JUVARE

Streamlining Pre-Hospital to Hospital Communication for Mass Casualty Incidents in New York City

Executive Summary:

When a mass casualty incident (MCI) happens in New York City, hospitals and the fire department EMS (Emergency Medical Services) collaborate to ensure hospitals are prepared to care for the resulting patients. For years, this relationship centered on a time-consuming manual process whereby EMS dispatchers called hospitals to understand their capacity for critical and non-critical patients.

Leveraging existing technology, Greater New York Hospital Association (GNYHA) and EMS dispatchers have used GNYHA's Sit Stat 2.0 system—powered by Juvare EMResource—to streamline pre-hospital to hospital communication by simplifying the creation of an MCI event, automatically notifying all stakeholders, tracking acknowledgement and receipt of notifications, and minimizing the opportunity for error and false notifications.

aws partner network

Challenge:

Any critical incident with the potential to produce five or more patients in New York City is considered an MCI. Multiple MCIs can happen on any given day resulting from fires, motor vehicle accidents, HazMat (hazardous material) events, civil unrest, and acts of violence. Once declared, an MCI gets a Level of A, B, C, or D based on the severity of the event and the number of expected patients. Most MCIs are Level A, with a small number of Level Bs each year. Since the level designation was added in 2017, there have been no Level C or D incidents.

Citywide EMS dispatchers are responsible for pre-hospital to hospital communication anytime an MCI occurs. Before the process was streamlined, an MCI declaration triggered a manual process requiring a string of verbal communications between EMS dispatchers and personnel in the hospital emergency department (ED), and then additional internal communications between the ED and hospital stakeholders to prepare for the potential patient surge.

This manual process was time-consuming; relied heavily on verbal communication, which can result in the inaccurate transfer of information and delays in internal hospital preparation; and was difficult to track for improvements in efficiency and effectiveness.

Improving the process required updating and training both EMS dispatchers and internal hospital staff. EMS dispatchers required a system that could simplify the creation of an MCI event, automatically notify all stakeholders, and track acknowledgement of the calls while minimizing manual burden and the opportunity for error or false notifications. GNYHA hospitals needed a solution that could simultaneously notify numerous hospital stakeholders of an incoming patient surge, including calling the "red phone" in the ED. The system needed to place multiple calls to ensure notification receipt and required repeat and replay functionality to ensure communication effectiveness.

Solution:

To improve the pre-hospital to hospital communication process for MCIs, GNYHA and the fire department focused on technology. Leveraging the power of Juvare's EMResource and Amazon Web Services (AWS), GNYHA and the fire department built a process within Sit Stat 2.0 to streamline the MCI creation workflow for EMS dispatchers, automate simultaneous calls to pre-determined hospitals (based on the location of the incident and the MCI level), and send notifications to any additional hospital personnel so that all stakeholders receive the same information.

GNYHA and the fire department worked with Juvare to configure and implement a solution to support the objectives of the MCI notification initiative. Notable features include:

- Simplified user workflow to create an MCI
- Redesigned Start Event/Schedule Event interface
- Redesigned set defaults to limit human error
- Automated voice notifications for the "red phone" and notification groups
  - System will call up to three times to ensure the notification is delivered
  - Repeat and replay call functionality to improve information transfer
  - Real-time tracking of voice notification acknowledgement

Results:

After implementing Sit Stat 2.0 (powered by Juvare EMResource and AWS) and training all personnel on the technology and accompanying policy and procedure adjustments, GNYHA and the fire department significantly improved the efficiency and effectiveness of MCI pre-hospital to hospital notifications.

Now, anytime field personnel declare an MCI in New York City, an EMS dispatcher will determine the most appropriate initial MCI notification level (based on severity), create an MCI event in Sit Stat 2.0, and select the hospitals to be notified based on EMS computer-aided dispatch (CAD) recommendations. Also, automated notifications will be delivered to the EDs and core MCI groups at the selected hospitals.

Once EMS is notified by the Medical Branch Director of de-escalation at the scene or low potential for additional patients, the EMS dispatcher ends the event in Sit Stat. Stand-down notifications are delivered to the EDs and core MCI groups at selected hospitals.

Since implementing the system in November 2019, there have been 447 MCIs in New York City. All were level A (minimal to moderate) and included 421 fires, 10 major motor vehicle accidents (MVAs), and 6 HazMat events. Using Sit Stat 2.0 / Juvare EMResource, 1826 notifications (initial, update, and stand-down) were automated to hospital Emergency Department 'red phones'. That's 1822 phone calls in emergency situations that FDNY dispatchers did not have to make. Additionally, 84% of automated notifications were acknowledged by the hospital Emergency Departments.

1826
Noifications Automated

84%
Acknowledged by EDs

Next Steps:

GNYHA and the fire department's successful collaboration on Sit Stat 2.0 powered by Juvare EMResource and AWS was a major step in their long-term effort to advance real-time bi-directional communication capabilities between hospitals and the 911 system. Future steps in the Sit Stat 2.0/ EMResource project will include:

- Automated entry of bed occupancy data into the system to provide real-time, standardized bed occupancy data across New York City
- Incorporation of other hospital-EMS communications into Sit Stat 2.0, including:
  - Daily burn bed reporting
  - Non-MCI incoming patient notifications
- Integration of Sit Stat 2.0/EMResource and EMSCAD to fully automate the MCI notification process
- Use of Sit Stat to inform day-to-day and emergency patient transport decisions

"Because this has worked so well this year, we have significantly more champions within our hospitals and with FDNY so I definitely think we're in a great place to build on this. They are now seeing the possibilities and additional use cases that we can implement using this new system."

– Samia McEachin, GNYHA, Senior Project Manager, Emergency Preparedness.

About Juvare

Juvare is a worldwide leader in emergency preparedness and critical incident management and response software. Juvare solutions empower government agencies, corporations, healthcare facilities, academic institutions, and volunteer organizations to leverage real-time data to manage incidents faster and more efficiently, protecting people, property, and brands. For more information, visit www.juvare.com.