

May 16th – May 22nd

During the week of May 16th – May 22nd the Virginia Fire Department responded to a total of eighty-six calls, fourteen Fire calls, Seventeen Transfers, and fifty-five 9-1-1 EMS calls. The Seventeen transfers brought us to three different Hospitals to pick up Patients; Bloomington Hospital in Ely, Fairview Range Medical Center in Hibbing, and Essentia Health Virginia. We transported these Patients to St. Luke's, St. Mary's and to Nursing Homes. The Fifty-five 9-1-1 EMS calls brought us to McDavitt once, Gilbert Twice, four times to Iron and Mt. Iron, the rest forty-four in Virginia. We transported these Patients to Essentia Health Virginia, St. Luke's Essentia Health St. Mary's, and Fairview Range Medical Center. During this week we performed eighty-two Procedures, administered fifty-two Medicines, and treated more women (39) than men (33).

Fire Marshal investigated one fire, which remains under investigation, performed two public Education events and fully launched our explorer program with eight youths two from Mesabi East one from Eveleth and Chisholm and four from Virginia. The Fire Marshal's office would like to remind you to use caution when using outdoor fires and recreation fire the city ordinance can be found on our web page at www.virginiamn.us.

Since September of 2014 the Virginia Fire Department has been participating in a Heart Attack study. This study was called E-PATH Protocol or "If the ECG is Positive, give Aspirin, Ticagrelor, and Heparin. The reason for the study was based on how EMS agencies serving a large rural area have not traditionally administered Ticagrelor or Heparin IV in the pre-hospital setting for the STEMI patients. **STEMI** is the most serious kind of Heart Attack, and *stands for ST elevation myocardial infarction*. "ST elevation" refers to a particular pattern on an ECG heart tracing and "myocardial infarction" is the medical term for a heart attack. **Ticagrelor** is used for the prevention of thrombotic events (for example stroke or heart attack) in people with acute coronary syndrome or **Myocardial Infarction with ST Elevation**. The drug is combined with Aspirin, unless contraindicated. Heparin is a widely used injectable blood thinner. It is used to treat and prevent deep vein thrombosis and pulmonary embolism (collectively known as venous thromboembolism) and is also used as part of the treatment of myocardial infarction and unstable angina. A study done in Europe by EMS proved that Ticagrelor can be administered safely by EMS. Starting in April 2013, Minnesota started participation in a three year American Heart Association Mission Lifeline STEMI state Project, focused on improving rural STEMI care and outcomes. Our study inspired by Richard Mullvain, who is a Clinical Pharmacist and Heart Attack Program Manager at Essentia, along with our past Medical Director Doctor Robert Zotti, also from Essentia. The hypothesis, was that allowing EMS to administer medications normally given in the hospital setting could be beneficial. We the Virginia Fire Department are in a great spot to do this being over 60 miles from the nearest Catheterization Laboratory or Cath Lab for Percutaneous Coronary Intervention (PCI). PCI is another term for opening a blocked Heart artery with a balloon and stent. We would now be able to carry and administer medicines that we would normally have to go to Virginia Hospital for. Taking away this step made it possible for Patients to get to the Cardiologist faster, knowing that *time is muscle*. Through some extra training our staff has become very good at reading ECG's so when a STEMI

is recognized we can start heading straight to Duluth. While en-route we administered the medicines in the E-PATH Protocol, so they can start working sooner. Based on the ECH, we call ahead to the Duluth Cath Lab, to make sure they are ready to take care of the STEMI Heart Attack Patient immediately upon arrival. This also saves time when arriving to the Hospital, allowing us to bypass the Emergency Department and take the Patient Directly to the Cath Lab where the Patient would receive the PCI to quickly open the blocked artery in their heart. Based on location of the incident we would sometimes call for Air Medical to meet us or intercept, somewhere between location and Duluth, mostly when we were north of Virginia. Our goal was to have our Patients to the Cath lab in ninety minutes from receiving the call. The study first looked at thirty-one cases from the Virginia community before E-PATH from May of 2013- Sept. 2014, which showed that the average time in minutes, was 157 from first EMS contact to Cath Lab, after E-PATH Sept. 2014 –Aug. 2015 the average was 129. Twenty-eight minutes might not seem like a lot of time but when your heart is being Oxygen deprived it is. Some of the results that the Study showed; First Medical contact to PCI reduced by 20 minutes, referral hospital to PCI reduced by 22 minutes, EMS depart scene to arrival at PCI hospital reduced by 10 minutes, EMS first medical contact to PCI reduced by 28 minutes, 9-1-1 call to PCI reduced by 21 minutes, Cath Lab start time to PCI reduced by 3 minutes. Richard Mullvain presented and published this information to the American Heart Association Quality and Clinical Outcomes Research Conference in Phoenix, Arizona this past March. This study helped inspire the Minnesota EMS STEMI Guideline, so that now many other EMS systems might start carrying these lifesaving Medicines to save Heart Muscle. But the work isn't quite done yet as future research analysis may now be done to see if there is a drop in hospital readmissions, and quality of life past thirty and ninety days, one year. According to Richard, "The success of this trial and protocol is fantastic news for the Virginia community, knowing that heart attack care is even better now!". So we would like to thank Richard Mullvain and Dr. Robert Zotti for partnering with the Virginia Fire Department to be the *Tip of the Spear*- in the path to save lifes.