SPECIFIC CASE GUIDELINES

All-Terrain Vehicles (ATV)

The increased popularity of all-terrain vehicle (ATV) use in recent years has resulted in a rise in related accidents and injuries. Reconstruction of these types of accidents poses a unique challenge due to their nature and the lack of data available to investigators. Information provided by C/DC is instrumental in the investigation of ATV accidents, especially if other investigative agencies are unable to accurately reconstruct the accident. The involvement of the C/DC at the scene of an ATV accident is similar to that of a motor vehicle accident. Again, the main duty of the C/DC is the evaluation and documentation of injuries sustained by the collision and the gathering of information about the circumstances surrounding the accident.

When investigating an ATV collision, consider the following:

- Was the operator or passenger(s) of the ATV wearing a helmet or protective clothing or safety restraints (if applicable)?
- What were the road (trail) conditions? (visibility, weather, etc.)
- What type of roadway or trail was the individual operating on? Was the trail maintained?
- What was the direction of travel for the vehicle(s)?
- What was the operator's experience level?
- Are there any signs of alcohol/drug use?
- Were there any passengers? How many passengers is the vehicle rated for?
- Was the vehicle pulling anything (sprayer, yard cart, a trailer for rock or dirt, etc.)?
- If the accident occurred on the roadway, was the vehicle rated for highway use (lights, turn signals, etc.)?
- Does the ATV have any roll bars, seatbelts, other safety features?
- What is the year, make, model, and serial number? Consumer Product Safety Commission may need to be notified.

Blunt Force Injury

The scene investigation of death due to blunt force injuries is a very important adjunct to the autopsy. Blunt force injuries (contusions, abrasions, lacerations, and fractures) result from a

blunt object impacting the body or when the body impacts a surface causing injury. A death related to blunt force trauma may occur in a variety of settings, such as falls, motor vehicle accidents, or assaults.

When investigating a death due to blunt force injuries, consider the following:

- Is trauma from impact with a moveable object, or a fixed object such as a wall?
- Document the size, shape and nature of the moveable object including any artifact found on the object.
- Are there blunt objects present at the scene that could have been used as a weapon or associated with the death? Document their location relative to the body.
- Does the object have fresh or dried blood on it, describe?
- Does the body of the decedent display any obvious pattern injuries?
- Is there a large pool of blood around the decedent? Estimate volume.
- Is the blood in several locations? Are there droplets that may represent cast-off?
- Is the weapon still at the scene? Any suspected weapon should be collected as evidence by law enforcement. The case forensic pathologist may request to view the suspected weapon at the time of autopsy. When collecting and transporting the weapon, it is imperative that it is handled carefully and correctly to preserve any latent prints and/or DNA evidence.

Carbon Monoxide

Carbon monoxide or "CO" is a colorless, odorless gas that results from incomplete combustion of materials containing carbon. CO is produced when you burn fuel in cars, small engines, furnaces, grills, fireplaces, gas ranges, and in house fires. A deceased individual found within a closed space in a vehicle with the motor running may be readily identified as a CO poisoning. The more subtle cases, possibly due to a faulty heating system or an improperly vented gas generator, can be harder to diagnose and investigate.

In cases where the CO levels are high and considered lethal (in the range of approximately 50% to 80% saturation), pink or cherry red livor mortis becomes noticeable on the external examination. Lower carboxyhemoglobin concentration, however, can be lethal in individuals who are more susceptible. The very young, the very old, and individuals with cardiac and pulmonary disease fit into the category of susceptible individuals. Investigators should not enter the scene until professional personnel have assessed the safety of the environment through utilization of a carbon monoxide monitor, if appropriate.

In deaths due to carbon monoxide poisoning, consider the following:

- If the individual is in a motor vehicle, is the ignition on? Could the vehicle be restarted? Is the gas tank empty? Is the vehicle in a garage with the door closed? Is there stuffing around the garage doors? Is an apparatus connected to the tailpipe? Are there any vehicle defects to the exhaust system, holes in floorboard or firewall?
- Were resuscitation efforts (CPR) performed?
- Are any of the indicators of suicide present, such as a suicide note, comfort items, beverages, previous suicide attempts or threats, history of depression, financial or marital difficulties, etc.?
- If the individual is found in a residence, is the heater on? Does the heater involve combustion? Is the residence in need of repairs, including the gas appliances or heater? Are any pets dead? Is there an attached garage with a running vehicle?
- Is there a charcoal barbecue grill in a confined space near the decedent?
- Is there evidence of medications, drugs, or alcohol at the scene that may indicate the individual had increased susceptibility to carbon monoxide poisoning?
- Testing for carbon monoxide in the blood at autopsy remains the most reliable and efficient way to determine whether a fire victim died from smoke inhalation.
- An apparent carbon monoxide death may represent a homicide; thorough investigation is essential.

Consumer Product Related Deaths

A death scene that involves a product that may have caused or contributed to a death of an individual should be documented and reported to the **United States Consumer Product Safety Commission (CPSC)** and the OSCME. It is recommended that an autopsy be performed on such cases.

The CPSC is an independent federal regulatory agency that was created in 1972 by Congress in the Consumer Product Safety Act. In that law, Congress directed the Commission to "protect the public against unreasonable risks of injuries and deaths associated with consumer products."

Examples of common products that should be reported include toys, ATVs, bicycles, cigarette/charcoal lighters, cribs, fireworks, mattresses, portable generators, pack-n-plays, etc.

