



EMERGENCY RESPONSES TO CARBON MONOXIDE POISONING WORKSHOP
26 – 27 September 2018 – SBM Fire Department, Blaine MN – DAY 1 Presentations
Summary

08:30 Overview

Charlie Smith, SBM Fire Chief
Tom Ryan, Mayor of Blaine, MN

A Dedication to Sam - WCCO

Introduced by Deputy Fire Marshal Jim Smith providing background on an incident here in Minnesota over this past winter. 21 year-old Sam Schooley was ice fishing on leech lake in February. Video produced by WCCO News shared Sam's father Tom discussing his death. Sams autopsy showed 58% CO in his bloodstream. The fish house had a CO detector inside placed very low to the ground. Sam was sleeping in a top bunk in the house. Becky Booker shared that this CO Conference and Workshop will be dedicated to Sam Schooley.

Police Response to CO

Brian Podany, Blaine Police Chief

Our response is limited as we rely on the local fire department for gas leaks including carbon monoxide. However, for illness and deaths, we investigate these scenes very seriously. Our response is dictated by symptoms, alarm type and number of potential victims. Our primary responsibilities upon arrival is evacuation, eliminating threats, and determining any hazards to responders. If a death occurs, we will work hand-in-hand with ME as we look at how the scene integrates with his/her findings in the autopsy. CO is one of the first things we look for when signs are present. LE always trying to identify the victim, whether it was intentional, identify the source, and then begin photographs and documentation. Looking for signs of motive, suicide, foul-play, homicide, health history, forensic recovery, mail, and drug use. Investigation includes many small clues at the scene to determine cause, motive, suspects, outcomes, etc.. Question: Does your force use Ford Explorers? Answer: We do not, just Chevy and Dodge though this has been a very hot topic in law enforcement due to CO inclusion into the cab and nearby drivers.

Introduction to GST and ICORN

Adrian McConnell, Gas Safety Trust UK

Adrian has been involved for the last 18 months in the establishment of the International Carbon Monoxide Research Network (ICORN).

Our Chair Baroness Finlay was unable to attend due to parliamentary duties in the UK. Thank you to SBM Fire Department especially Chief Smith and Becky Booker. Recognize ICORN colleagues for agenda changes and collaboration. Thank you to our sponsors whom without this wouldn't be possible.

The Gas Safety Trust is the principal gas safety research charity in the UK and throughout Europe. By the end of the year, we will have awarded £3M or \$4M USD. Our research grant focus has now turned to low level exposures of CO. You will hear from several of our awardees over the course of the day.

Grant period for 2018-2019 is currently open with several new partnerships underway. www.coportal.org launched in 2015 and over the next year will be redeveloped to better suit the users needs.

CO 101*Isabella Myers, ICORN UK*

Independent consultant and stakeholder with a focus on CO. A brief overview of CO: colorless, odorless, tasteless, non-irritating gas produced by incomplete combustion. Complete combustion creates carbon dioxide. CO effects your lungs and blood when inhaled attaching to hemoglobin. Hemoglobin usually carries oxygen around the body. When CO attached it impairs that ability and the release of oxygen to body tissues. Once exposure ceases, hemoglobin is able to bind to oxygen and CO is flushed out of the body. Sources include fossil fuel and wood burning appliances. It also includes BBQ's, tobacco smoke, cracked or blocked chimneys, wood pellet storage (from bacteria on fungi) and combustion engines/generators. It is typically not the appliance itself that defects but the user and misuse. Examples include poor ventilation, using products inside, or emergency situations. In England and Wales there are approx. 30 deaths per year which is declining. Excess of 200 non-fatal injuries requiring hospitalization. 4,000 non-fatal injuries not requiring hospitalization. About 1,300 occurred in the home. USA has around 400 deaths per year in comparison. Data is increasingly difficult to gather and measure. An iceberg can be used as a comparison in that we only know the tip of that iceberg when viewing the underlying problem. Misdiagnosis is common due to several factors: Symptoms similar to other more common illnesses. Poisoning is thought to be very uncommon. The setting where diagnosis occurs is very different for all patients. Diagnosis aids and treatment: venous blood gas analysis, pulse CO oximeter, breath analysis. Question – do you smoke? Treatments include fresh air, half life of CO is approx. 4-6 hours. High-flow oxygen and hyperbaric oxygen therapy though this is being ruled out in the UK. The World Health Organization has air quality guidelines. This includes 7mg/m³ over a 24 hour period. How will they be monitored or be followed? 3 out of 5 appliances are found to be unsafe, 1 out of 5 deemed to be dangerous and shut off immediately. We also experience migration from multi-family housing and shared occupancy. www.policyconnect.org.uk/appcog/ shows a white paper on medical diagnosis and advancing treatment. A home ranges in many forms today and cause additional hazards and difficult interventions. Everyone sees their home as their castle. I hope this conference provides the network for us to collaborate and tackle these difficult CO issues on an international level.

