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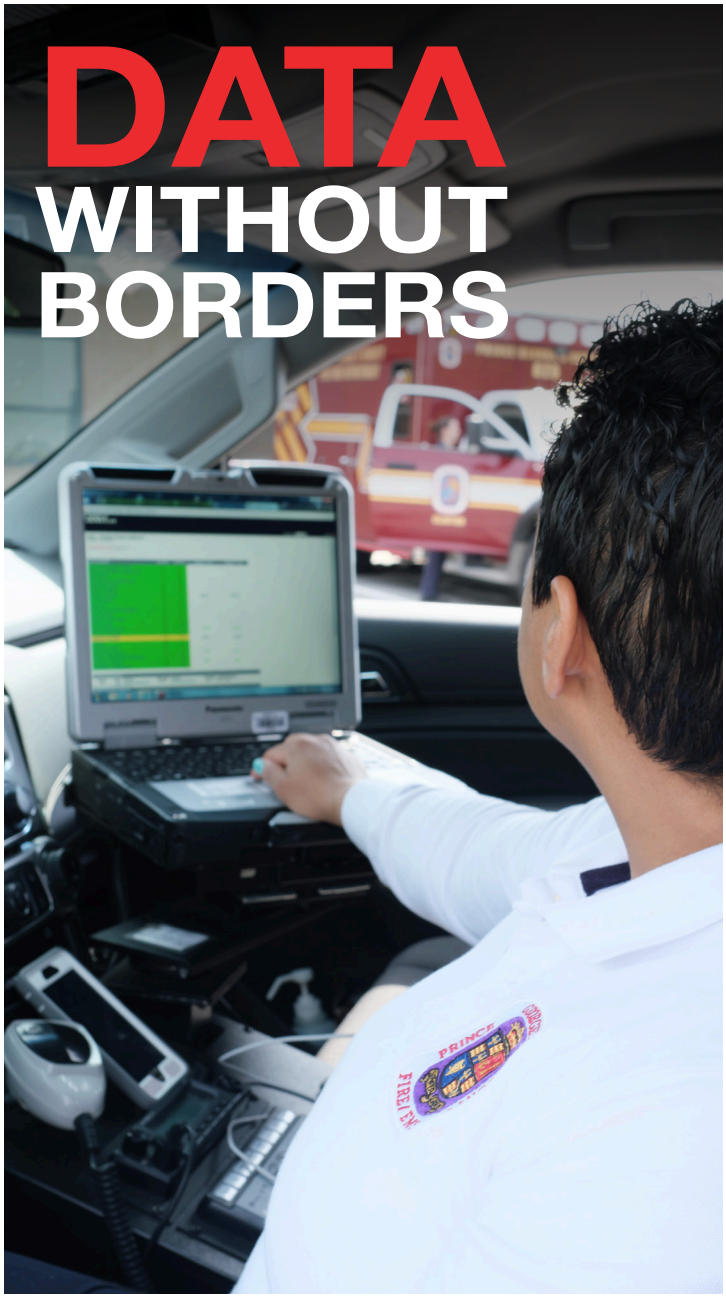


DATA WITHOUT BORDERS

In the capital area a new dashboard lets departments work together to improve situational awareness

By Brian Frankel, NRP; Alan Butsch, MA, NRP; Timothy Burns, MS, NRP; John Filer, NRP

Photos: Aaron Webster

In EMS we talk frequently about the barriers to sharing data. Typically, however, we are referring solely to patient care information and how it could benefit the people we serve if we had better access to hospital and other health records. EMS organizations across the country are seeking ways to share info more easily with healthcare and social service partners and obtain outcome information for their quality improvement efforts.

But what about sharing information from one EMS agency to the next? Across the country agencies may operate in the same geographical area or neighboring jurisdictions yet rarely automate any information sharing. While great strides have been made toward interoperable communications, automatic aid agreements, and other cooperation, our data typically remains siloed, as we each use our own computer-aided dispatch systems, electronic patient care reporting software, and other internal programs.

We were no different in the National Capital Region (NCR), which includes Washington, D.C., and surrounding cities and counties in Maryland and Virginia. Fortunately we have some active regional organizations, such as the Metropolitan Washington Council of Governments, that ensure frequent communication between leadership in our public safety agencies. Over the last several decades, this has helped facilitate improvements in radio interoperability, response coordination, and resource sharing. We frequently cross borders to respond to emergencies and transport to hospitals, yet our data systems remained almost entirely disconnected—until now.

The First Step

Several years ago we noticed our ambulances were spending more time waiting to transfer patients as emergency departments became more and more crowded. This was happening with each of our agencies, as well as with our partners across the region. These issues can have a spiraling effect: The short-term impact can mean delayed care for patients and increased stress for our EMTs and paramedics. Then, as the minutes begin to

add up across the system, EMS capacity is reduced, forcing agencies to potentially add units.

