NG911

NEXT GENERATION 911
FOR LEADERS IN EMS

NG911 IS CHANGING THE FUTURE
5 WAYS EMS WILL BENEFIT

ALSO IN THIS ISSUE:

- Bringing 911 Into the Digital Age
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- Transitioning to NG911 in Minnesota
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NG911 IS CHANGING THE FUTURE
From keeping EMS responders safer, to better serving your community, the potential benefits of NG911 are significant.

ON THE COVER: An important part of the mission of the Orange County Fire Authority is to improve fire and EMS services through the implementation of emerging technologies.

BRINGING 911 INTO THE DIGITAL AGE

The creation of the universal emergency number in 1968 established a link between those in need and those who could provide assistance. Since that time, however, the way the public communicates has changed dramatically, and 911 systems nationwide have not kept up.

Nearly 80% of American adults now use smartphones and mobile devices to manage many aspects of daily life. These devices have the ability to send and receive rich data such as text messages, photos and videos. But when citizens try to connect with 911 on a mobile device, most of those features are incompatible with current emergency communication systems, and critical information about an incident cannot be shared. While consumers have rich digital data at their fingertips, 911 telecommunicators are still limited to a largely voice-centric world.

Transitioning to Next Generation 911 allows public safety answering points (PSAPs) to take advantage of digital technologies and harness breakthrough innovations. Communities will be more resilient thanks to increased redundancy and call overload back-up, so no public request for assistance will go unanswered. Emergency telecommunicators will receive and share digital information from bystanders or sensors at the scene, including photos, texts, audio and video; information from medical devices; and data from car sensors and building monitoring systems. The new

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EMS has an opportunity to embrace the transition to NG911 and recognize the value it will provide to public safety.

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infrastructure can link the rich data coming from the public to dispatchers and then to responders in the field. This augments information shared over broadband networks such as FirstNet, a wireless network for public safety responders that is being rolled out across the nation. FirstNet and NG911 are separate but related efforts—two parts of one whole: our nation's public safety communications system. New technologies being developed to take advantage of these networks will enhance the tools public safety has to improve emergency response.

In the new NG911 landscape, the data provided to EMS from 911 communication centers has the potential to move beyond the immediate needs of a specific incident. A future that connects the data from 911, EMS, the hospital and other health services to a patient record would open a window to new opportunities for improved patient care. As an industry that values data and what we can learn from it, NG911 provides an opportunity that is not available to us now.
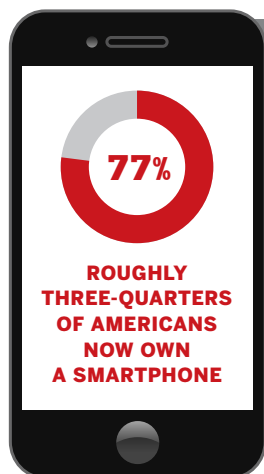
The transition to NG911 is a defining moment for the nation's emergency communications system and for public safety in general. As more detailed data about an incident and a patient is sent to emergency responders, better, more coordinated care will be provided to the public. The NG911 initiative is the foundation for a transformation of emergency communications; it should serve as a catalyst for all of us in public safety to work closer together and to strengthen relationships in our shared goal of protecting our communities.

EMS has an opportunity to embrace the transition to NG911 and recognize the value it will provide to public safety. We can leverage new technologies to enhance communication and increase access to data in order to improve the care we deliver. This is better for the safety of our responders, for our profession, for our patients and for our communities. ■

Dia Gainor
Executive Director, National Association of State EMS Officials

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77%

ROUGHLY THREE-QUARTERS OF AMERICANS NOW OWN A SMARTPHONE

ADAPTING PUBLIC SAFETY COMMUNICATIONS TO MODERN TECHNOLOGIES

Adapting the U.S. emergency communication system to be responsive to smartphones is a pressing safety issue, and migration to an IP-enabled system is essential to meet the public's expectation of public safety systems.

SOURCE: Pew Research Center, November 2016

NG911 enables greater situational awareness leading to improved safety for first responders.

UNDERSTANDING
NEXT GENERATION 911

Get the facts on NG911 and learn why advancing emergency communications will change the future of EMS

What is Next Generation 911 (NG911)?

NG911 is new technology that allows the public to share richer, more detailed data—such as videos, images and texts—with 911 call centers. It also enhances the ability of 911 call centers to communicate with each other and improves system resiliency.

Why do we need NG911?

