



# HOT TOPICS

Oshkosh Fire Department

## CHIEF'S CORNER



The Oshkosh Fire Department takes tremendous pride in serving our community. Our mission statement is, "The City of Oshkosh Fire Department is a highly trained team that adds value to our community by providing a wide range of emergency services with skill and compassion. We advocate risk reduction through

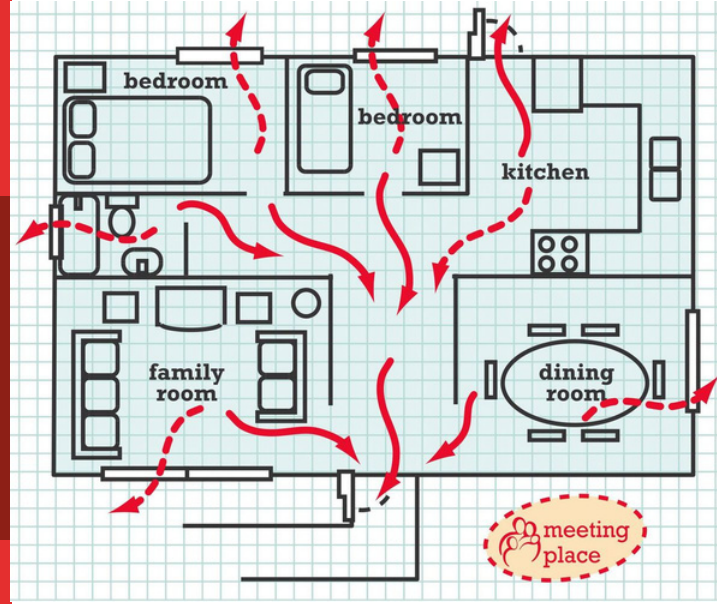
prevention and education, and we provide leadership in times of crisis."

In order to measure our performance in fulfilling our mission and exercise our commitment to the concept of continuous quality improvement, we need feedback from our customers. We need to know what we are great at so we can keep doing it. We also need to identify what we can do better so that we can get better.

To gather this feedback we have created a customer satisfaction survey that will allow Oshkosh community members that have interacted with us to comment on a number of items such as our service, our response time, and our professionalism. This valuable feedback will help us to shape our service levels and benchmark against similar agencies. We will be implementing this survey in the very near future and look forward to hearing from you.

Thank you for helping us so we can better help you

--Chief Mike Stanley



## FIRE WON'T WAIT. PLAN YOUR ESCAPE

by John Holland

October 9-15 is the 100th anniversary of Fire Prevention Week. This year's campaign, "Fire won't wait. Plan your escape" works to educate everyone about simple but important actions they can take to keep themselves and those around them safe from home fires.

Today's homes burn faster than ever. You may have as little as two minutes (or even less) to safely escape a home fire from the time the smoke alarm sounds. Your ability to get out of a home during a fire depends on early warning from smoke alarms and advance planning.

The first step in any fire escape plan is to have working smoke alarms. At a minimum, you should have working smoke alarms on every level of your home. Once the alarm sounds you have to react quickly and get out of the house immediately.

In order to get out of the house quickly and safely you must come up with a home fire escape plan before there is a fire. Your plan should include two ways out of every room in the home, in case your usual way out is blocked by smoke and/or fire.

*(Continued on page 2)*

# FIRE WON'T WAIT. PLAN YOUR ESCAPE (Continued from page 1)

The two ways out will usually be the door and a window. Next you need to decide on a safe meeting place outside of the home where all of the family should meet once they are safely out. This could be a large tree in front of your house, a mailbox, or the neighbor's front door. Finally you should practice your plan to ensure that everyone recognizes the sound of the smoke alarm and knows what to do.

As usual your Oshkosh Fire Department will be spending a lot of time out in the community educating the public about fire prevention and safety. We'll be out in the schools where we average talking to over 2,600 kids every October.



Of course, we'll be doing our annual Detector Trek where we go door-to-door installing FREE smoke alarms and batteries as needed. In the 14 years this program has been in place, we have provided almost 1,200 smoke alarms throughout the city. We will be focusing on neighborhoods in our community where we have experienced fires this past year.

So remember, "Fire won't wait. Plan your escape". Make sure you have working smoke alarms on each level of your home and come up with a home fire escape plan. Do it today. You and your family's lives may depend upon it.