Visit www.cpsc.gov and click on the tab titled “Regulations, Laws & Standards”, Voluntary Standards” for an alphabetized list of product categories.

The OSCME is a resource for consultation, as well.

When investigating a death involving a consumer product consider the following:

- Did the product contribute to or cause the death?
- Does this product fall under the U.S. Consumer Product Safety Commission’s jurisdiction?
- Who is the manufacturer, and what is the model brand name and serial number of the product?
- Is the product available for examination? If so, where is it located?

To report an unsafe consumer product or a product-related death:

The CPSC can be contacted at www.cpsc.gov. Contact information is:

U.S. Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814
Phone: (800) 638-2772; TTY (301) 595-7054
Fax: (301) 504-0124 or (301) 504-0025

Hours: Monday–Friday 8:00 a.m. to 5:30 p.m. Messages can be left anytime

A report can be filed electronically with the CPSC at www.saferproducts.gov

To make a report, click on the green tab titled “Report an Unsafe Product.” For item #1, select “Medical Examiner and Coroner” from the dropdown box. Complete the required fields and submit per the instructions. Prior to completing a CPSC report, it may be necessary to create an account (no cost). Have the case information ready for reference to assist in answering the questions required on the report.

Decomposed Remains

In cases of decomposed bodies, the same basic principles of scene investigation apply. However, the decomposition may present additional challenges to the investigation. Identification of injury may be difficult and proper identification may require scientific methods. Most decomposed bodies will need to be autopsied.

The rate of decomposition changes are dependent on a number of factors, including environmental temperatures and humidity, as well as factors unique to the individual, and can

be highly variable from one case to another. Thus, it is well advised to be extremely cautious or simply avoid offering estimations of time since death. Instead, document pertinent facts that would help estimate the postmortem interval, such as the time the individual was last seen alive and found dead. Attempt to determine and document the last collected mail or newspaper, last financial transactions, last phone call or text message, or last social media posting.

While the time frame may be variable the body will go through some typical changes during the decomposition process. Early in the decomposition process, the superficial layers of the skin may slough off from the body producing "skin slippage." "Marbling" is a green/purple discolored branching pattern due to decomposition of blood within dilated subcutaneous blood vessels. Green/black discoloration of the skin will begin. Gas producing bacteria can cause the abdomen and other areas to be distended, which is termed "bloating." Brown or red decomposition fluid ("purge") may exude from the nose and mouth. In drier climates, the skin may become dark and dried resulting in "mummification." In cool wet environments, fatty acids in the body convert to soaps, forming a white or tan waxy substance called "adipocere." After several weeks to months, the remains are reduced to the skeleton.

Since less may be learned from a decomposed body at autopsy, circumstantial evidence from the scene becomes important both in the investigation as well as identification. However, confirmation of the identity with scientific methods such as fingerprints, antemortem clinical radiographs, or dental comparison is often necessary. It should be determined whether there are antemortem fingerprints on file. The most recent dental X-rays should be obtained as soon as possible and sent to the pathologist/investigator. In the event that there are no dental records, medical X-rays revealing fractures or anomalies may be utilized. As a last resort, personal effects such as toothbrushes, hairbrushes, combs, and used feminine hygiene products can be submitted for use in DNA analysis.

Consider the following when investigating a decomposed body:

- Document the scene environmental information; temperature, clothed/unclothed, position of body, wet/dry, direct sun/shade, etc.
- Document the degree of decomposition.
- Are blowflies or maggots present?
- Is there evidence of postmortem insect or animal scavenging?
- Is the residence secured and valuables intact?
- Is there a history of depression, suicide attempts, or threats?
- Are medications at the scene appropriate for the prescribed doses? Complete a Medication Log.
- Note the last time the individual was last seen alive.

Drowning

The diagnosis of drowning is based on the circumstances surrounding the death in combination with the absence of any contradictory findings at autopsy. Information gathered at the scene is crucial to the correct determination of drowning as the cause of death because findings at autopsy are often minimal and non-specific. A complete autopsy is recommended in cases of suspected drowning.

The following should be considered in the investigation of drowning deaths:

- Is it logical that the decedent was in the water?
- Do scene findings and findings on the body make sense with the history (wetness of body, injuries or lack of injuries, postmortem changes, etc.)?
- How was the body found? Floating? Submerged? How deep is the water where the body was recovered?
- Could the decedent swim? How well? Was there a life guard?
- Did the decedent have a history of seizures or cardiac conditions? Is there a family history of sudden death?
- What is the type of body of water? Lake? Pool? River? What are the conditions of the water, including temperature, waves, and currents? Document weather at the time (electrical storms, etc.).
- What factors are present that could contribute to injuries or artifacts on the body (marine life predation, boat activity, etc.)?
- If the drowning is in a pool, are there lights or other electrical equipment that should be checked by an electrician?
- Is there a pool suction filter system? Where was the body found in relation to the components of the system?
- Had the decedent participated in any type of sport or activity such as jumping from a diving board or water skiing?
- What was the decedent wearing at time of incident (personal floatation device, swimming suit, etc.)?
- How did the decedent get to the body of water (car, walk, pool ladder, etc.)?

Drug Related

The diagnosis of drug overdose requires that drugs be detected, identified, and quantified in the body (preferably blood, but in some cases tissue may acceptable when blood or other fluids are not available). An autopsy should be performed on all suspected drug intoxications. Toxicological analysis of appropriately obtained specimens should be sent to a laboratory that is properly accredited (i.e., by the American Board of Forensic Toxicology) and that will perform

confirmation testing on all positive specimens. Hospital laboratories perform drug screens only, designed for triage of medical diagnoses, and are not the most appropriate for evaluation of forensic cases.