NG911 modernizes 911 infrastructure to accommodate how people communicate today—largely through mobile and digital devices. NG911 allows the public to send digital data to 911 call centers, or public-safety answering points (PSAPs), and lets the PSAPs receive data from other transmitting devices such as wearable medical devices, car computers and building alarms. NG911 enables faster network communication and call load sharing between PSAPs. In mass casualty incidents or natural disasters—when the PSAP becomes overwhelmed by calls—NG911 allows for calls to be automatically transferred and processed by another available 911 call center.

Why is NG911 important for EMS?

For EMS professionals, NG911 has wide-reaching applications. Digitally connected sensors and medical applications can enhance situational awareness by transmitting valuable information via NG911 to PSAPs. The rich data includes critical health information, real-time data from wearable devices and crucial details from a car crash to better assess the medical conditions of occupants. The information then can

be sent to EMS responders, helping them make more informed decisions.

Dia Gainor, Executive Director of the National Association of State EMS Officials, considers NG911's ability to handle rich data as vital for a faster response and to keep EMS responders safer with improved situational awareness. "Now all of that intelligence in a NG911 world will be available to dispatch immediately," Gainor says.

Matt Zavadsky, President-Elect of the National Association of Emergency Medical Technicians, acknowledges that some responders view NG911 benefits as futuristic. But he points out that the same responders question why 911 is unable to perform smartphone functions such as sharing a video and pinpointing a location. Says Zavadsky, "They see the benefits of their smart device in a Lyft driver finding them at the airport or delivering a Domino's pizza."

What is FirstNet and why do we need both NG911 and FirstNet?

FirstNet is a wireless nationwide network that gives public safety officials a dedicated network for communicating with one another in the field, and allows them to receive important digital information from PSAPs.

Through the FirstNet network, emergency dispatchers can securely share critical information about the scene of an incident, such as building layouts, potential injuries, photos, videos and real-time updates, including information provided by the public to PSAPs via NG911. FirstNet ensures that first responder teams can still communicate with each other when public communication chan-

nels are overloaded. Explains Chief Jeff Johnson, CEO of the Western Fire Chiefs Association and former Vice Chair of the FirstNet Board of Directors, "The FirstNet spectrum is so large that it can hold hundreds of simultaneous communications without clogging a network."

Together, NG911 and FirstNet are two parts of one emergency communication system that moves public safety technology into the digital age. They complement each other and, when coordinated, will enable the exchange of rich data among the public, 911 and first responders.

What's the difference between the systems?

You have likely heard of FirstNet because it was created with government oversight and was initially funded by Congress. It's a dedicated public safety broadband network, built by AT&T, that allows for local, regional and nationwide communication among responders.

You may not have heard of NG911 because it's being implemented independently by states, regional authorities, counties and municipalities. NG911 technology is based on software systems running on high-speed managed networks. This technology inter-connects PSAPs with systems that are able to deliver improved location accuracy, caller information, and data related to a location, such as sensors or alarms. The NG911 infrastructure enhances dispatchers' ability to receive 911 calls from mobile phones and devices, as well as receive text messages and faster, more accurate caller location information.

Once NG911 is implemented, emergency service providers will reap more benefits from FirstNet. NG911 is the other half of the equation because it allows the public to send relevant data to call centers and enables EMS professionals to have access to this data to make mission-critical decisions.

How soon will NG911 be upgraded in my community?

The progress for implementing NG911 varies nationwide. Some states have not yet begun planning, while others are in progress and some, like Massachusetts, Maine, Vermont and Indiana, have completed the initial transition to NG911. ■
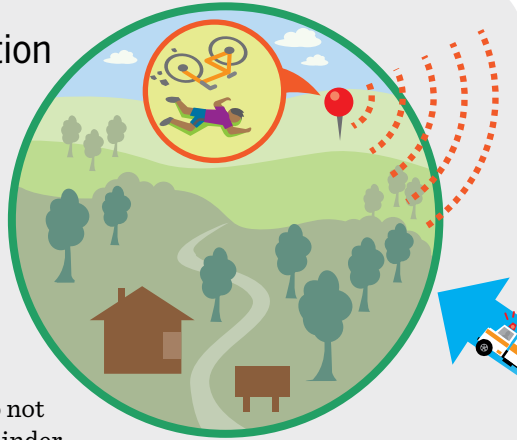
NG911 FOR EMS

How EMS Benefits from Next Generation 911

Next Generation 911-related technologies will provide new opportunities to keep EMS providers and communities safer. The following scenarios provide a non-technical depiction of how new technologies will provide information leaders need to ensure safe, efficient and effective responses to a variety of incidents.

