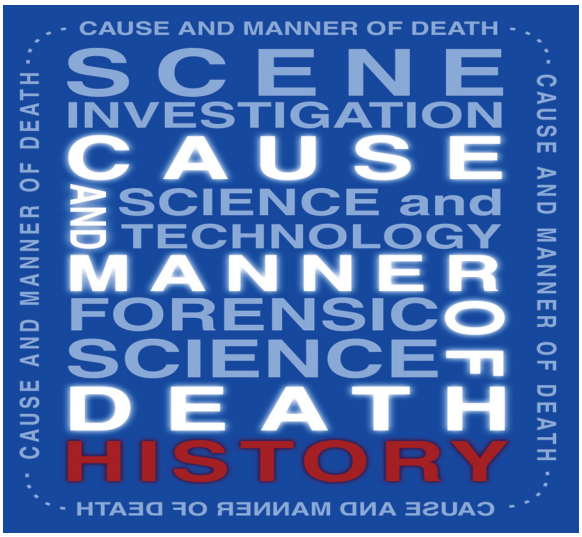
	Unknown	No	Yes		Unknown	No	Yes
a) Fever	☐	☐	☐	h) Diarrhea	☐	☐	☐
b) Excessive sweating	☐	☐	☐	i) Stool changes	☐	☐	☐
c) Lethargy or sleeping more than usual	☐	☐	☐	j) Difficulty breathing	☐	☐	☐
d) Fussiness or excessive crying	☐	☐	☐	k) Apnea *(stopped breathing)*	☐	☐	☐
e) Decrease in appetite	☐	☐	☐	l) Cyanosis *(turned blue/gray)*	☐	☐	☐
f) Vomiting	☐	☐	☐	m) Seizures or convulsions	☐	☐	☐
g) Choking	☐	☐	☐	n) Other, specify _____			

3 **In the 72 hours prior to death, was the infant injured or did s/he have any other condition(s) not mentioned?**
☐ No ☐ Yes ⇨ Describe: _____

4 **In the 72 hours prior to the infants death, was the infant given any vaccinations or medications?**
(Please include any home remedies, herbal medications, prescription medicines, over-the-counter medications.)
☐ No ☐ Yes ⇨ List below:

Name of vaccination or medication	Dose last given	Date given (Month / Day / Year)	Approx. time (Military Time)	Reasons given/ comments:
1.		/ /	:	
2.		/ /	:	
3.		/ /	:	
4.		/ /	:	

Fig. 4.12: Recent physical and medical issues should be documented during interviews with the caregiver and/or the appropriate healthcare provider.



unit

11 Medical Information and Pregnancy History

INTRODUCTION

Interviewing the primary caregiver to determine any recent medical treatments administered within the past 72 hours is essential to the investigation. However, the investigator may have to contact others, such as the infant's healthcare provider or doctor to gather additional medical information about both the birth mother and infant.

DOCUMENT MEDICAL HISTORY

Every infant's prenatal environment affects his or her capability to thrive postnatally. Important factors, particularly in relation to a diagnosis of SIDS, include maternal age; lack of prenatal care and related problems with inadequate nutrition, anemia, and untreated infection; and maternal use of tobacco, alcohol, or other drugs. According to the Triple Risk Model of SIDS (Kinney and Filiano), a constitutionally vulnerable infant—possibly a combination of abnormalities sustained in the womb with environmental stresses at a vulnerable postnatal time—could result in a sudden death.

Reviewing medical records might seem cumbersome to those who are not familiar with the organization of such documents, but most charts follow a predictable format, and information can be found if one is familiar with how they are organized. This format varies slightly, but most medical records follow the "SOAP" format:

- **S**ubjective: the caretaker's description of the reason for the visit.
- **O**bjective: observations and/or signs elicited by physical examination.
- **A**ssessment: diagnosis or differential diagnosis of the presenting complaint based on the history and physical findings.
- **P**lan: additional diagnostic laboratory or radiology studies and/or a specific therapeutic strategy with follow-up.

In the **clinic chart,** there generally will be a few pages in the front documenting basic demographic information, birth history, immunizations, and ongoing medical issues such as allergies, specific diagnoses, and prescribed medications. Well child care visits likely will be recorded chronologically and will include information about the infant's growth, development, feeding, and sleeping patterns. Documented "ill visits" might be recorded in the same section of the chart or might be placed in another area. Growth rate will be recorded on a specialized chart designed to track growth.

Records of hospitalizations are arranged somewhat differently. Specific sections usually are tabbed for easy reference. After the pages of demographic and insurance information, near the front of the file should be a document labeled **"H&P"** (History and Physical). This is a summary of why the infant was presented for admission and generally follows the SOAP format. What follows are pages of **"Progress Notes."** This part of the chart is a day-to-day narrative of what transpired during the admission. These notes are recorded chronologically by any physicians, therapists, or other professionals rendering care during the hospital stay. In the case of physician's notes, they generally follow the SOAP format. Notes from respiratory therapy, physical therapy, nutrition services, and others may be more narrative in character. All should be labeled by discipline. Specialty consultations may be recorded in the progress notes, but in many cases also have a specific tabbed area of the chart where they may be filed.

A section for **laboratory and radiology** studies usually comes next, followed by **nursing notes.** The importance of a close study of the latter cannot be overemphasized. This area of the chart holds a great deal of information beyond the basics of medical care documented in the progress notes. Nursing notes typically document subtle but important issues such as observations of the infant while awake and sleeping; objective assessments of breathing patterns and how well or poorly an infant feeds; corroboration or refutation of "spells" as described by caregivers; and visits and interactions with caregivers, other family members, and visitors. All in all, nursing notes tend to be a rich data source in investigating these difficult cases.

All Immunizations (Shots)

Obtain this information from a medical source, if possible. For example, a card kept by the caregivers from the medical record/facility. The information and its source should be verified. The medical record should indicate the dates, times, locations, and types of immunizations administered.

All Allergies

This information should be documented but interpreted with caution. Lay persons and healthcare providers alike attribute a wide variety of infant behaviors to "allergies." There is no research or clinical literature attributing SIDS to allergies, but under the right circumstances, an infant's exposure to a proven allergen could be a factor in his or her death.

History of Apnea

Apnea—cessation of respiratory effort—is an investigative red flag that should prompt a careful record review. Infants known or alleged to have had recurrent episodes of apnea generally have had extensive medical work-ups, including neurology, cardiology, and pulmonary medicine and perhaps other consultations. EEGs, neuroimaging studies, EKGs, Holter studies, sleep studies, and metabolic screens might be on file. Some infants with apnea histories might be on monitoring devices at home, although their use is less common today than in the past. This equipment should be obtained and examined.

History of Cyanosis

The finding of cyanosis, likewise, usually will have prompted detailed medical evaluation, including many of the studies listed above under apnea. A well-documented history, whether cyanosis is specifically diagnosed or not, should be prominently conveyed to the autopsy pathologist so that he or she can lend proper focus to subtle abnormalities of the cardiovascular, pulmonary, and central nervous systems.

History of Seizures

Determine if the infant has experienced any acute cyanosis or rapid onset of discoloration of the skin due to lack of oxygen getting to the blood and seizures.

History of Heart Problems

A caregiver's interview may yield nothing more specific than the phrase "heart problems." This becomes more likely with the increasing complexity of the cardiac issue. The medical record review should shed light on whether or not one is dealing with an "innocent," asymptomatic murmur or complex congenital heart disease. Reports of all diagnostic studies regarding the heart should be obtained for review by the autopsy pathologist. Obtaining a family history of infant and childhood heart conditions is essential—check the medical records.

The differential diagnosis of sudden cardiac death in infancy includes several entities that can escape diagnosis during life, even when diligently sought. Some examples include myocardiditis, anomalous coronary artery ostia or courses, lesions of the atriventricular node or conduction pathways, and ion channel disorders comprising the various types of prolonged QT syndrome.

History of Metabolic Disorder

All 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands currently mandate metabolic screening of newborns, and this information usually is available through a central registry. State newborn screening systems were the first and are the largest genetics programs for children. Many states include exemptions for parents who object to genetic testing for religious or other reasons. Consult your own state's statute; the scope of such screening varies greatly from state to state. In individual cases, there might have been more detailed screening or diagnostics as part of a medical evaluation of a specific infant. Several inborn errors of metabolism have been recognized as potential causes of SUID, and more are likely to emerge.

Previous Child Death(s) in Family

Multiple infant deaths occurring in the same family due to natural causes are rare. The investigator needs to determine if other children have died while under the care of the same individual or individuals.

History of Medical Issues

The investigator should ask the primary caregiver or appropriate health professional if the infant suffered from or had a history of any chronic health-related problems. This ranges from such things as allergies and/or abnormal growth to seizures and/or birth defects.

INFANT MEDICAL HISTORY

5 **At any time in the infant's life, did s/he have a history of?**

	Unknown	No	Yes	Describe:
a) Allergies *(food, medication, or other)*	☐	☐	☐	⇨ _____
b) Abnormal growth or weight gain/loss	☐	☐	☐	⇨ _____
c) Apnea *(stopped breathing)*	☐	☐	☐	⇨ _____
d) Cyanosis *(turned blue/gray)*	☐	☐	☐	⇨ _____
e) Seizures or convulsions	☐	☐	☐	⇨ _____
f) Cardiac (*heart*) abnormalities	☐	☐	☐	⇨ _____
g) Metabolic disorders	☐	☐	☐	⇨ _____
h) Other	☐	☐	☐	⇨ _____

6 **Did the infant have any birth defects(s)?** ☐ No ☐ Yes

Describe: _____

Fig. 4.13: Document infant medical history.

DOCUMENT BIRTH HISTORY

Infant's Birthdate and Gestation

Record the infant's date and location of birth, including the address, city, and state of the hospital or other birth location. A single infant in a household does not automatically mean a single pregnancy. It is important to inquire whether the infant was a singleton, twin, triplet, or higher. The womb can become a crowded place. More occupants mean a smaller birth weight for each infant and a higher risk for premature birth, both of which are independent risk factors for SIDS. Unfortunately, all multiple-gestation pregnancies are higher risk to some extent, and not all the newborns may survive.

Birth Complications

The more time from the date of birth, the less likely a birth injury will contribute to or cause death. However, despite the time interval, this information remains critical, particularly if the pathologist uncovers trauma that is "claimed" to represent birth trauma.

Any Congenital Abnormalities or Birth Defects

A congenital abnormality might or might not be a cause of or contribute to a SUID. It is, however, an important element of every infant's medical history that must be considered by the physician certifying the cause and manner of death. Not all such defects or syndromes will be readily apparent by simply looking at the infant and, therefore, need to be specifically queried.

Essential details include the following:

- **Type of defect or syndrome, if present:** Is this an isolated physical defect such as a ventricular septal defect or cleft palate, or is it part of a more complex genetic syndrome such as Trisomy 21 (Down syndrome), 23 XO (Turner's syndrome), etc.? Does the infant have a known metabolic disease requiring specific feeding practices or replacement therapy?
- **Document treatments:** Specialists providing focused treatment for congenital issues might not be identified as the primary healthcare provider. Details of a specialist's involvement and contact information should be investigated and

documented. For rare, unusual diagnoses, care usually will be rendered by a referral facility that might not even be in the same state. Jurisdictionally, this might present problems in procuring records, depending on the philosophy of the medical center in question. Be prepared to have caregivers sign release-of-information forms to cover this, if necessary.

INFANT MEDICAL HISTORY

8 **Birth hospital name:** _____

Street _____

City _____ State _____ Zip _____

Date of discharge _____/_____/_____ Month Day Year Months

9 **What was the infant's length at birth?** _____ inches **or** _____ centimeters

10 **What was the infant's weight at birth?** _____ pounds _____ ounces **or** _____ grams

11 **Compared to the delivery date, was the infant born on time, early, or late?**

☐ On time ☐ Early—How many weeks early?_____ ☐ Late—How many weeks late?_____

12 **Was the infant a singleton, twin, triplet, or higher gestation?**

☐ Singleton ☐ Twin ☐ Triplet ☐ Quadruplet or higher gestation

13 **Were there any complications during delivery or at birth?** *(emergency c-section, child needed oxygen)*

☐ No ☐ Yes ⇨ Describe the complications: _____

_____

_____

14 **Are there any alerts to pathologist?** *(previous infant deaths in family, newborn screen results)*

☐ No ☐ Yes ⇨ Specify: _____

_____

_____

Fig. 4.14: Infant birth history is documented for the forensic pathologist.

DOCUMENT RECENT VISITS/CONTACTS WITH HEALTHCARE PROVIDERS

The investigator should ask the primary caregiver when the infant was last seen by a physician or healthcare provider. It is important to document the name and contact information for the treating physician and/or the facility where the visit took place. If any treatment was administered, the investigator should document the action taken and any follow-up activities that occurred or were suppose to occur.

When speaking with the caregiver, the investigator should be sure to ask about any and all visits to emergency departments or clinics outside the "mainstream" heathcare system. This includes visits to the neighborhood doctor, who may or may not be a physician.

Reason for Recent Visit/Contact

It is important to note any vaccinations that the infant may have received. Determine symptoms that prompted medical attention, particularly those leading to the prescription of medication. This may include mild cold symptoms, inconsolable crying, or an observed 30-second episode of apnea or seizure activity. Ask the caregiver to tell you exactly what he or she told the healthcare provider, as accurately as he or she can remember.

Action Taken

This should include a description of any laboratory or radiological studies that were done and any medications or feeding changes prescribed. Especially important is the documentation of medications given to the infant within 72 hours of death. Included in your inquiry should be over-the-counter medications and any herbal or home remedies. Exactly how, and in what amount and frequency, any medications were administered should be specifically documented

and compared to any instructions issued by the healthcare provider, and the medications should be obtained.

Outcome of Visit

Ask whether the symptoms for which they sought attention had abated or improved. How did the infant tolerate the medication and/or new feeding regimen? What was the follow-up plan?

INFANT MEDICAL HISTORY

7 **Describe the two most recent times that the infant was seen by a physician or health care provider:**
(Include emergency department visits, clinic visits, hospital admissions, observational stays, and telephone calls)

	First most recent visit	Second most recent visit
a) Date	_____ /_____ /_____ Month Day Year	_____ /_____ /_____ Month Day Year
b) Reason for visit		
c) Action taken		
d) Physician's name		
e) Hospital/clinic		
f) Address		
g) City		
h) State, ZIP	_____ _____	_____ _____
i) Phone number	(____)____-_____	(____)____-_____

Fig. 4.15: The two most recent visits to a physician or healthcare provider are documented on the investigative scene form.

DOCUMENT HEALTHCARE PROVIDER'S INFORMATION

The written medical record, as valuable as it is, can be augmented greatly by a conversation between the medicolegal investigator and the primary healthcare provider. Progress notes and office visit notes are simplified versions of what might have been complex encounters. Grief-stricken caregivers are not likely to remember addresses, phone numbers, or even names of providers at the time of the initial interview. What they may have, however, are appointment reminder cards, immunization records, prescription bottles, or baby care literature stamped with their provider's name, address, and phone number.

Name of Healthcare Provider

It is not uncommon for infants to have multiple healthcare providers operating out of the same office or multiple locations. The investigator should attempt to document all healthcare providers who have professional information regarding the health of the infant as well as parent or caregiver involvement in the infant's overall health. The name and contact information for each provider should be documented in the case report. Healthcare professionals can provide the investigator with the number of prior visits, the reason for visits, any treatment(s) provided, the outcome of visits, and any recommendations for future follow-up. Also, the pathologist will want to know whether the infant had any abnormal health conditions that may have played a role in the death.

Location of Building Where Visit Took Place

The investigator should bear in mind that there might be more than one practice location for a given provider group. Investigate the possibility that infant medical records may or may not be at each facility.

Name of Clinic or Hospital

The investigator should not forget the possibility of visits to facilities other than that of the primary healthcare provider, including hospital admissions.

Any Noncompliance with Recommended Therapies/Instructions

This is a potentially complex and sensitive area that must be approached with care. If a medication was prescribed but not administered, this should be documented in your report. There may be explanations for such an occurrence, but these should be made known to the autopsy pathologist. Typically, caregivers of an infant sent home after what is perceived to be a minor head injury will receive detailed instructions, usually in writing. Any reason for noncompliance with these instructions should be obtained.

Consulting the birth mother may not be possible at the time of the initial investigation, but permission to procure the infant's birth records is essential nevertheless. The investigator should seek to capture the following either by interview or by later review of medical records:

- Name and location of birth hospital.
- Date and time of birth.
- Date and time of discharge.
- Infant's birth length and weight.
- Born "on time"? (i.e, was the infant premature or postdate?)
- Vaginal vs. Caesarean delivery.
- If infant is a singleton, twin, triplet, or quadruplet.
- Complications of labor and delivery (e.g., emergency Caesarean delivery needed, infant needed oxygen at birth, was admitted to the neonatal intensive care unit).

DOCUMENT PREGNANCY HISTORY

The history of the mother's pregnancy could be important in ascertaining whether there were any problems or incidents during that period that could contribute to the infant's death at this time. All information gathered should be documented for use by others conducting this investigation.

Prenatal care is important for a pregnant woman as it will help identify any fetal problems quickly and permit any conditions to be treated as soon as possible. Prenatal care includes genetic counseling, prenatal diagnosis, fetal-development assessment, and early detection of pregnancy complications.

Complications during a woman's pregnancy can be devastating to the mother and the infant. Some complications require that the mother be placed on bedrest for an extended period of time. Other complications might include bleeding, cramping, and hypertension. If medications are required to alleviate the complications, careful monitoring of the drug levels must be done to ensure that the infant is protected.

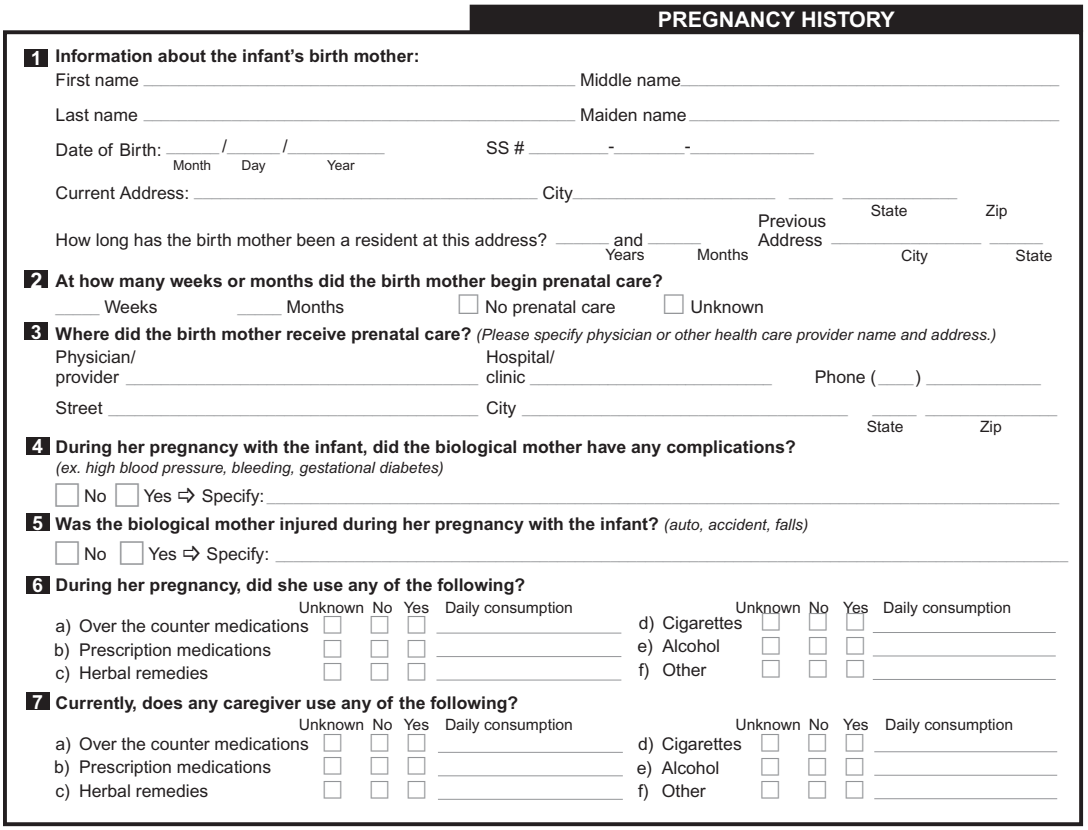
Injuries during pregnancy could ultimately affect the health of both the mother and the infant. Depending on the nature of the injury, you might also be dealing with issues of criminality or civil liability if the injuries were in any way related to or could be related to injury of the fetus that consequently resulted in the death of the infant. Reviewing the mother's pregnancy history will provide information on any successful births and any problematic pregnancies that might have affected the health of the mother or this infant.

The medications that people take can have a positive or negative effect on the patient. Allergies or unexpected reactions to known or new drugs can significantly affect the health of the mother and consequently the health of the developing fetus.

Birth Mother Information

The identity of the birth mother must be determined so that an accurate pregnancy history can be obtained. The treating obstetrician, hospital of delivery, and possibly a police report should be investigated and documented. Determine who the birth mother is by asking knowledgeable

persons at the scene of death or hospital. Document her full name and date of birth, along with her maiden name in case she was using her maiden name when receiving prenatal care. This information will facilitate the collection of records from multiple sources.



PREGNANCY HISTORY

1 **Information about the infant's birth mother:**
First name _____ Middle name _____
Last name _____ Maiden name _____
Date of Birth: ____/____/____ (Month / Day / Year) SS # ____-____-____
Current Address: _____ City _____ ____ _____ (State / Zip)
How long has the birth mother been a resident at this address? ____ and ____ (Years / Months) Previous Address _____ ____ (City / State)

2 **At how many weeks or months did the birth mother begin prenatal care?**
____ Weeks ____ Months ☐ No prenatal care ☐ Unknown

3 **Where did the birth mother receive prenatal care?** *(Please specify physician or other health care provider name and address.)*
Physician/ provider _____ Hospital/ clinic _____ Phone (____) _____
Street _____ City _____ ____ _____ (State / Zip)

4 **During her pregnancy with the infant, did the biological mother have any complications?** *(ex. high blood pressure, bleeding, gestational diabetes)*
☐ No ☐ Yes ⇨ Specify: _____

5 **Was the biological mother injured during her pregnancy with the infant?** *(auto, accident, falls)*
☐ No ☐ Yes ⇨ Specify: _____

6 **During her pregnancy, did she use any of the following?**

	Unknown	No	Yes	Daily consumption		Unknown	No	Yes	Daily consumption
a) Over the counter medications	☐	☐	☐		d) Cigarettes	☐	☐	☐	
b) Prescription medications	☐	☐	☐		e) Alcohol	☐	☐	☐	
c) Herbal remedies	☐	☐	☐		f) Other	☐	☐	☐	

7 **Currently, does any caregiver use any of the following?**

	Unknown	No	Yes	Daily consumption		Unknown	No	Yes	Daily consumption
a) Over the counter medications	☐	☐	☐		d) Cigarettes	☐	☐	☐	
b) Prescription medications	☐	☐	☐		e) Alcohol	☐	☐	☐	
c) Herbal remedies	☐	☐	☐		f) Other	☐	☐	☐	

Fig. 4.16: The Pregnancy History section of the SUIDI Reporting Form.

Prenatal Care

The investigator should determine whether the mother received any prenatal care. This can be provided at a multitude of places. Private physicians (obstetricians) provide prenatal care in their offices for a fee that routinely is covered by the mother's medical insurance. If a woman does not have insurance, she may choose to receive prenatal care through a community clinic. Clinics may be located in hospitals or in freestanding heath centers. The investigator should also document the doctor's contact information for any follow-up that the investigation may require.

Medications Taken during Pregnancy

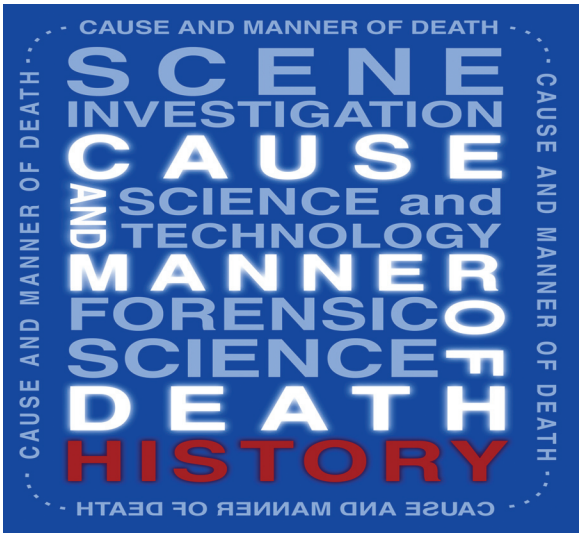
The investigator should ask the birth mother or other knowledgeable person whether the mother took any prescription or over-the-counter (OTC) medications. This information should be documented in the investigative report. If the medication bottles/containers are available, the investigator should document the prescription information. If unavailable, the investigator should contact the treating physician to collect medical records. The investigator should document as much as possible about the OTC medications or herbal remedies, including the following items:

- Name of medication, OTC medication, or herbal remedy.
- Dosage.
- Prescribing physician and contact information.
- Date prescribed.

- Amount prescribed.
- Amount present.
- Name and contact information for pharmacy.
- Method of administration.
- Amount of drug, OTC, herbal remedy taken.
- Frequency of administration.

Use of Tobacco Products or Alcohol Consumption

The investigator should discuss the topic of tobacco and alcohol use/consumption with the mother. Because of the stigma attached to these habits, there might be reluctance to discuss these topics honestly. However, every effort should be made to document and confirm the answers given with other family members and/or with the mother's physician. Be observant; look around the scene for evidence of alcohol and tobacco use.



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12 Dietary and Feeding Information

INTRODUCTION

Infants may die while bottle feeding, breastfeeding, or eating solid foods. These deaths could be due to accidental suffocation by material or objects used to prop the bottle, asphyxia secondary to choking (obstructive suffocation) due to an inappropriate amount or type of food or liquid given to the infant, an acute allergic reaction, or an accidental poisoning. Alternatively, an infant may die some time after he or she has been fed, and the temporal relationship between the infant's diet and his or her death may not be as apparent. Therefore, it is important to document information concerning what the infant was fed in the 24 hours prior to death in order to establish whether the infant may have died as a result of what or how he or she was fed or what he or she accidentally ingested. An investigator may want to determine when the infant was last fed (date, time), who last fed him or her (name, relationship to the deceased infant), and the foods and liquids that the infant was last fed (type of food, quantity). Food or liquid introduced into the infant's diet for the first time should be documented because new foods, especially age-inappropriate foods, can pose a choking risk. Alternatively, the infant may have had an allergic reaction to the new food.

DIETARY AND FEEDING DATA COLLECTION

Breast Milk or Infant Formula

The investigator should remember that infants typically are fed only breast milk and/or infant formula for the first four to six months. For formula fed infants, ask how much was given (quantity in ounces), what brand of infant formula was used, what water source was used to mix the formula (e.g., tap, well, or bottled water), and what brand of bottled water was used, if applicable. The investigator should ask whether there was a change in infant formula in the 24 hours before the infant's death. If there was a change in infant formula, this information should be recorded. For breastfeeding infants, the investigator should ask whether the infant fed on both sides and the length of time that the infant fed.

Cow's Milk

Typically, children are not given cow's milk until after their first birthday because this milk does not have sufficient nutritional content and may trigger food allergies. However, infant formula is expensive and some parents choose to introduce cow's milk at an earlier age. It is important to ask how much cow's milk was given (quantity in ounces) and the brand of milk given. The investigator should collect a sample of the cow's milk, if it is available.

Water

Infants of all ages may be given water. It is important to ask how much water was given (quantity in ounces), what type of water was given (e.g., tap, well, or bottled water), and the brand of bottled water, if applicable. The investigator should collect a sample of the water.