In cases of prescribed medication overdose, the toxicology testing can be greatly expedited if specific drugs can be identified from scene investigation. Document any medication found at the scene on the Medication Log form; information on this form is important in the work-up of overdoses.

In presumed overdose deaths, consider the following:

- In evaluation of medications found at the scene, to who are they prescribed? The date(s) of the prescription(s), the quantity prescribed, and the number remaining should be catalogued.
- Is the residence secured? Is there evidence of a struggle?
- Is there a history of drug or alcohol abuse?
- Is there drug paraphernalia at the scene? If so, send it with the body. The pathologist may want to send the paraphernalia for toxicological testing.
- Are there needle marks or track marks on the extremities?
- Are any of the indicators of suicide present (suicide note, previous suicide attempts or threats, history of depression, financial or marital difficulties, etc.)?
- Are there indicators of remedy revival such as ice packs or the decedent having been placed in the shower or bathtub?
- Is there paint or glue on the hands or at the scene (huffing)? Are cans of compressed air (keyboard cleaner) near the body?
- Complete a Medication Log by listing all medications, including herbal or alternative remedies and over-the-counter medication.
- If sending for autopsy, check with Regional Forensic Center to determine if medications should be sent with the body.

Elderly / Dependent Adult

Unexpected or unattended death of dependent adults and the elderly requires a complete death investigation. Although the majority of these cases are natural deaths, other non-natural conditions must be excluded. Autopsy is recommended whenever the manner of death is in question.

Types of elder or dependent adult abuse include physical abuse, sexual abuse, financial exploitation, psychological abuse, and neglect. The investigation of the death of a dependent adult should include a complete scene investigation with inquiry as to the degree of dependence of the decedent, understanding of the roles and responsibilities of the

caretaker(s), analysis of the living conditions with review of the decedent's activities of daily living, and evaluation of the decedent's access to food and proper shelter. The scene should be documented by photographs, and in some instances, scene re-creation.

Evaluate the role of the caretaker(s), their capabilities, and resources. Determine the degree of the decedent's independence. Self-neglect may complicate interpretation of scene and physical findings. Individuals who can make their own decisions have the right to refuse care and transport to a medical facility for care.

Questions concerning the need for autopsy or other concerns should be directed to a forensic pathologist.

In addition to what is asked for on the ROI form, consider the following:

- With whom did the decedent live and what is their relationship?
- Has there been a recent change in living conditions or caretaker?
- What is the condition of the residence?
- Are utilities in working order?
- Did the decedent have access to food and drink? If yes, by what means?
- Where, how, and how regularly did the decedent eat? Who prepared the meals?
- Where did the decedent sleep? Describe condition of decedent's clothing and bedding.
- Was the decedent able to communicate and have access to computer or telephone?
- Was the decedent diagnosed with dementia or other cognitive impairment?
- Does the decedent have a physical disability? If yes, describe.
- Did the decedent require the assistance of a wheelchair, walker, cane, eyeglasses, or hearing aids? Were they available to the decedent?
- Who managed the decedent's finances?
- Were any unemployed adults living with the decedent?
- Is there a history of law enforcement or Tennessee Department of Human Services/ Adult Protective Services involvement?
- Is there a history of domestic violence involving the decedent?

Environmental Exposure

Autopsy is recommended in cases of suspected hypo- or hyperthermia. The findings at autopsy in cases involving both extremes of temperature can be supportive, but not necessarily diagnostic, of the role of those extremes in the death. Therefore, the diagnosis depends on history and scene investigation, combined with autopsy findings.

Invasive documentation of body temperature is not recommended, although documentation by external methods can be helpful.

In cases of hypothermia, documentation of weather conditions and exposure of the individual is very important. An autopsy can rule out most other natural disease and trauma. Similarly, hyperthermia also relies on environmental conditions and evidence that the individual was exposed to high temperatures. Testing of the vitreous fluids during autopsy can support the diagnosis of dehydration.

When investigating exposure deaths consider the following:

- Is the individual properly clothed for the conditions? Paradoxical undressing is sometimes seen in cases of hypothermia.
- Is there a psychiatric history?
- Is there evidence of drug or alcohol use?
- Is the individual homeless?
- Is there evidence of a struggle?
- Is there a significant past medical history that would make the individual more susceptible to environmental conditions?
- What were the high and low temperatures during the interval that the decedent might have been exposed to the environment?
- What is the immediate temperature in the environment? Has the heat in the residence recently been turned off?

Fire

Deaths involving fire should be treated as suspicious until proven otherwise. Most deaths are the result of an accidental fire. But, some fires have also been started to conceal a prior crime, such as homicide or burglary. Some fires have been set as a means of suicide. Contrary to the destructive nature of fire, a lot of information can be gained by performing a thorough scene investigation and autopsy. Coroners MUST work closely with the assigned fire investigator. When a death occurs associated with fire, there are two active investigations occurring at the same time. There is an origin and cause of fire investigation and there is also a death investigation. The coroner must await the opinion of the fire investigator as to how the fire started to determine the manner of death.

All fire-related deaths should be autopsied with skeletal x-rays performed as needed. Toxicological analysis for the presence of alcohol, drugs, and carbon monoxide should be performed. A majority of deaths from fires are due to smoke inhalation. Testing for carbon

monoxide in the blood will confirm the diagnosis. Depending on fuel load and contents being burned, hydrogen cyanide may also be tested in the blood.