Public Safety Communications Center

Information to 911

Information from 911

Improved Location Accuracy

With improved location accuracy, responders will reach victims sooner and triage the scene more efficiently. This is especially important in challenging environments like rural areas or parks, densely populated urban areas or on freeways. Mobile callers may also not be aware of their exact location, hindering first responders' ability to reach them quickly. Because minutes count with critical patients, faster treatment improves outcomes and survival rates.

### Continuity of Patient Data

In the NG911 environment, EMS would have access to more detailed medical history for a patient. In the future, the ability to merge medical data with 911 call data will give providers better on-scene information to improve patient care. Including outcome data within the patient record will provide a more complete picture to support performance improvement. Better data would translate to better overall patient care as well as the advancement of entire EMS systems.

OTHER HEALTH SERVICES

PSAP 911

PATIENT DATA

HOSPITAL

EMS
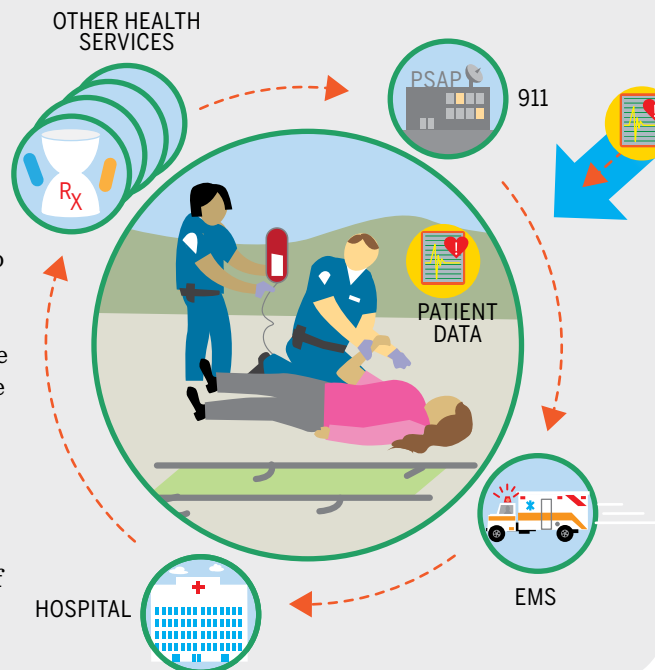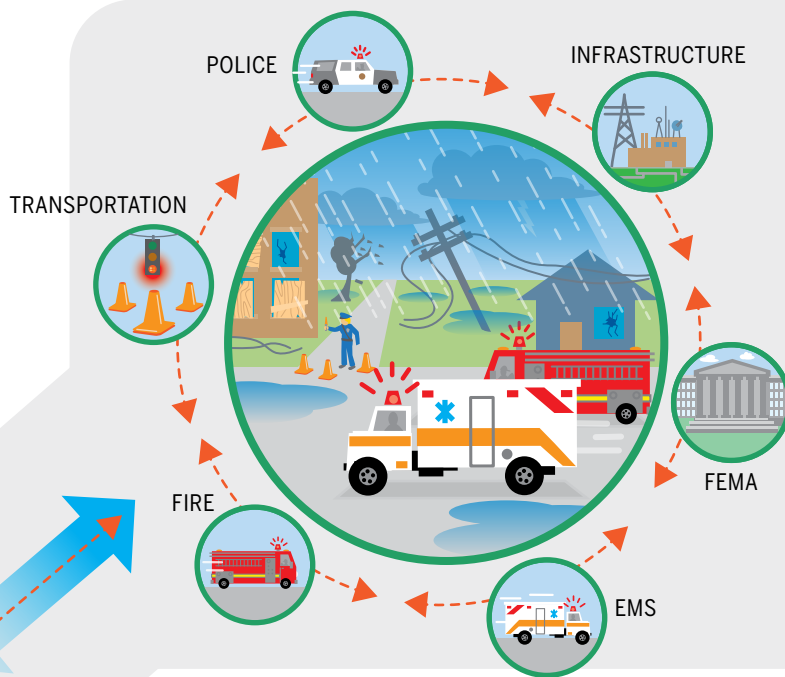
Multi-Agency Interoperability

During a natural disaster or other large-scale emergency, the NG911 system protects against call overload by re-routing calls, texts and data to alternative call centers. The system also allows for better communication with first responders, allowing for better coordination between other emergency services and agencies.