9:30 Session 1: Legislation, Regulations, and Standards*Srikanth Mangalam, Chair**Leigh Greenham, Panel Chair*CO Legislation in Minnesota*Jim Smith, MN State Fire Marshal's Office*

Took place in the early 2000's. In 2004, in Oronoco MN a home found with 800ppm of CO. 1 child had already deceased while others exhibited symptoms. The grandfather of this family proceeded to legislation and regulation in single-family and multi-family homes. At the time, there was opposition to mandating monitoring equipment primarily from builders and commercial renting associations. Unfortunately this change like many in the fire service are reactive due to a fatality of some kind. We experience similar pushback currently with residential sprinkler legislation. Current legislation 299F mandates all single and multi-family dwelling shall have a CO detector within 15 feet of known sleeping areas. Occupant's responsibility to know they have a detector and notify responsible party if it is not present or working properly. If an owner can certify that no possible combustion appliances exist in a structure, they may apply for exemption from this law. Our Fire and Life Safety Educators have been proactive in getting education and training surrounding CO to the 780+ fire departments in MN. The approach to public is more personal about possible outcomes if CO detectors are not used or maintained. We are working with the Dept of Labor and Industry and MN Fire Code to include language in the future to encompass a variety of occupancy types.



Environmental Tracking at State level

Kathy Raleigh, MN Department of Health

Epidemiologist and with MDH for about 3 years. CDC has a national environmental public health tracking program going on through numerous states. Nationally consistent definition for CO poisoning. Data sources include hospital discharge data and death certificates. We are looking for acute, unintentional CO poisonings with any diagnosis of toxic gases. CO poisoning ED visits have decreased since 2000. Peaks between 2007-2010 when emphasis was placed on the new CO legislation enforcement. Has been a gradual decrease since then. ED visits more common in the winter months primarily due to heating appliances in MN. CO poisoning deaths are rare for unintentional causes in MN. Only 5 in 2016. Male death and ED visit rates are higher than female and increase by age accordingly as well. Consider visiting the data portal. <https://Data.web.health.state.mn.us/web/mndata>

Carbon Monoxide and Nitrogen Dioxide in Ice and Motor Sports Arenas

Dan Tranter, MN Department of Health

Only 3 states in the US with guidelines. 2 states with regulations, MN one of them. We regulate motor sports facilities and ice arenas. 276 indoor ice arenas with both resurfacers and ice-edger's with combustion. Only 3 year-round motor sports facilities. Ice arenas inspected 1-2 years. In 1966 had 1st report CO poisoning within a MN Ice Arena. Due to emissions primarily to resurfacer. Rule developed in 1973 regulating this, first in the US. 197 revised to include motor sport arena – went untouched until the early 2000's. New rules adopted in 2013 much more rigorous. Ice Arenas must have less than 20ppm over 1 hour average exposure. Motor sports at 30ppm. This is similar to the WHO 1 hour standard. Arenas must test 2x week within 20min after completion of resurfacing. 1 test must be on a weekend. If using a combustion powered edger, must additional 1x per week before opening to the public. Must test at board height above the ice. Evacuation is required at 83ppm over 5 min, 40ppm over 60 min, 20 ppm over 120 min. Facilities must post a certificate, train on-site personnel, and maintain equipment. Seen a solid decline in compliance failures. The largest contributor is a trend toward electric resurfacers including grant programs to support this. Acts as a good model for other states and jurisdictions.

New Codes for CO Detectors

Dr. Lee, CPSC

NFPA 72 incorporating CO alarms in next standard. In early 2000 we noticed a large spike in deaths caused by portable generators. Launched a project to reduce these deaths. In 2016 CPSC voted to create regulation around portable generators and low emissions charged with a 90% reduction. In 2018 UL 2201 now has a voluntary standard for reducing emissions in these devices with a CO automatic shut-off. PGMA standard also incorporates shut-off measures for surrounding air quality.