Other Liquids

Infants of all ages may be given liquids other than milk or water. The parent or caregiver may not volunteer this information. It is important to ask whether the infant received other liquids such as tea, juices, or herbal drinks. If he or she did receive other liquids, the investigator should ask how much was given (quantity in ounces), the type of liquid given, and what brand of liquid was given, if applicable. The investigator should collect a sample of the liquid, if available.

Solid Foods

Infants typically are first given solid food between four and six months of age. Developmentally, most infants are not ready for solid food before four months. It is important to ask what solids were given to the infant (e.g., raw carrots, pureed peas, chopped meat), how much was given (e.g., how many tablespoons), and the brand of food given, if applicable. The investigator should ask whether a new solid food was introduced in the 24 hours before the infant's death.

Other

The investigator should ask whether anything else was given to the infant during the last meal. Perhaps the infant ingested a special herbal remedy or other solid or liquid that might not be considered "food." The bottom line is that the investigator needs to get a list of everything that the infant ingested/ate during the 24 hours before death. Also, he or she should ask whether there was anything unusual about the last feeding.

New Foods

The investigator should document whether a new food or liquid was introduced into the infant's diet during the 24 hours before the infant's death. This is important in establishing whether the infant died due to suffocation secondary to choking or poisoning on a solid food given for the first time, or whether the infant had an allergic reaction to the new food or liquid that was introduced. Data that should be collected include the type of food or liquid introduced, the amount, and the brand if applicable. The investigator should remember to collect samples of all solid foods and liquids that were introduced in the 24 hours prior to the infant's death.

It is important that the investigator interviews a parent, usual caregiver, or someone who typically fed the infant and would know whether a new food or liquid was introduced into the infant's diet in the 24 hours prior to death. It will not be helpful to interview someone who is unfamiliar with the infant's dietary history.

INFANT DIETARY HISTORY

1 **On what day and at what approximate time was the infant last fed?**

_____/_____/_____ _____:_____
Month Day Year Military Time

2 **What is the name of the person who last fed the infant?** _____

3 **What is his/her relationship to the infant?** _____

4 **What foods and liquids was the infant fed in the last 24 hours** (include last fed)**?**

	Unknown	No	Yes	Quantity	Specify: *(type and brand if applicable)*
a) Breast milk *(one/both sides, length of time)*	☐	☐	☐	⇨ ____ ounces	_____
b) Formula (*brand, water source - ex. Similac, tap water)*	☐	☐	☐	⇨ ____ ounces	_____
c) Cow's milk	☐	☐	☐	⇨ ____ ounces	_____
d) Water *(brand, bottled, tap, well)*	☐	☐	☐	⇨ ____ ounces	_____
e) Other liquids *(teas, juices)*	☐	☐	☐	⇨ ____ ounces	_____
f) Solids	☐	☐	☐	⇨	_____
g) Other	☐	☐	☐	⇨	_____

5 **Was a new food introduced in the 24 hours prior to his/her death?**
☐ No ☐ Yes ⇨ Describe *(ex. content, amount, change in formula, introduction of solids)*

_____
_____
_____

6 **Was the infant last placed to sleep with a bottle?**
☐ Yes ☐ No ⇨ Skip to question **9** below

7 **Was the bottle propped?** (i.e., object used to hold bottle while infant feeds)
☐ No ☐ Yes ⇨ What object was used to prop the bottle? _____

8 **What was the quantity of liquid (in ounces) in the bottle?** _____

9 **Did death occur during?** ☐ Breast-feeding ☐ Bottle-feeding ☐ Eating solid foods ☐ Not during feeding

10 **Are there any factors, circumstances, or environmental concerns that may have impacted the infant that have not yet been identified?** *(ex. exposed to cigarette smoke or fumes at someone else's home, infant unusually heavy, placed with positional supports or wedges)*
☐ No ☐ Yes ⇨ Describe concerns: _____

_____
_____
_____

Fig. 4.17: The Infant Dietary History section of the SUIDI Reporting Form.

The investigator should remember to probe on foods that are most likely to cause choking or allergic reactions by the infant. Solid foods that may cause choking include those that are round, hard, and difficult to dissolve in saliva, such as nuts, seeds, hard candies, round candies, grapes, raw carrots, popcorn, and hot dogs. Foods that commonly cause allergic reactions in the United States include dairy products (e.g., cow's milk), eggs, nuts, peanuts, wheat, soy, corn, shellfish, and fish. These are the most common foods that could cause a life-threatening systemic (whole body) reaction (e.g., shock, difficulty breathing, swelling in the mouth and throat, and stomach or digestive problems).

The investigator should be sure to ask about the quantity of liquids given because infants might choke and aspirate liquids if they are given too much (e.g., leaving a young infant unattended with a propped bottle). The investigator also should ask about liquids such as dairy products (e.g., cow's milk) that may have led to a life-threatening allergic reaction.

OTHER INVESTIGATIVE ISSUES

Died while Feeding

Although it is rare for an infant to die while being fed, this can occur. Death during feeding can happen during breastfeeding or bottle feeding and not be discovered or noticed by the feeder. Death can occur due to choking and asphyxia, an allergic reaction, or mechanical suffocation by an object used to prop or support a bottle. To determine if the infant may have became unresponsive and died during feeding, the person who last fed the infant needs to be identified and interviewed.

If the infant was placed to sleep with a bottle for his or her last sleep before death, the person who placed the infant to sleep should be interviewed. The investigator should ask this person if the infant died while feeding. This is a difficult question to ask, but it will help determine the cause of death. The investigator should ask what the bottle contained and how many ounces were in the bottle when it was given to the infant. The bottle and its contents should be collected for testing. The investigator should ask the person being interviewed if the bottle was propped, and if so, what object was used to prop the bottle. This is important because the object used to prop the bottle may have accidentally suffocated the infant. Fox example, did the person use a baby pillow, a doll, an adult-sized pillow, a blanket, or a book? The investigator should ask the person where the item used for propping was placed. For instance, was the item used for propping placed on the infant's chest, or was it placed next to the infant's head on the sleep surface and the infant's head was turned to the side?

The investigator should document whether the bottle was still present at time of death. In some infant death cases, the infant is actually observed becoming unresponsive (e.g., “She just stopped breathing.”) In such cases, whether or not the bottle was present at the time of death can help verify if the infant was being fed just before time of death.

The investigator should also document the time when the infant was placed in bed with the bottle, and he or she should ask the person being interviewed where it was located in relation to the deceased infant when it was found.

Summary

DISCUSSION QUESTIONS

1. Why is it important to obtain an infant's dietary history in the 24 hours before death?
2. What types of solid foods are associated with choking? Describe the types of food and give examples.
3. Why is it important to ask whether a new food was introduced in the 24 hours before death?
4. What are the common causes of food allergies? List the main categories of food.
5. Why is it important to ask about bottle propping?
6. What is the risk associated with bottle propping?

SAMPLE QUESTIONS

1. All of the following are important for documenting the last 24 hours of feeding EXCEPT:
    A. Identify the source of information.
    B. Document whether any siblings ate the same things as the infant.
    C. Document the date and time of the last feeding.
    D. Document the name of the person who last fed the infant.

2. Why is it important to document the last 24-hour feeding information?
    A. To establish whether the infant might have died due to obstructive suffocation secondary to choking.
    B. To determine whether the caregivers were feeding the infant age-appropriate foods.
    C. To assess whether the infant's nutrient intake was adequate
    D. To determine whether the infant liked what he or she was fed.

3. When determining whether the infant was placed to sleep with a bottle, which of the following is most important to ask?
    A. Had the infant slept with a bottle before?
    B. Was the bottle propped up by anything?
    C. Which brand of infant formula was used?
    D. What time did the infant go to sleep with the bottle?

4. What is/are the most likely reason(s) an infant might die while being fed?
    A. Accidental suffocation by the breast.
    B. Choking and asphyxiation due to inappropriate amount or type of food/liquid given to the infant.
    C. Foodborne illness (i.e., salmonella, botulism, etc.)
    D. A and B.

5. Which of the following are common causes of food allergies?
    A. Dairy products, nuts, wheat, corn, soy, and shellfish.
    B. Chicken, turkey, ham, and roast beef.
    C. Carrots, tomatoes, broccoli, and spinach.
    D. Orange juice, apple juice, cranberry juice, and grape juice.

chapter 5

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Conducting Witness Interviews

Service Agency Responders and Representatives

Unit 13: Document EMS Involvement
Unit 14: Document Law Enforcement Involvement
Unit 15: Document Hospital Involvement

Professionals such as emergency medical service, law enforcement, fire, social services, and child protective service workers may all be at the scene prior to the death investigator's arrival. Although each has a specific role to play on behalf of his or her agency, you need to make each a member of the investigative team. This chapter covers strategies for gathering detailed information from professional responders regarding activities that occurred prior to the investigator's arrival.

OVERVIEW

Conducting field interviews with EMS responders and law enforcement personnel is essential to the collection of witness data. In addition, obtaining important and relevant information from the hospital (usually emergency room) where the infant received medical care prior to death or at which the infant's death was pronounced could prove critical to the investigation. This includes interactions between the investigator and individuals working at the hospital who can provide basic patient and institutional information, obtaining the name(s) of the treating physician(s), ascertaining the level of the infant's consciousness on arrival, documenting the observations made of the infant's body, and describing treatment or diagnostic procedures performed on the infant, as well as information regarding family reactions to the infant's death and appropriate medical records and property or potential evidence that needs to be obtained. In some cases, all of this information can be provided by a single source, whereas in other cases, multiple healthcare workers may need to be interviewed. In some cases, the necessary information may be obtained without the investigator going to the hospital; in other cases, a trip to the hospital may be required. This chapter focuses on the critical information these professional agency witnesses may be able to provide the infant death investigator.

SUPPORT MATERIALS

In addition to the SUIDI Reporting Form or jurisdictionally approved equivalent, the following support materials are suggested for this chapter:

1. Walz BJ. *Introduction to EMS Systems.* Albany, NY: Delmar Thompson Learning; 2002.
2. Local EMS system medical protocols.
3. Local EMS system SOP/SOG for pediatric cardiac arrest response.
4. Local EMS run sheet, including narrative section.
5. Dispatch center CAD printout.
6. Copy of dispatch center incident tape.

CHAPTER OBJECTIVES

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

1. Establish and document EMS involvement.
2. Establish and document law enforcement involvement.
3. Establish and document hospital involvement.

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

unit

13 Document EMS Involvement

INTRODUCTION

Because most SUID are perceived by the finder as a medical emergency, emergency medical services (EMS) is often the first and only agency called by the finder, family, or bystanders. It is important for investigators to realize that EMS personnel are trained first and foremost to respond to a scene as medical professionals. The on-scene response of EMS is dictated by medical protocols approved by the system's medical oversight physician, and their actions will be guided by efforts to resuscitate the child if the slightest chance for survival exists. Therefore, the actions of EMS may be in conflict with some investigative needs and procedures. Understanding each agency's role at the scene will assist each member of the team in completing his or her job while serving the public.

EMS SYSTEM DESIGN

To make maximum use of information obtainable from EMS responders, the investigator must understand the design of the local EMS system. For instance, a local fire company may be dispatched as a first responder unit, with transport being provided by a basic life support ambulance that is upgraded by a paramedic in a response car. In this situation, the investigator will have to obtain EMS information from all three agencies. It also is important to know whether local EMS is provided by paid or volunteer personnel, as this will affect the availability of personnel for interviews.

If the local EMS system bills for service, they may be covered by the Health Insurance Portability and Accountability Act (HIPAA). This act limits the availability of identifiable patient information, even in criminal cases. Requests for EMS run reports may have to be directed through the EMS's administrative offices. Simply asking the on-scene EMS crew for information or a copy of their run sheet may be against their policy. Investigators should be aware of and sensitive to these restrictions.

VERIFY EMS INVOLVEMENT

Contact Dispatch to Obtain Information Relevant to the Case

Because multiple EMS agencies may have been on-scene, it is important for the investigator to determine who the responders were and to contact the appropriate dispatch center for each agency. When contacting the dispatch center, the investigator needs to have basic scene information available to ensure the receipt of the correct case details. The exact location, date, and time that the incident occured will help the dispatcher find the right case; however, the EMS incident number is the best way to search for a specific case. If the investigator can get this number from EMS personnel at the scene, all follow-up activities involving EMS will be much easier.

Since 911 operators do not routinely ask for a caller's name, documentation of the caller will most likely be done through scene investigation. The caller's relationship to the infant, however, is normally determined by the 911 operator during the initial call, and the investigator should be able to find this information on all dispatch documents associated with the call.

The investigator should review all available 911 tapes that are relevant to the case. The availability of tapes varies by system, but in most cases a tape must be requested within 30 to 60 days of the incident. Dispatch centers maintain not only a voice and data recording of the entire incident, but computer-aided dispatch (CAD) records as well. It is usually easier to obtain a CAD printout than to review an incident tape. EMS personnel may be able to provide you with a copy of the response-time printout, and in systems with integrated public safety dispatch, such information may also be obtainable from your dispatcher.

The specific information that should be gathered from the 911 tapes will vary with each case, but the following items should always be collected:

- Dispatch time and arrival time.
- Names of EMS personnel dispatched.
- Case/report number(s).

In most jurisdictions, these items can be found on the EMS run sheet. However, additional information, clarification, and observations of EMS personnel may be needed. The investigator should arrange a time to meet with the EMS employees when they are not on call. This will help to ensure that you have their undivided attention and sufficient time to conduct a thorough interview. If it is necessary to interview EMS personnel on-scene or at the hospital, bear in mind that many EMS systems, especially in rural areas, have limited resources. EMS personnel may be unable to remain on location for an extended interview.

DOCUMENT EMERGENCY MEDICAL TREATMENTS GIVEN

Medications Administered by EMS

When recording medications, it is important to spell the name of the drug correctly because many drugs have similar or like-sounding names. Pediatric dosages are also specific, so attention should be given to decimal places and leading zeros.

Actions Performed by EMS and Their Duration

This information is best recorded in chronological order as a linear listing of actions and interventions. For drug administrations, it is important to note the body location of administration, as this may help to explain marks or injuries noted on the infant. For infants resuscitated in the field but pronounced dead either at the scene or hospital, standard protocol is to leave all inserted medical devices in place pending examination by the coroner or medical examiner. EMS personnel routinely use abbreviations to describe medical procedures or drugs. Investigators should clarify all abbreviations with EMS personnel.

EMS Outcome(s)

Outcome as recorded by EMS will most likely be one of the following:

- DOA, no resuscitative efforts attempted.
- DOA, resuscitation attempted.
- CPR started prior to arrival of EMS, resuscitation attempted.

Document the date and time resuscitative efforts were terminated, if appropriate. Termination of resuscitative efforts in most EMS systems requires authorization of a medical control physician. EMS personnel may determine that the baby is beyond resuscitation immediately upon arrival and thus begin no treatment. If resuscitation is attempted, it will most likely be terminated at the hospital. Given the medical profession's desire to provide all available resources to revive the child, it is unlikely that the medical control physician will authorize on-scene termination of resuscitation efforts for an infant.

If resuscitation is terminated in the field, EMS personnel will record the time the request was approved and the name of the medical control physician authorizing the termination. If the baby is transported, the EMS crew will record only the time of arrival at the hospital and status of the baby upon arrival. Information related to hospital resuscitation and pronouncement of death will have to be obtained through hospital medical records.

Disposition of Infant and Personal Effects

The disposition of the infant by EMS personnel will be recorded on the EMS run sheet. Likely dispositions include the following:

- Transport to hospital with continued resuscitation.
- Transport to hospital without continued resuscitation.
- No transport.

EMS personnel might not record actions related to personal effects. This information will most likely be obtained during the interview. If any information is recorded, it will be in relation to how the infant was found (e.g., "wearing a diaper") and whether any clothing was removed for resuscitative efforts (e.g., "pajamas were removed and CPR continued").

Individuals Who May Have Ridden with EMS from Scene

Transport of a family member or other person from the scene, via EMS, with the infant will depend upon local EMS system protocol. If such transport is allowed, it will be noted on the EMS run sheet or recorded via radio notification to dispatch. The investigator should inquire about this routinely during the EMS interview, in the event that the information has not been recorded.

DOCUMENT EMS OBSERVATIONS (OF REACTIONS TO INFANT'S DEATH)

As discussed above, the questions that will be posed to EMS personnel will vary from case to case. The following list, however, gives an outline of details that should be documented in all cases:

- Specific location and position in which EMS found the infant.
- Presence of skin coloring or rashes.
- Presence of secretions.
- Presence of livor, rigor, or algor mortis.
- Presence of insect and rodent artifacts.
- Presence of marks on the body.
- Infant's physical characteristics.
- Room temperature upon EMS arrival.

The investigator should realize that EMS personnel may be feeling anxiety about the outcome of the incident. They may experience a wide range of emotions, including a feeling of guilt for not being able to save the child. The investigator needs to be sensitive to these emotions and prepared to deal with them during the EMS interview.

The amount of information and specificity provided by EMS will depend to a large degree on their primary role at the scene. If the call was essentially a “load and go” situation, EMS will provide little information related to scene dynamics. If their role shifted from resuscitation to crisis intervention for family and bystanders, they may be more likely to provide pertinent information related to particular individuals’ reactions to the baby’s death.

Observed Behavior

During the interview with EMS, the investigator should note any information recorded by on the run sheet that is directly related to observed behavior at the scene. For example, EMS may have noted that the father tried to prevent them from entering the nursery. Other specific behaviors to be noted include any evidence of intoxication, drug paraphernalia, verbal or physical outbursts, overheard statements, and excited utterances.

Evidence of Illegal Activity

Typically, EMS personnel arrive at the scene before law enforcement and the medicolegal death investigator. EMS personnel are not law enforcement and in most cases are not perceived as such. Therefore, it is not unusual to find individuals at the scene continuing to engage in or be in the process of cleaning up some illegal activity when EMS arrives. The investigator may need this information for the case and should question EMS personnel about the activities that were taking place when they arrived at the scene.

Evidence of Environmental Hazards Present at the Scene

Individuals living at the incident site may or may not know there are hazardous materials present at the scene. EMS personnel are trained to focus on the individual(s) needing their medical expertise. However, they are also trained to observe their surroundings—if not for the safety of others, for their own personal safety. The investigator should question EMS personnel about any environmental hazards that were present at the time of their arrival and the status of those hazards.

The Case Scenario

If significant time has elapsed since the event or the last interview, a copy of the EMS run sheet may be helpful to jog the interviewee’s memory. In addition, any unusual circumstance that may have occurred during the scene (e.g., the time of the call, the weather, the names of the participants, pets, the scene environment, etc.) can serve as a trigger to help an individual remember specific events and actions.

Thoughts/Comments/Concerns about the Scene
As you walk the EMS personnel through the circumstances surrounding the case, you will want to document any specific thoughts, comments, and concerns. Not only will this assist in completing the investigation case file, but it might actually jog your memory and help uncover new information about the case. Information about the scene and surrounding environment is critical to the death investigation and often is essential to the forensic pathologist during autopsy.

Focus should be on the scene itself; ask questions such as:

- Do you remember seeing any large pillows on the couch when you walked into the living room?
- Do you remember what was next to the infant when you walked into the bedroom?
- Was the room hotter or cooler than normal when you arrived?

Questions like this may help EMS personnel recall an important item that was not captured during the initial investigation.

Thoughts/Comments/Concerns about People at the Scene
Individuals at the scene are the most important variable to the investigator—especially EMS personnel. These individuals may be aware of others who were at the scene when they arrived but were not available when scene investigators arrived. This information may assist various agency representatives with follow-up activities and furnish names for additional interviews regarding the case. Focus on individuals at the scene; ask questions such as:

- Do you remember seeing anyone leave the scene as you approached the home?
- Do you remember seeing anyone leave the scene after you arrived?
- What type of behavior was the father or mother exhibiting while you were attempting resuscitation?

Previous Family Contacts by EMS.
Information on previous responses by EMS to the scene address may be obtainable through the dispatch center CAD system. This information is essential to the investigator who is attempting to gather background information on the family and others who may be at the incident scene.

These questions will help EMS personnel recall important events that might have seemed trivial at the time.

CONDUCT EMS FOLLOW-UP INTERVIEW

The Case Scenario
Many times, it is not possible or advisable to attempt interviewing EMS personnel at the scene. In other cases, additional witness information may have to be gathered to support or refute events that are said to have taken place at the scene. In either case, following up with EMS should begin by reviewing the specific case scenario with the individual(s) involved. This allows them to recall details of the scene and serves as a frame of reference for details that may have gotten lost in the chaos of the actual scene. Using investigative scene forms or notes taken during the investigation as a guide, the investigator can refresh the responders' memory and assist them in recalling details of people, places, and things. All information gathered has the potential to assist the investigator in providing the most accurate account as to what happened to the infant.

unit 14

Document Law Enforcement Involvement

INTRODUCTION

A 911 call for an unresponsive infant will often trigger the dispatch of law enforcement personnel to the scene. Depending on local system design, law enforcement may arrive before EMS. Thus, law enforcement personnel may play a number of different roles at the scene, often necessitating the use of different interviewing techniques. In most cases, the law enforcement professional who arrives first will be the first trained observer on the scene and therefore an essential witness to the infant death scene investigator.

ESSENTIAL LAW ENFORCEMENT INFORMATION

If law enforcement arrives before EMS, they represent the first trained observer on the scene. This officer will be able to provide valuable insights into scene appearance, environmental conditions, and the behaviors of those individuals present when he or she arrived. Unless the law enforcement officer is required to initiate patient care, he or she will begin collecting basic investigative information to document the initial scene and provide for scene management as well as evidence collection and preservation. In some cases, the initial law enforcement officer will serve as both a death scene investigator and criminal investigator until other specialized law enforcement personnel arrive. Since law enforcement personnel are trained to observe people, especially from a behavioral aspect, the investigator must be sure to capture their impressions of persons' behavior at the scene in order to obtain a clear sense of what happened to the infant. These observations also help to identify any inconsistencies in behaviors and statements.

Information pertaining to the location, appearance, and physical characteristics of the infant can be obtained from the law enforcement incident report, by interviewing law enforcement personnel, or a combination of the two. When obtaining and reviewing the incident report, it is important to obtain all sections of the report. Incident reports often consist of a structured section to record the incident, scene information and interviews, as well as a section for a narrative description by the law enforcement officer in charge. Incident reports may be either handwritten or completed electronically.

The investigator needs to document all adult witnesses and the law enforcement calls that have been made in regard to this incident location. This information is needed to establish prior criminal history, including domestic violence, alcohol or drug use, and child abuse reports. This history will provide investigators with background information on all persons and could be used to establish motive or provide answers to family dynamics and potential hazards to the infant. The investigator also needs to document the social service contact and complaints that have been made in regard to this incident location, the infant, and all adult witnesses. This information is needed to establish prior social service history, including allegations of neglect, child abuse, domestic violence, and alcohol or drug use.

Developing a family profile early in your investigation may be extremely helpful. It is important to determine whether there is a family history of domestic violence, child abuse, or neglect. Always keep in mind that a family history of violence does not mean this infant died from abuse, but it does necessitate a thorough and comprehensive investigation.

VERIFY LAW ENFORCEMENT INVOLVEMENT

Verify Law Enforcement Involvement

Most law enforcement agencies today respond to scenes at the request of some type of central dispatch. This can be a sophisticated system with dozens of individuals working around the clock to dispatch all levels of public safety (i.e., law enforcement, fire, EMS, etc.), or as simple as two or three volunteers working with telephones and two-way radios dispatching other volunteers. Regardless of the technology, one task is common among all dispatching operations—documentation. All dispatchers record call dates, times, and the locations from which calls come in.

The dispatch center or dispatcher typically is where the “official” event begins. When contacting the dispatch center or dispatcher, it is important to have the proper information, such as exact location, date, and time, to ensure receipt of proper information for your case. In cases where multiple law enforcement agencies have been on-scene, it is important for the investigator to determine who the responders were and to contact the appropriate dispatch center for each agency. The dates and times you receive are recorded by agency personnel and therefore are accurate and defendable in legal proceedings. Always document and verify dispatch and arrival time(s), names of law enforcement officers dispatched and their agencies, and their case/report number(s).

DOCUMENT SCENE INFORMATION - FROM LAW ENFORCEMENT

Law Enforcement Incident Reports

It is important to check the law enforcement incident reports for consistency with other incident information and your own investigative findings. It is important to obtain all sections of the incident report. Incident reports often consist of a structured section to record the incident, scene information, and interviews, as well as a section for a narrative description by the law enforcement officer in charge. Incident reports may be either handwritten or completed electronically. Any discrepancies should be noted and followed up. Information from the law enforcement incident report should be documented on the appropriate scene forms.

The questions that will be posed to law enforcement personnel will vary from case to case. The following list, however, gives an outline of details that should be documented in all cases:

- Presence of skin coloring or rashes
- Presence of secretions
- Presence of livor, rigor, or algor mortis
- Presence of insect and rodent artifacts
- Presence of marks on the body
- Infant's physical characteristics
- Room temperature upon law enforcement arrival

Incident Scene Location

Verifying the incident location may seem like a small task; however, mixing up apartment numbers, building numbers, street addresses, and names can cause big problems between agencies. The location of the scene is a key case identifier, and attempting to obtain information from another agency using the wrong data can cause unnecessary confusion. To ensure accuracy, obtain this information directly from the incident report filed by the first responding law enforcement officers, and verify the accuracy of the information.

Residence Type

It is important to the investigation that the type of residence, such as single-family dwelling, multiple-family dwelling, commercial property, trailer, apartment, tent, or any other unusual residence location, be determined and documented. Some individuals may not want to admit or divulge their specific living conditions; however, the conditions may be a contributing factor in the infant's death. Law enforcement officers who have worked in the area for a number of years might be able to verify these unusual locations as actual residences.

Room/Area in which Infant Was Found

During the interview with the law enforcement officers, ask them to describe where the infant was when they arrived (e.g., bedroom, living room, front lawn, etc.). Ask them if they overheard or asked anyone whether the infant had been moved, and document these observations.

Document any recollections from the officers about the room/area or any information they documented in their incident report. Include any recollections from the officers about the room's cleanliness, overall appearance, and furnishings or any other relevant information documented in the incident report. This documentation may become critical when compared to statements given by other witnesses.

Evidence of Illegal Activity

Document any recollections from the officers or any information documented in the incident report related to illegal activity occurring at the time they arrived or evidence of prior illegal activity, such as the presence of drug paraphernalia or residual odors.

Number of Residents/Individuals in Dwelling
Document any recollections from the officers or any information documented in the incident report describing their impressions about the number of individuals on the scene when they arrived.

Evidence of Alcohol Involvement
Document any recollections from the officers or any information documented in the incident report describing their impressions related to alcohol use (e.g., presence of open or empty containers, personal behaviors, and appearance).

Infant's Sleep Furniture and Condition
Document any recollections of the officers or any information documented in the incident report describing the place and condition of the infant's sleeping surface or infant furniture that could be used for other purposes (e.g., a crib filled with laundry or bed sharing).

Ambient Room Temperature
Document any recollections of the officers or any information documented in the incident report regarding the temperature in the room. The law enforcement officers may have taken a room temperature and documented outside temperatures. If they did not use a thermometer, their recollection or description of room temperature will be subjective unless a significant extreme in temperature was apparent.

DOCUMENT ON-SCENE LAW ENFORCEMENT ACTIVITIES

Actions that Might Have Altered the Scene
Describe any resuscitative efforts or any other actions taken that might have distorted or altered the scene from when the infant initially was found unresponsive. Document any scene disturbance that occurred in the course of law enforcement officers' rendering aid and assistance. Be sure to ask whether the officers moved, changed, or removed any items pertaining to the scene or whether they noticed any other person remove, change, or alter the scene.

