

NAEMT/AIMHI Finance Webinar 2 Questions – Categorized by Theme

The panel mentioned research into response times. Could you share that research information please?

Here are links to several studies that illustrate the lack of association between ambulance response times and patient outcomes:

Paramedic response time: does it affect patient survival?

<https://www.ncbi.nlm.nih.gov/pubmed/15995089>

Lack of association between prehospital response times and patient outcomes.

<https://www.ncbi.nlm.nih.gov/pubmed/19731155>

Response time effectiveness: comparison of response time and survival in an urban emergency medical services system.

<https://www.ncbi.nlm.nih.gov/pubmed/11927452>

Eight minutes or less: does the ambulance response time guideline impact trauma patient outcome?

<https://www.ncbi.nlm.nih.gov/pubmed/12217471>

And, we also mentioned the perceived value of EMS in general, according to some studies/media reports – here are some of those:

Survival Rates Similar for Gunshot, Stabbing Victims Whether Brought to the Hospital by Police or EMS, Penn Medicine Study Finds

<https://www.pennmedicine.org/news/news-releases/2014/january/survival-rates-similar-for-gun>

Association of Prehospital Mode of Transport with Mortality in Penetrating Trauma

A Trauma System–Level Assessment of Private Vehicle Transportation vs Ground Emergency Medical Services

<https://jamanetwork.com/journals/jamasurgery/article-abstract/2654239>

More Advanced Emergency Care May Be Worse for Cardiac Arrest Victims: Study

<http://health.usnews.com/health-news/articles/2014/11/24/more-advanced-emergency-care-may-be-worse-for-cardiac-arrest-victims-study>

Need an ambulance? Why you may not want the more sophisticated version.

<https://www.washingtonpost.com/news/to-your-health/wp/2015/10/12/need-an-ambulance-why-you-may-not-want-the-more-sophisticated-version/>

A healthcare expert explains why you should think twice before taking an ambulance to the hospital

<http://www.businessinsider.com/think-twice-before-taking-ambulance-hospital-elisabeth-rosenthal-insurance-bills-healthcare-hospital-emergency-2017-4>

Ambulance Crew Configuration: Are Two Paramedics Better Than One?

<https://www.jems.com/2018/10/08/ambulance-crew-configuration-are-two-paramedics-better-than-one/>

In calculating Unit Hour Utilization, what if you have a longer task time, say 2.5 hours vs. 1 hour?

Simply factor your average task time into the UHU calculations:

*Transports / Hours on Duty * Time on Task (in hours). This calculates utilization in the following example:*

System 1: 5 calls/day per 24 hour staffed unit and 1 hour time on task

$$5/24 = 0.208 \text{ UHU}$$

System 2: 5 calls/day per 24 hour staffed unit and 2.5 hours on task

$$5/24 = 0.208 * 2.5 = 0.521 \text{ relative UHU}$$

What happened in 2009 that inverted the MedStar collected versus cost amounts?

Two things: We introduced our MIH program to better manage system abusers in 2009. As a result, we were able to reduce staffed unit hours on duty because we reduced our response volume to system abusers (who had no payer source, so generally with no impact on revenue). And, we raised our rates by \$100.

So, having discussed this, what is your take on system status management? Do you support a model that is based upon geographical distance or population clusters? Other?

Most effective Dynamic Resource Management (previously known as SSM) systems are based on a balance of geospatial AND temporal demand. For example, at MedStar, we have core posts that cover geography and layer in staffed resources and pre-position them based on predicted call demand and location based on time of day and day of week.

Could you please expand upon your comment regarding skill dilution in paramedic-heavy staffed crews?

Studies (and common sense) have shown that the more paramedics you have in a defined EMS system with a fixed number of patient contacts, the fewer the chances for paramedics to practice their craft on actual patients. Some will argue that simulation can bridge that gap, but let's be honest, simulation is no substitute for actual patient care. Do you want to have brain surgery from the neurosurgeon who has done it on 100 REAL patients, or has done it on 10 REAL patients, but has done it in simulations 90 times?

Here are links to some studies that actually found this to be true.

Paramedic Exposure to Out-of-Hospital Cardiac Arrest Resuscitation Is Associated With Patient Survival

<https://www.ahajournals.org/doi/10.1161/CIRCOUTCOMES.115.002317>

Does the Number of System Paramedics Affect Clinical Benchmark Thresholds?

<https://www.tandfonline.com/doi/full/10.1080/10903120802101355>

Fewer paramedics means more lives saved

<https://www.firefighterclosecalls.com/fewer-paramedics-means-more-lives-saved/>

Cardiac arrest survival as a function of ambulance deployment strategy in a large urban emergency medical services system

[https://doi.org/10.1016/S0300-9572\(03\)00178-3](https://doi.org/10.1016/S0300-9572(03)00178-3)

Retention, Learning by Doing, and Performance in Emergency Medical Services

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2699914/>

What was the name of the program that you spoke about with regard to the geographic system status model?

