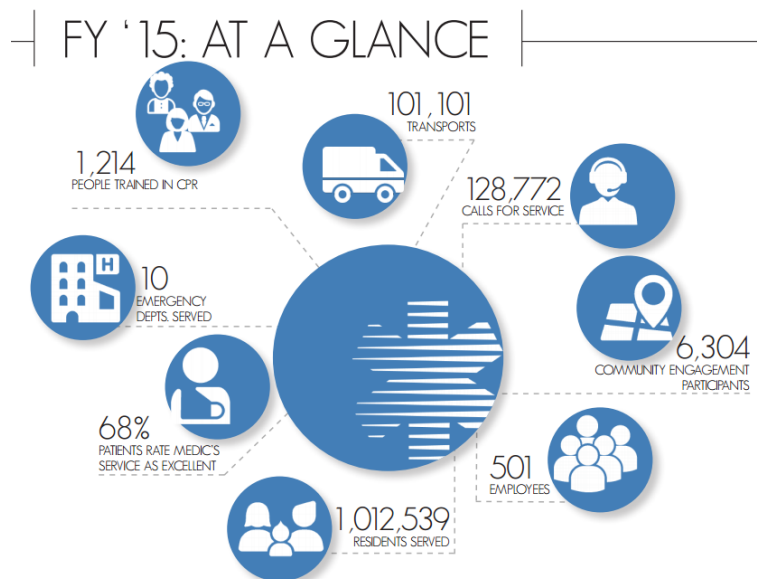


# CUHU at Medic — Case Study

## Medic — the Mecklenburg EMS Agency

Medic operates the busiest 9-1-1 Emergency Medical Services (EMS) agency in the state of North Carolina. Contrary to popular belief, Medic is more than just an ambulance service. From SWAT, medical research and the latest in prehospital medical training and equipment, Medic is among the nation's top 1% of EMS agencies in terms of positive outcomes for Cardiac Arrest victims.

Independently operated under Mecklenburg County, Medic's responsibilities span 544 square miles. Mecklenburg County is a diverse and exciting environment with several professional sporting venues, multiple college campuses and universities, two major lakes, a busy international airport, several major business centers and corporations, two nuclear power plants and a population over 1,000,000 people.<sup>1</sup>



Our people. Our patients. Our stewardship. These three elements make up the core of Medic's purpose in the community, and Agency leadership works to ensure that everything we strive to achieve is in clear alignment with them.

The best evidence of this fact can be seen through the numerous performance measures that Medic tracks on an ongoing basis. These measures allow us to monitor

everything from the performance of important processes to outcomes associated with specific improvement initiatives. Most importantly, each of these measures clearly aligns with Medic's mission and supports the Agency's ability to achieve its vision for the future.<sup>2</sup>

<sup>1</sup> (Medic, Mecklenburg EMS Agency, 2016)

<sup>2</sup> (Medic, Mecklenburg EMS Agency, 2015)

## Using DataWatch911

Safely and efficiently responding to emergency medical needs, as well as pre-scheduled transports, in a community as large as Mecklenburg County requires a powerful and robust system capable of handling a tremendous amount of data, and mining it in real-time to forecast *and* plan resources.

Medic set about creating a data measurement and analysis environment that would support forecasting and planning readily

*and* simultaneously as resources are assigned and available. The goal was to ensure adequate resources were readily available when and where they were most likely needed.

*“Mecklenburg EMS Agency has relied on DataWatch911 for many years. It is a vital component of our dispatch operations which has helped us manage systems-wide productivity and accountability. It monitors total system performance, all compliance factors, and all customized workload metrics in real-time.”*

**Todd Sims, Operations Manager  
Medic (Mecklenburg EMS Agency)**

One of the tools used by Medic to achieve this goal is DataTech911’s DataWatch911 application to address **real-time workload management**. The tool was used by Medic to clearly quantify its resource workloads and performance through a Crew Unit Hour Utilization (CUHU) specific to its organization.

### Crew UHU (CUHU)

CUHU is a DataWatch911 unique feature used by Medic to rate the types of assignments a unit may be required to perform (i.e., transports, post moves, response to calls that do not result in transport, etc.). Point values are assigned to each type of assignment, the points are added for the assignments run and then divided by the hours on duty. Monitored assignments and point values are determined by a work team comprised of front line field personnel.