National Smoke Alarm and CO Alarm Survey launched in 2016. Anticipate 1,150 homes to be surveyed in 2018 and 2019. Findings in 2019 with a report produced by year-end.

Objective is to get a snapshot of consumer use, functionality and perception of smoke and CO alarms. No current national information on CO alarm use in the US. Only report is a 1994 report on Smoke Alarms and allowed manufacturers to fill in the gaps. Looking to collect demographic data during survey and for homes with no CO present: how necessary do you feel it is to have one installed and reasons you don't have them installed. Want to understand experience with CO alarms.

Role of Standards Panel Discussion Q & A Session

Q: How do you get access into the homes?

A: 1 professional surveyor working through local fire services.

Q: Does your team look at number of intentional and unknown cases to see total numbers?



A: The reason behind consistent data measures to collect national trends anything behind those measures (non-fire, unintentional). This has to do with public health action and what outcomes we can create and drive action after identifying causes. There could be ability to release data publicly.

Q: Why are CO death rates so low in MN?

A: Partially because this is only non-fire, unintentional are reported in that number. On national portal the data is correlated by state and per capita to compare.

Q: Any anecdotal data that there are increased number of CO alarms to correlate with declining injuries and deaths,

A: SFM does not monitor total number. Legislation was retroactive however done on the honor system. In the UK there are more alarms in use correlating to more incidents but a decrease in injuries and fatalities.

Q: Is there concern about the all-electric occupancies getting exemption and then the likelihood of generators when power is lost?

A: yes there is concern with limited ability to regulate. We do have an increase in PSA's and outreach to educate the public on CO and Poisoning in ice houses and similar structures.

Q: When a FF respond to an alarm and find CO present, is there a standard protocol to follow? When a source is found, is there still follow-up done throughout the home for other sources?

A: A defer to Chief Smith and a presentation coming up later in the day.

Q: Why is the latest data set from 2015?

A: Data comes from the hospital association and is delayed. We just received 2016 data and will be incorporating.

Q: Why do so few states have indoor facility regulation or focused around northern states?

A: It ties into unfortunate emergencies to drive regulation. We had high-profile incidents in the 60's to drive this regulation which may not have occurred elsewhere. Depends on the politics in each state.

Q: What will be the relationships between NFPA 72 and UL Standard?

A: NFPA is how and where they will be installed in a home. UL is for the product construction and performance itself.

Comment from chair: there is a strong disparity between acceptable limits in the industry and in different countries.

11:10 Session 2: Carbon Monoxide Good Practice

Isabella Myers, Chair

Srikanth Mangalam, Panel Chair

Carbon Monoxide National Monitoring Study Report Launch

Andy Shaw, LJMU UK

7 year journey starting in Jan 2011. All fire appliances were issued single gas monitoring devices. Survey collected wide demographic data as well as presence of existing CO alarm and/or reading. In Liverpool over 22,000 visits conducted. About 75% dual gas and heating appliances in homes. Less than 10% CO ownership. Large disparity between Smoke Alarm and CO alarm ownership. .22% of homes had a reading above 0ppm. Coventry had only 3% ownership. .68% of homes had a reading above 0ppm. Not confident in the zero readings because it was only instantaneous. Used a longer term data loggers reading 0-250ppm left in properties 2-6 weeks. Distributed over 170 properties. Zero returned back without any readings. Some had readings above 50ppm, most between 10-30ppm. Proved anecdotally that the spot data could not be relied upon. A study done recently with terrace



housing representing an occupancy from 1920, 1970, and 2010. A simulation was conducted inside the 1920 home. Data loggers were placed in all occupancies. CO migration reached significant levels in adjacent 1970 occupancy. More research needs to be done to understand this migration.

