

EMS Best Practices

JUNE 2015

HOW WE MOVE FORWARD...WITHOUT DOCTORS MEDICAL CENTER

—By Pat Frost, RN, EMS Director

The loss of Doctors Medical Center represents a profound change for our entire EMS community but most importantly the patients and families of West County. While the full impact of the hospital closure is not yet known, below are some of the changes we have already experienced from August 2014 to April 2015, when Doctors was downgraded to a standby emergency department and could no longer receive emergency ambulance traffic.

During this period of transition and uncertainty the Contra Costa EMS System has already begun to adapt and evolve. Out of this experience new opportunities to support patient care will emerge. That is why it is more important than ever to redouble our efforts to assure the safe delivery of EMS services. Thank you for all your hard work and continued commitment to this community.



West County SYSTEM IMPACTS

- Out of County Hospital Destination — 11 more transports/day went out of county
- Transports to Alta Bates — 5 more transports/day went to Alta Bates
- EMS Transport Volume to Kaiser Richmond — 8 more transports/day went to Kaiser Richmond
- EMS Transport Volume to CCCRMC — 5 more transports/day went to CCRMC
- EMS-ED Transfer of Care Times increased — from 20 to 25 minutes on average
- Never Events (pt transfer of care > 1 hour) increased — from 24 to 25/month

CARDIAC ARREST SURVIVAL IMPROVES

—By Joe Barger, MD, EMS Medical Director

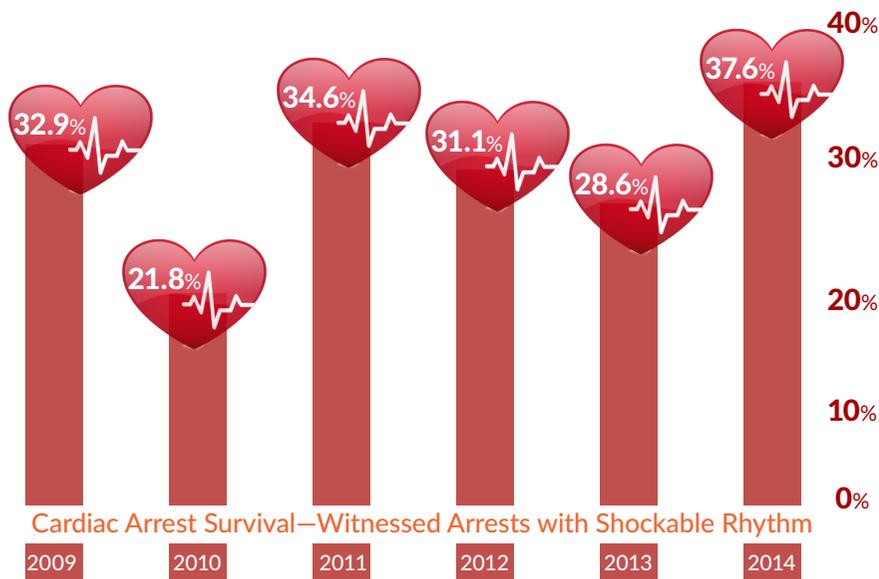
I'm pleased to announce that cardiac arrest survival increased significantly last year in Contra Costa County. For patients with witnessed arrests and shockable rhythms, 37.6% of patients survived to hospital discharge in 2014. That represents an increase from an average of just under 30% over the last 5 years.

Many factors likely contribute to the improvement. Last year, EMS providers in this county participated in a major training initiative on performance of high-quality CPR. Along with the training initiative, feedback on CPR quality on many cases is now being provided by analysis of data provided when these cases are transmitted. The goal is for EMS providers to learn from the feedback to improve subsequent resuscitations.

Another important reason for increased survival may be bystander CPR, the performance of CPR before the arrival of EMS responders. Bystander CPR rates were at their highest in the past six years—38% of all patients received bystander CPR. Continuous efforts are under way to improve on that percentage as well, with several initiatives around the county, including CPR training in schools. Since we began data collection in 2009, the rate of bystander CPR performed by laypersons has increased by 50%.

Early CPR and early defibrillation remain the most important factors in survival, and the quality of CPR provided by EMS professionals is also critical. High quality CPR includes compressions with a rate between 100 and 120. When metronomes are used by EMS responders, compression rates fall into the correct range 100% of the time. When metronomes are not used, the percentage of correct rates drops down to nearly 50%. Recent data shows that metronomes are being used in around 2/3 of cases. All paramedic agencies have metronomes built in to their monitors and BLS agencies also have portable metronomes, so continuing to improve compliance in this regard is important.

As well, attaining the highest “compression ratio” possible during resuscitation is important to CPR quality. That ratio is the percentage of time CPR is being delivered during the resuscitation.



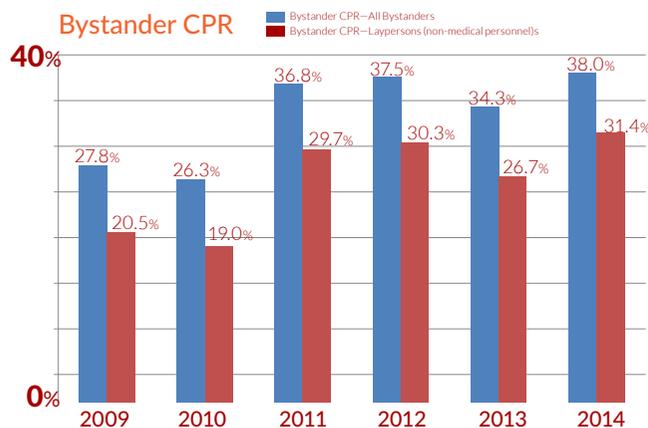
Our average compression ratio is 78%, though our goal is at least 80%. So we also have room to improve in this area. One of the biggest challenges is the pause in compressions that occurs during ventilation. Ideally those pauses should be 3 seconds, but often extend to 6–8 seconds.

Currently, around half of our resuscitations are transmitted for analysis of CPR quality. Another goal is to increase the percentage of cases transmitted so that we can increase the amount of feedback to providers.

Another training initiative this year involves use of end-tidal carbon dioxide monitoring to assist in delivering the appropriate ventilation rate in CPR. Our goal is to begin use of this monitoring as soon as possible, starting this with use of bag-valve-mask ventilation and converting over to use with advanced airways when this occurs. Keeping the ventilation rate in the range of 8–10 times per minute for adults is also a critical component of CPR quality, as higher rates may lessen the effectiveness of compressions.

Ventilation rates and end-tidal carbon dioxide readings recorded by our monitors are also transmitted along with data on compressions. Our hope is to provide feedback on ventilations in the future.

It takes several weeks to complete the gathering of hospital outcome data on cardiac arrest, so 2015 data is still very incomplete. Of those cases with complete data, our survival rate for the witnessed arrest/shockable rhythm patients is over 50% so far, so it is our hope that we will see yet another uptick in survival this year. With the combined efforts of bystanders and our professional rescuers, the hope is that we can improve that survival rate to at least the range of 50–60% in future years.



Please send questions for future
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