Officer-Initiated Resuscitative Efforts
Document any resuscitative efforts performed by law enforcement officers. Note the duration of resuscitative efforts by documenting the time started and ended. Determine which resuscitative actions were taken (e.g., chest compression, mouth to mouth, defibrillator, etc.). This information is essential not only to the investigation, but to the forensic pathologist, as resuscitative efforts may result in postmortem injury or "artifacts" that may confuse anyone who was not present at the scene.

Scene Security and Alteration(s)
Controlling the incident scene typically is the responsibility of the local law enforcement officer(s). Knowing how the scene was secured helps the medicolegal investigator determine whether individuals and evidence has been removed or introduced into the scene. Determine and document who the first officer on the scene was and what actions were taken to secure the scene. Also, determine and document all law enforcement actions involving the body. Any actions that might have changed the original position or appearance of the body at the death scene need to be documented, including resuscitative efforts.

Nonessential Personnel on the Scene
The investigator needs to determine all individuals who have been at the scene. The law enforcement officer in charge of the scene should have collected or should be in the process of collecting this information. Nonessential personnel may include other agency representatives who have responded to the 911 call and are no longer needed or off-duty officers who just want

to offer their help. Having extra help is not always a good thing, as you need to focus on the job at hand. Determine who needs to be at the scene and then politely and professionally ask the others to leave. If necessary, a scene log might be required to document all individuals entering and exiting the scene.

Child Protective Services Involvement.
Determine and record whether law enforcement personnel contacted Child Protective Services and why they thought it necessary. Also determine whether law enforcement has checked to see whether any prior referrals have been made regarding the infant or any other child in the household. In certain states, reports to Child Protective Services are dismissed if unfounded. The investigator might check with the specific service worker for his or her recollection of the events.

DOCUMENT LAW ENFORCEMENT OBSERVATIONS (OF REACTIONS TO INFANT'S DEATH)

Law Enforcement Personnel Interviews
Obtain a copy of the police report from the responding officers. Determine what actions they took at the scene and whether the report accurately reflects their actions. Discuss any concerns or observations they made at the scene that may be important to your investigation. As mentioned in previous units, law enforcement officers are trained observers. Their observations of others who were present at the scene may prove telling as the investigation proceeds. The amount of information and specificity provided by law enforcement officers will depend to a large extent on their primary role at the scene. If their role shifted from crisis intervention for family and bystanders to investigation, they may be more likely to provide pertinent information related to individuals' reactions to the infant's death.

During the interview with law enforcement officers, the investigator should note any information recorded on the law enforcement incident report that is directly related to observed behavior at the scene. For example, law enforcement officers might have noted that the father tried to prevent them from entering the nursery, the father might be hitting a wall, a sibling might be hiding in a closet, or the mother might not hold the infant before it is removed.

Any behavior that seems odd or unnatural to the law enforcement officer should be noted. It might be nothing more than stress or an overwhelming sense of grief, but the investigator should document these behaviors for future reference. It is important that the investigator document only the objective observations made by the officer. Avoid recording opinion or commentary; simply document actions and behaviors as reported by the observing law enforcement officer.

DETERMINE PREVIOUS LAW ENFORCEMENT INVESTIGATIONS

Previous Contacts with Law Enforcement
Many police officers work the same sections of town or parts of the county day in and day out. They generally get to know many of the individuals who reside within their jurisdictions. Therefore, the law enforcement officers at the scene may be the best source of information regarding individuals who live at the incident scene. These previous contacts might have nothing to do with the current situation; however, the officers at the scene may have critical information about the family members and their behavior.

Gather names and contact information of persons at the scene from the officers. These witnesses may become important to the investigation and need to be contacted for information at a later date. Ask the officers whether they have done a background check on any witnesses and what led them to determine that one was needed. Information on previous responses by law enforcement to the scene address may be obtainable through the dispatch center CAD system. Narcotics complaints to hotlines should also be reviewed.

Jurisdiction of Previous Residence

Determine and document whether the family has resided in other jurisdictions and whether prior child protection or other services were required. It is important to determine whether any other unexplained infant deaths in this family have occurred in other jurisdictions. Many social service agencies catalog infant information by the birth mother's date of birth. Every attempt should be made to determine and verify this date for future reference.

DOCUMENT DISPOSITION OF INFANT, EVIDENCE, AND PROPERTY

Law Enforcement and Interviews Reports (Logs)

Talk to the law enforcement officer(s) at the scene to determine the disposition of all items involved in the case. Obtain a copy of the officer's incident report to verify the disposition of the body and identify the items that were collected as evidence and/or property.

This identification may include checking the evidence log typically maintained by most law enforcement agencies. If no such log exists, the investigator should develop one to record each item removed from the incident scene. This log will serve as a record of what was taken and what will be returned to the residence after the case is closed.

Evidence at Scene

Investigators should be aware of any evidence that is in danger of being destroyed, altered, or moved and take charge of that material. This includes the bedding on which that the infant was found dead, clothing, bottles with formula, and any items that may have been in the bed. Remember to photograph all items "in place" before they are removed. Photographic documentation is critical early in your investigation as the scene may change rapidly.

Determine what personal items and evidence still remain at the scene. Secure them as evidence following your jurisdictional requirements.

Evidence or Property Removed from Scene

During the scene investigation, it is not unusual for personal property to be removed from the scene if the items are not believed to be evidence. Regardless of the reason (property vs. evidence), the investigator needs to document all items removed from the scene, typically done on some type of evidence or property log that goes in the case file.

It is not unusual for EMS to transport items of evidence to the hospital with the infant. Document and obtain EMS run sheets to verify what material was transported. If necessary, go to the hospital to retrieve any evidence, such as clothing the infant was wearing, as well as medical records. Verify and document that what the infant was wearing upon arrival at the hospital correlates with what the infant was wearing when it left the scene. If discrepancies regarding items are found, talk to the EMS transporting personnel to find out whether they have the items.

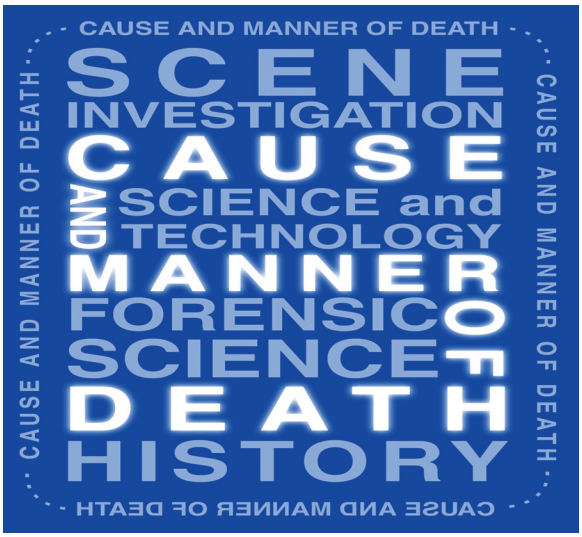
Release of Jurisdiction (Body and Property to Funeral Home)

Once the medical examiner/coroner has released medicolegal jurisdiction over the case, the body and associated personal effects may be released to the funeral home.

CONDUCT LAW ENFORCEMENT FOLLOW-UP INTERVIEW

The Case Scenario

As with EMS follow-up interviewing, reviewing the case with the individual officer may assist in helping to recall specific scene events. All information gathered has the potential to assist the investigator in providing the most accurate account as to what happened to the infant.



unit 15

Establish and Document Hospital Involvement

INTRODUCTION

Documentation of all hospital-related activities and interactions may prove essential to SUIDI. It is not uncommon for the infant to die either en route to the hospital or shortly after arrival. The investigator must understand the basic working procedures of the receiving hospitals in his or her area in order to know whom to ask specific questions regarding the infant's death.

DOCUMENT HOSPITAL RECEIVING INFORMATION

Arrival Dates and Times

The documentation of various time intervals can be critical when autopsy and other findings are evaluated to determine the cause of death or to clarify the circumstances of death, such as the time since death or postmortem interval. Knowing the date and time of admission to the emergency room or hospital is necessary to determine length of stay in the hospital, the amount of time during which various artifacts of diagnostic or therapeutic procedures may have occurred, and the time over which various bodily marks, injuries, or other findings may have changed.

Review the admission sheet and document the date (month/day/year) and time (military) the infant arrived at the hospital. Check all other related medical records while at the hospital as well as the ambulance trip sheet for additional information.

Receiving Hospital Information

Obtaining the name and location of the receiving hospital is important for completing the death certification, which requires reporting the place where death was pronounced.

- **Obtain name of hospital.** Ask the person reporting the death for the name of the hospital where the infant was taken.
- **Obtain location of hospital.** Ask the person reporting the death for the address of the hospital where the infant was taken.

Treating Hospital Physician

When the death is reported, the doctor(s) who cared for the patient may not be immediately available. It is important to determine the doctor's name (verify spelling) and contact information so that follow-up interviews can be conducted, necessary medical information obtained, and important questions answered regarding the infant's clinical course, diagnosis, and treatment. Try to obtain each doctor's specialty area as well.

Infant's Level of Consciousness

Knowing the infant's level of consciousness when it arrived at the hospital might help in reconstructing the events leading to death. Knowing about a change in level of consciousness might direct the focus of the postmortem examination toward conditions associated with mental-status changes, such as head injury, electrolyte disturbances associated with metabolic or gastrointestinal diseases, or hypoxia produced by pulmonary or cardiac conditions.

Reviewing the medical record or interviewing healthcare professionals who attended to the deceased infant will clarify the infant's level of consciousness when it was admitted. General options include breathing, not breathing, responsive, unresponsive, or dead. Scientifically validated clinical scales, such as the Glasgow Coma Scale, provide the most precise measurement of level of consciousness and may be present in the medical chart, although this is uncommon in such situations. Record the infant's level of consciousness on the investigative scene form. It is also helpful to indicate the coma score that was established if one is available.

Appearance of Infant (upon Arrival at Hospital)

The appearance of injuries, rashes, deformities, or other markings on the body can change (worsen or resolve) with time. Some findings might actually suggest a specific mechanism of death. For example, although controversial, it has been stated in some medical literature that the appearance of bloody or blood-tinged oronasal secretions is highly correlated with asphyxial deaths. Further, additional findings may result from treatment or diagnostic procedures. It is important to describe the appearance of the infant upon arrival at the hospital to establish a baseline and facilitate accurate interpretations when determining the cause or circumstances of death.

By reviewing the medical record or interviewing hospital staff, investigator may obtain information about the infant's appearance upon arrival at the hospital. Determine and document whether any of the following were seen:

- Rash or discolorations of skin.
- Secretions from nose, mouth, eyes, ears, genitalia, or anus.
- Livor mortis (postmortem settling of blood into dependent areas of the skin).
- Pale areas around the nose or mouth.
- Retinal hemorrhages (indicate whether an ophthalmologist actually examined the infant, as opposed to identification of retinal hemorrhages by hand-held ophthalmoscope).
- Cutaneous petechiae (small pinpoint hemorrhages on body surfaces or in the conjunctivae [linings] of the eyes).
- Bruises or other apparent injuries, particularly trauma that is typical of or suspicious for inflicted injury such as "grip contusions"; contusions of the face, back, and/or buttocks; rib fractures; metaphyseal fractures; florid retinal hemorrhages; and subdural hemorrhage.
- Malnourishment, which may be chronic or acute and manifested by physical and/or laboratory findings. Examples of chronic malnutrition include abnormal growth parameters, skin rashes, and skeletal abnormalities; examples of acute malnutrition include electrolyte disturbances, low total protein, and albumin.
- Other findings of potential importance include general hygiene of the infant; his or her clothing and its cleanliness; jaundice, suggesting the possibility of hepatobiliary disease; cyanosis, suggesting the possibility of pulmonary or cardiac conditions; and blue sclerae, associated with osteogenesis imperfecta and other connective tissue abnormalities.

What the Infant "Felt Like" (upon Arrival at Hospital)

Understanding how the infant felt to those providing healthcare can assist in determining postmortem interval and other possible medical problems such as fever, dehydration, hyperthermia, or hypothermia. Because the infant might have survived for an extended period, it is important to know the condition of the infant upon arrival at the hospital.

By reviewing medical records with hospital staff, the investigator can document how the infant's body felt to healthcare providers upon arrival at the hospital. Descriptions of how the body "felt" may include the following:

- **Sweaty:** This finding may suggest the presence of fever or environmental overheating. In addition, infants with congestive heart failure may become quite sweaty while feeding or with other exertion.
- **Warm to touch:** Infants' bodies will cool relatively quickly after death, in comparison with adults. This finding may be used in conjunction with other features to arrive at an opinion regarding time of death. Alternatively, warmth to touch might indicate the presence of antemortem fever in the infant.
- **Cool to touch:** See comments above. Given the rapidity with which infant bodies equilibrate to the ambient or surrounding temperature, this is less useful information than if the body is reported to be warm to touch. Nevertheless, this information should be recorded because it may be combined with other observed phenomena in fixing an approximate postmortem interval.
- **Rigid (stiff):** Stiffening of the muscles is a postmortem change resulting from a passive chemical reaction in muscles after death. This reaction occurs at basically the same rate in all muscle; hence, the smaller the muscle, the more rapidly it becomes completely stiff. As a result, infants' bodies tend to be in "full rigor" earlier than adult bodies, but the rate of change is much less predictable than

in adults. Interpreting this finding alone is fraught with error, and unquestioning reliance on charts and tables is discouraged. That said, taken in conjunction with other findings, the extent of rigor may be useful in estimating time of death.

- **Limp (flexible):** This may mean one of three things. Rigor mortis has not yet developed; thus, the postmortem interval is very short. Rigor mortis has developed, peaked, and dissipated; thus, the postmortem interval is long. Rigor mortis has developed but has "broken" by manipulation of the body, perhaps due to resuscitative efforts; thus, the postmortem interval is intermediate. Needless to say, these findings cannot be interpreted without the benefit of other data.
- **Other:** Miscellaneous findings such as decreased skin turgor, suggestive of acute dehydration; unusually pliant or "velvety" skin, associated with certain connective tissue disorders; or crepitance, which may connote various conditions, are of potential importance to the autopsy pathologist and should not be overlooked.
- **Unknown**

Hospital Treatments and Dagnostic Procedures Performed

To properly interpret autopsy, investigative, and laboratory findings, it is necessary to know which treatments and procedures were performed while the infant was in the hospital. Misinterpretation of iatrogenic (treatment-induced) trauma as possibly inflicted trauma can have tragic consequences. Tracheal intubation, urinary catheters, and insertion of peripheral and deep intravascular catheters may introduce findings that mimic abusive trauma. Proper documentation of these procedures, particularly if the devices in question are no longer in place, can prevent such an unfortunate occurrence. Documentation should also include information about resuscitation measures and drugs that may have been given, since postmortem toxicology typically is done in evaluating SUID.

By reviewing medical records with hospital staff, the investigator has the oppturunity to ask questions about any medical procedures and treatments that may have been performed while the infant was in the hospital. The dates and times each treatment or procedure was performed, along with the outcome of each, should be documented in the investigative report.

DOCUMENT HEALTHCARE WORKER'S OBSERVATIONS (OF REACTIONS TO INFANT'S DEATH)

Reactions to the Infant's Death

Determine from hospital staff (or for yourself, if you are there and the timing is right) whether the reactions of the following persons seemed appropriate, or whether the reaction seemed unusual, inappropriate, or otherwise of concern:

- Primary caregiver.
- Parents.
- Other family members.
- Other key witnesses.

Document the hospital staff's impressions and assessments of the reaction of various family members, caregivers, and witnesses to the infant's death. Record your personal observations if the situation permits. Be sure to document objective descriptions of the behaviors and to qualify any judgements of appropriateness within the context of the family culture. The nursing staff of the receiving healthcare facility consistently is the best source for this information should you not be able to assess the issue personally. Remember, individuals from different cultures may have symbolic rituals and/or exhibit behaviors that appear unusual to the uninformed investigator. Be tolerant, respectful, and avoid judgemental actions—both verbally an nonverbally.

OBTAIN RECORDS, EVIDENCE, AND PROPERTY

Medical Record

The investigator can typically obtain the following information from the medical record:

- Infant's vital signs (particularly temperature) upon arrival at the hospital, even if dead.
- The results of any electrocardiograms that were performed.
- Hospital staff's assessment of hydration status.
- Date and time that death was pronounced.
- The name and title of the physician who will pronounce death if death will be pronounced by a hospital physician. In the vast majority of cases, certification of cause and manner of death should be deferred until an autopsy is conducted.

In accordance with local and state law, request and obtain a complete copy of the medical record for any hospital admissions. Request and obtain other hospital records as instructed by the medical examiner or coroner. It should be noted that medical examiners and coroners are specifically exempt from HIPAA restrictions in obtaining records; however, hospital staff may not be aware of this. Be prepared to speak with the in-charge nurse or hospital administrator if staff personnel are unsure if medical records can be released to investigators.

Laboratory Samples

In accordance with local and state law, request and obtain laboratory samples such as blood, urine, and other specimens that remain in the hospital laboratory, especially those that were obtained near the time of the infant's admission to the hospital. Document the transfer of these specimens using standard chain of custody procedures.

Clothing and Other Personal Property

In accordance with local and state law, request and obtain the infant's clothing, diaper, and any other associated items such as baby bottles. Document the transfer of these items using standard chain of custody procedures.

CONDUCT HOSPITAL AND SOCIAL SERVICES FOLLOW-UP INTERVIEWS

Contact Persons as Needed

Using telephone, e-mail, or personal interviews as needed, contact hospital or social services staff to obtain missing information or to verify the accuracy and completeness of information already obtained. Be sure to verify information obtained over the phone, in e-mails, or from interviews by reviewing the relevant medical records.

Summary

DISCUSSION QUESTIONS

1. Why is it important for the death scene investigator to be familiar with local EMS protocols?
2. What are possible sources of dispatch times and incident information? How is this information obtained?
3. You arrive at the hospital shortly after the EMS who transported the infant. You ask the crew whether you can review their patient care report. The crew refuses, saying this is a violation of HIPAA. Can they legally refuse to provide you with access to the patient care report at that time?
4. Describe ways that you may enhance recall of important scene and environmental conditions observed by EMS personnel.
5. Describe why it is important to know the name and location of the hospital where the infant was when it died or was pronounced dead.
6. Describe why it is important to know the date and time the infant arrived at the hospital.
7. Describe why it is important to determine the appearance of the infant when it arrived at the hospital, its level of consciousness, and how it felt to healthcare workers who examined it.
8. Describe why it is important to document treatments and procedures that were performed at the hospital.
9. Describe why it is helpful to know the reactions of family members and other witnesses to the infant's death.

SAMPLE QUESTIONS

1. The foremost duty of EMS is to
    A. Respond to medical emergencies.
    B. Provide scene safety.
    C. Assess and treat the patient.
    D. Conduct a death scene investigation.

2. EMS run sheets often contain two parts; they are
    A. Objective information and subjective narrative.
    B. Standardized data-collection form and written narrative.
    C. CAD printout and patient care report.
    D. Handwritten and computer-entered sections.

3. EMS systems require providers to record not only the intervention or drug administered, but the
    A. Expiration date of the drug administered.
    B. Color of the drug administered.
    C. Temperature of the drug administered.
    D. Dose, route, and time of administration.

4. How should you contact the first arriving law enforcement officer for follow-up questioning?
    A. When he or she is off duty.
    B. By subpoena only.
    C. While he or she is on duty but out of service in order to have his or her undivided attention.
    D. Locate his or her supervisor before gathering information.

5. It is critical to document the scene accurately and early in your investigation. What actions may have altered your scene?
    A. If anyone rendered aid or began resuscitation efforts.
    B. Time the infant was last fed.
    C. Time the infant had a diaper change.
    D. When the infant was last known alive.

6. Where does the "official" event begin?
    A. At the scene.
    B. When the death occurred.
    C When law enforcement arrived.
    D. When central dispatch was notified.

7. What information are you less likely to need from the officer regarding the condition of the infant?
    A. What was the skin color of the infant when the officer arrived?
    B. Were there any secretions or materials on the infant's face when the officer arrived?
    C. Where was the infant when the officer arrived?
    D. Was the infant well nourished?

8. When documenting ambient room temperature, which is the best method to use if the law enforcement officer did not use a thermometer?
    A. Ask the officer for his or her recollections.
    B. Ask the officer if he or she noticed any extreme or significant room temperature changes.
    C. Check to see whether moisture is present on the windows.
    D. Verify weather conditions with your local news station.

9. Who has the primary responsibility for controlling the incident scene?
    A. First professional on the scene.
    B. The owners of the residence.
    C. The medicolegal death investigator from the coroner or medical examiner office.
    D. Local law enforcement.

10. Why is it important for the investigator to ask emergency department personnel what treatments and diagnostic procedures were performed on the infant?
    A. To begin investigating the doctor.
    B. To offer treatment suggestions.
    C. To document the information for the forensic pathologist to review.
    D. To establish cause and manner of death.

section 3

INFANT SCENE INVESTIGATION

CHAPTER SIX:
Conducting Scene Investigations

CHAPTER SEVEN:
Conducting the Doll Reenactment

INTRODUCTION

This section consists of two very important chapters. Both address a different phase of the actual infant scene investigation. From the moment the investigator sets foot on the scene, all actions must be controlled, focused, and professional. The tasks performed at the scene will determine the relative success or relative failure of the entire investigative effort. There is no second chance to get it right—the scene investigator must be prepared for anything.

chapter 6

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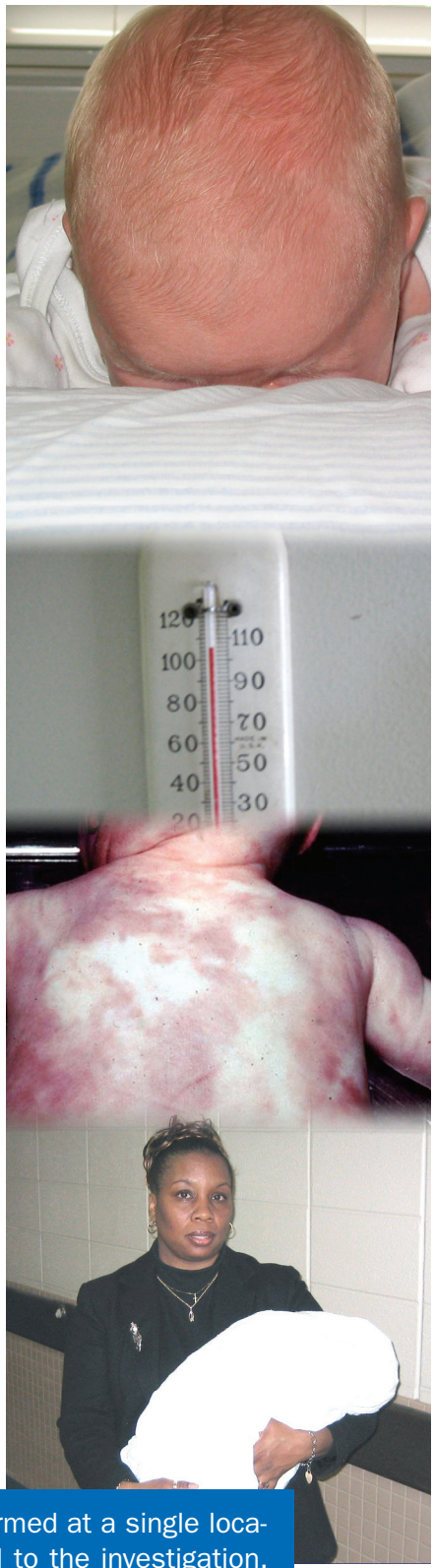
Conducting Scene Investigations

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 witnessess. This chapter focuses on investigating the "scene" and "body" (when present), working with some of those same witnessess. The infant death scene investigation often requires the investigator to investigate multiple scenes. In some cases, three scene 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.

unit

16 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.

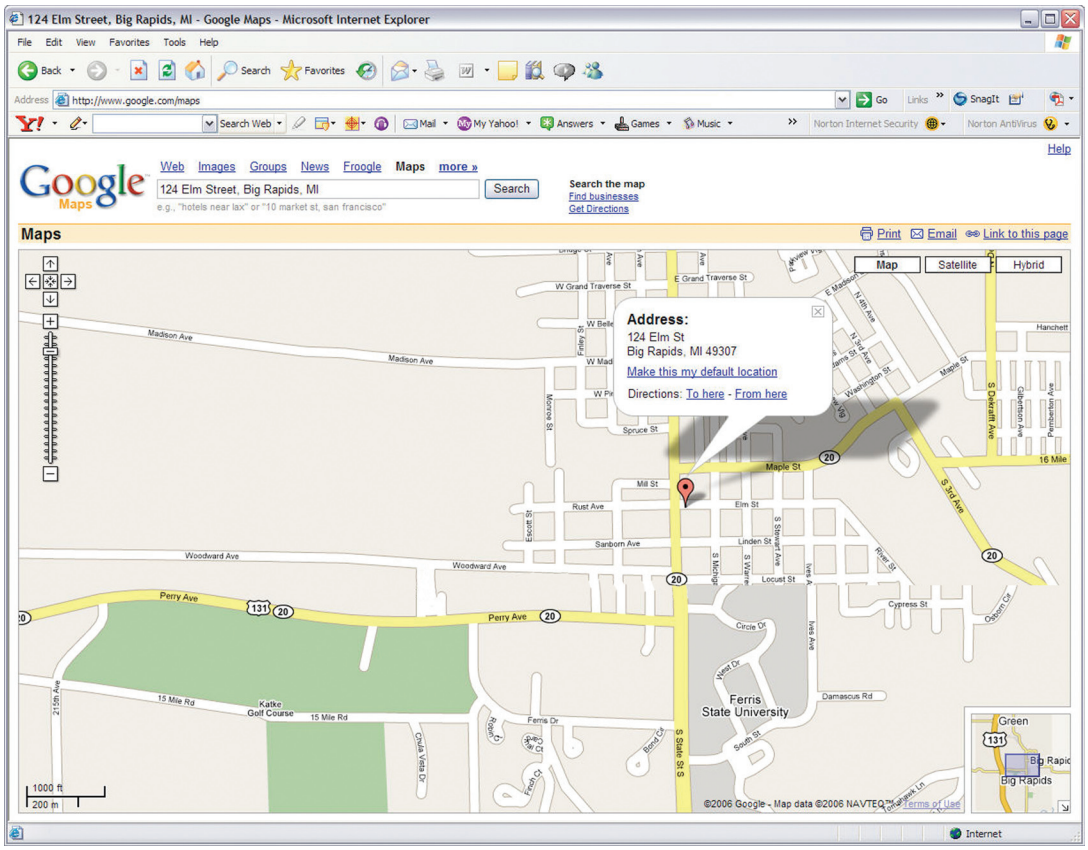


Fig. 6.2: Today's Internet technology allows investigators to pinpoint scene locations.

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.

