

In partnership with Aurora Medical Center in Summit

EMS Newsletter

Fall – 2011



EMS team up with Aurora Medical Center
to save life of heart attack survivor

 **Aurora Medical Center**®

www.Aurora.org/Summit

36500 Aurora Drive | Summit, WI 53066

Carbon Monoxide Poisoning

Spotlight on the Oconomowoc Fire Department and Ambulance Service

Hands on training for technical school students

Feedback Line for EMS Providers

In this issue:

EMS team up with Aurora Medical Center to save life of heart attack survivor



David and Julie Meier with the Lake Country Fire and Rescue team of paramedics whose quick response helped to save David's life.

On June 27, 2011 David Meier was working in his yard when he felt a pain in his chest. "I tried to dismiss it as indigestion, but it wasn't going away," remembers David. He drove his golf cart to the shed in order to get a drink of water. "The water didn't help and I began to think, 'this is serious'. The pain was more intense than I had ever experienced before. It wasn't a sharp pain, it was more of a pressure, like a weight was on my chest."

David managed to drive back to the house. He made it onto his porch, laid down on the floor and called to his wife, Julie, who then dialed 911. "My favorite Village of Chenequa police officer Dave Dauphin actually heard the call as he was getting into his squad car. I think he was at my house within two minutes and offered oxygen and comfort."

EMS response

"The initial call indicated a sixty-year-old, male with chest discomfort," says Garrett Herzberg, Deputy Chief at Lake Country Fire and Rescue (LCFR). "Normally we dispatch an ambulance with a crew of three and a suburban with an additional couple personnel to calls such as this. This allows us to evaluate, treat, stabilize, and transport more efficiently," adds Garrett.

LCFR paramedics immediately obtained a 12-lead ECG. The patient had requested

Aurora Medical Center in Summit, so the ECG was also being directly transmitted to the hospital. "We automatically connect with the Emergency Department anytime we perform a 12-lead ECG," comments Garrett.

During transport David's condition worsened and during the radio transmission to the ER the EMS team was told to bypass the ER when they arrived. Garrett explains, "This added bit of communication and cooperation can save crucial time. EMS and patient are met at the bay and escorted directly to the cath lab."

As David was being shifted from the EMS gurney to the cath lab table he lost consciousness and developed a critical (torsades) arrhythmia. With the support of the cath lab team, EMS used a defibrillator to restore a regular heartbeat.

Time is still ticking

The moment David's heartbeat was restored, Virinderjit Bamrah, MD, a cardiologist at the Aurora Medical Center in Summit, and his team prepped David and began the angioplasty and stent procedure. "From the ECG we knew that the patient was experiencing a true heart attack and not just unstable angina," comments Dr. Bamrah. "More importantly, the ECG that was transmitted from the

field gave us an excellent idea of which artery was affected by the blockage and allowed us to be prepared and ready to proceed before the patient even entered in the cath lab."

Thirty minutes after EMS wheeled David through the hospital doors, Dr. Bamrah and his team had opened David's LAD artery, one of the main arteries of the heart, and restored blood flow. "I felt like a million bucks - I couldn't believe the condition I was in just an hour earlier," recalls David.

The American College of Cardiology (ACC) and the American Heart Association (AHA) guidelines recommend a door-to-balloon time of no more than 90 minutes. Dr. Bamrah confirms, "Effective, timely treatment to open the artery and restore blood flow quickly, not only reduces the number of heart attack deaths, it also limits a patient's risk for permanent damage to the heart muscle." In David's case, his follow-up visits have shown that his heart has completely recovered with no lasting damage.

Dr. Bamrah also emphasizes, "Equally important to EMS response time is the need for patients to seek medical attention at the first sign of a potential heart attack. If we can stress the need for patients to respond quickly to their symptoms, then we can further cut down on total ischemic time which means better preservation and recovery of heart function."

"Everyone worked together like clockwork to keep me alive," said David. "I believe that without the effective cooperation of care I received, the outcome would not have been so positive."