A major issue in any fire death is confirmation of identity of the decedent. By interviewing the NOK and other witnesses, information concerning the decedent's medical and social history may give clues to information that can be used to positively identify the decedent. Valuable information that needs to be collected for every fire death to help with identification includes:

- Name and location of decedent's dentist.
- Name and location of decedent's primary medical provider.
- History of any prior arrests to help locate fingerprints on file.
- Description of the decedent's tattoos, scars, marks, piercings, clothing or jewelry.

If information concerning the above items is very limited, then with the assistance of law enforcement, the collection of buccal swabs of the decedent's immediate biologically-related NOK may be necessary to perform DNA analysis.
If the use of an accelerant is suspected in starting a fire, clothing should be collected at the time of autopsy, and submitted for the detection and analysis of ignitable and flammable liquids.

When investigating fire related deaths consider the following:

- Can the body be visually identified or will scientific or circumstantial methods need to be employed to confirm identity?
- What are the circumstances of the fire (hence manner)? Investigation by the fire investigator is needed for this determination.
- Are there physical or medical impairments that would hinder the individual from escaping the fire? Were there structural alterations to the home or car preventing escape (bars on windows, doors locked, etc.)
- What is the location and position of the body in the house, car, etc? Document the position of the body at the scene.
- Examine area around and under body for weapons, gasoline cans, lighters, etc.

Gunshot Wounds

Investigations of firearm deaths are in essence a collaboration of scene investigation, ballistics and autopsy findings. From the autopsy, it is often possible to determine an estimated range of fire, potential for an intermediate target and trajectory relative to the body in the anatomic position. Ballistics can help determine the weapon that was used to fire the fatal bullet. Scene investigation then must fill in all the gaps to determine the sequence of events that led up to the fatal shooting.

Keep in mind when examining the body of a gunshot wound victim, determining wounds of entrance and exit may be difficult in certain cases, especially without the benefit of cleaning the wound, good lighting, etc. It is all right to be unsure, just note the general location, and autopsy will determine the type of wound. Avoid classifying the wound (e.g., "entrance gunshot wound," "graze wound," etc.) Instead, describe the wound (e.g., "circular defect to chest," "linear gaping defect to the neck," etc.).

- **Avoid touching or manipulating the wound. Do not clean the wound.**
- **Do not take possession of any firearm at the scene or send a firearm with the body.**
- **Ensure law enforcement secures and takes possession of any firearm found on scene.**
- **When moving the body for external examination or placing into a body bag, ensure projectiles do not fall from the decedent's clothing or possible exit wounds.**

When investigating gunshot wound deaths consider the following:

- Document the type and caliber of firearm.
- Do the number of casings found at the scene correlate with the number of entrance wounds and/or recovered bullets at the scene?
- Based on witness accounts, room dimensions, blood stain patterns, etc. is there an estimated range of fire?
- In cases of suicide: Where is the weapon in relation to the body? How many spent casings are in the cylinder or on the floor? Was the weapon owned by the decedent? Was the decedent familiar with the suspected firearm? Are there any known mechanical defects to the firearm? Does there appear to be a contact gunshot wound? Is the entrance wound in a location that could be reached by the decedent? Was the decedent right- or left-hand dominant?
- In cases of homicide: Are there multiple gunshot wounds? Are multiple shooters/weapons involved? Is there an intermediary target?
- Cover the hands with paper bags and secured with tape prior to transport?
- Does evidence of medical intervention exist? If so, ensure medical devices are not removed.
- Were clothes removed? If so, every effort should be made to retrieve the clothing and transport them with the body so that they may be examined by the pathologist at the time of autopsy.

Hanging

The overwhelming majority of hanging deaths are suicides. Accidental hangings can occur at work, but the more common "accidental" hangings are due to sexual asphyxia. The presence of an escape mechanism in the case of a male decedent with pornographic material nearby could indicate a sexual asphyxia death. Though it is very difficult to hang someone against their will,

special circumstances that should make the investigator suspicious of a homicide include an extremely intoxicated individual (i.e., BAC in coma range), female with history of domestic abuse, or evidence of a struggle. Hangings can take place in any position (e.g., fully suspended, standing kneeling, seated, etc.) and at any height. The body does not have to be fully suspended.

Transport the body to the morgue with the ligature remaining around the neck and send any remainder of the ligature with the body. **The ligature should not be removed unless there is any possibility of resuscitation.** If it is necessary to remove the ligature for this reason, the ligature should be preserved. This is best done by cutting the ligature away from the knot at the suspension point and securing the ends with string.

The usual indicators of suicide still apply:

- Absence of signs of a struggle.
- Suicide note or suicidal ideation.
- Previous suicide attempts.
- History of depression, stressors, or substance abuse.

Consider the following when investigating a hanging death:

- Are the grooves and marks in the neck consistent with the way the body is suspended? A horizontal or downward sloping groove on the lateral neck could indicate the possibility of ligature strangulation.
- How is the body suspended? Fully or partially suspended? Are livor patterns consistent? Measure the height of the feet from the ground and the height of the structure supporting the ligature from the ground. Document any furniture or boxes that may have been used as a platform.
- Are there any scratch marks around the ligature to indicate a struggle?
- Is there an escape mechanism, pornographic material, or previous markings where the ligature was secured (scratches on structural beam) to indicate sexual asphyxia?
- Has the body been cut down prior to arrival of CME personnel? If so, it is imperative to interview the person who found the body in order to document suspension information discussed above. If the person is obviously dead, do not cut the ligature from the supporting structure until photographs have been taken and the scene documentation is complete.