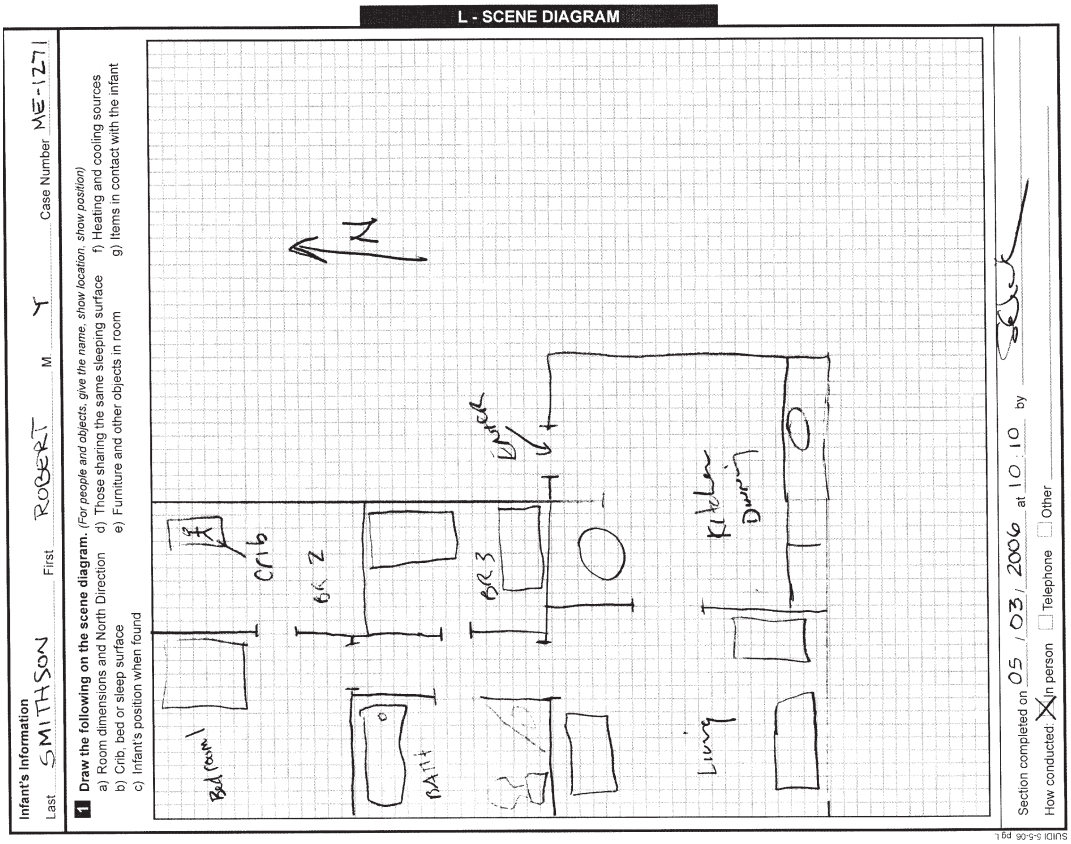


Fig. 6.4: A sketch depicting building layout will support photographs and descriptions.

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?** ☐ Yes ☐ No

3 **Is the site of the incident or death scene a daycare or other childcare setting?**
☐ Yes ☐ 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 invesigator'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?** ☐ Yes ☐ No

3 **Is the site of the incident or death scene a daycare or other childcare setting?**
☐ Yes ☐ 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.)*

☐ Central air	☐ Gas furnace or boiler	☐ Wood burning fireplace	☐ Open window(s)
☐ A/C window unit	☐ Electric furnace or boiler	☐ Coal burning furnace	☐ Wood burning stove
☐ Ceiling fan	☐ Electric space heater	☐ Kerosene space heater	
☐ Floor/table fan	☐ Electric baseboard heat	☐ Other ⇨ Specify: _____	
☐ Window fan	☐ Electric (*radiant*) ceiling heat	☐ 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.)*

☐ Public/municipal water source	☐ Bottled water	☐ Other ⇨ Specify: _____
☐ Well	☐ Unknown	

12 **The site of the incident or death scene has:** *(check all that apply)*

☐ Insects	☐ Mold growth	☐ Odors or fumes ⇨ Describe: _____
☐ Smoky smell *(like cigarettes)*	☐ Pets	☐ Presence of alcohol containers
☐ Dampness	☐ Peeling paint	☐ Presence of drug paraphenalia
☐ Visible standing water	☐ Rodents or vermin	☐ 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.

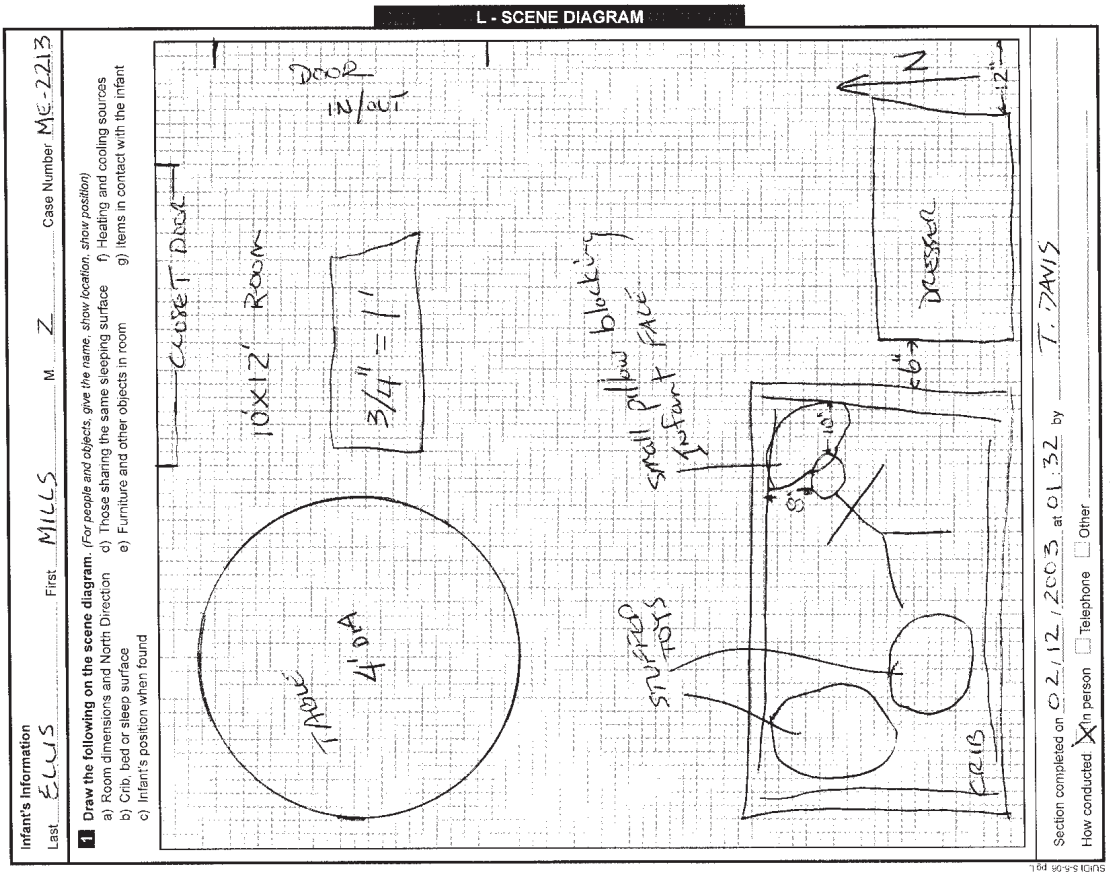


Fig. 6.10: The scene sketch is drawn to scale and shows the body in relation to other objects. The scene diagram form is from the additional investigative forms in the SUIDI Reporting Forms.

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 appropiate, 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.

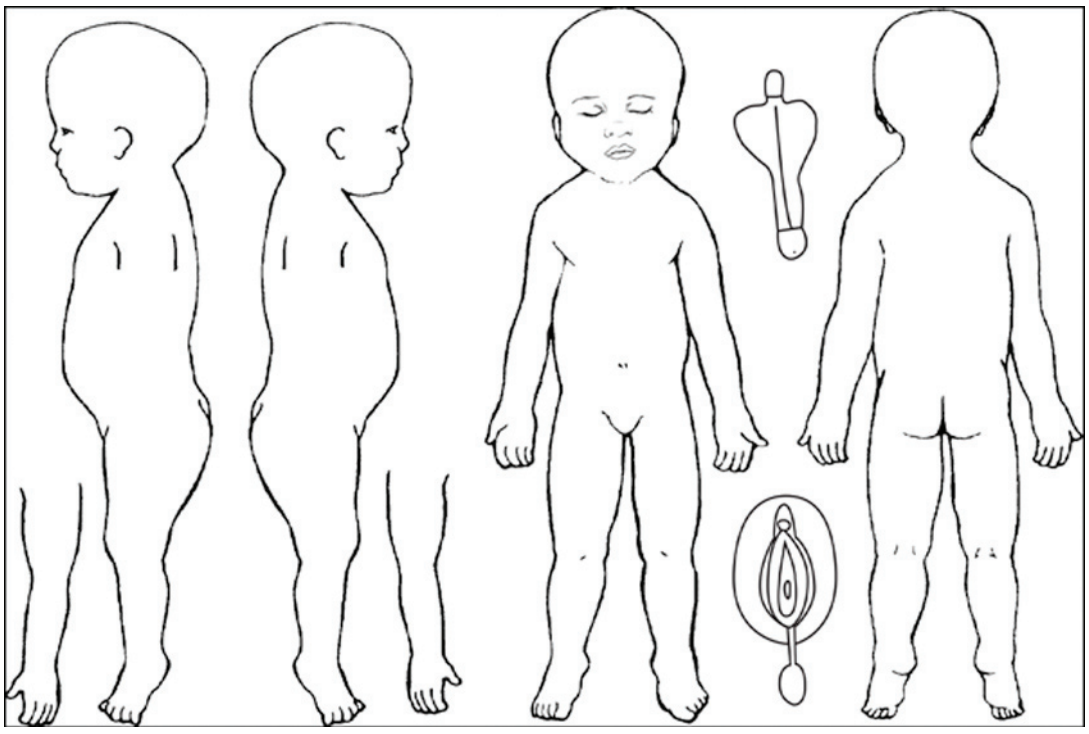


Fig. 6.15: Use the body diagram to indicate areas of trauma and other markings on the body.

unit

17 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 ..... *(include home remedies)*					
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: ☐ In person ☐ Telephone ☐ Other _____

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H - MATERIALS COLLECTION LOG

Page

Fig. 6.16: Sample SUIDI Materials Collection Log.

unit

18 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.

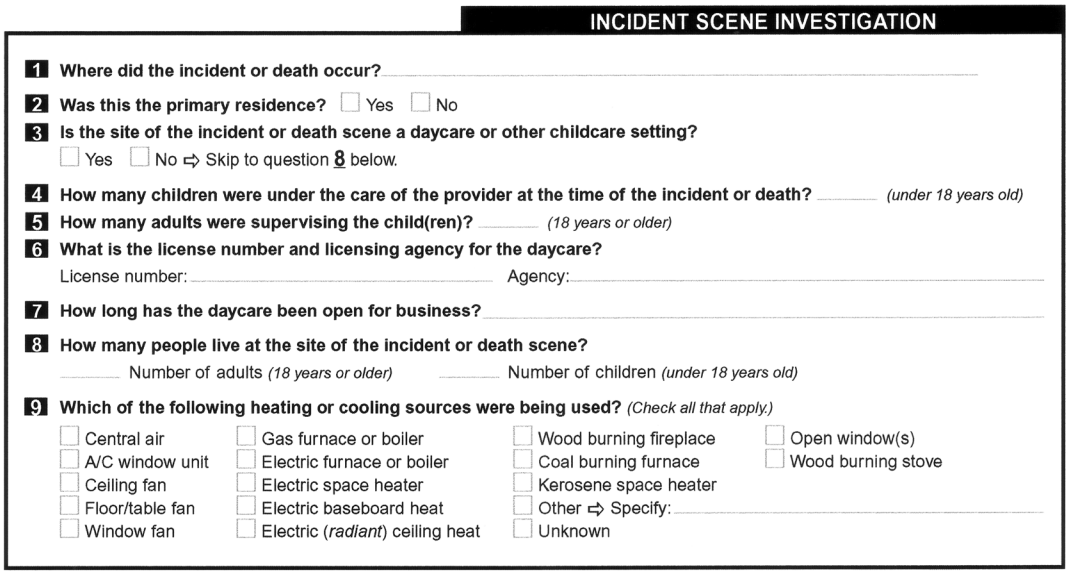
LEARN DETAILS OF DAY CARE OWNERSHIP AND OPERATION

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 facilties. 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?** ☐ Yes ☐ No

3 **Is the site of the incident or death scene a daycare or other childcare setting?**
☐ Yes ☐ 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.)*

☐ Central air	☐ Gas furnace or boiler	☐ Wood burning fireplace	☐ Open window(s)
☐ A/C window unit	☐ Electric furnace or boiler	☐ Coal burning furnace	☐ Wood burning stove
☐ Ceiling fan	☐ Electric space heater	☐ Kerosene space heater	
☐ Floor/table fan	☐ Electric baseboard heat	☐ Other ⇨ Specify: _____	
☐ Window fan	☐ Electric (*radiant*) ceiling heat	☐ 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.

chapter 7

Kathleen Diebold, M.A., B.A.

Conducting the Doll Reenactment

Concurrent and Retrospective Scene Strategies

Unit 19: Explain Reenactment to Family Member/Caregiver
Unit 20: Have Placer/Finder Demonstrate Infant Positions
Unit 21: Photograph Reenactment

Most death investigators agree that attempting to reintroduce and reposition a decedent's body into a scene for photographic reasons would not be a wise decision. However, the doll reenactment does just that with surprisingly positive results for both the investigator conducting the reenactment and the family member or caregiver performing the reenactment. This chapter details the rationale behind doll reenactments and outlines a performance procedure to follow.

OVERVIEW

This chapter covers the major tasks associated with conducting field-based investigative interviews and the doll reenactment with parents and caregivers. This includes all interactions between the investigator and individuals identified as the placer, LKA, and the finder. Additional emphasis is placed on data-collection methods and instruments.

SUPPORT MATERIALS

In addition to the SUIDI Reporting Form or jurisdictionally approved equivalent, the following tools and equipment are suggested for this chapter:

1. Personal protective equipment (gloves).
2. Doll with movable head, arms, and legs.
3. Digital camera.
4. Family information letter.

CHAPTER OBJECTIVES

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

1. Explain reenactment to family member or caregiver.
2. Have placer/finder demonstrate infant positions.
3. Photograph reenactment.
4. Debrief family member or caregiver.

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

unit

19 — Explain Reenactment to Family Member/Caregiver

INTRODUCTION

When an infant dies suddenly and unexpectedly, a thorough infant death scene investigation is necessary to accurately determine the cause and manner of death. To achieve the most accurate results, the investigator should explain the reenactment process to the family member or caregiver who will be participating in the reenactment. Many people are not verbally adept enough to describe adequately how an infant was found; thus, the reenactment becomes the visual representation of the infant death scene. This is done in the same way that a medicolegal death investigator would photograph an adult body during an adult death scene investigation.

Explain to the placer/finder that the scene recreation is a critical part of the investigation. An empathetic, nonconfrontational approach is both appropriate and effective. Emphasize that to properly determine the cause and manner of death, those caretakers who have knowledge of the scene must assist the pathologist in his or her determination.

It is critical that this reenactment be performed by the individual who actually found the infant dead or unresponsive or witnessed the found position, as this will ensure that you are documenting the correct infant death scene. Using a scene recreation doll, the placer can show the exact position in which the infant was last placed down to sleep. The found position will then be reenacted in the same manner. Photographic documention and descriptions of these positions are essential for the complete investigation.

REVIEW REENACTMENT GOALS

The goal of the infant death scene reenactment is be able to depict accurately the sleep environment into which the infant was placed.

The reenactment will visually document the infant's body position (placed/found position; prone/supine; seated; left/right side), head and neck position (directly up/down; right/left; neck flexed to chin; neck extended back), materials found next to or near the body, and whether the infant's airway was obstructed when discovered (nostrils blocked [right/left; both], object covering mouth/nose, objects near face).

To conduct a thorough medicolegal death investigation, an infant death scene investigation must be performed depicting the exact sleep environment in which the infant was last placed down to sleep and the exact sleep environment in which the infant was found. By asking the placer to show you how the infant was last placed down to sleep and recreating the scene by using the scene recreation doll, bedding involved, and any adjacent toys or stuffed animals, you will help the pathologist to visualize the sleep environment.

The found position will then be reenacted. The finder, using the scene recreation doll, will recreate the exact sleep environment in which the infant was found. This is critical for a thorough investigation. The pathologist will be able to review and compare the placed position with the found position before the autopsy. Again, it is critical that this reenactment be performed by the individual who actually found/witnessed the infant. This will ensure that you are documenting the infant's correct position and exact sleep environment.

EXPLAIN IMPORTANCE OF VISUALIZATION BY FORENSIC PATHOLOGIST

If the pathologist is not able to respond to the infant death scene, digitally photographing the infant death scene will enable the pathologist to visualize the exact environment in which the infant was last placed down to sleep and the exact position in which the infant was found unresponsive. This information will help him or her to determine both cause and manner of death and will serve as an essential element of the medicolegal scene investigation.

SHOW THE REENACTMENT DOLL TO THE FAMILY MEMBER/CAREGIVER

Introduce the placer/finder to the scene recreation doll. The reenactment process will allow the investigator and participant to focus on an activity that is essential to the investigation, yet slightly different from the general activities surrounding the scene, thereby serving as an emotional distraction for the family member/caregiver.

It is important to handle the doll with respect but **not** to treat the doll as a living infant. This allows the participant to disassociate the doll from the actual infant. Some methods that have worked for investigators are to:

- Explain that the doll was purchased at a local store and will serve as a prop for the reenactment and photographs.
- Demonstrate (with respect) the articulation of the doll's body, head, arms, and legs. This allows for the positioning of the doll to recreate the exact placed/found position(s).

DESCRIBE THE REENACTMENT PROCEDURE TO THE FAMILY MEMBER/CAREGIVER

Explaining the reenactment procedure to the placer/finder is critical to the success of this task. A brief explanation of the step-by-step procedure, highlighting the placer's/finder's role in the reenactment, helps ensure cooperation throughout the process.

Explain to the placer/finder that this reenactment will be documented by digital photography from a number of angles for the pathologist to review (photographing both placed and found positions). This documentation will be presented to the pathologist before the autopsy and must be as accurate as possible, even though the placer/finder may insist he or she cannot remember exactly how the infant was placed or found.

The investigator must remember that the goal of the infant death scene reenactment is to be able to accurately depict the sleep environment in which the infant was last placed/found. The following is a suggested procedure to follow during an infant death scene reenactment:

- Verify and document the placer/finder information.
  - Name, age, date of birth.
  - Relationship to the infant.
  - Whether this person is the primary caregiver.
- Ask whether the infant was sleeping alone.
  - If bed-sharing was involved, digitally photograph the sleeping position of the infant in relation to the individual(s)/animal(s) in the sleep environment.
  - The investigator will need to ask the individual(s) involved in the bed-sharing to participate in the reenactment.
  - Verify the sleep position of all individual(s) with the finder, as he or she is the primary source of information regarding the position of the infant and other(s) in the sleep environment (i.e., bed, couch, chair).
- Digitally photograph the infant's two sleeping environments (the last known placement and the infant's found position).
- Thank the placer/finder for his or her cooperation and assistance.
  - Emphasize that the person's cooperation is invaluable and a critical part of the medicolegal death investigation.
  - Express a sincere condolence for the person's loss.
- Ask the family members or caregiver whether they have any other questions.
- Provide the family with a contact name and telephone number where they can obtain additional information.

This explanation is accomplished by instructing the placer/finder to

- Manipulate the doll's head, arms, and legs to simulate the exact placement position.
- Place the doll in the exact position observed when he or she first discovered the infant. Emphasize the importance of ensuring an accurate scene recreation, including the following:
  - Infant's body position.
  - Bed-sharing scenario.
  - Bedding, blankets, pillows, bumper pads.
  - Toys and stuffed animals.
  - Positional supports.

unit

20 — Have Placer/Finder Demonstrate Infant Positions

INTRODUCTION

The goal of the infant death scene reenactment is to be able to depict accurately the sleep environment in which the infant was last placed/found. Placement data are as critical for the current investigation as they are for prevention of future infant deaths.

Often the placer and the finder are the same person. However, it is not uncommon to find that the individual who last placed the infant to sleep is NOT the same person who found the infant unresponsive or dead. In this case the investigator must have two reenactments performed to document the events surrounding the death.

HAND THE REENACTMENT DOLL TO THE PARTICIPANT

The importance of positioning the doll's body, head, and face for the reenactment cannot be overemphasized. The doll is to be placed in a position as identical as possible to the one in which the infant was last placed down to sleep, then repositioned to document the position in which the infant was found.

ASK PARTICIPANT TO DEMONSTRATE EXACTLY HOW INFANT WAS PLACED

Instruct the participant to place the doll in the exact position in which he or she last placed the infant down to sleep. Make sure the placer moves the doll's head, arms, and legs to the last known position during the demonstration to ensure correct placement. Ask the placer about additional objects or materials that were in the sleeping environment with the infant at the time of placement (e.g., dolls, pillows, etc.) and ask the person to put these objects into the scene.

Once the participant has placed the doll into position, have the person stand back and view the doll's placement and verify that this is the best representation of the last placed position he or she can recall.

- Ask the participant to focus on the exact position of the infant's body:
  - Prone/supine.
  - Seated.
- Ask the participant to focus on the exact position of the infant's face:
  - Face up/down on surface.
  - Face to right/left.
- Ask the participant to focus on the position of the infant's neck:
  - Hyper-extended (head back).
  - Flexed (chin to chest).
  - Neutral.

At this point, the investigator should begin photographing the placed position. Once the photographs have been taken and checked (digitally viewed to ensure quality), the investigator must focus on the found position.

ASK PARTICIPANT TO DEMONSTRATE EXACTLY HOW INFANT WAS FOUND

Instruct the participant to place the doll in the exact position in which he or she found the infant. Make sure the person moves the doll's head, arms, and legs into position during the demonstration to ensure correct documentation of the discovery. Ask about additional objects/materials that were in the sleeping environment with the infant at the time of discovery (e.g., dolls, pillows, etc.), and ask the person to put the objects/materials into the scene. Note anything that might have been blocking the infant's nose and/or mouth.

Once the participant has placed the doll into position, have the person stand back and view the placement and verify that this is the best representation of what he or she saw when the infant was found.

Ask the participant to focus on obstructions that may have been in contact with the infant's nose and/or mouth. If there were objects in contact with the infant's face, instruct the finder to demonstrate what items were obstructing the infant's nose/mouth. Items that are typically cited are:

- Bumper pads.
- Infant pillows.
- Positional supports.
- Stuffed animals/toys.
- Bedding (e.g., comforters, sheets, blankets, etc.).

Next, the investigator should ask the participant to focus on any items that were, or might have been, within the infant's reach. These typically include such things as:

- Stuffed animals/toys.
- Pillows.
- Pacifier.
- Blankets/comforters.

At this point, the investigator should begin photographing the position in which the infant was found. Once the photographs have been taken and checked (digitally viewed to ensure quality), the investigator must focus on verifying the sleep environment. Any pets and other animals that might have been present in the sleep environment should be documented as well.

unit

21 Photograph Reenactment

INTRODUCTION

Photographing the infant death scene will ensure a thorough death scene evaluation and correct documentation of the infant sleep environment. If the pathologist is not able to attend the death scene recreation, the digital photographs will enable him or her to visualize the sleeping environment before conducting the forensic autopsy. Before taking the doll reenactment photographs, the investigator must make sure that he or she has photographed an overview of the entire scene.

PHOTOGRAPH DOLL IN POSITIONS

Photograph the last placed position and found position in relation to items in the sleep environment. This documentation will allow others who were not able to attend the reenactment to visualize the infant's last known placed sleep environment, as well as the infant's found sleep environment.

Photograph Doll in Placed Position.
Once the placer has finished placing the doll in the location and position that he or she remembers, the investigator should immediately photograph the doll. Ask the placer if that is the exact position of the face and mouth, let him or her readjust, and take photos. Remember to note the sequence of your photos; it is extremely easy to mix-up photos and not know which ones are the "final" placed photos.

Photograph Doll in Found Position
The same procedure should be followed with the finder. If there are two different finders, remember to explain the procedure to each individually. In all the confusion and the additional stress of the situation, it is easy to forget who you've told what, and when. Again, it is critical that the reenactment be performed by the individual who actually found the infant unresponsive. This will ensure proper documentation of the found position.

Photograph to show:

- Body position (prone/supine, seated, left/right side).
- Head and neck position (directly up/down, right/left, neck flexed to chin, neck extended back).
- Nostrils blocked (right/left, both).
- Materials found next to or near the body, (objects covering mouth/nose/face).

PHOTOGRAPH BED AND BEDDING

Layer-by-Layer Photography of Bedding
The pathologist wants to see the bedding that may have been under the infant, on top of the infant, and wrapped around the infant (swaddled). The shape, size, material, and general condition of the bedding may be important and should be documented. If necessary, bedding can be collected and taken to the medical examiner/coroner facility for examination.

Photograph Sleeping Surface or Bed, Showing Size Relationships
The infant's bed, crib, mattress, or sleeping surface (blankets on floor, couch, car seat, swing, etc.) must be photographed and described for evaluation by the forensic pathologist. In addition, the fit of the mattress to the crib or bed frame should be checked and measured if necessary. Any pockets or voids between the mattress and frame or bed and wall can be an unsafe sleeping condition for infants who are developed enough to "scoot." It may be important to note the age and weight and developmental abilities of the child when conducting this evaluation.

TRANSMIT PHOTOGRAPHS TO THE PATHOLOGIST

It is not uncommon for the body to be in-route to or at the forensic autopsy facility before the scene investigation is completed. Regardless, photographs of the placed and found positions are essential to the forensic pathologist and may be critical pieces of evidence in the determination of cause and manner of death. Forensic autopsies require the reviewing of scene findings before the autopsy procedure begins (Forensic Autopsy Performance Standards, 2005); therefore, the investigator must make every effort to transmit the reenactment photographs and descriptions to the forensic pathologist as soon as possible.

unit

22 Debrief Family Members/Caregiver

INTRODUCTION

The infant death investigator's final task at the infant death scene is assisting the family before leaving the scene. He or she should express sincere condolences for their loss and thank the family member/caregiver for cooperation and assistance at this difficult time.

HIGHLIGHT THE PERSONAL DIFFICULTY OF PERFORMING A REENACTMENT

The medicolegal death investigator must be sincere when addressing the difficult task of performing a scene reenactment. This is one of the most difficult tasks an individual will ever perform. The investigator's empathy and compassion can provide a sense of comfort to the participants during the reenactment.

REINFORCE THE IMPORTANCE OF THE REENACTMENT

The reenactment provides a visualization of the sleep environment for the pathologist before autopsy. By having the placed/found position(s) digitally photographed, the pathologist can compare the two different sleep positions and the overall sleep environment. Thank these individuals for their cooperation. The digitally photographed documentation is a critical part of a thorough infant death scene investigation.

PROVIDE AN INFORMATION SHEET EXPLAINING WHAT TAKES PLACE AT THIS POINT

It is important for the investigator to express genuine concern in answering any questions the family members/caregivers have at this time. During the reenactment of an infant death scene, the family members/caregivers are emotional, under extreme stress, and experiencing feelings ranging from confusion to disbelief.

The investigator should have an information sheet to leave with the family members outlining the death investigation process, the family's responsibility, how they can obtain a copy of the final medical examiner/coroner report and certified copies of the death certificate, and a reasonable estimate of the length of time that this process will take.

Inform the family of their responsibility at this time.

- Example: The family's responsibility at this time is to choose a funeral home and let the funeral home know their loved one's death is in the care of the medical examiner's/coroner's office.

Inform family member/caregiver of the medical examiner's/coroner's investigation process.

- Tell the family that the body will be transported to the medical examiner's/coroner's office for the pathologist to examine.
- Inform the family that state law authorizes the medical examiner/coroner to perform these examinations.
- Provide information to the family on how they can obtain a copy of the medical examiner's/coroner's report when it is available.
- Explain to the family how they can obtain a certified copy of the death certificate.

PROVIDE TIMETABLE FOR RELEASE OF OFFICIAL REPORTS

The timetable for releasing the finalized report may differ significantly from jurisdiction to jurisdiction. It is important to provide the family with an estimate of how long it will take to produce a medical examiner's/coroner's report. This timetable should be included in the family information letter provided by the medicolegal death investigator at the infant death scene.

PROVIDE FAMILY MEMBER/CAREGIVER WITH OFFICE CONTACT NUMBERS

During this emotional time, family member(s)/caregiver(s) might have many questions after the investigator leaves the scene. Provide the family members with the name of a contact person and a telephone number they can call if they have more questions for the medical examiner/coroner or the medicolegal death investigator after the scene evaluation.

