

# OSCME NEWSLETTER

## Investigating Carbon Monoxide Deaths

Carbon monoxide or “CO” is a colorless, odorless, tasteless gas that results from incomplete combustion of materials containing carbon. It is one of the most common causes of deaths from poisoning in the United States. CO is produced when fuel is burned in cars, small engines, furnaces, grills, fireplaces, gas ranges, and in house fires. Exposure is particularly dangerous to pregnant women, unborn babies, children, the elderly, and those with cardiac or pulmonary disease.

The CDC reports\* approximately 400 deaths per year from unintentional, non-fire related, carbon monoxide poisoning in the United States. The use of alternative sources of fuel or electricity for heating, cooling, or cooking can cause carbon monoxide to build up and poison people and animals inside a confined space. Generators, grills, camp stoves, or other gasoline, propane, natural gas, or charcoal-burning devices should never be used inside confined spaces, such as a home, basement, garage, or camper. It is even dangerous to use these devices near an open window, door, vent, or window air conditioner. \*([www.cdc.gov/co](http://www.cdc.gov/co))

A deceased individual found in a vehicle, within a closed space, with the motor running may be readily identified as a probable CO poisoning. The more subtle cases, possibly due to a faulty heating system or an improperly vented gas generator, can be harder to recognize and investigate.

When responding to a suspected CO poisoning death, exercise scene safety and verify that professional personnel have assessed the safety of the environment through use of a carbon monoxide monitor, if appropriate, and the area has been

properly ventilated before entering. 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 of the body.

When investigating deaths suspected to be due to carbon monoxide poisoning, consider the following (OSCME, CME Handbook 2017, p. 71-72):

- 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 the floorboard or firewall?
- Were resuscitation efforts (CPR) performed?
- Are any of the indicators of suicide present, such as a suicide note, comfort items, beverages, evidence of previous suicide attempts or history of 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.

## VRISM Update

We hope that with continued use that you are finding the electronic death registration system to be an asset to your practice. The widespread use of the system has resulted in a decrease in the time to register a death from 15.5 days in January to less than 5 days, which is a significant improvement and allows families to settle estates in a much more timely fashion compared to the paper system. For the month of September, 95% of all records were fully electronically signed. If you are having difficulties or need assistance, please contact either the VRISM Help Desk at [health.vrism@tn.gov](mailto:health.vrism@tn.gov) or 1-855-874-7686, or our office at 844-860-4511. In addition, Dr. Lewis is available after hours and on weekends at 615-532-2968.

Though the OSCME is not responsible for the initial development and implementation of VRISM, Dr. Lewis has received many accolades for her strong work as the voice of the VRISM Help Desk.



**Dr. Lewis in Action**

# INFORMATION

## Cremation Permits

One of the responsibilities of the county medical examiner is to approve cremation permits for those who have died in the county in which the CME is appointed and are to be cremated. Cremations may be authorized on paper, verbally, or via fax or email. At present, the VRISM system is not used for cremation permits. Jurisdiction for the cremation permit is based on county of death, not the county of cremation or disposition.

If the death falls within medical examiner jurisdiction make sure the case has been investigated and a report of investigation completed and submitted to the OSCME. If the death is a non-ME case, it may require further inquiry. Reviewing medical records may increase the time necessary to authorize cremation, but this is the final opportunity to investigate before the destruction of all evidence on and contained within the body.

It is best practice to see a copy of the death certificate in non-ME cases. Death certificates with non-specific causes of death, such as "Cardiac arrest" or "Natural causes" will require additional investigation to determine the true underlying diagnosis responsible for death. After the correct cause of death is identified, the original certifying physician or the county ME may amend the record within VRISM using the Delayed Diagnosis pathway. This only applies to natural deaths.