There are two that are widely used in High Performance/High Value EMS Systems – MARVLIS by Bradshaw Consulting (<http://www.bcs-gis.com/marvlis1.html>), and Logis Solutions (<https://logisolutions.net/products.html>).

Thoughts on QRVs?

Quick Response Vehicles can be very effective in two very diverse roles. First, as a rapid response unit in rural areas where an ambulance may be coming from a great distance to the scene. Often, a fire agency may serve in this role, using already staffed units (for fires) to respond to EMS calls in between fires. Or, in a high performance EMS system where there are BLS ambulances, paired with ALS QRVs on Emergency Medical Dispatch (EMD) pre-determined call types with high probability of requiring critical ALS care levels. This model helps assure that ALS personnel are highly utilized (see previous discussion on ALS skill utilization) and makes effective use of often scarce ALS resources.

The discussion is about response time, any chance to discuss appropriateness of the response time?

As previously mentioned, studies have shown that clinically, any response time > 5 minutes makes no difference in patient outcomes, medical OR trauma. Now, there is an argument to be made that there is a customer service role for response times, however, WE have given the 8 minute urban expectation to our communities, so it's up to ue to change that expectation. In other countries, they have created different expectations and it is not unusual to have a 30-60 minute response time for low acuity medical calls.

What resources are available from AMIHI or other groups to assist with calculating cost per call? Is there a cost accounting system for Ambulance providers?

NAEMT has system cost analysis templates, complete with examples and Excel workbooks on line at <http://www.naemt.org/initiatives/mih-cp/mih-cp-program-toolkit>.

What is the best way to determine UHUs when mixed between 911 and non-emergency transports, and 24/7 and peak hour units? Some units could be handling 3 hour transports while urban 911 units handling 2-3 calls per hour.

There are a couple of ways to analyze this. You could do an overall UHU to determine the ideal balance between workload and response time performance. You could do it by "division" if you have a dedicated non-emergency department within your system. Due to the cost of readiness issues associated with 9-1-1 response, your emergency division will typically have a lower UHU than a non-emergency division. Similarly, peak-load units will typically have a higher UHU than 24 hour staffed units.

Some CAD systems, such as Logis, will manage and balance workload by UNIT – assigning some units that are running hot to slower posts or stations for a 'break' and vice-versa.

If the fractile response time of 8 min in 90% is met, what is the implication on the median (or center of the bell curve)?

The illustration is meant to show that your 'average' response times will ALWAYS be shorter than fractile response times. Agencies that only report average, are not reporting any type of response time reliability, but rather the point in time where 50% of the responses are longer and 50% are shorter. Conversely, and for simplicity, the 'public' generally understands 'average' response time, even though it's a terrible measure of system quality.

On response time, the speaker referenced call time to time at address or in park as response time. Can you comment on the elements of response time per NFPA definitions?

The NFPA has time increments that determine a response time calculation. Most progressive EMS systems do analyze the components of the EMS response time process, however, we focus on the overall goal of the patient's perspective of response time by evaluating the two most important times to the patient; the time of call (1st keystroke of the call taking process in the communications center) and patient contact time (the time the responding EMS unit arrives WITH THE PATIENT). Process improvement in any of the individual time segments could impact the overall response time. For example, well trained EMS dispatchers, using a formalized EMD call taking process can reduce errors by taking a little extra time on the call taking process to assure correct addressing AND assignment of resources. Further, systems can minimize "activation time" by posting units in the field with pre-positioned, staffed and running units. An EMS agency using Dynamic Resource Management (DRM) has an activation time of < 10 seconds since the activation is "Park to Drive". A station-based provider has activation time delays with assembly of the response personnel, movement to the unit, climbing into the unit, starting the unit, and then responding.

Is there a minimum number of units where it always make more sense to use a static or dynamic deployment model?

Not really. It's more a question of balancing desired response times with resource utilization. Fire departments have used "move ups" for years, but typically only when a station/unit will be committed to a fire for more than 30 – 60 minutes. Why not use the same model for ambulance calls? For agencies that only do First Response with an average tasks time of < 20 minutes, move ups may not make sense. But moving ambulance units, since most task times will be > 60 minutes likely makes sense.

As we show more and more (based on outcomes of patients) that response times do not matter, when will these systems begin to renegotiate contracts?

See the previous response – but it's up to US to educate the purchasers (city and county governments) about using performance measures that really matter, such as compliance with clinical bundles of care (i.e. cardiac arrest, STEMI, Stroke, Trauma) and patient experience scores (measured by an OUTSIDE agency).