EXPRESS UNDERSTANDING AS TO THE OVERWHELMING NATURE OF THE EVENT

Before leaving the family, you should express your understanding of the overwhelming nature of this event. Participating in an infant death scene reenactment will be difficult for these individuals. Being empathetic and nonconfrontational will provide them with support and comfort. Before leaving, thank them again for their cooperation.

ENCOURAGE THE FAMILY MEMBERS/CAREGIVERS TO ASK QUESTIONS

Encourage the family members/caregivers to ask questions and attempt to comfort them by stressing that the goal of the reenactment is to be able to provide the family with an explanation of what happened to the infant. By performing this reenactment, they are cooperating with the investigation and assisting in establishing both the cause and manner of death.

Sample Family Information Letter Provided to Family Members/Caregivers

On behalf the Medical Examiner's Office, we offer our deepest sympathy to you for your loss.

This letter is designed to help answer some of the questions you might have at this time. The Medical Examiner's Office is required by the laws of the state to conduct an investigation regarding any sudden, suspicious, violent, or unexpected deaths or deaths that might be threats to public health and safety.

INVESTIGATION*:*

I. The infant will be transported to the Medical Examiner's Office for an examination. The extent of the examination is determined by the forensic pathologist as necessary to determine the cause and manner of death. The laws of the state authorize the Medical Examiner to make these examinations.
II. Even though the examination takes place at this location, all inquiries need to be directed to the County Medical Examiner Office at 555-555-1212.

FAMILY'S RESPONSIBILITY:

The family will need to contact the funeral home of their choice. The funeral director will make the necessary arrangements for the family.

MEDICAL EXAMINER REPORT & DEATH CERTIFICATE:

I. It generally takes four to six weeks for our autopsy report to be finalized and the death certificate to be signed. In rare cases, it may be longer.
II. To obtain a copy of this report, please contact our office at 555-555-1212, Monday through Friday, between 8:00 AM and 4:30 PM. (There is a fee for our report.)
III. Reports of homicides will not be released through our office but through the Prosecuting Attorney.
IV. The death certificate will be issued through the County Bureau of Vital Statistics. Inform your funeral director of the number of copies you will need. The funeral director will order them for you.

If you have any questions concerning the death investigation, please do not hesitate to contact our office at 555-555-1212.

Once again, please accept our deepest sympathy for your loss.

Katie L. Hargrave, F-ABMDI
Chief Investigator

Summary

DISCUSSION QUESTIONS

1. Why is an infant death scene recreation important to the overall death investigation?
2. Discuss the step-by-step procedure involved in an infant death scene reenactment. Highlight the importance of each participant's role (placer/finder).
3. Why it is important to explain the doll's role to the family members/caregivers?
4. Identify what support materials, tools, and/or equipment a medicolegal death investigator will need in order to complete a thorough death scene investigation.

SAMPLE QUESTIONS

1. The goal of the infant death scene recreation is to document
    A. The last known sleep environment.
    B. The finder information.
    C. The placer information.
    D. The sleep environment in which the infant was last placed/found.

2. When conducting the infant death scene reenactment, whom should the investigator ask to demonstrate the last known placement?
    A. The mother.
    B. The placer.
    C. The finder.
    D. The father.

3. How many reenactments are required in an infant death scene investigation?
    A. One, documenting the infant's last known sleep position.
    B. One, documenting the infant's found position.
    C. The investigator must have two reenactments performed in order to document the events surrounding the death.
    D. No reenactment is required. A verbal description is adequate for a thorough investigation.

4. During the infant death scene reenactment, whom should the investigator ask to demonstrate the infant's found position?
    A. The mother.
    B. The placer.
    C. The finder.
    D. The father.

5. Which ONE of the following would be considered the MOST IMPORTANT question for the investigator to ask the finder?
    A. When was the infant last fed?
    B. Was the infant sleeping alone?
    C. When was the infant placed down to sleep?
    D. When was the infant found unresponsive?

PRE-AUTOPSY AND POST-AUTOPSY REPORTING 4

section

CHAPTER EIGHT:
The Pre-Autopsy Report

CHAPTER NINE:
Certification of Unexplained Infant Deaths

INTRODUCTION

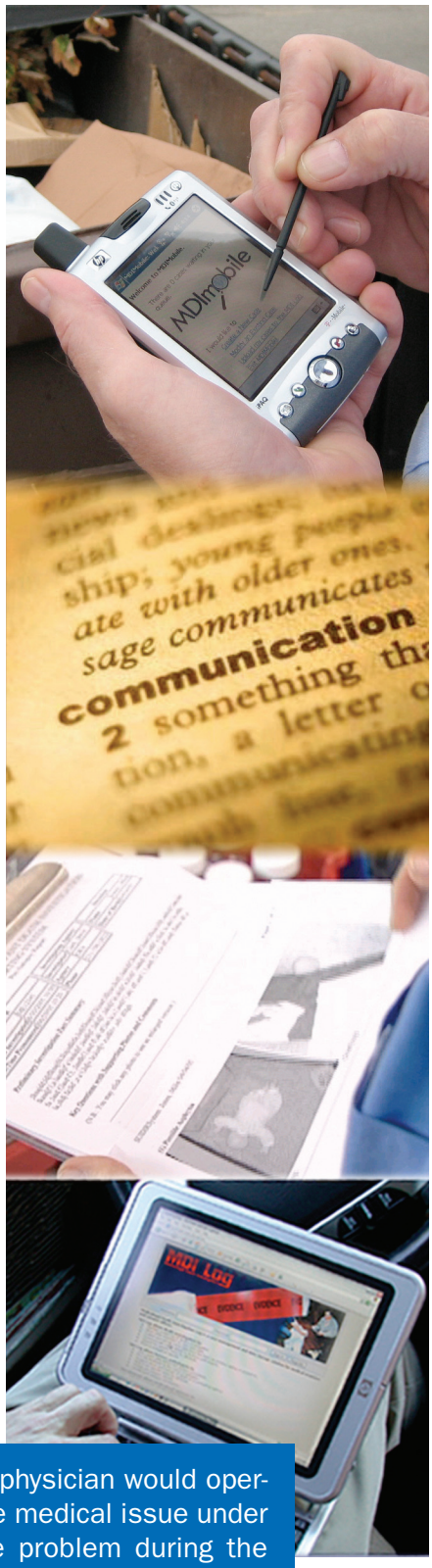
This section consists of two chapters that provide an overview of infant death data reporting. The SUID "Top 25" criteria are covered in enough detail to allow the investigator to collect data deemed critical by forensic pathologists for pre-autopsy review. The always-important narrative report, along with its content and formatting, is dissected and explained so investigators can describe important aspects of the scene in a concise and clear manner.

chapter 8

Bruce Levy, M.D.
Jeffrey Jentzen, M.D.
Steven Clark, Ph.D.

The Pre-Autopsy Report

Reporting Scene Findings to the Pathologist



Unit 23: Document Case Information
Unit 24: Document Sleeping and Immediate Environment
Unit 25: Document Infant History
Unit 26: Document Family Information
Unit 27: Document External Examination

The forensic autopsy begins at the scene. No physician would operate on a patient without first understanding the medical issue under consideration. Simply hoping to discover the problem during the operation is unacceptable in today's medical world. Without critical scene information, the forensic pathologist is forced to make the same professional error. This chapter focuses on those data identified as "critical" to cause and manner of death determinations to be included in the pre-autopsy report to the pathologist.

OVERVIEW

The National Association of Medical Examiners (NAME) includes the scene investigation as part of its forensic autopsy performance standards, and forensic pathologists in general consider a specific set of data critical to the determination of cause and manner of death with regard to SUIDI. This chapter covers the critical data items necessary to collect at the scene and the contents and development of the narrative report. The critical issues, known as the SUIDI Top 25, are covered in order of appearance from the Summary for Pathologist section of the SUIDI Reporting Form. In addition, the basic style of the narrative report is described along with an example report.

SUPPORT MATERIALS

1. SUIDI Top 25 list.
2. SUIDI Reporting Form.
3. Medicolegal Death Investigation Log (SUIDI). http://www.mdilog.net.
4. *Forensic Autopsy Performance Standards.* Atlanta, Ga: National Association of Medical Examiners. 2005. http://www.thename.org.

CHAPTER OBJECTIVES

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

1. Document case information.
2. Document sleeping environment.
3. Document infant history.
4. Document family information.
5. Document external scene examination.
6. Develop narrative report to the pathologist.

unit

23 Document Case Information

INTRODUCTION

This unit outlines and reviews the general case information documented at each death scene for inclusion in the pre-autopsy report to the pathologist and the general case file. The name and location of the investigating agency, the case investigator's name, investigative case number, and basic information about the decedent including name, date of birth, and date and time that death was pronounced are included, along with the date and time when the investigation was initiated. This "general" case information must be collected and verified at every death scene before reporting to the pathologist.

DOCUMENT GENERAL CASE INFORMATION

Investigator Name

Other investigators, law enforcement officials, or legal personnel may need to obtain and review the information contained in the pre-autopsy report. As such, it is important that the investigator includes his or her full name and contact information on all official documentation.

Agency and Phone Number

While few cases are investigated by multiple agencies, there is a national effort underway to promote the sharing of case information among the various county offices in the United States. By including his or her respective agency and its phone number, the investigator assists in the collection and analysis of all submitted case information.

Date and Time Investigated

The date and time when the investigation took place should be documented as accurately as possible. Investigators should use 24-hour (military) time format and remember that 0000 (midnight) marks the beginning of a new day.

Case Number

Each jurisdiction or agency has its own numbering system for death investigation cases, but it is important that the investigator include the case number for the case in question. Should law enforcement, medical, or legal personnel need to review the case's information or reports, the case number will be a key detail in their inquiry.

Decedent Name (Last, First)

The investigator should carefully verify and document the decedent's full name, placing the surname ("family" or last name) first.

Date of Birth

Since many complications in young infants are closely related to age, it is critical that the investigator verifies and documents the date of birth of the infant in question.

Date and Time Pronounced Dead

The date and time when the infant was pronounced dead should be documented as accurately as possible. This information is used along with the date and time of the investigation to create a timeline of important events related to the infant death. Investigators should use 24-hour (military) time format and remember that 0000 (midnight) marks the beginning of a new day.

INVESTIGATION DATA

Infant's Information: Last _____ First _____ M. _____ Case # _____

Sex: ☐ Male ☐ Female Date of Birth ____/____/____ (Month / Day / Year) Age _____ (Months) SS# _____

Race: ☐ White ☐ Black/African Am. ☐ Asian/Pacific Islander ☐ Am. Indian/Alaskan Native ☐ Hispanic/Latino ☐ Other

Infant's Primary Residence Address:

Address _____ City _____ County _____ State _____ Zip _____

Incident Address:

Address _____ City _____ County _____ State _____ Zip _____

Fig 8.1: Demographic section of the SUIDI Reporting Form.

unit

24 Document Sleeping and Immediate Environment

INTRODUCTION

The purpose of this unit is to detail the known conditions that pose a risk for unnatural infant death. In most cases, these factors have to do with the infant's immediate environment and sleeping surface. This unit reviews the various forms of asphyxia, the sleep surface, and various environmental hazards from the investigator's point-of-view. Each topic is briefly described, followed by suggested documentation methods for reporting to the pathologist.

DOCUMENT ASPHYXIA CONCERNS

Overlaying

Overlaying typically occurs when adults share sleep surfaces with infants and unknowingly "rollover" the infant while asleep, causing the infant to suffocate. The investigator should determine if anyone was sleeping with the infant and document who that person was, including his or her approximate weight, height, and age. The investigator should document the found position of the infant and anyone else who was in bed with the infant using a doll reenactment. Photographs of the reenactment will assist the pathologist in determining cause of death.

Wedging

Wedging typically occurs when an infant gets "stuck" between two objects. This can happen when infants are put to sleep in cribs with a mismatched mattress or on couches with "overstuffed" cushions. As with overlaying, photographs of the doll reenactment are critical to the pathologist. Naturally, photographs of the placed and found positions are important, but possible wedging cases also require photographs of the sleeping surfaces, surrounding objects (pillows, cushions, etc.) as well as measurements documenting distances between objects (mattress and bed frame, gap between cushions, mattress and wall, etc.) to identify a possible cause of death.

Choking

Choking occurs when items lodge in the infant's airway. Anything small enough to fit in the child's mouth is a potential choking hazard. Investigators should ask questions about the child's behavior and activities prior to death and investigate the surrounding area for objects that may pose a choking risk. Answers to interview questions should be documented, and the areas and objects located near the infant should be photographed.

Obstruction of Nose or Mouth

Any object placed or pressed up against an infant's face can be a potential asphyxiation risk. This does not always occur during sleep; infants have asphyxiated while lying on pillows. Photographic documentation of the sleeping environment (including pillows, stuffed animals, blankets, etc.) as well as the placed and found positions can help determine if potential obstruction of the nose or mouth occurred.

Rebreathing

Rebreathing typically occurs when an infant's face (nose and mouth) is tucked into an enclosed space or "pocket" created by bedding or clothing. Photographs of the found position and sleeping environment are critical in such cases.

Neck Compression

Akin to mechanical asphyxiation, neck compression can occur in a variety of ways. Premature infants placed in car seats or "infant" rockers with poor neck support have been known to asphyxiate due to neck compression. The weight of the infant's head is enough to cause this to happen. Photographs of both placed and found positions using the doll reenactment as well as the apparatus the infant was found in will assist the pathologist and aid the investigation.

Immersion in Water

Immersion in water or drowning commonly occurs when infants are left unattended in bathtubs. Interviewing parents and documenting the circumstances of death will provide the pathologist with the information necessary to determine cause of death. Manner of death in these cases typically depends on the scene interviews of those who last knew the infant was alive.

DOCUMENT SLEEP SURFACE SHARING

With Adults

Although the practice is common in many homes, adults (other than parents or caregivers) who sleep with infants may be putting those children at risk. As with overlaying, the doll reenactment is critical. However, interviewing the individual who placed the infant down to sleep and the individual who found the infant dead may be more important to the cause of death. Many adults are reluctant to admit they may have rolled onto their child or simply do not remember falling asleep with their child. Documenting the circumstances of discovery, ages, and weights of the adult(s) sharing the sleep surface is critical in such cases.

With Children

The same issues arise from sleeping with other children as with adults. The investigator should ask questions about the sleeping areas other children in the home use. Count the number of sleeping surfaces in the home, and the number of children. If other children are sleeping with the infant, the investigator should document their ages and weights and photograph the doll reenactment.

With Pets

Although there is little evidence to suggest that pets suffocate infants, the investigator should determine if there are pets in the home and if the pets have access to the infant's sleeping area.

DOCUMENT SLEEPING CONDITION CHANGES

Position Change

Acute changes in sleeping postion are considered a major risk factor in unexplained infant deaths. The investigator should ask the caregiver if the usual sleep position has been modified within the past 24 hours. These findings should be documented and reported.

Location Change

The investigator should ask the caregiver if the infant always sleeps in the found location or is in a new area of the room or home.

Surface Change

The investigator should ask the caregiver if the sleeping surface or bed the infant was discovered on is the one he or she normally sleeps on. For example, the parents may say that the infant usually sleeps in her crib, but the night prior to her death, she was placed down to sleep with her parents because she was unusually fussy.

DOCUMENT HYPERTHERMIA/HYPOTHERMIA CONCERNS

Excessive Wrapping/Blanketing/Clothing

Excessive wrapping, blanketing, or clothing of an infant can cause hyperthermia. Investigators should document the amount of material the infant was covered by at the time of discovery. Photographs of the material and documentation of the temperature of the room and relative humidity are important facts to provide the pathologist in cases where overheating may be a factor in the death.

Hot or Cold Environment

Leaving an infant in direct sunlight, in a parked car in hot weather, or placing an infant too close to a fire or heater can cause hyperthermia. Leaving an infant in a parked car in winter weather or outside without proper clothing can cause hypothermia. Photographs of the scene and documentation of the environmental temperature, as well as time spent under these conditions, are critical in these cases.

DOCUMENT ENVIRONMENTAL HAZARDS

Carbon Monoxide

Infants are more susceptible to carbon monoxide exposure than older individuals; therefore, the scene investigation must include checking for devices that produce carbon monoxide gas. Portable heating units, wood burning stoves, and furnaces should all be checked. This is especially important to check in the fall of the year, when these devices are first being started up after being idle for the summer months. Photograph any devices in the immediate area, and document their operational status.

Cleaning Chemicals and Sprays

Investigate the use and location of any dangerous chemicals and/or sprays being used in the house. Document and photograph the location of these items in relationship to the infant's environment.

Electricity and Devices Operating in the Area

Exposed, unsafe wires, extension cords, and any electrical devices operating in the infant's living and sleeping environment should be documented and photographed.

Exposure to Illegal Drugs and Cigarette Smoke

Naturally, infant exposure to illegal drugs should be documented and investigated by law enforcement. In addition, exposure to cigarette smoke is a known risk factor for SIDS and should be documented and reported to the pathologist.

Ligatures (Cords, String, Electrical Cords/Wires)

Anything that an infant could become entangled in should be investigated as a possible ligature. Photograph and document any such items, and ask about the location of the infant in relationship to the observed issues.

DOCUMENT UNSAFE SLEEPING CONDITIONS

Soft/Lumpy/Concave Sleeping Surface

As discussed earlier in the asphyxia section, the infant's sleeping surface must be observed and tested for general surface firmness and condition. Photographs and descriptions should be reported to the pathologist.

Broken or Mismatched Crib/Bed/Mattress

Broken or mismatched sleeping furniture should be investigated for possible wedging and other potential asphyxia issues. Photographs of the furniture and measurements of gaps caused by mismatched or broken parts should be documented and reported to the pathologist.

Worn/Torn/Stained/Unclean/Wet Bedding

The bedding and its condition should be photographed and documented in the scene report to the pathologist.

Sleeping Environment

1 Indicate whether preliminary investigation suggests any of the following:

Yes	No	
☐	☐	Asphyxia *(ex. overlying, wedging, choking, nose/mouth obstruction, re-breathing, neck compression, immersion in water)*
☐	☐	Sharing of sleep surface with adults, children, or pets
☐	☐	Change in sleep condition *(ex. unaccustomed stomach sleep position, location, or sleep surface)*
☐	☐	Hyperthermia/Hypothermia *(ex. excessive wrapping, blankets, clothing, or hot or cold environments)*
☐	☐	Environmental hazards *(ex. carbon monoxide, noxious gases, chemicals, drugs, devices)*
☐	☐	Unsafe sleep condition *(ex. couch/sofa, waterbed, stuffed toys, pillows, soft bedding)*

Fig 8.2: Sleeping Environment section of the SUIDI Reporting Form.

unit

25 Document Infant History

INTRODUCTION

This unit reviews the broad range of specific questions that need to be answered by various individuals who cared for and provided healthcare services to the infant. The investigator is attempting to gather all the recent and past history to construct a profile for the pathologist. The possibility of certain unnatural causes of death or specific natural causes of death. Acute life-threatening events in the past suggest possible inflicted asphyxia or a chronic condition. Repeated visits for medical care without diagnosis raises the possibility of Munchausen Syndrome by Proxy. A history of recent falls or injuries may indicate accidental causes of death but also raise suspicion of inflicted injury. Religious, cultural, or ethnic remedies such as white clay ingestion or coin rubbing may cause injuries or even death. It is essential to inform the pathologist if the infant's history points toward a specific disease or condition as a possible cause of death.

DIET

Investigators should determine if the infant has recently (within the past 24 hours) eaten or drunk a new food or liquid. The possibility of food allergies and the use of food that is inappropriate for the age and development of the child should be considered. Documentation should include interview statements and possible collection of food samples from the scene for the pathologist to evaluate.

RECENT HOSPITALIZATION

The pathologist is interested to know if the infant has been evaluated for illness recently. This may indicate a natural cause of death. Documentation should include any recent (within the past 24 hours) trauma or illnesses, elective or emergency surgeries, as well as the number of times the infant has been hospitalized and for what reasons. Contact phone numbers should be collected and reported to the pathologist for follow-up if necessary.

PREVIOUS MEDICAL DIAGNOSIS

Any chronic diseases such as birth defects, cerebral palsy, reactive airway disease (asthma), growth failure, recent trauma, cystic fibrosis, or cancer should be investigated, documented, and reported to the pathologist before autopsy.

ACUTE LIFE-THREATENING EVENTS (ALTE)

There are a few different types of apnea that the investigator should attempt to determine. Medical apnea typically involves some type of airway obstruction. Environmental apnea can occur when an infant becomes entrapped between two objects, such as a bed and the wall, or between a mattress and a bed frame. Each should be investigated, documented, and reported to the pathologist before autopsy.

If the infant has had a medical workup for seizures, there will be a clinical history to collect from a healthcare provider or hospital emergency department. The medical workup includes a physical examination, CT scan/MRI, and retinal examination. The investigator should attempt to collect copies of the medical records for review by the pathologist.

MEDICAL CARE WITHOUT DIAGNOSIS

If the infant has had an event that precipitated his or her caregivers to seek medical care that resulted in nonspecific findings or illness, the investigator should document these findings.

RECENT FALL OR OTHER INJURY

Adult Fall while Holding Infant

The investigator should ask the parents if anyone fell while attempting to carry the infant and determine if the infant hit anything with his or her head during the fall. Documentation should include photographs and description of any and all surfaces the infant may have impacted during the event. If appropriate, measurements describing distance of fall may be helpful to the pathologist.

Infant Falling onto Surface

If the infant may have fallen onto any surface, hard or soft, these findings should also be documented, photographed, and measured. The investigator should note when the fall occurred.

Infant Activities after Fall or Injury

The investigator should ask the caregiver to describe any changes in the infant's behavior or activity level after the fall or injury occurred and determine whether medical treatment was

sought. The fall and any medical reports should be reported to the pathologist and documented in the case report.

RELIGIOUS, CULTURAL, OR ETHNIC REMEDIES

Investigators should attempt to determine if the infant was exposed to or given herbal remedies of any type. Documentation should include interview statements describing the type of remedy and administration procedures, dosage, and frequency of administration. In addition, collection of herbal remedy "samples" may be necessary for the pathologist to evaluate. As some remedies actually result in physical findings, the investigator should document and photograph any unusual external artifacts for the pathologist to evaluate.

DEATH DUE TO NATURAL CAUSES OTHER THAN SIDS

The investigator should document any congenital abnormalities in an infant or the infant's family as inheritable or congenital abnormality may have had a direct or indirect effect on the death of the infant. Reporting this information to the pathologist before autopsy will alert him or her to be aware of the condition, evaluate it during the autopsy, order testing to specifically diagnose the condition, and conclude whether the condition caused the death.

The investigator should attempt to determine if the infant suffered from any errors of metabolism MCAD, PKU, G6PD, etc. In addition to interview documentation, the infant's primary healthcare provider's contact information should be provided to the pathologist before autopsy.

Complications of Prematurity

Infants born before term are at risk for a number of health-related issues. The investigator should attempt to determine if the child was born prematurely and report this information to the pathologist. Documentation should include the birth mother's and infant's primary healthcare provider's contact information if necessary. Prematurity is also a risk factor for SIDS.

Infectious Diseases

The investigator should document any bacterial or viral infections (such as bronchiolitis) the infant may have had or been exposed to, recording any signs and symptoms in the case file and reporting the results to the pathologist before autopsy.

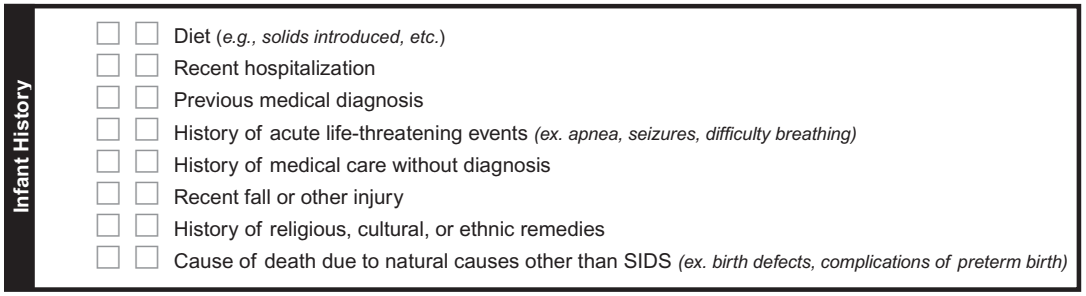


Fig. 8.3: Infant History section of the SUIDI Reporting Form.

unit

26 Document Family Information

INTRODUCTION

This unit details the data identified as critical to pre-autopsy decisions regarding current family information and history. Specific issues around organ donation and objections to autopsy need to be communicated to the pathologist before the autopsy procedure begins. Documentation and reporting strategies are also described.

PRIOR SIBLING DEATHS

Any prior deaths of siblings (biological or not) should be documented along with their cause. Some hereditary diseases, such as long QT syndrome, can cause sudden death. Any family history of such diseases or sudden deaths caused by these diseases should be documented. Other prior sibling deaths may be homicides and should also be documented.

ENCOUNTERS WITH POLICE OR SOCIAL SERVICES

Law Enforcement

The investigator should determine whether the law enforcement officer at the scene knows the family from recent visits to the address. Most police agencies assign officers to a specific location. If there have been reported problems at this house in the past, it is likely the officer at the scene knows the details of the encounter or was involved him/herself. Documentation should include the involved law enforcement officer's name, contact information, dates, and reason for contact.

Social Services

The investigator should also determine whether any of the local social service caseworkers has interacted with the family. Investigators should check with the law enforcement officer, as he/she may know if a caseworker has been called to the residence. Why they were called, what actions they took, and if any follow-up was scheduled should all be documented. Any findings should be reported to the pathologist.

REQUEST FOR TISSUE OR ORGAN DONATION

Investigators should have standard operating procedures for interacting with both families and local organ and tissue agencies. Investigators should make sure families know about the services and inform the pathologist of any requests or questions they may have before the autopsy begins.

OBJECTION TO AUTOPSY

The investigator should document any objections to an autopsy raised by the family, including the family's reason(s) for their objection to an autopsy. Communicating this information to the pathologist in the pre-autopsy report will warn the pathologist of the family's wishes and prevent him or her from violating any state or local laws. Naturally, the pathologist needs this information before the autopsy begins.

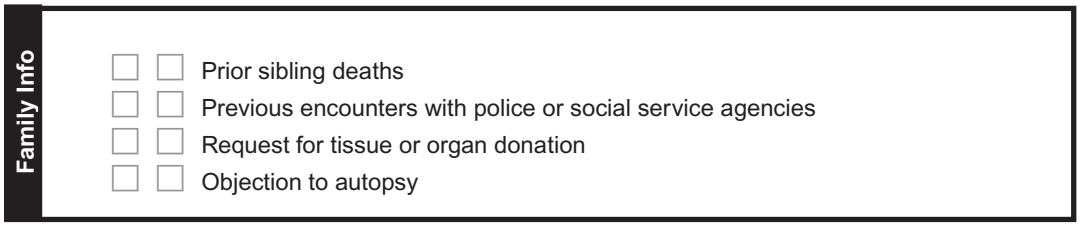


Fig 8.4: Family Information section of the SUIDI Reporting Form.

unit

27 Document External Examination

INTRODUCTION

The purpose of this unit is to alert the pathologist to the presence of injuries observed on the infant's body during the initial scene investigation. This includes any and all resuscitative efforts by trained and untrained personnel that may have cause injury or left artifacts on the body that need to be reported to the pathologist.

PRE-TERMINAL RESUSCITATIVE TREATMENT

EMS, Fire Personnel, and Law Enforcement Officers

All attempts at resuscitation need to be documented by the investigator and reported to the pathologist as resuscitative treatments often cause external and/or internal injuries to infants. These resuscitative artifacts and any associated equipment visible on the infant should be documented in the investigative report and photographed. The agency and contact name and number of the individual who attempted resuscitation should also be documented in the report for follow-up as necessary.