Homicide

Homicide is defined for medical examiner purposes as a death directly caused by the action of another person or a death that occurs during the commission of a felony. The death should

stem from some kind of deliberate or purposeful action, but intent to cause harm or death need not be present or proven for the medical examiner to rule a death as a homicide. Even this seemingly simple appearing category can become controversial for the medical examiner. Homicide, for the purposes of the medical examiner, is a medico-legal administrative ruling that may or may not equal murder. While all murders are homicides, not all homicides are murders.

A team approach is the preferred method when investigating a homicide. Several law enforcement personnel may be present at the scene, so it is imperative that cooperation is exercised. Obtain permission before entering a scene and practice scene preservation. Ensure law enforcement personnel are aware of the arrival and departure of medical examiner personnel.

In the case of a homicide in which the cause of death is relatively obvious, the investigation concentrates on determining the course of events that led up to the death. Evidence is collected; the scene is diagramed, measured and photographed. The C/MDI on the scene should identify the major areas of external trauma, document body position, and provide basic information for postmortem interval estimation from rigor and livor mortis. In homicide scene investigation, it is very important to accurately document scene findings and circumstances in an objective manner. It is also important to refrain from documenting speculative or inferred findings or information. Bullet entrance and exit sites can be difficult to determine even in the well-lit and controlled setting of the morgue. It is especially difficult in sub-optimal conditions at the scene. **Do not guess.** Since an autopsy will be performed, do not measure wounds or handle the body any more than necessary.

The suspicious death is made more difficult because the cause of death is less likely to be straightforward. The general rule is to treat the death as if it was a homicide. Collection of evidence, photographs, diagrams, etc. is still performed. The added burden in these ambiguous cases is to consider multiple possibilities for cause and manner of death and immediately incorporate that into the scene investigation.

With all homicide or potential homicide investigations, consider the following (some of these answers will be attainable through discussion with the investigating law enforcement agency):

- Have the circumstances and events (as they are understood at the time) leading up to the death been documented?
- Have the specific types and numbers of weapons as they are known been documented? Examples might include number and type of ammunition casings or recovered bullets at the scene, types of possible blunt instruments present at the scene that could have been used as a weapon or associated with the death (bat, fire extinguisher, etc.).
- Is there evidence of the body having been moved? Be sure to ask whether the body has been moved.

- Is livor pattern consistent with body position? Had EMS moved the body to initiate resuscitative measures or confirm death?
- Describe possible blood at the scene. What are the dimensions, quantities, and the location relative to the body? Is there possible blood on clothing?
- Is there evidence of a struggle? Examples might include knocked over furniture, possible defensive wounds of the hands, or broken fingernails.
- Has the body been inspected for trace evidence? If there is trace evidence that could be damaged or lost in transport, collect it and document specifically from where on the body or clothing it was recovered.
- Has another investigating agency or emergency medical personnel removed or collected any clothing? If so, this should be documented and every effort should be made to have the clothing available for examination by the pathologist at the time of autopsy.
- Are the hands or feet covered in paper bags prior to moving the body into the body bag?

In-Custody Death

The SCCO must be notified of all in-custody deaths. Deaths that occur while a person is being pursued, apprehended, or incarcerated by law enforcement or involve medical detainees are usually considered high profile cases. These deaths require thorough and objective investigations in order to prove or disprove public scrutiny, family members' concerns, and questions raised by the media. These cases have a high likelihood for civil and criminal litigation and they often have the potential for creating allegations of police or institutional misconduct.

Any in-custody death that is other than natural should be sent to and autopsied by a forensic pathologist.

Questions that usually arise in these types of deaths include:

- Was excessive force used during restraint of a combative person?
- Was a prisoner/patient beaten or otherwise abused?
- Were suicidal precautions adequate given the decedent's history?
- Was a prisoner/patient abused by other inmates?
- Were the physical complaints of an inmate/patient attended to?
- Was the quality of medical care adequate?
- Is there a way to prevent deaths like this in the future?

Many of these questions can be answered following the performance of a thorough death scene investigation, forensic autopsy with toxicology, and collaborating with other investigative agencies.

The duties of the C/DC in investigating in-custody deaths should include the following:

- Visit the scene (jail cell, prison yard, patient room, etc.) where the incident occurred, even if the decedent was removed and taken to a local hospital.
- Document the scene through photographs and scene sketches with dimensions.
- Obtain copies of reports from police, the institution (jail, prison, etc.), EMS reports, time logs, statements from fellow inmates/patients, and any hospital/medical records of the decedent.
- Ascertain the decedent's location, position, actions, and the timing of actions leading up to the death.
- If the decedent was removed prior to arrival, request officials who were present at the time of the incident or when the decedent was found to reenact what was observed.
- If a conducted electrical weapon (Taser, etc.) was used by law enforcement to help subdue the decedent, leave the barbs in place. If the barbs need to be removed for medical care or for other reasons, circle in permanent marker the location of the barbs, and initial and date the areas.
- Obtain copies of any police car dash cam videos, police body camera videos, and/or jail, prison and institutional videos documenting the scene and incident.
- Leave any clothing and other personal effects on the body, as they are considered evidence.
- Leave any ligatures in place, ***unless attempts are made to start life-saving procedures***. Do not disturb any knots along the entire length of the ligature.
- Ascertain any antemortem (admission) specimens immediately for toxicological analysis.
- If death occurred in a jail, prison, or mental health institute, obtain copies of any and all recent patient logs, medication administration logs, incident reports and medical records pertaining to the decedent.
- Examine the body and document rigor mortis, livor mortis, and any trauma to the body.
- In cases where drug-induced excited delirium is expected, a rectal temperature should be taken immediately (consult forensic pathologist performing the autopsy before doing so). Also, note the room or environmental temperature.
- Place and transport the body in a labeled and sealed body bag.