This problem is certainly not unique to the NCR. Across the country concerns about patient offload times have been on the rise, as evidenced by a number of articles, blog posts, and even peer-reviewed literature.1,2 There is even some evidence that offload delays may lead to longer stays in the emergency department, contributing even further to overcrowding.3

Each of us individually had begun efforts to address this problem, mostly by bringing data to hospital and emergency department leadership to make them aware of the issue. But we also began to realize no one had a complete picture of what was happening. In the National Capital Region we have several city and county agencies that provide 9-1-1 medical care and transport. While we mainly respond to incidents within our own borders, we also regularly cross county lines to support our neighboring jurisdictions. Our ambulance crews also cross borders regularly to transport patients to the most appropriate hospital, which in the NCR might be not only in a different county but possibly a different state.

In other words, while Prince George's County, Md., fire and EMS officials knew how long their ambulances were spending at the county's biggest hospital, they had no idea how long D.C. Fire and EMS ambulances waited to offload patients at the same hospital.

We began searching for solutions that would provide more real-time awareness of how busy our hospitals were. While in Maryland there is already a statewide system for hospital diversion, we wanted to know before it was too late and see if there were ways to avoid putting hospitals on diversion and avoid having our ambulances show up while others already there waited to transfer patients.

Regional Hospital Status Dashboard

In 2014 we launched a hospital status dashboard in Prince George's County. Our partners at FirstWatch worked with us to build a dashboard that would be useful to chiefs, field supervisors, and field providers. With three clicks on a smartphone, every member of our department could instantly know which of our transport units were at which hospitals and how long they'd been there.

What made the dashboard even more useful and innovative came later, when three other local jurisdictions came on board. Thanks to a grant through the Urban Area Security Initiative, a federal program that "supports efforts to build and sustain the capabilities necessary to prevent, protect against, mitigate, respond to, and recover from acts of terrorism," most fire departments in the NCR are using FirstWatch to monitor CAD, ePCR, and other data and improve performance.

With those connections already established, the next step was to create one dashboard that combined that data to provide a regional picture. The NCR hospital status dashboard now incorporates information from five different CAD systems: Prince George's County, Charles County, and Montgomery County, Md.; the District of Columbia Fire and EMS Department; and American

Medical Response (AMR), which provides BLS transport services in Washington, D.C.

The dashboard lists each hospital in the region and gives a few pieces of information:

- How many EMS transport units from our agencies are either at the hospital or en route;
- The average length of time units have been at the hospital;
- The longest any unit has currently been at the hospital.

The system also sends alerts based on specific criteria established by each agency. For example, if four units are at a hospital for more than 30

minutes, EMS supervisors in Prince George's County are automatically notified via text, e-mail, and the FirstWatch app. They can then look deeper into the problem to see which units are there and whether they need to talk to ED staff or divert transports to another facility.

> **It's one more piece of information to help keep any one hospital from being overwhelmed.**

In Washington the EMS liaison officer (ELO), a fire department paramedic assigned to the unified communications center, has traditionally directed personnel in the field to transport to one of the many emergency departments in D.C. and surrounding areas. In the past they based that decision solely on their knowledge of where D.C. Fire and EMS ambulances were transporting and tried to spread the patients out among hospitals to avoid inundating one. But they had no easy way of knowing who else might have recently arrived or was on their way to a hospital. Several D.C. hospitals serve as primary trauma centers or just frequent transport destinations for surrounding counties.

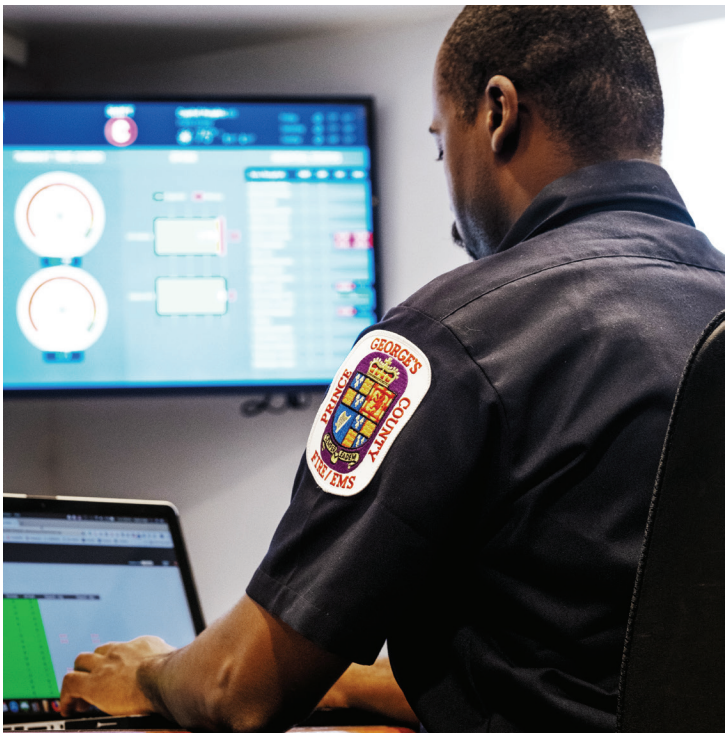
Now, with the regional hospital dashboard, the D.C. Fire ELO has real-time knowledge of which ambulances across the region are en route to or already arrived at local emergency departments. It's one more piece of information to help keep any one hospital from being overwhelmed.