Sharing recent UK research into CO incidents aboard small boats

Leigh Greenham, CoGDEM UK

CogDEM founded in 1974 with about 60 companies. Members are manufacturers and service providers of gas detection. In UK hazards surround narrow boats and large boats driven at slow speeds with large petrol motors and producing amounts of CO. In MN, Sophia's Law now present after 2017 that all motorboats over 19 feet must have working CO alarms and warning stickers in 3 places. In UK, 30 boater CO deaths in 20 years most on inland waters. In 2016 there were 3 deaths which represented 10% of CO fatalities that year. We have full access government documents and investigations conducted for all deaths in the marine industry. The Boat Safety Scheme, owned by a government agency, is starting a pilot project. About 200 examiners equipped with marine-approved workplace gas detectors. They will go onboard to start appliances and look for faults. Asked to report incidents when finding greater than 10ppm. In 9 months only 2% of boat examinations have caused the gas detector to activate. That equates to 46 incidents that would have otherwise been unknown. The risk is coming from gas cooking grills and ingress of fumes into the cabin via station wagon effect. It is known now that you do not need to have a moving boat to create station wagon effect. MAIB now decided enough is enough. CO Alarms to be made compulsory on BSS boats. Public consultation occurring now with reports published in the coming months. Propane needs 2.5x more oxygen than methane to burn cleanly and not create CO. Much more common to see propane used as a fuel for appliances.

Case study: Merseyside FRS approach to CO Prevention

Mark Jones, Merseyside Fire and Rescue Service UK

Quiz: CO can move through walls, it is slightly lighter than air but moves similar to air, and a burning bbq produces the most CO as the coals are cooling, not burning. Case study: 78 year old man found dead, son showed symptoms and arriving paramedics also became ill. Unaware of what the situation was. Case Study: 2 home safety volunteers entered a home to find dangerous levels of CO, they had detection devices and were aware of the situation. We need to increase awareness among residents, we need to increase awareness of dangers to responders and equip responders with gas detectors. Recap of the study discussed by Andy earlier today. We had to dig deeper into the effectiveness of "0" readings. Public awareness has now increased as well as increased ownership and now a decrease in FRS responses. We wanted to test a possible change in guidance and the effect.

Home Safety Visits in SBM FD

Becky Booker, Fire & Life Safety Educator SBMFD

My presentation will focus on the human factor. You have all presented amazing information but we need to get this initiative to the boots on the ground. We have a wide variety of demographics in our service area and the only way to affect change is to get to them personally. We have to get in to the home and speak to them, not create brochures. Our efforts started in 1999 and after 11 years we completed over 4,000 home safety surveys. An independent company confirmed our fire incidents decreased 28% over that time period while the county average increased over 40%. Our solution continues to this day as getting into the home to change behavior and educate in a comfortable environment. 438 CO calls over the last two years. A majority of these are not emergencies but false alarms and misunderstanding of the gas or the alarm devices.

Community Engagement and CO

Simon Chapman, (ret) Merseyside Fire and Rescue Service UK



In the late 1990's there was a strategic shift to prevention measures. We started with home fire safety checks. This started with smoke alarm installations. After 12-18 months of this, we were only engaging with a single section of the population. We then began a look at culture of our community and organization. The demographic we would rather focus on is primarily female, lower income, and come from a culture where uniforms carry a negative reaction. How do we overcome these barriers? We are going to go outside the house and employ advocates from the local community. These ended up being all females as that was the best way to connect with these demographics. The network was created not through knocking on doors but interacting directly and becoming a part of the community. Discoveries included: inappropriate cooking or heating, heightened expectations, extent of social issues unaddressed, and an improvement in service morale. Bottom line, you need to engage and engage fully!

Carbon Monoxide Good Practice Panel Discussion Q & A Session

Q: How did Scotland and Ireland end up with different regulations while England has not?

A: Different politicians, governments, budgets, etc.. We are on the horizon of seeing similar legislation in England. CogDEM is in support of more gas detection due to the numerous benefits.

Q: Why the disparity in Smoke Alarms and CO ownership? Why not promote dual sensor alarms?

A: We have concerns about combined Smoke Alarm and CO detection primarily due to placement issues. General guidance in UK is a CO Alarm for each fuel-burning appliance. Smoke Alarm should be on landing, top of stairs, bottom of stairs. In the U.S. it is an interpretation issue and still prefer single alarms for better understanding.

Q: What is the next step from the UK Study?

A: Give information to toxicology side to possibly adjust WHO guidance. Unfortunately further research needs to be done which tends to be very expensive.

Q: For the advocates hired at Merseyside was/is there an avenue for them to become firefighters.

A: Yes, through an apprenticeship program and it has been happening. It is not universal.

Q: Can you expand on the financing for the Merseyside home safety visit program?

A: Initial funding came out of front-line firefighters. No one lost their job but couldn't add more. Secured further UK funding for supplies. As you reduce fire calls and cost of fire calls it creates a dividend.