CUHU is calculated in real-time as work is completed. The crew with the highest workload at any given time is the busiest and working the hardest as defined by employees actually performing the work. As a result, CUHU can be used to compare availability and readiness level of crews for any given period of time.

### Workload Management Implementation

To implement real-time workload management Medic went through the following process:

1. Defining “work”

Medic, in conjunction with front line field personnel, defined work as activities carried out by the ambulance crews. As a dynamically deployed agency, this included post moves as well as transports and responses to calls that do not result in a transport.

2. Assigning point values to “work”

Medic worked with their crews to assign a point value to each assignment. Post moves, responses, transports based on priority, and non-transports were all ranked and given a point value.

3. Using CUHU for feedback to personnel

The culmination was a CUHU that could be used to give a meaningful relative value for the workload of each crew and individual in real time, as well as cumulative for analytics.

### Using CUHU for Feedback to Personnel

Medic implemented a robust performance management system — one that would improve its performance without disrupting existing workflows and aid them in gaining optimal coverage through effective deployment of its assets and crew members.

*“A 24X7 solution, DataWatch911 is a part of the regular operations of the agency. It is not simply a reporting tool; its real-time analytics provide actionable data we use in making critical decisions.”*

**Todd Sims, Operations Manager  
Medic (Mecklenburg EMS Agency)**

**Background:** Medic takes great pride in the transparency it offers to its employees in terms of performance and workload data. It ensures that employees are treated fairly and equally. Its management team has historically gone to great lengths to ensure that employee performance is reviewed objectively for the sole sake of improving performance, competency, and services.

DataWatch911 was integrated with Medic’s Computer Aided Dispatch (CAD) system, enabling Medic to directly mine CAD data for “in service” units and deployed assets as well as individual employees. The software was meant to aid Medic achieve two goals:

- Monitor In-Service Unit workload
- Monitor Individual Employee workload

### In-Service Unit Workload

With configured work items and point values, DataWatch911 calculates CUHU. DataWatch911 uses the CUHU values to provide a relative value of how busy and effective a particular crew member has been.