Remember...

- Avoid speculation and forming of premature conclusions.
- In all in-custody death cases, there should be prompt responses to inquiries; even if only to tell those inquiring that the case is pending the outcome of an investigation.
- It is considered best practice to have an independent law enforcement agency provide unbiased investigative services in these matters. The TBI may be brought into the investigation, but only at the request of local law enforcement or the county attorney.

- When investigating in-custody deaths, always remember to take into consideration underlying natural disease, prior alcohol or drug ingestion, hidden trauma that occurred prior to incarceration, induced trauma while in-custody, drug-induced excited delirium, psychosis, and deaths resulting from use of restraint procedures.

Institutional Deaths

Institutionalized adults may not be under the care of a physician and the death may fall under the jurisdiction of the county coroner. In Alabama , the death of a person committed or admitted to a state mental health institute, a state resource center, a state training school, or other comparable institution, should be reported to and investigated by the county coroner . In addition to issues commonly investigated, particular concerns may arise with regard to the institution and their practices and processes involving care.

Consider the following for these investigations:

- Was the facility secure or non-secure?
- Did the decedent have any recent visitors just prior to death? If yes, who were the visitors?
- Immediately obtain copies of medical records, observation, and medication logs from the facility.
- Secure and obtain video/security camera recordings from the facility (indoor and outdoor), if available.
- Describe clothing and living conditions of the decedent.
- Describe the degree of cleanliness and orderliness of the facility.
- Note any use of restraints with other residents, as well as the decedent.
- Inquire about use of any procedure(s) or equipment to restrain the decedent (has the equipment been removed?)
- Was the institution/facility staff cooperative or evasive? Do they have concern for the decedent?
- What levels of training and education do care providers have? What certifications do they have?
- Is the institution or facility licensed? If yes, by who and is licensing current? Obtain copies of the most current inspection record.
- Has the institution or facility been reported to Alabama Department of Mental Health & Substance Abuse Services in the last few years? If so, describe any founded and unfounded reports.

Motor Vehicle

The involvement of the county coroner at the scene of a motor vehicle collision should be part of a team approach with law enforcement. It is the duty of the law enforcement agency to reconstruct the scene or accident. The main duty of the medical examiner is the evaluation and documentation of injuries sustained by the collision. Evaluating injuries sustained in a motor vehicle collision requires the ability to recognize and distinguish between blunt and sharp force trauma. These are the two most common types of injury that occur in all types of motor vehicle accidents. Blunt force injuries sustained by occupants of a motor vehicle can be complex to interpret. Many victims of motor vehicle accidents, particularly drivers, should be autopsied. This is especially relevant when the collision is the result of illegal activity, collision in the course of employment, or when the cause of the accident is unknown, as well as when the cause of death is not externally obvious. An effort should be made to correlate injury patterns diagnosed at autopsy with object(s) impacted in or on the vehicle.

When investigating a motor vehicle collision, consider the following:

- Who was the driver of the vehicle? In some cases, the distinction is not clear. Some impaired or at-fault drivers have been known to report a deceased passenger as having been the driver.
- What were the road conditions (visibility, weather, etc.)?
- What type of roadway (concrete, asphalt, gravel, dirt, mud, etc.)?
- What type of traffic controls were in use (stop sign, electric signal, yield sign, etc.)?
- What was the speed limit? What was the speed of surrounding traffic? Was there sudden congestion or stop-and-go traffic?
- What was the direction of travel for the vehicle(s)?
- Is there evidence of alcohol/drug use?
- Were seatbelts in use?
- Was the decedent extricated from the vehicle?
- Was decedent ejected from the vehicle?
- Did airbags deploy?
- Was there evidence of distraction, such as a phone?

Natural

The investigation of natural deaths serves multiple purposes. However, foremost in priority in the scene investigation is to confirm that the death is really natural. Then information is collected to determine whether the death meets medical examiner jurisdiction and if so, whether an autopsy is warranted. In an unexpected and sudden death, especially in a young individual with no past medical history, an autopsy should be performed. The scene

investigation should focus on confirmation of identification, examination of the body, and the collection of the decedent's medical, social, and family history.

Natural death investigations should consider the following:

- Was the death witnessed or unwitnessed?
- Is there any trauma to the body?
- If found at home, was the residence secured? Signs of forced entry? Evidence of a struggle?
- If at work, what was the decedent doing at the time of death? Are there any potential dangers (potential electrical contacts, etc.) in the vicinity?
- Is there significant family or medical history? If so, what is that history?
- Are the medications present with the decedent appropriate in numbers for the prescribed dosage? To who are the medications prescribed?
- Any recent complaints about pains or illnesses?
- Is the body decomposed? If so, autopsy may be necessary to confirm identification of decedent.
- Is there a history of domestic violence?