It is not infrequent to see a death certificate with the cause of death listed as "Pneumonia due to hip fracture" or similar with the manner incorrectly marked as Natural. When the county medical examiner intercepts such a death certificate, he or she should confirm, either verbally with the certifying physician or by review of medical records, that the manner of death

is indeed not natural. The county ME should then print a paper copy of a Delayed Diagnosis of Death with the correct cause and manner of death and submit the completed form to

Tennessee Vital Records  
ATTN: Amendments  
1st Floor, Andrew Johnson Tower  
710 James Robertson Parkway  
Nashville, TN 37243

It will take several weeks for the Delayed Diagnosis of Death to become available to the family using this paper process. A fillable pdf version of the Delayed Diagnosis of Death is available from the OSCME, or paper copies should be available from the funeral home or crematory.

## Reports of Investigation

In order to fulfill the Office of the State Chief Medical Examiner (OSCME) responsibilities as required by Tennessee Code Annotated § 38-7-102 and increase consistency and improve death investigation, the OSCME must keep "full and complete records of all reports on investigations and examinations made pursuant to this part (Post Mortem Examination Act)."

All investigated deaths must be reported to the OSCME, whether an autopsy is ordered or not, including those deaths reported to you even if jurisdiction is declined. You may complete the Report of Investigation form either by hand or electronically and submit it to the OSCME by e-mail, regular mail, or fax. Use the following address: Office of the State Chief Medical Examiner, Andrew Johnson Tower, 7th Floor, 710 James Robertson Parkway, Nashville, TN 37243, or fax to 615-401-2532, or email to [OSCME.ROI@tn.gov](mailto:OSCME.ROI@tn.gov).

If you are currently entering all investigative information into a form or database consistent with the State's ROI you may print that report and e-mail, fax, or mail to the OSCME as a substitute for the attached ROI form.

The OSCME is currently receiving reports of investigation from seventy-six (76) of the ninety-five counties in the state and our goal is to collect reports from all ninety-five counties.

## Spotlight: Forensic Medical

The OSCME would like to congratulate Forensic Medical Management Services on achieving re-accreditation of the Middle Tennessee Regional Forensic Center through the National Association of Medical Examiners (NAME). The office first obtained NAME accreditation in 1998 and has continued to hold accreditation throughout the past 20 years.

NAME accreditation is an endorsement indicating that the office or system provides an adequate environment for a medical examiner in which to practice his or her profession and provides reasonable assurances that the office or system well serves its jurisdiction. By maintaining NAME standards, the Middle Tennessee Regional Forensic Center has demonstrated its commitment to providing a high caliber of medicolegal death investigation for the communities they serve. Forensic Medical Management Services provides postmortem examination services for 52 counties and investigative services for two of those counties, Davidson and Williamson.

A new year of JAG death investigation training is upon us. Be on the lookout for registration opportunities in the upcoming months regarding the following dates and locations:

Sevierville Police Dept.: Oct. 25 & 26, 2018  
Montgomery Bell State Park: Dec. 11 & 12, 2018

Reelfoot State Park: April 3 & 4, 2019  
Cove Lake State Park: April 17 & 18, 2019

Montgomery Bell State Park: May 14 & 15, 2019



# TRAINING

## St. Louis University, The Original Medicolegal Death Investigator Course August 2018



Saint Louis University celebrated more than 40 years in death investigation training this year with their basic 5-day course that is held twice a year. The new course format includes 2 interactive workshops on Death Scene Investigation and Child Death Investigation. Twenty-four Tennessee representatives included Dr. Adele Lewis, deputy state chief medical examiner and medical examiner investigators from the OSCME, West TN Regional Forensic Center, Knox County Regional Forensic Center, Middle TN Regional Forensic Center, Sumner Co, Robertson Co, Montgomery Co, Lincoln Co, Moore Co, Crockett Co, Hickman Co, Meigs Co, Marshall Co, Henderson Co and Sevier County. Detective William Clark of the Gallatin Police Department also attended. The OSCME was able to send a number of the attendees through grant money that was received from several sources. Our office hopes to send more Tennessee county medical examiners and medical examiner investigators to the courses to be held in 2019.



Department of Health Authorization No. 343592  
Number of copies, 0. This public document was promulgated at a cost of \$0.00 per copy.