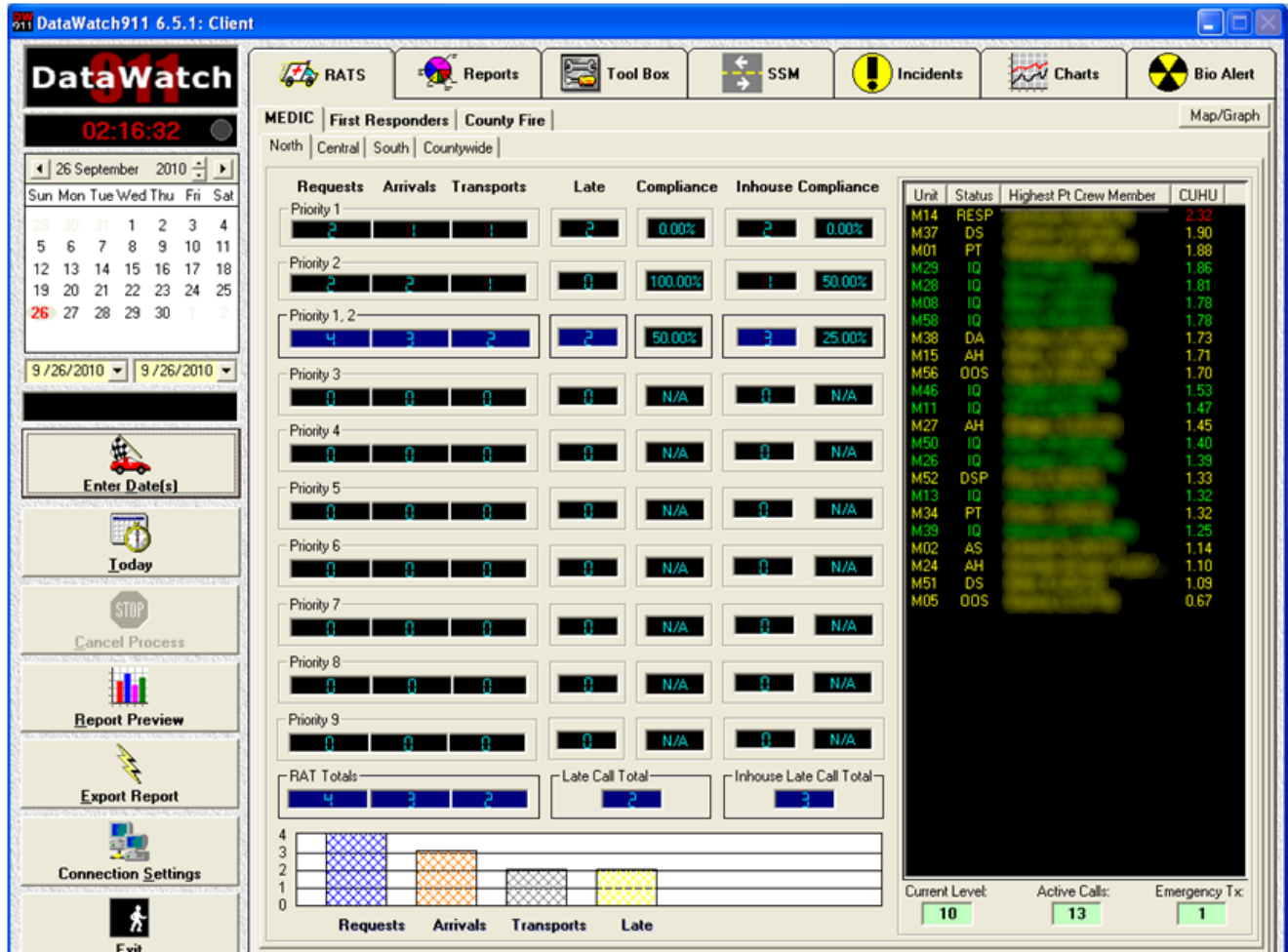


Figure 1 RATS with Dispatcher Console: Showing list of resources prioritized according to their CUHU

DataWatch911 provides dispatchers with a prioritized list for crews as seen in the Requests, Arrivals, Transports (RATs) with Dispatcher Console. The calculated CUHU for each crew is presented in the Dispatcher Console on the right. Each crew member is assigned a CUHU and if multiple crewmembers on the same unit have different CUHU totals, DataWatch911 provides the higher value to the dispatcher console.

The highest CUHU for each unit is displayed on the dispatcher’s console allowing the dispatcher to determine which unit should be deployed for a non-emergent response or post move. For emergency response, the nearest available ambulance is always deployed.

### ***Individual Employee Monitoring***

Medic currently employs over 500 employees, a majority of which includes EMD's, EMT's, and Paramedics. Efficiently tracking individual employee performance on a regular basis is critical to ensuring robust system performance.

Given the hectic dynamic nature of the work and Medic's commitment to improving EMS care, retention of its employees (and their institutional knowledge) is crucial to Medic's mission.

Meaningful and actionable insights into individual employee performance that enable proper feedback and mentoring is crucial to employee retention, while also improving agency performance. DataWatch911 provided the tools to allow Medic to effectively track individual employee performance on parameters unique to the organization and its performance management system.

Although, Medic initially required measurement of two core metrics, namely:

- Average "out of chute" times
- Average hospital turnaround times

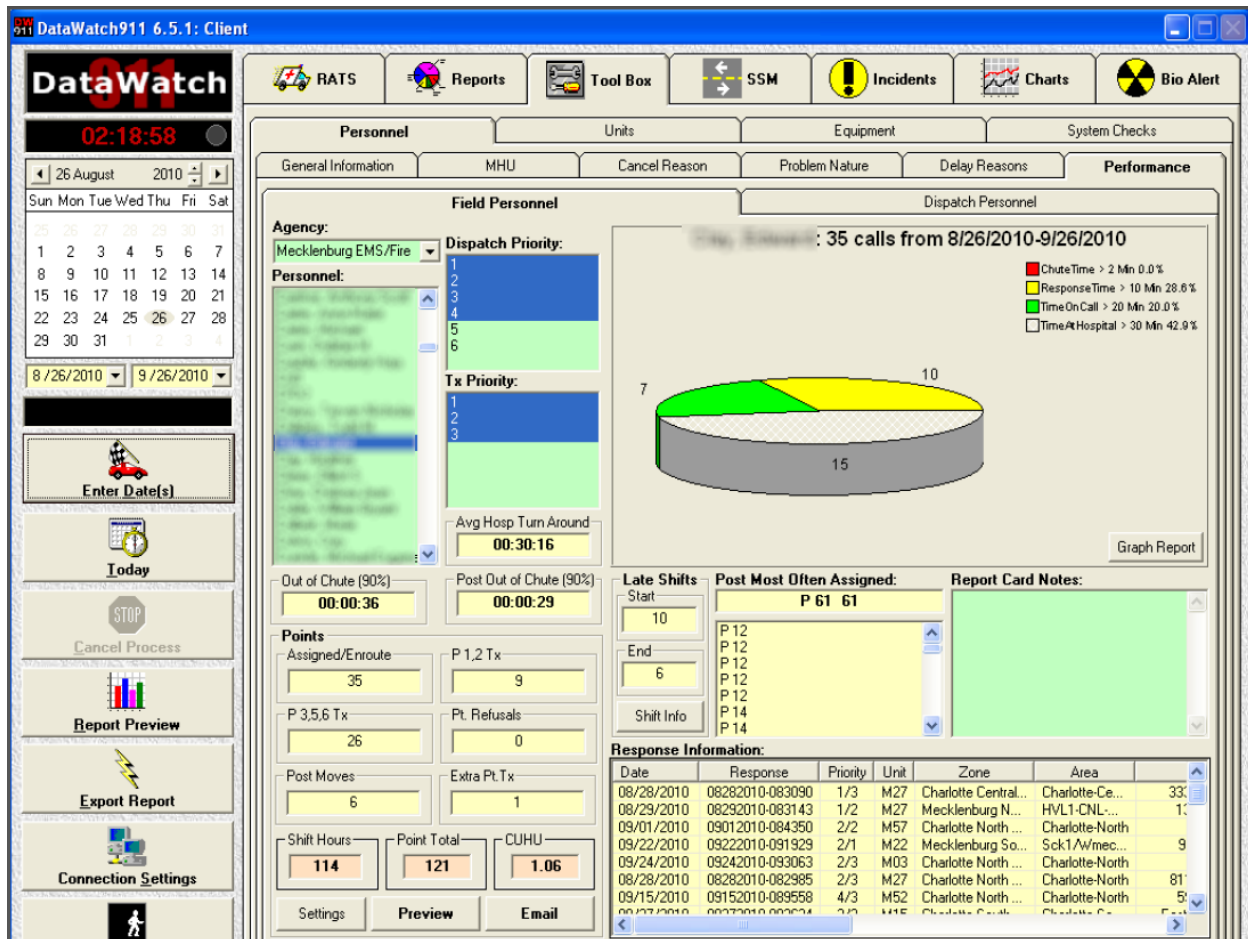
*"By using data from DataWatch911, such as Unit Hour Utilization, Medic has been able to improve processes and safely manage efficiency gains that have directly lowered subsidy costs received from the county."*

**Corinne Walser, Lead Dispatch Supervisor  
Medic (Mecklenburg EMS Agency)**

DataWatch911 also allowed them to track (for any determined period)

- Individual employee workload
- Historic data for post-assignments the employee has had during the specified period
- Number of late shift starts and late end of shifts including time total time of each
- Number of particular type of call any employee has completed within that period

Additionally, DataWatch911's customizable dashboard allowed Medic to gain other relevant employee performance information at a glance in real-time.



**Performance Analytics: Medic's DataWatch911 Dashboard**

## Conclusion

The emergency response sector is in need of sophisticated 911-system management software that empowers EMS to track, monitor, and respond to incidents in real-time.

Medic – an EMS provider serving over 1,000,000 people, needed a powerful, responsive, and flexible solution for meeting the growing EMS challenges it faced as it scaled its services and service areas. The organization needed to reduce its response time, be able to effectively allocate staff and resources, gauge performance in real-time, and increase accountability.

As a dynamic EMS service where units are deployed to areas analyzed in real-time to have the most need, Medic required a way to fairly manage the process of system coverage while balancing employee satisfaction. Employees found post moves to be of great concern, so excessive or continuous post moves for any given crew needed to be accounted for in the workload calculation.

Medic used DataWatch911 to address operational quality assurance and optimize workload management practices.

DataWatch911 directly interfaced to Medic’s CAD system, allowing Medic to improve the effective use of its first responder crews.

DataWatch911 combined powerful EMS analytics and

reporting tools that work-in real-time and include historic data to provide actionable insights for resource management and system level performance improvement to Medic. As a result, Medic was able to significantly improve its EMS operations.

*“Medic has pushed our solutions to the greatest levels. We have grown our solution significantly over the years by adding capabilities that support Medic in achieving significant improvements in the quality of their response while a commitment to their people and achieving tremendous operating results.”*

**Michael J. Salonish, Managing Partner  
DataTech911**