If an individual is found deceased outside a healthcare setting (e.g., home, yard, etc.), then that individual's death is deemed to have been "unattended." A coroner should respond to the scene, perform an investigation, and complete the iDFS-18 Remember, the point of investigating apparent natural deaths is to confirm the death is indeed natural. The subsequent investigation will determine whether an autopsy is required. If a person died while in a healthcare setting and they were under the care of a healthcare provider (e.g., emergency room, hospital inpatient, nursing home, hospice, etc.), the death would be considered "attended." If this type of death is reported and the investigation reveals no non-natural factors that may have contributed to the death, the death then does not meet coroner criteria. The death certificate should be completed by the physician responsible for the patient's care.

Occupational / Farm

An occupational fatality is any fatal event that occurs at work, including death on a farm. The decedent may be an employer, employee, or self-employed person, farmer, or family member helping with a business. Any death, natural or otherwise, that occurs during work will fall under the jurisdiction of the coroner . Many factors can contribute to the cause of death of an individual on the job (thermal, electrocution, drowning, etc.). These deaths should be reported to and investigated by the coroner .

Employers are required to report any on the job death the **Alabama Occupational Safety and Health Administration** . This information is used to research and identify common hazards in workplaces and on farms.

In deaths that occur on the job, consider the following:

- Where was the decedent found with reference to any equipment in the area?
- Was the decedent moved by anyone? Who?
- What safety gear is generally required for working around this particular machinery or equipment? Was the proper equipment in use and secured properly?
- What was the decedent supposed to be doing at the time of the incident?
- Was the incident observed?
- Was the decedent performing a task he/she was trained to do?
- Were safety precautions posted in or around the machinery or equipment? Were precautions being followed?
- What was the decedent's medical history?
- Was any other person injured?
- Was there thought to be any medication, drug, or alcohol involvement?
- What was the current work schedule? Was the decedent working long hours or overtime that would cause fatigue?
- Was this the usual type of work for the decedent? Were any unconventional shortcuts utilized that would be considered dangerous?

Any involved equipment should be documented, including the year, make, model, and serial number for Consumer Product Safety Commission report. In some circumstances, the equipment should be sent with the decedent for autopsy the forensic pathologist should be consulted in this regard.

Pedestrian / Bicyclist

The C/DC should work closely with law enforcement during these investigations. Vehicular crashes involving pedestrians/bicyclist can often be reconstructed with considerable accuracy by knowing characteristics of the person and the vehicle involved in the collision. Victims of pedestrians/bicyclist struck by motor vehicles should be autopsied. When a pedestrian/bicyclist is struck by a motor vehicle there may be transferred paint, plastic, glass, or imprints from the suspect vehicle to the decedents clothing, skin or bicycle. Pedestrians will commonly have blunt force contusions and crushing injuries of their legs, torso, and buttocks. An autopsy will help to provide information on whether the vehicle was braking or not at the time of impact and may correlate injury patterns with the suspect vehicle.

When investigating a pedestrian fatality consider the following:

- Was the pedestrian walking, standing or lying on the road at the time of the collision?
- What was the direction of travel of the vehicle? Of the pedestrian?
- For a bicyclist note the direction of travel and final position of the bicycle.
- Were the vehicles brakes being applied at the moment of impact?
- Did the driver see the pedestrians/bicyclist prior to the collision?
- Is there evidence from the vehicle on the body or clothing of the decedent, such as paint or grease?
- Is there evidence that the pedestrian was thrown up onto the vehicle (broken windshield, etc.)?
- Are there probable impact sites on the vehicle?
- Where did the pedestrian end up relative to the vehicle? Was he/she moved?
- What type of clothing was the pedestrian wearing? Were high visibility/reflective clothing worn?
- Did the vehicle stop at the scene? Are charges pending against the driver of the vehicle?
- If a bicyclist, were they wearing a helmet? Was the helmet damaged? Reflective clothing?
- If at night, was the bicycle equipped with front and rear lights/reflector?
- Was the bicycle using a bike lane?
- How badly was the bicycle damaged?

Suspected Sexual Assault

In cases of suspected sexual assault, it is critical to preserve evidence on the body. In order to do so, additional steps taken at the scene include:

-the hands should be placed in paper bags secured around the wrists;

-manipulation of the body should be kept to a minimum; and

-the body should be wrapped in a clean white sheet prior to being placed in the body bag for transport.

If a C/DC wishes for a sexual assault kit to be collected, it is paramount that this be relayed to DFS when the death is initially reported to them to avoid inadvertent loss of evidence.

If law enforcement wishes to retrieve fragile evidence from the body at the scene (e.g. a hair grasped in the hand; a paint chip on the clothing), the item to be collected should first be

photographed as it was found on the body, then placed into a sealed evidence container with proper documentation of chain of custody.

DFS Montgomery is the best location for the collection of hair and body fluids from the decedent. It is not appropriate to perform an examination for sexual assault at the scene. The clothing is considered evidence and should remain as it is on the body for transport.

The sexual assault kit typically consists of swabs to collect fluid from the mouth, anus, and vagina or penis; glass slides made using those swabs; pulled and combed head and pubic hairs; a blood sample from the decedent; and clippings and scrapings of the fingernails. These are collected by the forensic pathologist at the regional forensic center and appropriately handled and stored. Law enforcement may then submit the kit for analysis to a laboratory, again with strict documentation of the chain of custody.

Skeletal Remains

The coroner should become involved any time there is a discovery of skeletal remains. It must be determined whether the skeletal remains are human or non-human; seek assistance from a forensic pathologist, forensic anthropologist, or someone with experience in analyzing human and non-human skeletal remains in making this determination. In addition, it must be ascertained whether the skeletal remains are of medicolegal significance. Prehistoric bones and anatomical teaching specimens are generally not in the interest of law enforcement or the coroner . The location of the remains and any artifacts associated with them can be helpful in the determination of medicolegal significance.