On the cover: David Meier and his life-saving team reunite in the catheterization lab at Aurora Medical Center in Summit. L to R: Matt Fennig, FF/EMT/P, Marty Morris, FF/EMT/P, Julie Meier, Scott Surges, FF/EMT/IT, David Meier, Zak Ruggirello, FF/EMT/P, Virinderjit Bamrah, MD, Barb Rozek, RCIS and Doug Sanders, RN.

Carbon Monoxide risk rises in fall and winter

Carbon monoxide (CO) is an odorless, colorless and tasteless gas that is formed by the incomplete combustion of carbon containing substances. Approximately 10,000 patients seek medical attention for CO exposure each year. Exposure may be intentional as part of a suicide attempt, may be due to occupational hazards like fighting fires, or may come from apartments or homes with faulty furnaces or water heaters. Any place where engines run, especially in enclosed places with poor ventilation, occupants are at increased risk of CO exposure. CO poisoning must be suspected if the patient presents with vague symptoms of headache, nausea, vomiting or altered mental status. In any patient who is unresponsive, CO toxicity should be considered.

CO is toxic to humans and animals because it binds to the hemoglobin molecule in red blood cells, which is responsible for carrying oxygen through the blood stream from the lungs to the cells of the body. CO binds to the hemoglobin molecule to form carboxyhemoglobin, and it prevents oxygen from binding because CO has a greater affinity for hemoglobin. The normal carboxyhemoglobin (COHb) is usually less than 5%, but in heavy chain smokers the level may be as high as 9%. The level can be easily measured with a blood test or estimated with a device that uses similar technique as a pulse oximeter.

The signs and symptoms of CO poisoning are vague and nonspecific, so it can be a great mimicker of other conditions. Many CO poisonings may be undiagnosed or misdiagnosed, and it is important that medical personal have a high index of suspicion. If a patient is a victim of a fire, other chemical agents can also be contributing to the patient's condition. Products of combustion can also include hydrogen cyanide and sulfide which are chemical asphyxiants that can be co-toxins with carbon monoxide. Symptoms of CO toxicity are dose dependent, which is determined by the concentration of CO in the air and the duration of exposure. COHb levels from 10 to 20% usually

present with a throbbing headache in the temporal regions. Levels of 20 to 40% will usually produce a more severe headache with nausea, vomiting, generalized weakness, visual changes, dizziness, and eventually cause the victim to collapse. As the levels increase to 40 to 50%, it results in syncope, fast heart rate and respirations. Above 60% COHb the patient may develop bradycardia and depressed respirations with death. Death occurs because of hypoxia to vital organs such as the heart and brain, and a profound metabolic acidosis can result in cardiac arrhythmias that are lethal.

Children, because of their developing brains, are especially susceptible to CO poisoning. Children may present with just GI disturbances such as nausea, vomiting and diarrhea, which is then followed by lethargy and syncope. Please be safe and always check a COHb level.

At the scene where CO poisoning is suspected, treat the patient with high flow oxygen, such as a re-breather mask. If the patient is unconscious, protect the airway initially with bag mask ventilation and then a more definitive airway such as an ET tube. If the patient is unconscious and doesn't have a gag reflex, an oral pharyngeal airway may be used, but be careful because the patient may regain consciousness as you are bagging and may vomit and aspirate. The patient should be

transported to the nearest hospital with hyperbaric oxygen capabilities.

A multi-place chamber can treat multiple patients at a time, anywhere from 2 to 30 patients, and also attendants. This is especially useful if there is a situation where multiple victims have suffered CO poisoning. A mono-place chamber can treat only one patient at a time. Regardless of which chamber is used, the basic principle of hyperbaric oxygen therapy is that the tissues and blood are supersaturated with oxygen under increased pressure conditions. At increased pressure, more oxygen can dissolve in the plasma and oxygen can displace CO from the hemoglobin molecule, thus more oxygen can be delivered to the tissues of the body, reversing some of the hypoxic tissue damage that is done by the CO poisoning. Hyperbaric oxygen therapy is administered to patients either in a multi-place or mono-place chamber.