Relatives, Neighbors, Good Samaritans

As with professional responders, the investigator needs to document resuscitative efforts by photographing any artifacts or injury visible on the infant. Other documentaion should include the name and contact information of the individual who attempted resuscitation and their relationship to the infant.

DEATH DUE TO TRAUMA, POISONING, OR INTOXICATION

Trauma

Any visible trauma or injury to the infant should be documented by the investigator and photographed for the pre-autopsy report to the pathologist. The body diagram form found in the SUIDI Reporting Form is an excellent tool for documenting and reporting these scene findings.

Poisoning or Intoxication

Any suspected blockage of the infant's respiratory tract from poisoning or intoxication should be investigated, collected, documented, and reported to the pathologist before autopsy. Any suspected poison or toxicant, including medication bottles with pills, cleaning agent bottles (even if they are now empty), and so on should be collected.

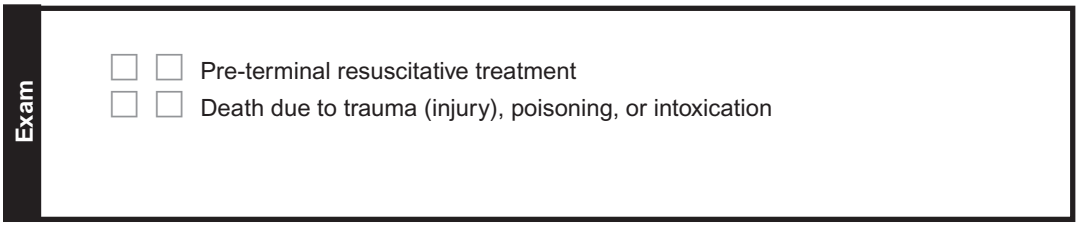


Fig 8.5: External Exam section of the SUIDI Reporting Form.

unit

28 Develop Narrative Report to the Pathologist

INTRODUCTION

This unit outlines the narrative report. The narrative allows the investigator to describe the basic facts of the investigation in conversational form, as well as indicate if there is something that arouses suspicion for unnatural death, whether accidental or inflicted. It is the part of the investigation that most investigators tend to avoid because it is time consuming; however, a well-constructed and detailed narrative allows pathologists and support agency representatives to visualize the scene in detail as if they were there.

DEVELOP CONCISE OVERVIEW OF INVESTIGATION

Who Was Directly Involved in the Incident

You should include in the summary the names and relationships of the individuals involved in the incident. This includes the persons who last placed the child down to sleep, who last saw the child alive, and who found the child unresponsive. The names of other persons at the location should also be noted in your report.

What Happened to Cause the Incident

Describe the major events leading up to the death. Such factors would include the details of the last feeding of the infant, details of how the infant was placed down, how the person who last saw the infant alive knows this (e.g., saw the infant breathing, heard the infant on a monitor), and how the infant was found. The description might also include other relevant factors such as illnesses noted or how an injury was sustained.

Where the Incident Occurred

This includes the general location (e.g., home, day care center) as well as the specific location where the infant was found (e.g., crib in the bedroom next to the adult bed).

When the Incident Occurred

The date and times of the major incidents related to the death should be included in the narrative. This includes the last time placed down, time last seen alive, and time found unresponsive.

Why the Incident Occurred

At the time of the initial investigation, it is unlikely that you will be able to determine why this death occurred. However, the scene might give you clues that will allow you to speculate on the reasons for this death.

How the Incident Occurred

The specific events leading to the death should be described in detail. This information would be most relevant in the instance of an injury to the infant, for which the person(s) who observed the incident would describe exactly how it happened.

Unusual Burial Practices

Burial practices vary greatly. Common current practices, which include burial (with and without embalming), cremation, and burial at sea, are not the only burial practices. There is great variety even within a common burial method. For example, some religious groups believe that burial should occur by sundown on the day of death.

It is important to document any unconventional burial practices and communicate that information to the pathologist in the narrative. This information will help the pathologist in his or her examination of the body and preparation of the body for release to the family for final disposition.

SUSPICIOUS CIRCUMSTANCES

The investigator needs to take the opportunity to reflect on the scene and describe any suspicious circumstances that he or she feels need further investigative follow-up. With infant deaths, these suspicions typically focus on placed and found position issues as described earlier in this chapter. Often, investigators will wonder about a statement given by a witness that is questionable because the story they told “just doesn’t make sense” or some observation of their body language or tone of voice. All of these “suspicions” need to be recorded and shared with another investigator or the pathologist.

Suspicion of Inflicted Injury or Poisoning

It is important for the investigator to document potential abuse of an infant. Making a final determination of abuse will involve many facts obtained from the scene investigation, medical history of the infant, and results of the autopsy. The information provided to the pathologist in the narrative will assist him or her in the final determination of abuse. It is not your role as the scene investigator to make the diagnosis of abuse.

One common observation in cases of abused infants is the inconsistency between the injuries observed and the provided explanation. Changing explanations for the suspicious injuries over time is another common finding in child abuse.

It is important for the investigator to document the presence of any injuries described in the section on documenting injuries. It is just as important to document any explanation provided by the caregiver as to the cause of the injury. A thorough narrative should be provided, using direct quotations from the caregiver whenever possible. The location where the injury was sustained should also be described and photographed. If practical, explanation given for the injury should be reenacted using a doll or other appropriate prop.

DOCUMENT ALERTS TO PATHOLOGIST

Welfare/Safety Issues of Other Children in Environment

One of the ultimate goals of infant death investigation is the prevention of similar, preventable deaths in the future. This is the major goal of child fatality review teams throughout the country. Whereas determining the cause of death of the deceased infant is the primary goal of the death investigation, protection of the health and safety of other children in the home is an important additional benefit. If the scene investigation identifies a potential environmental hazard that caused the death of one child, removal of the hazard could save the life of another child.

Also, the condition of the other children in the same environment can give important clues as to the cause of death of the infant in question. For example, documenting poor nutrition and hygiene of the other children can provide clues to the pathologist regarding the proper care of the infant in question. If a deceased infant has a severe case of diaper rash, knowing whether the other children are well cared for will help the pathologist evaluate whether neglect was involved in the death in question.

The investigator should document the condition of other children in the home in the narrative report. If the children are old enough to be competent witnesses, they can also be interviewed with regard to the death of their sibling.

Concerns of Domestic Violence

The existence of domestic violence in the home might or might not play a role in the death of an infant. Domestic violence against another member of the household raises the possibility that the infant's death is related to violence. In addition to the direct risk of violence against the infant, a home with domestic violence also can increase the likelihood of neglect of the infant. The pathologist needs to know about these concerns from the narrative report in order to place the autopsy findings in the proper context.

There may be visible injuries to other members of the household. Such injuries should be noted in your report to the pathologist. Local law enforcement also will be a valuable source of information regarding previous calls to the house for domestic violence. You should obtain any known history from law enforcement and communicate it to the pathologist.

Concerns of Drug/Alcohol Abuse

The presence of substance abuse in the home can be both directly and indirectly relevant to the cause of death of an infant. Substance abuse is not limited to the abuse of alcohol or illegal drugs, but includes the increasing incidence of abuse of prescription medications.

It is not unusual for inappropriate medications, alcohol, or even illegal drugs to be given to an infant in a home with a substance abuse problem. In addition, infants in a home with substance abuse are at increased risk for physical abuse and neglect.

Any evidence of substance abuse should be documented in the report to the pathologist. The substance(s) abused should be included in the report. A toxicology screen does not include every possible substance of abuse. Knowing what drugs are at the scene will help the pathologist and toxicologist ensure that the infant is tested appropriately.

History of Problems with Caregivers

A history of family problems is a vital part of your investigation. The pathologist will use this information during his or her examination of the infant. The final conclusions as to cause and manner of death may be influenced by this history. Previous official contact with the family is not uncommon in an infant death that is suspicious for abuse or neglect. In some cases, a parent of the deceased infant might have been the victim of abuse or neglect as a child. Your local law enforcement and child protective service (or social service) agencies will be the source of this information. Any previous family contact with law enforcement should be documented in your report to the pathologist. Reports to child protective/social service and the results of their investigation should also be provided to the pathologist.

Previous Deaths in Family

It is important to document any previous deaths in the family, especially infant deaths. The presence of fatal violence in the household is a risk factor to the infant. Multiple infant deaths in the same family are a red flag to the pathologist.

Much attention has been given to the increased likelihood of foul play when there are repeated infant deaths in the family. This is based on the low probability of multiple SIDS deaths in one family and the fact that it is possible to smother an infant and not leave any physical findings that will be detected in an autopsy.

Repeated infant deaths also are significant for the increased possibility of a previously undetected inheritable defect. Autopsies cannot determine every possible cause of death. However, new tests are being developed to diagnose conditions that were previously undetectable. For example, researchers have begun to identify inheritable genetic defects that can cause fatal cardiac arrhythmias in infants during sleep.

A history of previous infant deaths in the family will alert the pathologist to investigate further for both natural and violent causes of the infant's death. This information should be included in the narrative report to the pathologist.

Concerns from Caregivers or Other Investigations/Witnesses

Any perceived health concerns or issues, whether raised by a caregiver or through the death investigation, need to be reported to the pathologist in the narrative, even if the concern does not appear to be related to the cause of death. Many of these concerns can be addressed by the pathologist during the autopsy, but only if the pathologist is aware of the issue. For example, a caregiver might provide the information that the infant was spitting up excessively in the days before death, guiding the pathologist to focus on issues regarding causes of excessive regurgitation.

If a caregiver or other individual has raised an issue, include that in the narrative using the exact language used by the individual in quotation marks and crediting the reporter. If it is an issue raised through the investigation, report it as such with your reasons for concern. For example, the hospital might report that the infant had an elevated temperature on presentation, even if the caregiver reported no recent illnesses.

DESCRIBE PHYSICAL EVIDENCE AND GATHERED INFORMATION

Inconsistencies between Scene and Verbal Description of Events

There also can be inconsistencies between the injury you observe on the infant and the caregiver's explanation of how the injury was sustained. This is a common finding in cases of child abuse. Although it ultimately will be the pathologist's responsibility to make the final determination about the explanation of injury, it is important for you to indicate specifically these inconsistencies in your narrative report to the pathologist.

In your report, you should indicate the caregiver's explanation of the injury, using direct quotations whenever possible. The scene investigation should be conducted to explore the provided explanation. It might be valuable to have the caregiver reenact the mechanism of injury. This information should be provided to the pathologist in the narrative report. You can refer the pathologist to the specific sections of the SUIDI Reporting Form that contain the details of the inconsistency. This information will have a significant effect on the performance of the autopsy and interpretation of its findings.

Inconsistencies between Observed Injury and Explanation of Injury

If there are discrepancies between the description of the physical evidence and the gathered information, they should be specifically pointed out to the pathologist in the narrative report. An example is a description of the sleeping surface that does not match the sleeping surface observed.

You do not need to repeat the detailed description that will be included in the SUIDI Reporting Form or the jurisdictionally approved equivalent, but you can indicate the inconsistency and refer the pathologist to the specific descriptions in the report. It is important for the pathologist to be aware of these discrepancies so that the autopsy can be conducted with those issues in mind and the pathologist can draw the appropriate conclusions.

Note Changes in "Story" Based on Investigator's Suggestions

Changes in the explanation of an injury are another common finding in cases of child abuse. However, the investigator must be careful in his or her interview with the caregiver. At the time of your interview, these people are in an emotionally charged state and could be influenced by suggestions as to how an injury might have occurred. As such, the investigator should be careful not to cross the line between an interview and an interrogation.

If you have documentation that the caregiver changed his or her story, include this in your report and draw the pathologist's attention to this in the narrative report. This information will affect the performance of the autopsy and interpretation of its findings.

Note Explanations of Events that Defy Logic and Common Sense

Despite the public misperception that everything we do involves highly complicated objective scientific tests, much of the investigation of unexpected infant death is based on observation at the scene and interviews with the caregivers. As a result, the investigator needs to use his or her common sense and logic in the investigation.

When a caregiver provides an explanation for an injury, the explanation needs to be documented objectively. Use direct quotations whenever possible. Care must be taken not to allow impressions to influence what witnesses have said. The principles mentioned above should be used when the investigator is attempting to compare the caregiver's explanation to his or her own observations.

SAMPLE INVESTIGATIVE NARRATIVE REPORT

NATURAL DEATH - INFANT
11/21/2005

On Friday 11/21/2006 at approximately 9:50 am, our office was contacted by the Cheraw Fire Department in reference to an infant death located at 1121 Third St., Martin, TD 12123. Upon my arrival, I was met by PO Steven Stevens who led me upstairs to the second floor apartment where the infant was located. Inside the apartment there were several Fire Department personnel still on scene with the mother and father of the deceased infant. The mother, Tammy Baskins, a white female DOB: 06/20/1969 (AGE 37) resides at this address with the deceased infant, and the father, John Tyrone Martin, a black male DOB: 08/15/1963 (AGE 43) resides at another residence. Also arriving later were PO Jeff Hanks and Lt. Quick, Travis Johns, and Larry James of the Martin Police Department. Information obtained was that the deceased infant was Kelly K. Martin, a Caucasian/African American female (age 7 weeks old) DOB: 10/05/2006, Social Security Number RRK-AB-5471. Further information obtained was that the deceased was born prematurely at 33 weeks gestation on 10/05/2006 with the due date being on 11/30/2006. The deceased at birth weighed 3 lbs. 8 oz. and was 17.5 inches in length and remained in McLeod's Hospital for four weeks after birth. The deceased was initially in the NICU and later transferred to the pediatric unit, where she developed severe anemia and stopped breathing due to this. The deceased was given several blood transfusions and sent back to the NICU. The deceased was also found to have a heart murmur. On 11/02/2006, an ECG was done and the deceased was cleared to go home without any medications or monitors, with the mother being retrained in infant CPR.

I observed the deceased lying on the couch on her right side laying on top of two blankets and wearing a one piece, button-front pajamas with a one piece undershirt and diaper. I also observed some blood on the blanket at the end of the couch where the deceased was originally laying. Upon examination of the deceased's body, I observed rigor mortis with body being cool. Lividity was also observed purple in color and blanching when touched. Lividity was consistent with position found. Blood-tinged froth was noted from her nose with dried blood from the side of her mouth down her cheek. The abdomen was distended and hard. A large bowel movement was noted in the diaper. During the external examination, there were no obvious signs or symptoms of trauma noted to the deceased.

The mother, Tammy, stated that she last saw the child this morning around 5:30 am when she changed a urine soaked diaper and fed her a fresh bottle. The mother stated that the infant ate little, which was unusual, but did not act abnormally. The infant was laid down to sleep on the couch where she normally slept, placed on her right side. The mother slept next to the couch on the floor close to the infant. The mother's boyfriend, the father of the deceased, had spent the night with the mother and his daughter and ran downstairs to an apartment to call 9-1-1. No CPR had been initiated by family or fire department personnel. The MFD had responded to this 9-1-1 call at 9:16 am, arriving at the deceased at 9:19 am, finding the deceased in her mother's arms with no heart tones, respiratory effort, or pulses. FD personnel noted lividity to the right side of the head with blood tinged sputum coming from her nose. Blood was also noted on the pillow where the deceased slept. The deceased was pronounced at 9:50 am by Investigator Sarah Ann Buckner.

After the scene was photographed and interviews completed by PO Steven Stevens and myself, the deceased was transported by the Investigator Squad #201 to the MCMEO to await autopsy. The mother understood that an autopsy would be performed and due to her not having a phone, she would call from her sister's home for the results.

Contact was later made with Dr. Taylor who last saw the deceased on Monday 11/14/2006. Dr. Taylor stated that the deceased was born 33 weeks premature with an episode of anemia with several blood transfusions. There was no reason found for this anemia. On 10/19/2006, an ECG showed a large PDA, and on 11/02/2006, it was tested to be moderately sized and safe for the deceased to go home. On 11/14/2006, the deceased looked pink and healthy with no neglect or abuse suspected. The deceased also had her two vaccinations and had gained weight from 2,040 grams at birth to 2,400 grams. The last bottle that the deceased was known to drink from was taken from the home and placed in the specimen bag in the cooler with the body of the deceased.

During the autopsy on 11/22/2006 at 9:15 am, photographs were taken prior to and at the time of postmortem examination by Dr. Terry K. Patrick and Assistant Medical Examiner. There were 19 Histolytic Sections taken for analysis as well. The following items of clothing accompany the body. One baby blue onesies. One terry cloth pajama jumper white in color with multicolored design of kittens, lions, and giraffes. One disposable Pampers brand diaper with a large amount of green-yellow stool and urine soaking. One white, blue, pink, and yellow baby blanket with three small areas of blood-tinged fluid on it. One white cloth blanket with pink and green roses, and small areas of blood-tinged staining. There was no evidence of traumatic injury noted. Upon completion of the autopsy, the deceased was released on 11/23/2006 at 4:12 pm to S.S.

Robins with the Davis Funeral Home 3553 N. Second St., TD 12123, phone 555.5555.

Summary

DISCUSSION QUESTIONS

1. Discuss in general why it is important to report relevant information to the pathologist before the autopsy. Include examples of information that would be useful and the potential effect such information would have on the autopsy examination of the infant.
2. Explain how you would document an injury to an infant in your report to the pathologist. Include details.
3. Explain the importance of reporting the family's social history to the pathologist performing the autopsy. Include such aspects as substance abuse, previous official intervention, and domestic violence.
4. Describe the importance of relating a history of medical illness in the infant or family members to the pathologist performing the autopsy. What effect might this information have on the death investigation? On the health of the surviving family members?

SAMPLE QUESTIONS

1. Petechiae are
    A. Splotchy lesions of the skin.
    B. Pinpoint hemorrhages of the skin, eyes, and mucosal surfaces.
    C. Diagnostic of asphyxia.
    D. IIrrelevant to the death investigation.

2. It is important to identify and report infectious disease in the infant or family so that
    A. The pathologist can begin a course of antibiotics.
    B. The investigation will end.
    C. Proper testing can be performed to make an appropriate diagnosis.
    D. Others affected individuals can be informed.

3. Signs of child abuse or neglect include
    A. Inconsistencies between the observed injury and the explanation of injury.
    B. Mongolian hyperpigmentation spots.
    C. Caput succendaneum.
    D. Osteogenesis imperfecta.

4. The investigator's documentation of injuries should include
    A. Size of the injury and location on the body.
    B. Specific age of injury.
    C. Cause of the injury.
    D. Individual responsible for the injury.

5. Why is it important to get scene data to the pathologist before the autopsy procedure?
    A. So the investigator can get on to the next case.
    B. So the pathologist can complete the autopsy report and move on to the next autopsy.
    C. So the pathologist has all available data to make accurate cause-of-death determinations.
    D. So the District Attorney can begin putting his/her case together and put those involved in the death behind bars.

chapter 9

Randy Hanzlick, M.D.

Certification of Unexplained Infant Deaths

Cause of Death and the Death Certificate

Unit 29: Sudden, Unexplained Infant Death Certification

Unit 30: Reporting Cause of Death in SIDS-Like Cases

For research scientists focused on public health surveillance and the identification and isolation of risk factors associated with death, the death certificate is the single most essential piece of documentation available today. However, consistent reporting of SUID is problematic, specifically with regard to statements on the certificate that attempt to explain cause and manner of death. This chapter explains the need for accurate reporting of infant deaths nationwide.

OVERVIEW

Over the years, the very existence of SIDS has been debated, largely due to the "catch-all" status many certifiers believe the SIDS diagnosis has gained. The liberal application of SIDS on the death certificate and the failure to differentiate SIDS from other SUID is one reason that some have questioned the existence of SIDS.

Even though the definition of SIDS has changed, the fact remains that SIDS is a term practically applied to *the sudden death of an infant under one year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history.* Further, it has become apparent over the years that homicides of infants—and even serial murders—have been missed, as have accidental deaths from a variety of external cases, largely due to:

- Difficulties posed in investigating infant deaths.
- Reliance on potentially interested witnesses.
- Frequently retrospective scene investigations.
- The subtlety of findings in many cases.
- Lack of information about drug exposures and postmortem toxicology.
- A victim who was unable to speak.
- A very small decedent posing autopsy interpretation difficulties.

Although this chapter focuses on tasks typically performed by physicians, medical examiners, coroners, or pathologists, it is important for investigators and other interested parties to understand the concepts so that investigations can be geared toward answering the necessary questions and addressing issues that are relevant to the cause, manner, and circumstances of death.

Therefore, all participants in the infant death investigation (i.e., forensic pathologists, medical examiners, coroners, medicolegal death investigators, EMS, law enforcement, etc.) must be aware of their role in the investigation and the pitfalls associated with failure to adequately investigate all infant deaths.

This chapter takes a functional approach to establishing and assigning the cause and manner of death and in adequately reporting important information on the death certificate in Sudden Infant Death Syndrome and Other Infant Death (SIDSOID)-cases.

SUPPORT MATERIALS

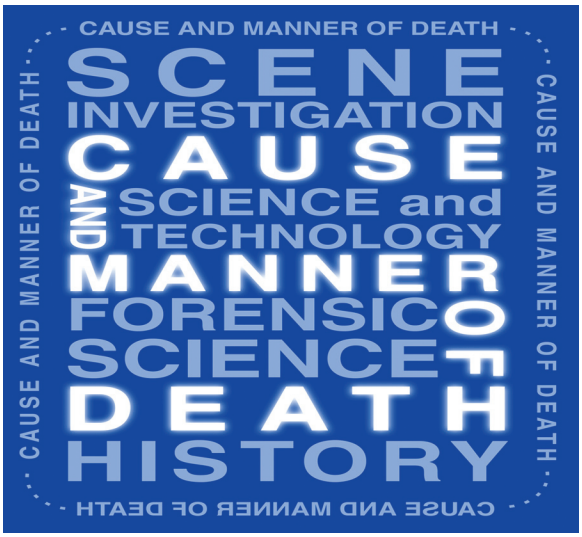
In addition to the SUIDI Reporting Form or jurisdictionally-approved equivalant, the following support materials are suggested for this chapter:

1. Guidelines for death scene investigation of sudden, unexplained infant deaths: recommendations of the Interagency Panel on Sudden Infant Death Syndrome. *MMWR* 1996:45 (RR-10).
2. National Association of Medical Examiners White Paper. "A functional approach to sudden unexplained infant deaths." Approved October 2005.
3. National Center for Health Statistics. *Medical Examiners' and Coroners' Handbook on Death Registration and Fetal Death Reporting.* Hyattsville, MD: Centers for Disease Control and Prevention; 2003.
4. National Association of Medical Examiners. Cause of Death Tutorial. 2005. http://www.thename.org. 2005.
5. College of American Pathologists. *Cause-of-Death Statements and Certification of Natural and Unnatural Deaths: Protocol and Options.* Northfield, IL: 1997. Revision expected March 2006.

CHAPTER OBJECTIVES

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

1. SUID certification.
2. Formatting cause-of-death statement options.



unit

29 Sudden, Unexplained Infant Death Certification

INTRODUCTION

Consistent reporting of SUID has great epidemiological value for research scientists focused on public health surveillance and the identification and isolation of risk factors associated with SUID. Information about risk factors also aids prevention efforts. However, inconsistencies in the collection and reporting of scene data to the forensic pathologist make the eventual establishment and reporting of cause and manner of death, as reported on the death certificate, less reliable. Only those cases in which the investigation has been inadequate, or cases that, after adequate investigation, are consistent with the concept of SIDS or that otherwise remain unexplained, should be classified as SUID or SIDS.

It is essential to assess whether or not the scene investigation has been adequate enough to report a specific cause of death. This unit is intended to provide background and rationale for a functional approach to certifying SUID.

DISTINGUISH SIDS FROM OTHER CAUSES OF DEATH

As covered earlier, the SIDS cause of death should only be used after specific tasks have been performed yielding negative results or another identified cause. The following represents the scope of investigation that might be deemed as the minimum to consider an infant death investigation complete or adequate and amenable to certification.

Conduct Complete Scene Investigation

A complete and systematic investigation of the scene where the incidents leading to death are thought to have occurred is critical. The scene investigation should be conducted by a medical examiner, coroner, or a person known to and acting officially on behalf of the medical examiner or coroner. The scene investigation should be documented in narrative form and augmented with photographs and/or diagrams. Witnesses at the scene should be interviewed. The original position of the infant when first found unresponsive should be determined as precisely as possible by questioning witnesses and recording their responses in detail. There are various supplemental means of describing the as-found position of the infant, but these methods should not replace proper interviewing.

Take Complete X-Rays of Infant

An X-ray of the infant should be taken, even if it is just a single babygram. A complete skeletal series is the gold standard. However, in jurisdictions in which this is not an option for financial or technical reasons, a single film will at least provide a radiographic record of gross findings.

Perform Complete Forensic Autopsy

An autopsy should be performed as described in the National Association of Medical Examiners' *Forensic Autopsy Performance Standards*. The autopsy examination should involve *insitu* examination of the brain, neck structures, and thoraco-abdominal organs with subsequent removal and dissection. At a minimum, if there is no gross or toxicological cause of death, microscopic examination should be conducted on the brain and meninges, heart, lungs, airways (epiglottis, trachea, bronchi), and liver. If not examined microscopically, stock tissue or paraffin blocks should include kidney, spleen, thymus, costochondral junction, endocrine organs, and representative sections of the gastrointestinal tract. At a minimum, the weights of the brain, heart, lungs, liver, kidneys, thymus, and spleen should be recorded. Blood and urine should be collected. If scene investigation, history, or autopsy suggests exposure to drugs (illicit, prescription, over-the-counter, or of a home-remedy nature), toxicology tests should be performed to evaluate suspected drugs. As a routine, a screening should be conducted to rule out ethanol and major classes of sedatives and stimulants (including cold medications, if being used) that might have caused or contributed to the death. Salicylates, acetaminophen, and carboxyhemoglobin can be tested as indicated by case-specific information.

Document Infant's Medical History

A medical history of the infant should be conducted to identify any birth-related problems and to assess the infant's growth, development, immunization history, and medical history. (Medical records should be used, when available.)

Determine Previous Sibling Deaths

It should be established whether there have been any previous unexplained deaths of infant or child siblings. If so, relevant details should be obtained. (Official records should be reviewed.)

Document Previous Encounters with Social Services and Law Enforcement

It should be established whether there have been previous social service or police contacts or interventions in the home. If so, the details should be obtained. (Official records should be reviewed.)

Draw Vitreous Fluid

Vitreous fluid should be collected for possible use as an adjunct to toxicology testing or if metabolic or hydration status is an issue. Care must be taken not to compromise an internal eye examination for retinal hemorrhages, if required.

Collect DNA Sample

A DNA sample should be archived for genetic testing, if indicated.

Perform Metabolic Screening

Metabolic screening results should be determined from the medical birth record. A blood-spot card should be prepared and retained in case autopsy findings suggest a metabolic disorder such as fatty-acid oxidation disorder. If the liver is fatty, and birth screening results are not available, the blood should be tested for common fatty-acid oxidation disorders such as medium chain Acyl-CoA dehydrogenase deficiency.

INVESTIGATIVE ADEQUACY

It is necessary to assess the adequacy of the investigation so that one can decide whether to assign a cause of death or to list the cause of death as "unclassified," which means that a critical element of the investigation is lacking. The certifier of death ultimately will have to make this decision by comparing investigative and autopsy information along with the considered professional judgment of all those who participated in the death investigation.

Investigative Questions for Infant Death Investigations

The initial infant investigation should be geared toward documenting both general and specific case details. The goals of this process are to provide the pathologist with meaningful information relevant to the cause and manner of death and to guide the pathologist in case management and decision making. General case documentation may be gathered using the SUIDI Reporting Form or jurisdictionally approved equivalent. Listed below are questions considered critical to the investigation of SUID:

- What is the infant's name and DOB?
- What is the birth mother's date-of-birth?
- When was the infant put down to sleep?
- In what position was the infant put down?
- Who found the infant?
- Did you hear or check on the infant during the interim?
- In what position was the infant found?
- Where was the infant when found?
- What was the surface like where the infant was found?
- Was anything covering the infant's nose and mouth?
- Was the room extremely hot or cold?
- Did you notice any fluids on the bedding?
- What was the infant wearing?
- How many blankets were over the infant?
- Did the mother smoke tobacco products while pregnant?
- What was the general appearance of the residence?
- When was the infant last fed?
- Was the infant ill or on any medication?