The coroner in your area should be contacted if skeletal remains are determined to be human or suspected to be human and can assist with making arrangements for anthropological assistance, scene recovery and interpretation of human remains, as may be appropriate.

When investigating skeletal remains consider the following:

- An anthropologist may be available for consultation, identification of remains/burial site, and collection or excavation of the remains.
- The scene must be defined and documented. This could be confined to a single burial or cover a large surface scatter of skeletal remains.
- Systematic and comprehensive search techniques must be utilized to ensure maximal evidence recovery.
- Construction of a grid will assist in the systematic excavating and documentation of the area.

- Articles of clothing (buttons, zippers, man-made fabrics, etc.) and personal artifacts should be sought.
- Soil samples under fairly intact remains should be collected for potential toxicology testing.
- Document the location of a retrieved bone or piece of evidence photographically and by mapping, or scene sketch with measurements referenced to the location of at least two permanent fixtures, such as a large boulder, roadway, or telephone pole.
- Bones may be brittle, and should be cushioned and packaged with care for transport.
- Aerial photography may also be employed when human skeletal remains are found. This technique is used to document surface terrain / topography and the scene's relationship to the surrounding area and environment.

Sports Related

Sports related deaths usually occur suddenly and without warning and are almost certainly unexpected. These deaths usually occur in young and/or healthy individuals and therefore should be autopsied.

When investigating a sports related death, consider the following:

- What type of sport was the decedent involved in?
- Was the sport played indoors or outdoors?
- Describe the playing surface.
- If outdoors, describe the weather.
- Was the accident or injury caused by an instrument or piece of equipment used by the decedent or another player?
- Did the death occur while in contact with another player?
- If safety equipment is required for this sport, describe in detail, and indicate whether the decedent was dressed appropriately at the time of incident.
- What was the level of experience of the decedent in this sport?
- Was the decedent ever injured previously in this or any other sport? If yes, were they seen and released by a physician to continue activity? Specify dates and injuries.
- What is the school or team policy for post-injury re-entry?
- Was the decedent taking any medication, either legal or illegal?
- Was the decedent taking any homeopathic or natural supplements, using steroids, or consuming high-energy sports drinks?
- If this is a water sport, refer to section on drowning for further information if needed.
- Was protective clothing or gear used? Obtain make, model, and description.

Stab Wounds

The scene investigation of stab wounds is a very important adjunct to the autopsy. Some stab wounds do not necessarily injure a vital organ (e.g., a leg or arm is stabbed). The volume estimate of blood at the scene due to blood loss from the decedent can be very helpful. When investigating a stab wound death, consider the following:

- Are there defensive cuts on the upper extremities?
- Are there multiple superficial hesitation marks on the wrists or around the fatal wound?
- Is there a large pool of blood around the decedent? Estimate volume.
- Is the blood in several locations? Are there droplets that may represent cast-off?
- If there was emergency medical intervention, were clothes removed and were stab wounds altered or sutured (did the thoracotomy incision go through a stab wound, was a stab wound used for a chest tube insertion site, etc.)? Obtain all medical records that document the intervention and the location of the original wounds. Every effort should be made to retrieve the clothing and transport them with the body so that they may be examined by the pathologist at the time of autopsy.
- Is the weapon still at the scene? If so, it should be collected as evidence either by law enforcement or by the medical examiner and brought to the autopsy. When collecting and transporting the weapon, it is imperative that it is handled carefully and correctly to preserve any latent prints or DNA evidence.
- Cover the hands with paper bags and secured with tape to preserve evidence prior to transport?

Suicide

Suicides can be the most difficult and time-consuming cases facing the coroner. The strong emotions based on religious and moral objections to suicide combined with the loss of a loved one can make it very difficult for a family member to accept the determination of manner of death as suicide. In addition, some homicides may be staged to appear as suicides. Therefore, careful and complete investigation in the beginning can save a lot of trouble and time in the end.

Determining the manner of death as suicide relies on implicit evidence the individual had the means and intent to kill themself. It should be understood that a “suicide note” is found in only a minority of all suicide deaths. Additionally, evidence that contradicts the manner being suicide should be sought.

Consider the following when investigating a presumed suicide:

- Is there evidence of a struggle (room disarray, knocked over furniture, etc.)?
- Is the building or room secure? Document presence or absence of locks on doors and windows. Did police have to break in to gain entry into the room or building?
- Are weapons near the body? Document the position of any weapon in relation to the body.
- Is there a past psychiatric history? Be specific about recent versus remote histories of depression. Was the individual ever treated for depression or other psychiatric illness?
- Have there been any previous suicide attempts or threats? Method? Look for linear scars or hesitation marks on the wrists for physical evidence of previous suicide attempts.
- Is there a social history of financial difficulties, marital problems, poor work or school review, or anniversary of the death of a loved one?
- Is there a suicide note? Suicide notes may not necessarily be in the immediate vicinity or same address as the body. Consider the location of suicide notes on electronic devices, such as computers or cell phones. Be sure to make a copy of the note to retain. If necessary, the signature and writing may be compared with other known documents.
- Examine and photograph the hands. Bag the hands at the scene if necessary to preserve evidence.
- In the case of an overdose, are there paraphernalia or prescription medicine containers? Send paraphernalia with law enforcement so that the contents can be tested. Document all prescription drugs and determine whether pills remaining are appropriate for the prescription. Complete a Medication Log.