Hyperbaric oxygen is relatively safe and can be a life saver. It can also prevent the delayed neuropsychiatric complications of CO poisoning. It is important to avoid delays in therapy, so it is best to bring patients with suspected CO poisoning to the nearest hospital with hyperbaric oxygen capabilities. Always have a low index of suspicion and check a carboxyhemoglobin level if you suspect CO poisoning.



Mono-Placed hyperbaric oxygen chamber available at Aurora Medical Center in Summit.



Quality Assurance/Feedback Line for secure patient care follow-up

This secure phone line at Aurora Medical Center allows direct patient care and emergency medical services providers the opportunity to review and evaluate a patient's care. Nurses, physicians and EMS providers involved in a patient's care can use this tool to:

- Confirm a patient's status, diagnosis and treatment plan
- Determine if situation presented was analyzed and treated correctly
- Adjust protocols and improve processes, if needed

For more information or to use the Quality Assurance/Feedback Line, call 262-670-7002.

To ensure patient privacy, providers will be verified as having been directly involved in the patient's care.

Aurora Medical Center offers hands on training for technical school students

Through an ongoing partnership with area technical schools, Aurora Medical Center in Summit provides clinical expertise opportunities to students seeking IV Tech and Paramedic certification.

As the Emergency Preparedness Coordinator at the Aurora Medical Center in Summit, Al Davies, RN, EMT/IV Tech, values the strong relationship between local Emergency Medical Services and the hospital. "We started the program one year ago when we recognized the need for health care facilities to offer this type of experience," says Al.

The program helps students fill patient contact hour requirements in the emergency, surgery, GI lab and ambulatory/day surgery departments at the Aurora Medical Center in Summit. Al explains, "Under strict supervision, hands-on training includes initiating IV therapy and administering medication. Students also obtain airway management experience under direct supervision from physicians and anesthesiologists."

The program was initiated by Steven Andrews, MD who serves as the EMS Medical Director at the Aurora Medical Center in Summit. Currently the program is offered for students at the Waukesha County Technical College and the Moraine Park Technical College, and looks to expand to Madison Area Technical College.

"By strengthening the relationships we have with EMS, we are able to better support the health of our communities," emphasizes Al.

For more information, please contact Al Davies at 262-434-1995.

The Oconomowoc Fire Department and Ambulance Service



The Oconomowoc Ambulance Service was formed at the EMT-Basic level in 1977. For the past ten years the Oconomowoc Fire Department has provided fire and ambulance services on the EMT-Intermediate Technician level. In December of 2010, the department took a step forward by hiring three new full time EMT paramedics. "We now provide emergency response services in cooperation with the Lake Country Fire Department paramedic intercept program," states Glenn Leidel, Deputy Chief with the Oconomowoc Fire Department.

The department also offers special services through the Western Lakes Underwater Search, Rescue and Recovery dive team. The team works jointly with the Dousman Fire District to provide year round, surface and subsurface water and ice rescue operations.

The department recently acquired two Trek Bicycles capable of assisting with first response and equipped with an AED and other emergency medical care equipment. Chief Leidel adds, "The bikes allow us to provide an additional mobile EMS presence at large scale community events like parades and festivals where ambulance access can be limited." Another new capability includes animal-specific oxygen masks to provide limited services to pets. "As a department, our goal is to keep evolving into a more complete service by finding ways to better serve the community," concludes Leidel.



At a Glance – The Oconomowoc Fire Department:

- 45 paid-on-call firefighter/EMT's
- 6 full-time firefighter/EMT's.
- 8 EMT-only personnel
- Services cover the City of Oconomowoc, the Village of Oconomowoc Lake, the Village of Lac La Belle, and portions of the towns of Summit, Oconomowoc and Ashippun
- They respond to approximately 1,450 EMS calls and approximately 350 fire calls each year
- They have three ambulances – two are dispatched from Station 1 in Oconomowoc and the third is kept in reserve at Station 2