Q: Are the advocates the ones doing the inspections?

A: No, those are primarily done by firefighters. Advocates generate the connection. Advocates would do the more difficult and specialized home safety visits.

Q: Is there efforts like our US School Programs going on in the UK in addition to home visits?

A: We have certain programs for community events, a climbing walls, and ambassadors into school session as well. There are several government programs in place as well. Putting faces to the names behind the uniform reduced anti-social behavior as well. Now introduced street intervention team where young children gathered they would go out to engage and promote good behavior.

13:55 Session 3: Emergency Medicine and Treatments

Dr. Simon Clarke, Chair

Isabella Myers, Panel Chair

CO Alliance

Dr. Ardis Olson, Vermont/NH CO Alliance



The problem in VT and NH has recurring fatal and near fatal incidents in Demographics match high risk communities. Data includes surveys of fire department activities, incident victims and survivors, and gas heating technicians. Departments not carrying apparatus CO detection equipment on apparatus. Very few had a distribution program but many had interest in such programs. Data on 270 heating technicians with an average of over 11 years of service. About half ask or discuss about CO while in homes. Strong interest in providing installation and education if available. We have now incorporating expanded CO Training with these technicians. Integrated CO Alarms into the national Red Cross sound the alarm installation program. Donations from CO survivors, new England propane gas association and FEMA grants. In our region we've provided to 1100 homes, 2300 installation over the next 2 years. Installation in rental housing vs owned homes. We can do this due to strong support from Fire Marshal organizations in both states embracing CO awareness.

MN Poison Control Center

Kirk Hughes, MN Poison Control Center

I am a CO survivor from a fire incident from earlier in my career. 55 accredited poison centers in the US, MN is one. We provide services to ND and SD as well as MN. Do all public and professional education in the state of MN. In 2017 46,715 total calls, 41% for children 6 and under. 28% from health care providers. 93% of cases from homes were safely managed at home. Unintentional, non-fire related CO poisoning responsible for 15,000 ED visits and almost 500 deaths annually in the US. My study – 3 different vehicles in a closed garage for 30 minutes. 2010 Toyota camry = 0ppm, 1992 Cadillac Eldorado = 400ppm, 1962 Chevy Nova = more than 1200ppm. Need to consider lingering CO levels on water surface when nearby boats are idling. Methylene Chloride inhaled or absorbed can also cause CO poisoning after 6-8 hours of exposure. Rad-57 can be used as a quick assessment on the scene. HBO now with conflicting treatment capabilities.

What We Don't Know

Dr. Simon Clarke, UK

I have a lot of questions to fill in the gaps between emergency services, researchers, and professionals. CO has been around for centuries and we have known some form as danger. It is probably missed frequently and no way of measuring that currently. We need to understand the "burden of disease". Look for better biomarkers. Identify the effects of chronic low level CO exposure. And determine if there is a link between CO exposure and dementia. Solution is through teamwork and collaboration. We need a culture change amongst professionals. We need new marketing efforts around social media and digital means.

Carbon Monoxide Poisoning : hyperbaric treatment

Dr. Christopher Logue, HCMC/Hyperbaric Chamber

We have unique problems surrounding detection devices. UL 2034 around home CO detectors. Less than 30ppm TWA it never goes off. 400+ppm in 4-15min TWA. This does not match to what other agencies suggest. All studies relate back to a study from 1923 published by Department of the Interior. CO detectors need to be on go-bags for EMS providers. Measuring COHgb in the lab is not possible in more than 50% of hospitals in ND, just below 50% in SD, 25% in MN. We know that CO poisoning causes hypoxia in crucial body systems. 23-67% of patients acutely exposed to CO experience delayed neurologic sequela. Be aware that a separate pathophysiological pathway occurring. HBO mechanism of action is less effective over longer delays. Our guidelines are that we remove them and administer high flow oxygen. Consider HBO for patients with critically ill, loss of consciousness. Altered mental status, focal neurological deficits, signs of cardiac injury. With pregnant patients meet criteria we will place in HBO. If the fetus is viable and in distress, we may recommend HBO. For non-HBO patients they need oxygen for 6 hours, troponin and EKG prior to discharge and confirm/address source of CO.