## WHAT'S NEW

At the September 6 PFC meeting, **Shawn Millard** was promoted from Firefighter to Equipment Operator. Shawn started with Oshkosh Fire Department (OFD) back in 2006 and is presently serving at Station 17. During his career he has served as a member of the Dive Team and has volunteered his time at the Wisconsin Burn Camp for Children every year throughout his career.

Congratulations Shawn!

## NEW HIRES

We are so excited to have two firefighters formally join the OFD team! Please join me in welcoming:

- **Andrew Lepien** is from Fond Du Lac and graduated from Fond Du Lac High School. He completed an Associates Degree in Fire Protection Technician from Fox Valley Technical College. Andrew is a veteran of the U.S. Army and completed an internship with our department.
- **Rick Guerra** is from Milwaukee and graduated from Whitnall High School. He is pursuing a Bachelor's Degree in Project Management from Colorado State University. Rick most recently served as a firefighter with the Grand Chute Fire Department. He has also gained a great deal of relevant emergency services experience during his fourteen year career.

Both firefighters will be starting orientation on Monday, September 12.



# KITCHEN TABLE TRAINING

by Captain CJ Wedell

## Lithium-ion batteries and how they should impact decisions made on the fireground

In our world, lithium-ion batteries are everywhere from cellphones and lawn movers to electric cars and everything in between.

We've all seen news stories and articles in professional publications about these devices catching on fire in very dramatic ways. Charging packs on airlines, charging cellphones, cellphones which have been left in the window of a car on a sunny day, a Tesla in a driveway or an electric vehicle on a city street are all examples of something called, "thermal runaway".



Thermal runaway is generally defined as:

a sequence of processes involving exothermic reactions and gas generation, which builds up pressure in the cell. At temperatures in the vicinity of 160 C (320 F) to 200 C (392 F) reaction of the alkyl carbonate electrolyte with a typical electrolyte salt, LiPF<sub>6</sub>, begins and this occurs in parallel with the above anode passivation layer decomposition reactions (above). LiPF<sub>6</sub> decomposes as  $\text{LiPF}_6 \rightarrow \text{LiF (s)} + \text{PF}_5 \text{ (g)}$  and PF<sub>5</sub> is a strong Lewis acid that can react with many alkyl carbonates along with trace water forming reactive HF.

Boring stuff right? Even for a hazmat nerd like myself!

The most important piece of information to grab out of that quote is that "thermal runaway" is a chemical reaction that can't effectively be stopped, inhibited or neutralized. It produces heat, pressure and gases. Many of the gases are combustible or can or/will become corrosive in the presence of water. Some of the other gases which are formed in the reactive include CO, CO<sub>2</sub>, CH<sub>4</sub> (Methane), H<sub>2</sub>(Hydrogen) and HF (Hydrogen Fluoride).

Hydrogen fluoride is a chemical compound which contains fluorine. It can exist as a colorless gas or as a fuming liquid and can also be dissolved in water. When hydrogen fluoride is dissolved in water, it may be called hydrofluoric acid. Inhalation of HF produces an immediate injury to the lining of the lungs with hemorrhage pulmonary edema and death. It may take only about 5 minutes of exposure of inhaled HF to produce death in a couple of hours. All in all, fluoride from whatever source can be very dangerous.

In addition, we have the heat, which only helps to sustain the chemical reaction and start nearby combustibles on fire. Don't forget about the pressure that occurs from the buildup of all this heat and gas! We all know what happens when excess pressure builds in a sealed container...CFB!! Great...What do we do????

(Continued on page 5)

# KITCHEN TABLE TRAINING (Continued from page 4)

How can we safely and effectively address incidents involving larger lithium-ion batteries?

**These questions will guide you in your decision making process:**

- Are there any life safety hazards involved with the incident?
- Do I have any adjacent exposures to the incident?
- What is my available water supply?
- Can I contain any run-off from the incident?
- Where are the products of combustion traveling to and are there any exposure considerations that need to be addressed?
- Is the safest and most effective mitigation strategy for the incident, to let the chemical reaction, "thermal runaway" continue to completion so that all reactants are consumed and the reaction is terminated?



There are many schools of thought of possible solutions to address these type of incidents. Everything from covering the car with fire resistive tarps to exclude O<sub>2</sub>, submersion of the vehicle in a large dumpster of sand or water, flooding it with hose lines and large quantities of water, to letting it burn itself out. The latest school of thought, is to elevate the rear of the vehicle, exposing the battery housing and cooling it for at least 45 minutes with a hose line.