Investigative Questions for the Pre-Autopsy Report (Detailed in Chapter 8)

In addition to addressing the Investigative Questions above, several specific questions should also be answered early in the investigation and before the autopsy. In general, these issues would be addressed with the finder, typically the person who discovered the infant dead or unresponsive. However, the answers to these questions might need to be obtained from more than one person. Investigation should be focused on addressing the following major issues and on whether preliminary investigation suggests any of the following:

- Asphyxia.
- Sharing of sleeping surface.
- Change in sleeping condition (unaccustomed stomach sleeping).
- Hyperthermia/hypothermia.
- Environmental hazards (carbon monoxide, noxious gases, chemicals, drugs, devices).
- Unsafe sleeping conditions (couch, waterbed, stuffed toys, pillows, soft bedding).
- Diet (introduction of new food type).
- Recent hospitalization.
- Previous medical diagnosis.
- History of acute life-threatening events.
- History of medical care without diagnosis.
- Recent fall or other injury.
- History of religious, cultural, or ethnic remedies.
- Cause of death due to natural causes other than SIDS.
- Prior sibling deaths.
- Previous encounters with police or social service agencies.
- Request for tissue or organ donation.
- Objection to autopsy.
- Pre-terminal resuscitative treatment.
- Death due to trauma (injury), poisoning, or intoxication.
- Suspicious circumstances.
- Other alerts for pathologist's attention.

All of the above information, including the written narrative of reported circumstances, should be available to the pathologist before the autopsy.

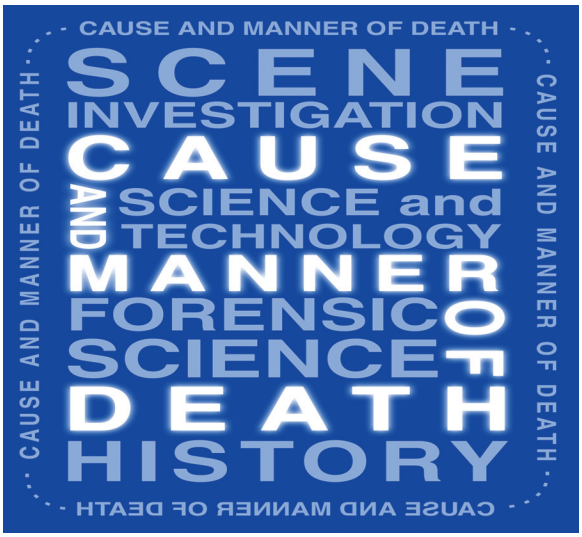
IDENTIFY GRAY ZONE FINDINGS

A "gray zone" finding is a disease condition, possible stressor, or possible external condition that might have contributed to death but for which a cause-and-effect relationship is difficult to establish or rule out. It is essential for the infant death investigator to document any potential causes of death at the scene and report them to the pathologist before the autopsy procedure begins.

It is recommended that the following conditions, if present in a specific case, be reported on the death certificate, especially under Part II: Other Significant Conditions:

- Sharing the same sleep surface such as a bed or sofa (bedsharing).
- Unsafe or soft sleep surface.
- Previous unexplained death of infant sibling.
- Excessive blanketing or wrapping.
- Face-down position when found.
- Intoxication (defined as detection of a substance in infant's system).
- Change in usual sleep position, location, and/or surface.
- Injuries of unknown significance (specifying the type).
- Disease conditions of unknown significance.

It is important to report on the death certificate any of the above conditions that are identified in an infant death investigation when the cause of death has not been determined but is consistent with SIDS. These items of information are important because each has been identified as a possible stressor that can contribute to the death of a vulnerable infant during a critical developmental stage (Triple Risk Model). Using the SUIDI Reporting Form or jurisdictionally approved equivalent, in conjunction with the forensic autopsy, will provide the necessary information to determine whether any of these conditions existed in the case in question.



unit

30 Reporting Cause of Death in SIDS-Like Cases

INTRODUCTION

There are approximately 2,285 medicolegal jurisdictions in the United States administered by medical examiners or coroners. These individuals are charged with the responsibility of certifying each medicolegal death that occurs within their jurisdiction—which includes SUID. Official death certification is recorded on the death certificate and used by local, state, national, and even international agencies for surveillance and prevention activities. It is essential that cause-of-death statements placed on the death certificate be accurate and consistent regardless of who completes the certificate. This can be problematic with all SIDS-like cases sharing the same International Classification of Diseases (ICD) code: R95 SIDS. Data pointing to other risk factors that may have contributed to or even caused the death might not be documented as no "traditional" certifying methods address this concern. This unit suggests methods of expressing known infant stressors or possible external causes of death on the standard death certificate.

CAUSE AND MANNER OF DEATH STATEMENTS

Every death certificate has a section for the certifier to list the cause and manner of death. This is a critical part of the certificate, as national health statistics use this information to code deaths. The following is a brief explanation of each.

Cause of Death

The cause of death is assigned by the official certifier, typically the medical examiner or coroner for the medicolegal jurisdiction where the death was reported. The cause of death is generally considered the disease or injury precipitating death. In addition to the *immediate* cause of death, listed in Part I of the cause of death section of the death certificate, any supporting or *underlying* causes of the death are also listed (i.e., Due to, or as a consequence of). Part II requires the certifier to list any other significant conditions that may have contributed to the death but were not stated in Part I.

Manner of Death

The manner of death is also assigned by the official certifier, typically the medical examiner or coroner for the medicolegal jurisdiction where the death was reported. The manner of death is how the death occurred and will fall into one (or more) of the following categories:

- Natural.
- Accident.
- Suicide.
- Homicide.
- Undetermined.
- Pending.

CODING SIDS IN THE ICD

Causes of death on all death certificates registered in the United States are classified and coded according to the Tenth Revision of the International Classification of Diseases (ICD-10). SIDS and related cause-of-death statements are coded as R95 in ICD-10. ICD-10 coding standards result in a code of R95 for the cause of death when the death certificate indicates any of the following statements:

- Sudden, unexplained infant death.
- Sudden death during infancy: no identifiable cause.
- Consistent with the definition of Sudden Infant Death Syndrome.
- Consistent with Sudden Infant Death Syndrome.
- Sudden Infant Death Syndrome.

SUGGESTED CAUSE OF DEATH REPORTING METHODS

The following examples are provided to illustrate various methods of formatting cause of death statements on the death certificate.

Classic SIDS (Figure 9.1)

A four-month-old infant dies in sleep, supine, complete investigation, autopsy, toxicology, etc., with no likely external causes identified. The words “Consistent with Sudden Infant Death Syndrome” or “Sudden Infant Death Syndrome” are also acceptable for Part I if the death is determined to be SIDS. In this case the "Undetermined" manner is preferred.

PART I IMMEDIATE CAUSE **A.** **Sudden Unexplained Infant Death**	
Due to, or as a consequence of **B.**	
Due to, or as a consequence of **C.**	
PART II OTHER SIGNIFICANT CONDITIONS Conditions contributing to death buy not resulting in the underlying cause of death in Part I	
Manner of Death **Undetermined**	How Injury Occurred **Undetermined if external causes were involved.**

Fig. 9.1: Note that the Manner of Death is Undetermined and that the "How Injury Occurred" box contains an explanatory comment.

Sleep Surface Sharing (Figure 9.2)

A three-month-old infant found dead in parent's bed, prone, complete investigation, autopsy, toxicology, etc., with no external causes identified except sharing the bed with the parents. If a condition such as sharing of a sleep surface (which could be a stressor or possible external cause of death) needs to be reported on the death certificate, the following format is preferred and recommended because it allows sufficient room for details and explanations.

PART I IMMEDIATE CAUSE **A.** **Sudden Unexplained Infant Death**	
Due to, or as a consequence of **B.**	
Due to, or as a consequence of **C.**	
PART II OTHER SIGNIFICANT CONDITIONS Conditions contributing to death buy not resulting in the underlying cause of death in Part I	
Manner of Death **Undetermined**	How Injury Occurred **Undetermined if external causes were involved.** **Sharing sleep surface with 2 adults**

Fig. 9.2: Note the additional explanation of a possible stressor.

Placement of the stressor, as shown in Figure 9.2, may be construed by some individuals to mean that the certifier believes that bedsharing (or any other condition) specifically caused the death. An option would be to report stressors as a risk factor in the" Other Significant Conditions" box in Part II as illustrated in Figure 9.3.

PART I IMMEDIATE CAUSE **A.** **Sudden Unexplained Infant Death**	
Due to, or as a consequence of **B.**	
Due to, or as a consequence of **C.**	
PART II OTHER SIGNIFICANT CONDITIONS Conditions contributing to death buy not resulting in the underlying cause of death in Part I **Sharing sleep surface with 2 adults**	
Manner of Death **Undetermined**	How Injury Occurred **Undetermined if external causes were involved.**

Fig. 9.3: The risk factor "sharing sleep surface with 2 adults" is stated in the "Other Significant Conditions" section of the death certificate.

A third formatting option for a case involving a suspected "stressor" is shown in Figure 9.4.

PART I IMMEDIATE CAUSE **A.** **Sudden Unexplained Infant Death associated with bedsharing with adults**	
Due to, or as a consequence of **B.**	
Due to, or as a consequence of **C.**	
PART II OTHER SIGNIFICANT CONDITIONS Conditions contributing to death buy not resulting in the underlying cause of death in Part I	
Manner of Death **Undetermined**	How Injury Occurred **Undetermined if external causes were involved.**

Fig. 9.4: Placing the possible "stressor" in Part I of the death certificate may be preferred by some certifiers.

No Forensic Autopsy (Figure 9.5)

Three-week-old infant dies in the emergency room of a local hospital for no apparent reason. The hospital physician signs the death certificate SIDS and releases the body to the family. Two weeks later, the medical examiner is reviewing county death certificates and notices the case. When a SUID did NOT have a complete scene investigation, review of clinical history, or autopsy, the SIDS diagnosis should NOT be used. Instead, the death should be reported as "unclassified."

PART I IMMEDIATE CAUSE **A.** **Unclassified Infant Death**	
Due to, or as a consequence of **B.**	
Due to, or as a consequence of **C.**	
PART II OTHER SIGNIFICANT CONDITIONS Conditions contributing to death buy not resulting in the underlying cause of death in Part I	
Manner of Death **Undetermined**	How Injury Occurred **Undetermined if external causes were involved.** **Found dead in bassinette. No autopsy was performed.**

Fig. 9.5: No scene, no autopsy, no SIDS.

4. Complete Investigation (Figure 9.6)

A 11-month-old infant dies suddenly at home. A complete investigation is done without significant findings; the coroner orders an autopsy, which also produces no significant findings. The body is released to the family, who then contact the funeral home. If the investigation and autopsy disclose that an infant's death was not consistent with the definition of SIDS, yet no cause of death has been definitively established, the following format is recommended.

PART I IMMEDIATE CAUSE **A.** **Unexpected and Undetermined Cause**	
Due to, or as a consequence of **B.**	
Due to, or as a consequence of **C.**	
PART II OTHER SIGNIFICANT CONDITIONS Conditions contributing to death buy not resulting in the underlying cause of death in Part I	
Manner of Death **Undetermined**	How Injury Occurred **Undetermined if external causes were involved.** **Cause of death undetermined after complete investigation.**

Fig. 9.6: Complete investigation and autopsy without significant findings, but the death is not consistent with the definition of SIDS.

STANDARD FORMATTING

A standardized reporting format is needed so that mortality data on infants are more comprehensive and easily interpreted. Good data will allow for better analysis and research on the causes of SUID. Adhering to the formats shown will foster consistency in death certification methods and allow the certifier to include a more descriptive explanation for their cause-of-death finding. Adhering to a standard format will allow distinction of uncomplicated SIDSOID cases, cases with gray zone disease and/or other stressors, cases with inadequate investigation, and cases ultimately remaining unexplained but not consistent with SIDS.

In some infant deaths, a specific cause of death can be determined. Such deaths may be certified using standard methods.

Summary

DISCUSSION QUESTIONS

1. Describe the minimum set of information to be collected during infant death scene investigation in order to consider an investigation adequate.
2. Describe the minimum extent of autopsy in order to consider an autopsy adequate.
3. Describe the minimum set of information to be collected using laboratory testing in order to consider an investigation adequate.
4. Describe the minimum set of information to be collected from medical and other records during infant death investigation in order to consider an investigation adequate.
5. Describe potential stressors and other gray zone conditions that should be evaluated and reported on the death certificate.
6. Describe the formats that can be used to complete the death certificate for uncomplicated SIDSOID cases, cases involving gray zone medical conditions and/or stressors, deaths in which no cause of death has been identified but the circumstances are not consistent with SIDS, and deaths in which the extent of investigation was not adequate.
7. Discuss why multiple choices for wording the cause of death in SIDSOID cases do not affect official coding of the cause of death.
8. Discuss why natural or undetermined classification in the manner of death of an SIDSOID case is acceptable.
9. Discuss how SIDS is different from other causes of SUID, such as overlaying, wedging, or obstruction of the nose or mouth.

SAMPLE QUESTIONS

1. Which of the following would make an SUIDI fall into the category of “inadequate” for the purpose of death certification?
    A. Lack of doll reenactment.
    B. Failure to investigate the mother’s pregnancy history.
    C. Failure to perform an autopsy.
    D. Not taking the temperature of the dead infant.

2. The ICD code for SIDS is
    A. S50.
    B. R95.
    C. T40.
    D. A26.

3. What wording can be used to indicate that a cause of death is not consistent with SIDS but remains unexplained after complete investigation?
    A. Sudden infant death.
    B. Undetermined.
    C. Unexpected and undetermined causes.
    D. Unclassified infant death.

4. Approximately how many critical, general investigative questions (key issues) need to be addressed when conducting an SUIDI?
    A. 5.
    B. 25.
    C. 95.
    D. 100.

5. In reference to infant deaths, wedging refers to
    A. Compression of the face or thorax between or against objects.
    B. The tongue falling back into the throat.
    C. Placing a pillow against the infant to keep the infant in a particular position.
    D. Placing the infant next to the bumper pad in a crib.

6. A SUID-like death in which the infant died while sleeping in an adult bed with two adults involves
    A. Child abuse.
    B. Negligence.
    C. A possible risk factor or stressor.
    D. A non-natural cause of death.

7. In reference to the infant in a SUID-like death, intoxication means
    A. A negative blood alcohol level.
    B. Excessive intake of water.
    C. The presence of a prescription drug in the infant's home.
    D. Detection of an exogenous substance in the infant's system.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Maternal and Infant Health Branch
Division of Reproductive Health
Centers for Disease Control and Prevention
Atlanta, Georgia 30333

Sudden Unexplained Infant Death Investigation

SUIDI Reporting Form

INVESTIGATION DATA

Infant's Information: Last _____ First _____ M. _____ Case # _____

Sex: ☐ Male ☐ Female Date of Birth ____/____/____ (Month / Day / Year) Age _____ (Months) SS# _____

Race: ☐ White ☐ Black/African Am. ☐ Asian/Pacific Islander ☐ Am. Indian/Alaskan Native ☐ Hispanic/Latino ☐ Other

Infant's Primary Residence Address:

Address _____ City _____ County _____ State ____ Zip _____

Incident Address:

Address _____ City _____ County _____ State ____ Zip _____

Contact Information for Witness:

Relationship to the deceased: ☐ Birth Mother ☐ Birth Father ☐ Grandmother ☐ Grandfather
☐ Adoptive or Foster Parent ☐ Physician ☐ Health Records ☐ Other: _____

Last _____ First _____ M. _____ SS # _____

Home Address _____ City _____ State ____ Zip _____

Place of Work _____ City _____ State ____ Zip _____

Phone (H) _____ Phone (W) _____ Date of Birth ____/____/____ (Month / Day / Year)

WITNESS INTERVIEW

1 **Are you the usual caregiver?** ☐ Yes ☐ No

2 **Tell me what happened:** _____

3 **Did you notice anything unusual or different about the infant in the last 24 hrs?** ☐ No ☐ Yes ⇨ Describe:

4 **Did the infant experience any falls or injury within the last 72 hrs?** ☐ No ☐ Yes ⇨ Describe:

5 **When was the infant LAST PLACED?** ..... ____/____/____ (Month / Day / Year) ____:____ (Military Time) _____ (Location (room))

6 **When was the infant LAST KNOWN ALIVE(LKA)?** ____/____/____ (Month / Day / Year) ____:____ (Military Time) _____ (Location (room))

7 **When was the infant FOUND?** ..... ____/____/____ (Month / Day / Year) ____:____ (Military Time) _____ (Location (room))

8 **Explain how you knew the infant was still alive.** _____

9 **Where was the infant - (P)laced, (L)ast known alive, (F)ound** (circle P, L, or F in front of appropriate response)**?**

P L F Bassinet	**P L F** Bedside co-sleeper	**P L F** Car seat	**P L F** Chair
P L F Cradle	**P L F** Crib	**P L F** Floor	**P L F** In a person's arms
P L F Mattress/box spring	**P L F** Mattress on floor	**P L F** Playpen	**P L F** Portable crib

Page 1

WITNESS INTERVIEW (cont.)

10 **In what position was the infant LAST PLACED?** ☐ Sitting ☐ On back ☐ On side ☐ On stomach ☐ Unknown
Was this the infant's usual position? ☐ Yes ☐ No ⇨ What was the infant's usual position? _____

11 **In what position was the infant LKA?** ☐ Sitting ☐ On back ☐ On side ☐ On stomach ☐ Unknown
Was this the infant's usual position? ☐ Yes ☐ No ⇨ What was the infant's usual position? _____

12 **In what position was the infant FOUND?** ☐ Sitting ☐ On back ☐ On side ☐ On stomach ☐ Unknown
Was this the infant's usual position? ☐ Yes ☐ No ⇨ What was the infant's usual position? _____

13 **FACE position when LAST PLACED?** ☐ Face down on surface ☐ Face up ☐ Face right ☐ Face left

14 **NECK position when LAST PLACED?** ☐ Hyperextended *(head back)* ☐ Flexed *(chin to chest)* ☐ Neutral ☐ Turned

15 **FACE position when LKA?** ☐ Face down on surface ☐ Face up ☐ Face right ☐ Face left

16 **NECK position when LKA?** ☐ Hyperextended *(head back)* ☐ Flexed *(chin to chest)* ☐ Neutral ☐ Turned

17 **FACE position when FOUND?** ☐ Face down on surface ☐ Face up ☐ Face right ☐ Face left

18 **NECK position when FOUND?** ☐ Hyperextended *(head back)* ☐ Flexed *(chin to chest)* ☐ Neutral ☐ Turned

19 **What was the infant wearing?** *(ex. t-shirt, disposable diaper)* _____

20 **Was the infant tightly wrapped or swaddled?** ☐ No ☐ Yes ⇨ Describe: _____

21 **Please indicate the types and numbers of layers of bedding both over and under infant (not including wrapping blanket):**

Bedding UNDER Infant	None	Number	Bedding OVER Infant	None	Number
Receiving blankets	☐	_____	Receiving blankets	☐	_____
Infant/child blankets	☐	_____	Infant/child blankets	☐	_____
Infant/child comforters *(thick)*	☐	_____	Infant/child comforters *(thick)*	☐	_____
Adult comforters/duvets	☐	_____	Adult comforters/duvets	☐	_____
Adult blankets	☐	_____	Adult blankets	☐	_____
Sheets	☐	_____	Sheets	☐	_____
Sheepskin	☐	_____	Pillows	☐	_____
Pillows	☐	_____	Other, specify: _____		
Rubber or plastic sheet	☐	_____			
Other, specify: _____					

22 **Which of the following devices were operating in the infant's room?**
☐ None ☐ Apnea monitor ☐ Humidifier ☐ Vaporizer ☐ Air purifier ☐ Other _____

23 **What was the temperature of the infant's room?** ☐ Hot ☐ Cold ☐ Normal ☐ Other _____

24 **Which of the following items were near the infant's face, nose, or mouth?**
☐ Bumper pads ☐ Infant pillows ☐ Positional supports ☐ Stuffed animals ☐ Toys ☐ Other _____

25 **Which of the following items were within the infant's reach**? ☐ Blankets ☐ Toys ☐ Pillows
☐ Pacifier ☐ Nothing ☐ Other _____

26 **Was anyone sleeping with the infant?** ☐ No ☐ Yes ⇨ Name these people.

Name	Age	Height	Weight	Location in Relation to Infant	Impaired (*intoxicated, tired*)

27 **Was there evidence of wedging?** ☐ No ☐ Yes ⇨ Describe: _____

28 **When the infant was found, was s/he:** ☐ Breathing ☐ Not breathing
If not breathing, did you witness the infant stop breathing? ☐ No ☐ Yes

WITNESS INTERVIEW (cont.)

29 **What had led you to check on the infant?** _____

30 **Describe infant's appearance when found.**

	Unknown	No	Yes	Describe and specify location:
a) Discoloration around face/nose/mouth	☐	☐	☐	⇨ _____
b) Secretions *(foam, froth)*	☐	☐	☐	⇨ _____
c) Skin discoloration *(livor mortis)*	☐	☐	☐	⇨ _____
d) Pressure marks *(pale areas, blanching)*	☐	☐	☐	⇨ _____
e) Rash or petechiae *(small, red blood spots on skin, membranes, or eyes)*	☐	☐	☐	⇨ _____
f) Marks on body *(scratches or bruises)*	☐	☐	☐	⇨ _____
g) Other	☐	☐	☐	⇨ _____

31 **What did the infant feel like when found?** *(Check all that apply.)*

☐ Sweaty ☐ Warm to touch ☐ Cool to touch
☐ Limp, flexible ☐ Rigid, stiff ☐ Unknown
☐ Other ⇨ Specify: _____

32 **Did anyone else other than EMS try to resuscitate the infant?** ☐ No ☐ Yes ⇨ Who and when?

Who _____ __ ____/____/_____ ____:____
Month Day Year Military Time

33 **Please describe what was done as part of resuscitation:**

_____

_____

34 **Has the parent/caregiver ever had a child die suddenly and unexpectedly?** ☐ No ☐ Yes ⇨ Explain

_____

INFANT MEDICAL HISTORY

1 **Source of medical information:** ☐ Doctor ☐ Other healthcare provider ☐ Medical record
☐ Mother/primary caregiver ☐ Family ☐ Other:_____

2 **In the 72 hours prior to death, did the infant have:**

	Unknown	No	Yes		Unknown	No	Yes
a) Fever	☐	☐	☐	h) Diarrhea	☐	☐	☐
b) Excessive sweating	☐	☐	☐	i) Stool changes	☐	☐	☐
c) Lethargy or sleeping more than usual	☐	☐	☐	j) Difficulty breathing	☐	☐	☐
d) Fussiness or excessive crying	☐	☐	☐	k) Apnea *(stopped breathing)*	☐	☐	☐
e) Decrease in appetite	☐	☐	☐	l) Cyanosis *(turned blue/gray)*	☐	☐	☐
f) Vomiting	☐	☐	☐	m) Seizures or convulsions	☐	☐	☐
g) Choking	☐	☐	☐	n) Other, specify _____			

3 **In the 72 hours prior to death, was the infant injured or did s/he have any other condition(s) not mentioned?**

☐ No ☐ Yes ⇨ Describe: _____

4 **In the 72 hours prior to the infants death, was the infant given any vaccinations or medications?**
(Please include any home remedies, herbal medications, prescription medicines, over-the-counter medications.)

☐ No ☐ Yes ⇨ List below:

Name of vaccination or medication	Dose last given	Date given Month / Day / Year	Approx. time Military Time	Reasons given/ comments:
1. _____	_____	____/____/____	____:____	_____
2. _____	_____	____/____/____	____:____	_____
3. _____	_____	____/____/____	____:____	_____
4. _____	_____	____/____/____	____:____	_____

INFANT MEDICAL HISTORY (cont.)

5 **At any time in the infant's life, did s/he have a history of?**

	Unknown	No	Yes	Describe:
a) Allergies *(food, medication, or other)*	☐	☐	☐	⇨ _____
b) Abnormal growth or weight gain/loss	☐	☐	☐	⇨ _____
c) Apnea *(stopped breathing)*	☐	☐	☐	⇨ _____
d) Cyanosis *(turned blue/gray)*	☐	☐	☐	⇨ _____
e) Seizures or convulsions	☐	☐	☐	⇨ _____
f) Cardiac (*heart*) abnormalities	☐	☐	☐	⇨ _____
g) Metabolic disorders	☐	☐	☐	⇨ _____
h) Other	☐	☐	☐	⇨ _____

6 **Did the infant have any birth defects(s)?** ☐ No ☐ Yes

Describe: _____

7 **Describe the two most recent times that the infant was seen by a physician or health care provider:**
(Include emergency department visits, clinic visits, hospital admissions, observational stays, and telephone calls)

	First most recent visit	Second most recent visit
a) Date	____ / ____ / ____ (Month / Day / Year)	____ / ____ / ____ (Month / Day / Year)
b) Reason for visit		
c) Action taken		
d) Physician's name		
e) Hospital/clinic		
f) Address		
g) City		
h) State, ZIP	____ ____	____ ____
i) Phone number	(____)____-____	(____)____-____

8 **Birth hospital name:** _____

Street _____

City _____ State ____ Zip ____

Date of discharge ____ / ____ / ____ (Month / Day / Year)

9 **What was the infant's length at birth?** ____ inches **or** ____ centimeters

10 **What was the infant's weight at birth?** ____ pounds ____ ounces **or** ____ grams

11 **Compared to the delivery date, was the infant born on time, early, or late?**

☐ On time ☐ Early—How many weeks early?____ ☐ Late—How many weeks late?____

12 **Was the infant a singleton, twin, triplet, or higher gestation?**

☐ Singleton ☐ Twin ☐ Triplet ☐ Quadruplet or higher gestation

13 **Were there any complications during delivery or at birth?** *(emergency c-section, child needed oxygen)*

☐ No ☐ Yes ⇨ Describe the complications: _____

_____

_____

14 **Are there any alerts to pathologist?** *(previous infant deaths in family, newborn screen results)*

☐ No ☐ Yes ⇨ Specify: _____

_____

_____

INFANT DIETARY HISTORY

1 **On what day and at what approximate time was the infant last fed?**

_____/_____/_____ _____:_____
Month Day Year Military Time

2 **What is the name of the person who last fed the infant?** _____

3 **What is his/her relationship to the infant?** _____

4 **What foods and liquids was the infant fed in the last 24 hours** (include last fed)**?**

	Unknown	No	Yes	Quantity	Specify: *(type and brand if applicable)*
a) Breast milk *(one/both sides, length of time)*	☐	☐	☐	⇨ _____ ounces	_____
b) Formula (*brand, water source - ex. Similac, tap water)*	☐	☐	☐	⇨ _____ ounces	_____
c) Cow's milk	☐	☐	☐	⇨ _____ ounces	_____
d) Water *(brand, bottled, tap, well)*	☐	☐	☐	⇨ _____ ounces	_____
e) Other liquids *(teas, juices)*	☐	☐	☐	⇨ _____ ounces	_____
f) Solids	☐	☐	☐	⇨	_____
g) Other	☐	☐	☐	⇨	_____

5 **Was a new food introduced in the 24 hours prior to his/her death?**

☐ No ☐ Yes ⇨ Describe *(ex. content, amount, change in formula, introduction of solids)*

_____

_____

_____

6 **Was the infant last placed to sleep with a bottle?**

☐ Yes ☐ No ⇨ Skip to question **9** below

7 **Was the bottle propped?** (i.e., object used to hold bottle while infant feeds)

☐ No ☐ Yes ⇨ What object was used to prop the bottle? _____

8 **What was the quantity of liquid (in ounces) in the bottle?** _____

9 **Did death occur during?** ☐ Breast-feeding ☐ Bottle-feeding ☐ Eating solid foods ☐ Not during feeding

10 **Are there any factors, circumstances, or environmental concerns that may have impacted the infant that have not yet been identified?** *(ex. exposed to cigarette smoke or fumes at someone else's home, infant unusually heavy, placed with positional supports or wedges)*

☐ No ☐ Yes ⇨ Describe concerns: _____

_____

_____

_____

PREGNANCY HISTORY

1 **Information about the infant's birth mother:**

First name _____ Middle name _____

Last name _____ Maiden name _____

Date of Birth: _____/_____/_____ SS # _____-_____-_____
Month Day Year

Current Address: _____ City _____ _____ _____
State Zip

How long has the birth mother been a resident at this address? _____ and _____ Previous Address _____ _____
Years Months City State

2 **At how many weeks or months did the birth mother begin prenatal care?**

_____ Weeks _____ Months ☐ No prenatal care ☐ Unknown

3 **Where did the birth mother receive prenatal care?** *(Please specify physician or other health care provider name and address.)*

Physician/provider _____ Hospital/clinic _____ Phone (____) _____

Street _____ City _____ _____ _____
State Zip

PREGNANCY HISTORY (cont.)