Bringing Data to the Hospitals

Making transport decisions based on the information in our regional hospital dashboard is only part of the solution to a much bigger problem. The causes of emergency department crowding and patient handoff delays are multiple and complex. While hospitals know how long patients wait in waiting rooms after being registered and how long they wait for a bed, they often have no idea how long EMS waits to transfer a patient. In fact, until that patient is in a hospital bed, he or she often remains invisible as far as any hospital records are concerned, because the patient is still technically under EMS care.

In each of our jurisdictions, we meet frequently with local hospitals and discuss these issues. We now come armed with reports that show exactly how often our ambulances waited longer than a certain time before they were available to take another call. The regional dashboard allows us to bring them a more comprehensive view of how this time impacts the entire system.

Hospital leaders have also been given real-time access to the dashboard, so they can see how they're performing and how busy other hospitals in the region are. In at least one meeting, we discovered a local hospital had recently cut some staff—a cost-saving measure leaders hadn't realized might affect how quickly they could safely take patients from EMS. This awareness is causing them to search for structural and staffing changes to prevent this unforeseen impact of their budget cuts.



Next Steps

The regional hospital status dashboard was the first time we worked together to connect our data across county and state lines using FirstWatch. But the potential to gain a better picture across the region goes well beyond that. In addition to efforts to bring on more regional partners, including our colleagues in northern Virginia, here are just some of the ways we hope to expand and improve the program in the future.

More accurate patient offload times—The hospital dashboard currently relies on the total time our ambulances spend at the hospital, which

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includes time after the crews have transferred patient care and are writing reports and cleaning and restocking equipment. The total time from arrival at the hospital to clearing the hospital is a proxy measure for patient offload times but may be impacted by other factors.

Currently we do not record and track the actual time the patient was moved to an emergency department bed and care was transferred, but there are plans to change that. We soon will have our radios programmed so providers can press a button that will time-stamp the actual transfer of care. This will give us a much better idea of how long it's actually taking to offload patients and provide much more specific information to present to hospital leadership.

Major incidents—There are many potential advantages to having better regional situational awareness. Some are more obvious than others: Giving our supervisors in the field and communications the ability to see the status of units in neighboring jurisdictions could provide benefits immediately, during mass-casualty incidents, at major events like presidential inaugurations, and even when there's a major crash on the Beltway requiring multiple jurisdictions to respond.

EMS performance benchmarking—But we're looking beyond that to potentially share patient care data as well. In addition to using FirstWatch to mine and report CAD data, we also use its companion software, FirstPass, to review patient care data as part of our respective agencies' quality management processes. We realized that if each of us is tracking similar measures, such as compliance with bundles of care for stroke, acute coronary syndrome, trauma, and other conditions, we could use FirstPass to benchmark our own systems against the entire region to see how we're performing and where we could improve.

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The goal will not be to point out which jurisdictions are lagging or laud ourselves if we're on top. Instead we hope to be able to learn from each other. If one county's agency is having success in an area where others struggle, perhaps there are things we can learn from how they train their providers, organize their equipment, or deploy their resources.

Breaking Down Walls

The ability to look at fire and EMS data across the region has the potential to truly expand our operations and situational awareness. We live in an interconnected world, and to the residents and visitors of the National Capital Region who cross state and county borders every day, the seal on the side of the ambulance or truck is irrelevant—they expect us to work together to keep our communities as healthy and safe as possible.

The ability to connect our data even though our agencies use different CAD systems and ePCR software has broken down walls, allowing better regional cooperation and preparedness and benefiting the millions of people who live and work in the area—aligning with EMS Agenda 2050's vision for a people-centered EMS system that is integrated and seamless.

Collaborating with local partners across municipal lines is critical, and connecting data systems is another step toward improving the ways we work together every day.

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