All are interesting points and should prompt continued discussions and more thorough research in order to lead to the development of clear and concise strategies. All incidents have different factors which drive them. I believe that asking ourselves these 6 questions will help guide our decision making on scene and result in an appropriate and safe resolution to that incident.



For more information about thermal runaway with lithium-ion batteries, follow the link below:

<https://www.osti.gov/servlets/purl/1249044>

## Coming Up

- High Rise Deployment
- Roof Operations
- And more!

# MEDICAL DIRECTOR MINUTE

by Dr. Kerry Ahrens

Imagine you are enjoying EAA on a gorgeous late summer afternoon then all of a sudden you collapse, and everything goes black. This happened to one of our transported patients just a few weeks ago. If this was your loved one, what would you do?

Luckily his wife, herself a healthcare worker, started immediate high-quality CPR. Statistics show that you are more likely to 're-start' a heart 21% of the time when bystander CPR is initiated, and only half that (9%) when it is not initiated<sup>1</sup>. Point one: it never hurts to start compressions when a person collapses - ever. Many will question "what if I hurt them?" or "How will I know when to stop?" Could you hurt them ... maybe; but it is better than the alternative. You will know when to stop because patient's often ask you to 'get off me!' if they are cognizant enough to do so.



A few minutes later, an OFD ambulance stationed at EAA arrived. They took over resuscitation. At the initial pulse check the patient had no pulse and no rhythm aka 'a flat line' or 'asystole'. Chest compressions were resumed for 3 more rounds of resuscitation involving compressions, IV epinephrine administration, and providing breaths for the patient. At the next pulse check patient had ventricular fibrillation on the monitor. That second round produced a rhythm the team could shock and triggered the heart into pumping blood appropriately. Point two: Always continue compressions until help arrives; and even then, continue for several rounds because sometimes a person's heart will surprise you. The compressions may help trigger any innate electrical activity that remains in the heart.

After 10 rounds of ACLS including shocks and medications our OFD medics obtained return of 'spontaneous circulation'. This patient likely suffered a ventricular fibrillation cardiac arrest - commonly caused by a heart attack when an artery that feeds the heart is blocked by a clot or ruptured plaque. Where do you suppose the vast majority of these occur? Home? Nursing Home? Out in public? Most, 51%, occur in the public; followed by home (22%), then nursing home/rehab facility (12%)<sup>3</sup>. Our patient initially had a rhythm called asystole which only 2% of patient's survive when it occurs outside of the hospital<sup>2</sup>.

So what happened to our patient? He maintained his pulses due to our medics' excellent care, was sent to a nearby hospital, a report was given over the radio and the patient was ultimately taken to the cath lab where a coronary artery was unclogged. This patient did have some complications I don't have time to go into, but he did go home and was known to be attending a concert a few weeks ago and enjoying life. What made the difference for this person? Honestly, I feel the most important step that occurred was the initiation of high-quality CPR by his wife the minute he went down. THIS is what most studies report is the main factor that allows a patient to survive a cardiac arrest to hospital discharge with their faculties intact.

(Continued on page 7)

# MEDICAL DIRECTOR MINUTE (Continued from page 6)

Of course, our medics provide amazing care - and they played a vital role as well. As you can tell, this article is not for our medics . They would know exactly what to do prior to their arrival in this situation. For any of you reading this who DO NOT know how to do bystander CPR otherwise known as CCR there are numerous classes online and in person which WILL save a person’s life if you take the minutes to learn. In this situation every minute counted and the training his wife followed by flawless execution of the cardiac chain of survival made a difference for this patient. Note: this story was shared with permission.

Sign  
Up Now!

Click on the logo below to sign up for a CPR course with the American Red Cross.



**American  
Red Cross**

1. Czaplak et al. Factors associated with return of spontaneous circulation after out-of-hospital arrest in Poland: a one-year retrospective study. 2020. 20: 288.
2. Jordan et al. Asystole. NCBI Stat Pearls. Updated May 23, 2022. Accessed September 1, 2022
3. Nichol G, Thomas E, Callaway CW, Hedges J, Powell JL, Aufderheide TP, Rea T, Lowe R, Brown T, Dreyer J, Davis D, Idris A, Stiell I; Resuscitation Outcomes Consortium Investigators. Regional variation in out-of-hospital cardiac arrest incidence and outcome. JAMA. 2008; 300:1423- 1431.