4 **During her pregnancy with the infant, did the birth mother have any complications?**
(ex. high blood pressure, bleeding, gestational diabetes)

☐ No ☐ Yes ⇨ Specify: _____

5 **Was the birth mother injured during her pregnancy with the infant?** *(ex. auto accident, falls)*

☐ No ☐ Yes ⇨ Specify: _____

6 **During her pregnancy, did she use any of the following?**

	Unknown	No	Yes	Daily consumption		Unknown	No	Yes	Daily consumption
a) Over the counter medications	☐	☐	☐	_____	d) Cigarettes	☐	☐	☐	_____
b) Prescription medications	☐	☐	☐	_____	e) Alcohol	☐	☐	☐	_____
c) Herbal remedies	☐	☐	☐	_____	f) Other	☐	☐	☐	_____

7 **Currently, does any caregiver use any of the following?**

	Unknown	No	Yes	Daily consumption		Unknown	No	Yes	Daily consumption
a) Over the counter medications	☐	☐	☐	_____	d) Cigarettes	☐	☐	☐	_____
b) Prescription medications	☐	☐	☐	_____	e) Alcohol	☐	☐	☐	_____
c) Herbal remedies	☐	☐	☐	_____	f) Other	☐	☐	☐	_____

INCIDENT SCENE INVESTIGATION

1 **Where did the incident or death occur?** _____

2 **Was this the primary residence?** ☐ Yes ☐ No

3 **Is the site of the incident or death scene a daycare or other childcare setting?**

☐ Yes ☐ 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.)*

☐ Central air	☐ Gas furnace or boiler	☐ Wood burning fireplace	☐ Open window(s)
☐ A/C window unit	☐ Electric furnace or boiler	☐ Coal burning furnace	☐ Wood burning stove
☐ Ceiling fan	☐ Electric space heater	☐ Kerosene space heater	
☐ Floor/table fan	☐ Electric baseboard heat	☐ Other ⇨ Specify: _____	
☐ Window fan	☐ Electric (*radiant*) ceiling heat	☐ 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.)*

☐ Public/municipal water source	☐ Bottled water	☐ Other ⇨ Specify: _____
☐ Well	☐ Unknown	

12 **The site of the incident or death scene has:** *(check all that apply)*

☐ Insects	☐ Mold growth	☐ Odors or fumes ⇨ Describe: _____
☐ Smoky smell *(like cigarettes)*	☐ Pets	☐ Presence of alcohol containers
☐ Dampness	☐ Peeling paint	☐ Presence of drug paraphenalia
☐ Visible standing water	☐ Rodents or vermin	☐ Other ⇨ Specify: _____

13 **Describe the general appearance of incident scene:** *(ex. cleanliness, hazards, overcrowding, etc.)*

_____

_____

_____

INVESTIGATION SUMMARY

1 Are there any factors, circumstances, or environmental concerns about the incident scene investigation that may have impacted the infant that have not yet been identified?

2 Arrival times: Law enforcement at scene: _____:_____ DSI at scene: _____:_____ Infant at hospital: _____:_____
Military Time Military Time Military Time

Investigator's Notes

Indicate the task(s) performed.

- ☐ Additional scene(s)? (forms attached)
- ☐ Materials collected/evidence logged
- ☐ Notify next of kin or verify notification
- ☐ Doll reenactment/scene re-creation
- ☐ Referral for counseling
- ☐ 911 tape
- ☐ Photos or video taken and noted
- ☐ EMS run sheet/report

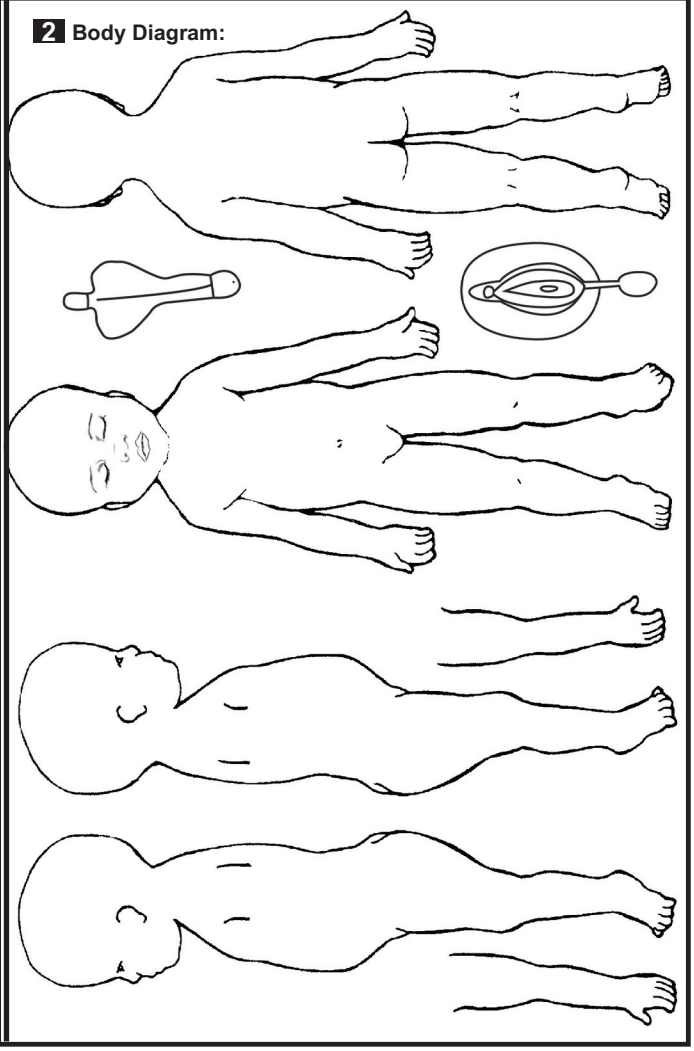
If more than one person was interviewed, does the information differ?

☐ No ☐ Yes ⇨ Detail any differences, inconsistencies of relevant information: *(ex. placed on sofa, last known alive on chair.)*

INVESTIGATION DIAGRAMS

1 Scene Diagram:

2 Body Diagram:



SUMMARY FOR PATHOLOGIST

Case Information

Investigator Information: Name _____ Agency _____ Phone _____

Investigated: ____/____/____ ____:____ Pronounced Dead: ____/____/____ ____:____
Month Day Year Military Time Month Day Year Military Time

Infant's Information: Last _____ First _____ M. _____ Case # _____

Sex: ☐ Male ☐ Female Date of Birth ____/____/____ Age _____
Month Day Year Months

Race: ☐ White ☐ Black/African Am. ☐ Asian/Pacific Islander ☐ Am. Indian/Alaskan Native ☐ Hispanic/Latino ☐ Other _____

Sleeping Environment

1 Indicate whether preliminary investigation suggests any of the following:

Yes	No	
☐	☐	Asphyxia *(ex. overlying, wedging, choking, nose/mouth obstruction, re-breathing, neck compression, immersion in water)*
☐	☐	Sharing of sleep surface with adults, children, or pets
☐	☐	Change in sleep condition *(ex. unaccustomed stomach sleep position, location, or sleep surface)*
☐	☐	Hyperthermia/Hypothermia *(ex. excessive wrapping, blankets, clothing, or hot or cold environments)*
☐	☐	Environmental hazards *(ex. carbon monoxide, noxious gases, chemicals, drugs, devices)*
☐	☐	Unsafe sleep condition *(ex. couch/sofa, waterbed, stuffed toys, pillows, soft bedding)*

Infant History

☐	☐	Diet (*e.g., solids introduced, etc.*)
☐	☐	Recent hospitalization
☐	☐	Previous medical diagnosis
☐	☐	History of acute life-threatening events *(ex. apnea, seizures, difficulty breathing)*
☐	☐	History of medical care without diagnosis
☐	☐	Recent fall or other injury
☐	☐	History of religious, cultural, or ethnic remedies
☐	☐	Cause of death due to natural causes other than SIDS *(ex. birth defects, complications of preterm birth)*
☐	☐	Prior sibling deaths

Family Info

☐	☐	Previous encounters with police or social service agencies
☐	☐	Request for tissue or organ donation
☐	☐	Objection to autopsy

Exam

☐	☐	Pre-terminal resuscitative treatment
☐	☐	Death due to trauma (injury), poisoning, or intoxication

Investigator Insight

☐	☐	Suspicious circumstances
☐	☐	Other alerts for pathologist's attention

Any "Yes" answers should be explained and detailed.

Brief description of circumstances: _____

_____

_____

_____

_____

_____

_____

Pathologist

2 Pathologist Information:

Name _____ Agency _____

Phone (____)____-_____ Fax (____)____-_____

Appendix B

Sudden, Unexplained Infant Death Investigation SUIDI Top 25

Forensic pathologists nationally consider the following information critical to the determination of the cause and manner of death with regard to infant death investigation. This scene/case information should be collected and provided to the forensic pathologist BEFORE the conduction of the forensic autopsy.

1. Case information
2. Asphyxia.
3. Sharing sleep surfaces.
4. Change in sleep conditions.
5. Hyperthermia/hypothermia.
6. Environmental hazards (carbon monoxide, chemicals, etc.).
7. Unsafe sleeping condition.
8. Diet.
9. Recent hospitalizations.
10. Previous medical diagnosis.
11. History of acute life-threatening events.
12. History of medical care without diagnosis.
13. Recent fall or other injury.
14. History of religious, cultural, or ethnic remedies.
15. Cause of death due to natural causes other than SIDS.
16. Prior sibling deaths.
17. Previous encounters with police or social service agencies.
18. Request for tissue or organ donation.
19. Objection to autopsy.
20. Pre-terminal resuscitative treatment.
21. Death due to trauma (injury), poisoning, or intoxication.
22. Suspicious circumstances.
23. Other alerts for pathologist's attention.
24. Description of circumstances (what happened?).
25. Pathologist Information (name/agency/phone).

Glossary

Accidental strangulation: A type of suffocation resulting from a constricted airway or the windpipe often caused by strings, ties, and cords on toys, clothing, and household appliances.

Active listening: Listening attentively to what a person is saying by providing undivided attention and giving feedback by repeating or paraphrasing what the speaker has said.

Algor mortis: The gradual cooling of the body following death.

Apnea: Temporary absence or cessation of breathing.

Asphyxia: A condition in which an extreme decrease in the amount of oxygen in the body accompanied by an increase of carbon dioxide leads to loss of consciousness or death.

Aspiration: 1. The sucking of fluid or a foreign body into the airway when drawing breath. 2. The taking of foreign matter into the lungs with the respiratory current.

Autopsy: A medicolegal (forensic) autopsy is ordered by the coroner or medical examiner as authorized by law with the statutory purpose of establishing the cause and manner of death and answering other medicolegal questions. (See Postmortem.)

Birth mother: The individual who actually gave birth to the infant. Also referred to as the biological mother.

Blue sclerae: When the tough whites of the eyes (the fibrous outer envelope of tissue covering all of the eyeball except the cornea) have a bluish tint.

Bradycardia: Slowing of the heart rate.

CAD: Computer-aided dispatch.

Cardiopulmonary resuscitation (CPR): A procedure whereby a victim who is not breathing or has no pulse receives mouth-to-mouth breaths and chest compressions so that blood flow and oxygen exchange are maintained.

Caregiver: Any person who is responsible for the care of the infant (e.g., a babysitter, a child care custodian, or the mother).

Cause (of SIDS): A condition or event directly responsible for the death of an individual infant.

Cause of death: The underlying disease or injury responsible for setting in motion a series of physiological events culminating in death.

Child: A child (plural: children) is a young human. Depending on context, it may mean someone who is not yet an adult or someone who has not yet reached puberty.

Choking: The interruption of breathing due to something stuck in an infant's airway passages. Food, toys, and other small objects that are easily lodged in a child's small airway can cause choking.

Congenital anomalies: An abnormality that is present at birth (i.e., a birth defect).

Coroner: A coroner may be a public official, appointed or elected, serving the population of a particular geographic jurisdiction. His or her official duty is to make inquiry into deaths in certain categories as dictated by state statute. About 25 percent of the U.S. population is served by elected coroners.

CPR (cardiopulmonary resuscitation)**:** A procedure whereby a victim who is not breathing or has no pulse receives mouth-to-mouth breaths and chest compressions so that blood flow and oxygen exchange are maintained.

CPS: Child Protective Services.

Crepitance: This is the crackling or grating sound heard when broken bones are moved over each other.

Crib/cot death: Synonyms for SIDS.

Cutaneous petechiae: Small pinpoint hemorrhages on body surfaces or in the conjunctivae (linings) of the eyes.

Cyanosis: A bluish discoloration of the skin and mucous membranes resulting from inadequate oxygenation of the blood.

DC: Death certificate.

Decedent: A person that has died (i.e., the deceased person).

Developmental milestone: A set of functional skills or age-specific tasks that most children can do within a certain age range.

Diagnosis of exclusion: SIDS is known as a diagnosis of exclusion because it is reported as the cause of death only as a last resort, when all other causes have been eliminated from consideration.

DOA: Dead on arrival.

DOB: Date of birth.

Drowning: Immersion in water that prevents the breathing in of oxygenated air because the lungs and airway passages are engulfed in water or other fluids.

Electrocution: Deaths caused by electrical shock.

EMS: Emergency medical services.

EMS caller: The person who first called for emergency medical services, including an ambulance service, the police, or the fire department rescue team.

EMS responder: The person who first responded on behalf of the emergency medical service agency.

Entry phase: The portion of an interview when you establish rapport by making the informant comfortable and building his or her trust.

Enzyme(s): Any of numerous complex proteins that are produced by living cells and catalyze specific biochemical reactions.

Escape phase (or exit phase): Termination point of the interview; usually includes a final question that sends a clear message that the interview is officially over. Important to end on a positive note and to thank the interviewee during this phase.

Etiology: 1. Assignment of a cause, an origin, or a reason for something. 2. The science and study of the causes or origins of disease.

Event phase: The portion of an interview which is intended to gather more detailed information; typically using 3 key investigative techniques (1. active and passive listening, 2. using open-ended questions, 3. using nonjudgmental questions).

Failure-to-thrive (FTT): A sign of unexplained weight loss or poor weight gain in an infant or child.

Father: The person serving as the father at the time of the incident.

Finder: The person who discovered the infant dead, unresponsive, or in distress.

Fine motor skills: The ability to move and control small muscles of the body (e.g., muscles in the hands, fingers, and eyes).

First responder(s): The initial responding law enforcement officer(s) and/or other public safety official(s) or service provider(s) arriving at the scene prior to the arrival of the investigator(s) in charge. The first professional(s) who attempted to render aid when the unresponsive infant was found dead, unresponsive, or in distress.

Florid retinal hemorrhages: Bleeding on the surface of the retina (visual receptor of the eye), which usually results from extremely violent force to the head.

Forensic autopsy: An autopsy performed pursuant to statute, by or under the order of a medical examiner or coroner.

Forensic pathologist: A physician who is certified in forensic pathology by the American Board of Pathology (ABP), or who, prior to 2006, has completed a training program in forensic pathology that is accredited by the Accreditation Council on Graduate Medical Education or its international equivalent or has been officially "qualified for examination" in forensic pathology by the ABP.

Four-Domain Model: A model of detecting deception by describing domains or clusters of behaviors rather than attaching a specific meaning to a single nonverbal or verbal display. The four categories are: 1. comfort/discomfort, 2. emphasis, 3. synchrony, 4. perception management.

Galactosemia: An inherited metabolic disorder characterized by the deficiency of an enzyme that is necessary for the metabolism of galactose. The disorder results in elevated levels of galactose in the blood and, if untreated, can lead to mental retardation and eye and liver abnormalities.

Gestation: The period of fetal development from conception until birth (i.e., pregnancy).

G6PD deficiency (glucose–6–phosphate dehydrogenase deficiency):
A hereditary metabolic disorder affecting red blood cells, characterized by a deficiency of glucose-6-phosphate dehydrogenase conferring marked susceptibility to hemolytic anemia, which may be chronic, episodic, or induced by certain foods (as broad beans) or drugs (as primaquine), and that occurs especially

in individuals of Mediterranean or African descent.

Gross motor skills: The ability to move and control large muscles or groups of muscles (e.g., muscles in the arms, legs, torso, neck and head).

Growth monitoring: Documenting and tracking an infant's weight, length, and head circumference over time.

Height: A measurement taken in children older than 12 months with the child standing upright.

Hepatobiliary disease: Disease pertaining to the liver, bile, or bile ducts.

HIPAA (Health Insurance Portability and Accountability Act): Federal law passed in 1996 to protect the privacy of personal health information and improMve the efficiency of the healthcare system.

Homeostatic control mechanisms: Innate behaviors of an infant to automatically regulate body conditions, such as temperature, oxygen and carbon dioxide levels in the blood, or heart rate.

Hyperthermia: Unusually high body temperature.

Hypostasis: The settling of blood in the lower part of an organ or the body as a result of decreased blood flow.

Hypothermia: Abnormally low body temperature.

Hypoxia: A deficiency of oxygen reaching the tissues of the body.

Iatrogenic: Induced in a patient by a physician's activity, manner, or therapy.

Infant: A child who is 0 to 12 months of age.

Initial responding officer(s): The first law enforcement officer(s) to arrive at the scene.

International Classification of Diseases, 9th Revision (ICD-9) and 10th Revision (ICD10): This is a guide for the classification of morbidity and mortality information for statistical purposes published by the World Health Organization.

Interrogation: A "controlled conversation" designed to elicit information from individuals who may have an interest in being untruthful. The purpose is to obtain information from an individual to determine whether he or she was responsible for, or involved in, the matter under investigation.

Interview: A "planned conversation" with a specific goal in mind, where information is gathered from a person who generally has no interest or motive in providing inaccurate information.

Intraosseous: Situated within, occurring within, or administered by entering a bone.

Investigator(s) in charge: The official(s) responsible for the crime scene investigation.

IV: Intravenous.

Jaundice: Yellowish discoloration of the whites of the eyes, skin, and mucous membranes.

Jurisdiction: The limits or territory within which authority may be exercised.

Kinesic: The study of nonlinguistic bodily movements, such as gestures and facial expressions, as a systematic mode of communication.
Language skills: The ability to understand language and to vocalize, babble, and ultimately say words.

Last caregiver: The person who was last responsible for the care of the infant when he or she was discovered dead, unresponsive, or in distress (e.g., a babysitter, a child care custodian, or the mother).

Last witness: The person who last observed the infant alive or presumably alive in or near the area where he or she was discovered dead, unresponsive, or in distress.

Length: A measurement taken with the infant lying down from the top of the head to the bottom of the heel of the foot.

LKA (last known alive): The person who last observed the infant alive or presumably alive in or near the area where he or she was discovered dead, unresponsive, or in distress.

Lividity: Following death, a large pooling of blood in parts of the body resulting in discoloration.

Livor mortis: Hypostasis of the blood following death, which causes a purplish-red discoloration of the skin.

Long QT Syndrome: Abnormality of the heart that can cause the heart to race and can lead to sudden death.

Manner of death: A simple system for classifying deaths based in large part on the presence or absence of intent to harm or violence, the purpose of which is to guide vital statistics nosologists to the correct external causation code in the International Classification of Diseases. The choices are natural, accident, homicide, suicide, undetermined, and, in some registration districts for vital statistics, unclassified.

Malnutrition: Poor nutrition, which can result from an insufficient, excessive, or unbalanced diet or from inability to absorb foods.

Maple syrup urine disease (MSUD): An inherited disorder of metabolism in which the urine has an odor characteristic of maple syrup; if untreated, it can lead to mental retardation and death in early childhood.

ME/C: Medical examiner or coroner.

Medical examiner: A medical examiner is typically a physician; hence the title. When acting in an official duty, the medical examiner is charged, within a particular jurisdiction (typically at the county level), with the investigation and examination of persons dying a sudden, unexplained, or violent death. The role of a medical examiner differs from that of nonphysician coroners in that the medical examiner is expected to bring medical expertise to the evaluation of the medical history and physical examination of the deceased.

Medicolegal death investigator: An individual who is employed by a medicolegal death investigation system to conduct investigations into the circumstances of deaths in a jurisdiction.

Medium chain acyl-CoA dehydrogenase deficiency (MCADD): A rare hereditary disease that is caused by the lack of an enzyme required to convert fat to energy.

Metaphyseal fractures: Fractures of the metaphysis (the growing part of a long bone).

Motor skill: An action that involves the movement and control of muscles in a person's body.

NCIC (National Crime Information Center): A computerized index of criminal justice information.

Neck compression: Compression of the neck can be brought about by any object or can result from an unusual position such as may occur when a premature baby is placed in a car seat with poor neck support.

Nonjudgmental questions: Questions that do not infer judgment in their tone or wording.

NOK: Next of kin.

Nonorganic FTT: Growth failure due to environmental neglect (e.g., lack of food) or other psychosocial factors.

Normal birth weight: An infant's weigh at birth is five pounds, eight ounces or more, or greater or equal to 2,500 grams.

Occlude: 1. To cause to become closed; obstruct. 2. To prevent the passage of.

Open-ended questions: Questions that encourage people to tell a story in their own words; the opposite of close-ended (i.e., yes/no) questions.

Organic FTT: Growth failure that is due to an acute or chronic disorder known to interfere with normal nutrient intake, absorption, metabolism, or excretion.

Osteogenesis imperfecta: A hereditary disease marked by extreme brittleness of the long bones and a bluish color of the whites of the eyes.

OTC: Over-the-counter medication.

Other responders: Individuals who are involved in an aspect of the crime scene, such as perimeter security, traffic control, media management, scene processing, and technical support, as well as prosecutors, medical personnel, medical examiners, coroners, forensic examiners, evidence technicians, and fire and rescue officers.

Overlaying: Accidental suffocation in bed typically caused when the mother (or some other caregiver or sibling) sleeps in the same bed as the infant and accidentally suffocates the infant by turning over onto the baby while sleeping. The infant suffocates because he or she is unable to breathe through his or her nose and/or mouth.

Passive listening: Listening that is mechanical or effortless and does not provide feedback (e.g., listening to the radio).

Pathologist: A specialist in pathology; a physician who interprets and diagnoses the changes caused by disease in tissues and body fluids.

Percentiles: Percent of the reference population the infant's weight or length would be less than, equal to, or exceed. For example, an infant whose weight is at the 5th percentile for age weighs the same or more than 5% of infants his or her age and weighs less than 95% of infants his or her age.

Petechiae: Pinpoint hemorrhages or bruises. Petechiae are a frequent finding in autopsies of SIDS victims.

Placer: The person who last placed the infant in or near the area where he or she was found dead.

Poisoning: Poisoning or intoxication is the inhalation or ingestion of poison or toxic substances or gases such as carbon monoxide, noxious gases, chemicals, sprays, medications, and illicit drugs, which can cause a blockage of the respiratory tract resulting in death.

Postmortem examination: An examination of the body after death, usually with such dissection as will expose the vital organs for determining the cause of death or the character and extent of changes produced by disease; an autopsy.
Preterm: Infants born before the end of the 37th week of pregnancy.
Primitive reflexes: Movements that we are born with and that we cannot control (e.g., startle reflex). These reflexes go away in time and are replaced by movements that we can control.

Prone (sleep position): Sleeping on stomach. Evidence suggests that prone sleeping increases the risk of SIDS.

Proxemics: Refers to intimate, personal, social, and public distances at which people stand or sit in relation to another person(s).

Pyloric stenosis: Pyloric stenosis is a narrowing of the pylorus, the lower part of the stomach through which food and other stomach contents pass to enter the small intestine. When an infant has pyloric stenosis, the muscles in the pylorus have become enlarged to the point where food is prevented from emptying out of the stomach.

Rebreathing: The partial or complete inhalation of previously exhaled gases. The rebreathing of exhaled gases is thought to occur when infants lay face down or prone (on stomach). A popular theory is that stomach sleeping can increase an infant's risk of "rebreathing" his or her own exhaled air, particularly if the infant is sleeping on a soft mattress or with bedding, stuffed toys, or a pillow near his or her face.

Respiratory arrest: A condition in which breathing has stopped.

Respiratory distress: A condition in which breathing is difficult.

Resuscitative efforts: Any actions performed in an effort to resuscitate an infant.

Rigor mortis: Temporary rigidity of muscles occurring after death.

Rx: Prescription medication.

Sharing sleep surface: This practice involves a baby sleeping with others on the same sleep surface, such as in the adult bed or on a couch. The term *bedsharing* should not be used interchangeably with the term *co-sleeping*; the latter term should be avoided.

SIDS: Sudden infant death syndrome.

Social skills: The ability to interact with your environment and people around you.

SS#: Social security number.

Subdural hemorrhage (Synonymous with subdural hematoma): A collection of blood on the surface of the brain that lies beneath the outer covering (the dura) of the brain and the brain's surface.

Sudden infant death syndrome (SIDS): The death of an infant less than one year of age that remains unexplained after a thorough investigation of the death scene(s), complete forensic autopsy, and review of the clinical history (i.e., a diagnosis of exclusion).

Supine (sleep position): Sleeping on back. Evidence suggests that supine sleeping reduces the risk of SIDS.

Tachycardia: Heart rate that is more rapid than normal.

Term: Infants born at or after the end of the 37th week of pregnancy.
Thorax: The part of the human body between the neck and the diaphragm, partially encased by the ribs and containing the heart and lungs; the chest.
Undernutrition: What happens when a person's body does not get the nutrients it needs for good health or cannot use the nutrients it gets.

Unk: Unknown.

Usual caregiver: The person responsible for providing the usual, ongoing care for the infant (e.g., changing diapers and feeding).

Very low birth weight: An infant's weight at birth is less than three pounds, five ounces or 1,500 grams.

Voluntary motor control: Movement that we can control.

Wedging: A form of asphyxia that occurs when the face or thorax is compressed, preventing respiration, typically because of entrapment between two objects.

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Answers to Sample Questions

Chapter 1

1. D
2. A
3. A
4. A
5. D

Chapter 2

1. A
2. B
3. D
4. D
5. D
6. A
7. B
8. A
9. C
10. B

Chapter 3

1. B
2. C
3. B
4. A
5. D
6. C

Chapter 4

1. B
2. D
3. C
4. D
5. A

Chapter 5

1. C
2. B
3. D
4. C
5. A
6. D
7. D
8. B
9. D
10. C

Chapter 6

1. A
2. D
3. B
4. C
5. D
6. A
7. B
8. D
9. C

Chapter 7

1. D
2. B
3. C
4. C
5. B

Chapter 8

1. B
2. D
3. A
4. A
5. C

Chapter 9

1. C
2. B
3. C
4. B
5. A
6. C
7. D

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