Neuropsychological Impact of Chronic Low-Level CO Exposure in Older

Beth Cheshire, University of Lancaster UK

Started PhD study on neurological deficits from exposure to CO. Rates from previous studies vary widely from 3-40% of patients. High risk groups include very young and older adults. Exposure to chronic low-levels of CO are particularly hard to diagnose. Studies surrounding this genre are limited. Studies typically expose participants to around 100ppm and durations short to a few hours. A rise in COHB level by 3% have been reported to significantly impair driving skills and other functions. No firm conclusions about low level CO exposure can be drawn due to few studies and little evidence. Rationale for proposed research because there is little previous reliable sources. A believe that a high-percentage of exposure is going misdiagnosed or unreported. Sample of 150 older adults. Participants that have an initial CO level within the home of 20ppm or higher. Hoping that the study can inform the design of CO monitors, update British alarm standards, and influence the work of the Fire Service in preventing risk to older adults.

Research Network

Emergency Medicine and Treatment Panel Discussion Q &A Session

Q: Where did the funding come from for the CO Alliance in VT and NH?

A: Private donor of a survivor, FEMA grants, and propane industry

Q: Are there post-mortom tests to see CO poisoning?

A: Unknown of the answer, as it is beyond our scope of practice.

Q: What is being done to change and update UL standard 2034

A: UL has had a proposal submitted to mandate digital readouts and below 30ppm and missed by 1 vote.

15:40 Session 4: Emergency Services

Becky Booker, Chair

Charlie Smith, Panel Chair

The Value of Prevention

Jim Crawford, Vision 20/20

Knowing that you all understand prevention is important, why is it important? It's important because it works! We have numerous case studies exemplifying its outcomes. Integrated Risk Management and Community Risk Reduction synonymous. Emergency response is always going to be the foundation of both programs. We simply focus too much on operations and the reactive response. We need to make the conversion to outcomes not response times and staffing levels. www.strategicfire.org. A combination of different strategies is typically the best. Our fire death rate is steadily decreasing in the US with our prevention efforts. However, our rates are significantly larger than comparable countries.

Fire Response to CO

Charlie Smith, SBM FD

SBM is a very unique organization in the amount of resources allocated to Community Risk Reduction. We are a non-profit corporation though funding is still tax-based. Budget about \$2.75M USD which is significantly lower than similar sized populations. Cover 40 square miles, 84,000 people, three cities and the anoka county airport. CO responses divided into with or without illnesses. For illness, our duty chief, single station, law enforcement, and private ambulance will respond emergency. If no illness reported, a duty chief will respond routine. Average year sees 8% of calls related to CO. We use a QRae3 for gas detection. Our threshold is 35ppm and SCBA would then be necessary. 4 recent incidents where responders became victims of CO when called to a medical emergency. Now moving toward a single sensor CO detector for all apparatus or "go-bags". Moving to more electric PPV fans rather than combustion powered fans. We are noticing the battery charging producing Hydrogen as well giving a false positive on CO detector.

Maine Legislation



Joseph Thomas, Maine State Fire Marshal

2009 requirements: all units of multifamily, any rental unit, and single family dwelling, adding a bedroom, any renovated fraternity or sorority established after 8/1/12, any building converted to a single family residence.

2011 amendments: any building converted to a hotel, motel, inn, etc. on or after 8/1/12, any single-family dwelling or multi-unit building sold after 10/31/11.

2015 requirements: all new and existing hotels, motels, inns, bed and breakfasts, frat or sor houses, dorms, each building of an educational facility of at least 6 persons for at least 4 hours per day or 12 hours per week.

Our enabling legislation by which we adopt the life safety code is criminal statute.

Local Medical Direction on CO Protocols

Dr. Andrew Stevens, Allina EMS

Experience at the Indianapolis Raceway. 2008 race day, 4 people unconscious in an RV.

Nothing running in the RV or nearby. Neighbor had a generator running next to intake.

Nascar is now realizing the risk in their closed cockpits and high levels at all races. Treat

CO for CO symptoms. High flow oxygen and possibly HBO at HCMC. We should consider Extracorporeal Membrane Oxygenation for CO poisoning.

Emergency Services Panel Discussion Q & A Session

Q: What is the specific protocols per medical direction?

A: If we suspect CO, we will treat accordingly with oxygen. This is regardless of pulse oximetry or rad 57 readings.

Q: How have you been successful at the Maine legislature?

A: We end up re-educating the legislature every session due to turnover and the amount of information. We unfortunately have to work for something better today than yesterday using baby steps.