# EVERYONE GOES HOME

by Battalion Chief Drew Jaeger

The second of our stated values of the Oshkosh Fire Department is Safety. You may have noticed that our chief officers usually sign off from conference calls and weekly video messages with an admonition to “Stay Safe”. It makes me smile and think of my nephew, who when reminded by mom to “Behave” replied “I am being HAAVE,” as if it were a status to maintain. What I believe our leaders are really saying with that short reminder is “We care about you, and we all should have a shared perspective that taking measured risks while doing potentially dangerous things is important.”



It might be tempting to think of safety as the responsibility of the Safety Officer or the Safety Committee. We have dozens of policies and procedures that are designed to guide us to conducting our operations safely. But these will only be effective if we have a shared commitment to risk reduction. We can accomplish that by our actions, such as driving defensively, especially when using lights and sirens. We can accomplish that by training diligently, in both knowledge dimensions such as building construction features, and in practical skills such as high-rise hose deployment. Our mission statement notes that we will endeavor to be a “Highly Trained” team. Our department goals capture that we will utilize a “comprehensive, standard based training program.” This is something that our training division and fire companies strive to do daily. We also can learn from incidents, both those of our department and those around the country when there are major incidents or harm comes to firefighters.

OSHA describes three aspects of risk reduction that employers are to attempt to mitigate potential hazards. The first of these is engineering controls. In the 1970’s, with greater use of SCBA, firefighters were becoming lost and trapped with greater frequency in burning buildings. So the use of Personal Alert Safety System (PASS) devices came into being as an engineering control. These are small motion sensors that emit a loud alarm sound if a firefighter stops moving for a period of time, usually 30 seconds. The challenge with the early versions is that they had to be manually turned on and off. Firefighters were still getting lost and found to not have activated their PASS devices, so the standard changed to having them be automatically turned on when the air bottle of the SCBA is opened.

Another engineering control that has occurred during my career is the fact that all firefighters are assigned a radio, rather than just the company officer.

The second form of risk reduction is administrative controls. These include policies and training. We have procedures that outline the tasks that a firefighter should do immediately if they find themselves lost or trapped in a building, including using the radio to broadcast the word MAYDAY and then using the acronym LIP as a reminder. This stands for Location, Identification, and Problem. We train and practice these procedures, so that in the potentially life threatening circumstance of being lost or trapped in a fire, our reflexive response will be engrained.

(Continued on page 9)



## EVERYONE GOES HOME (Continued from page 8)

The final form of risk reduction is the use of personal protective equipment (PPE). For us that includes items such as gloves on medical calls, turnout gear on fires, and brightly colored and reflective vests on car accidents. It can be very tempting in an emergency situation to forego an item of PPE. I witnessed a very experienced and knowledgeable firefighter use a tool to break a garage window to access the home of a person in medical distress, but failed to wear his turnout gloves and sustained a laceration to his hand. Mistakes do happen, and he would be the first to admit it was a mistake, and so we use that as a reminder to learn from.

The more important lesson is not just the surface concept of “Wear Your Gloves” but rather, do each of us have the courage to change when we learn better and safer ways of doing things? Are we willing to acknowledge when we fall short of our collective intent to be safe? I have not always hit that target, and I bet if you search your memory, you can find times when you have made mistakes as well. We don’t want to let fatigue, tradition or pride get in the way of doing the right thing. So, even with engineering controls, administrative controls, and PPE, we still must maintain a diligent attitude of professional attention to safety. Please keep these concepts in mind as you work together to protect our community and each other, “STAY SAFE” to make sure that Everyone Goes Home.



## WHAT DOES SAFETY MEAN TO YOU?

When we recently asked members what safety meant to them, this is how they responded:

- Using proper techniques so that no one is hurt or could be hurt by your actions. Following the accepted procedures; not skipping steps; ensuring others are also doing the same;
- Safety is a mindset and culture that prioritizes the well-being of yourself and those around you;
- Being protected from or unlikely to cause danger, risk, or injury;
- Being deliberate with your actions to protect yourself and others;
- Steps taken to prevent injury or damage;
- Completing our routine and emergent tasks with a managed risk perspective;
- Accident prevention;
- Being risk aware, and taking actions to reduce risks;
- Everyone goes home; and
- Safety is the action or ability through quality training, actions, or equipment, to shield one from mental and physical injury.

## LET'S CONNECT