POLICE

INFRASTRUCTURE

TRANSPORTATION

FIRE

FEMA

EMS
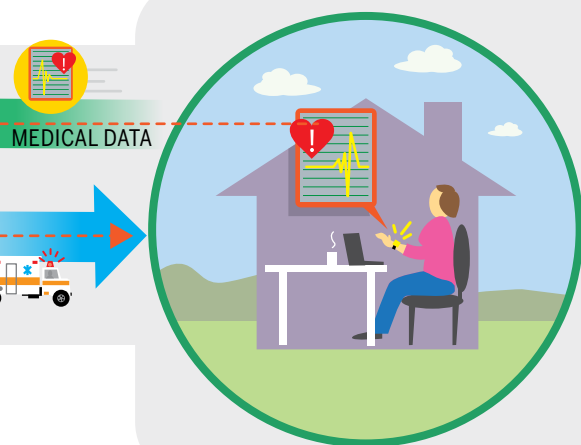
Accurate Pre-Arrival Data

Monitoring technology worn by patients may automatically alert 911 within seconds of a life-threatening medical event. Responders can access time-sensitive patient health data and incident information before they arrive at the scene, improving patient outcomes and survival rates.

MEDICAL DATA

VEHICLE TELEMATICS

Better Crash Data

Telematics, now integrated into many vehicles, notify 911 with precise location information, data on airbag deployment and more. This data, available at dispatch, helps EMS and fire services prepare appropriate equipment and provides medics with key information for faster transport to the appropriate hospital or trauma center.

NG911 has the potential to improve patient outcome and reduce the risks for EMS professionals.

NG911 IS CHANGING THE FUTURE
5 WAYS EMS WILL BENEFIT

From keeping EMS responders safer, to better serving your community, the potential benefits of an NG911 system are significant

Captain Rob Reardon vividly remembers the 911 call from a desperate mother. "Her one-week old baby wasn't breathing," recalls Reardon, the fire official overseeing the regional emergency call center in Duxbury, Massachusetts. Years earlier, frustrated that the antiquated 911 system wasn't delivering help fast enough, he'd lobbied the state to have his center selected as an early adopter of Next Generation 911 (NG911).

On this day, the mother and her infant benefited from Reardon's push. Instead of losing critical seconds routing the cell phone call through state police and then to the appropriate dispatcher, the NG911 system recognized the caller's location and automatically connected her to the call center in Duxbury.

"That call was out in five seconds," says Reardon. "We had one person on with the mother teaching her how to do CPR. In the background, you can hear another person dispatching police, fire and EMS."

A week later, Reardon's team received a video of the infant on the mend. "That's the stuff that makes the difference," he says. He urges communities across the nation to recognize the importance of quickly moving their legacy 911 systems into the digital age.

How urgent is the need for upgrading to NG911? "On the scale of one to 10, it's a 14," says Dia Gainor, Executive Director of the National Association of State EMS Officials (NASEMSO). The reasons boil down to a simple fact: NG911 is everything today's 911 system is not.

While consumers have voice, video and rich digital data at their fingertips, 911 dispatchers are limited by legacy technology.

NG911 means moving to an internet protocol-based system that allows enhanced communication between the public and 911. In addition to improved response times by limiting delays and misdirected calls, NG911 also enables the ability to text directly to 911; share digital information, such as critical health data during a medical emergency; and adopt digital and mobile innovations such as smart sensor data transmitted from wearable medical devices.

"It's a game changer for EMS," says Dr. William Fales, Medical Director for the Michigan Bureau of EMS, Trauma and Preparedness.

Adds Gainor, "NG911 saves resources, saves lives and reduces the risk for EMS."

The transition to NG911 can provide some major benefits to EMS providers and their patients. Here are five of the most important:

1 IMPROVING LOCATION ACCURACY

NG911 helps address one of EMS responders' most urgent needs—finding the caller. "The biggest frustration we have is time spent identifying where a caller is," says Brian Dale, Associate Director of Medical Control and Quality Processes for the International Academies of Emergency Dispatch (IAED). "If you have improved location accuracy, then you can dispatch the right response faster than we can now."

Almost 80 percent of all 911 calls are made on cell phones instead of landlines. Current cell phone technology doesn't pinpoint the caller's location with precision, delaying response times.

The NG911 all-digital environment will enable software that allows PSAPs to zero in on a caller's location — especially wireless callers — faster and more accurately. "The legacy system will give you a street address but won't specify which floor in a 20-floor high-rise building," says Matt Zavadsky, President-Elect of the National Association of EMTs. "With NG911, we'll know they're on the 17th floor instead of wandering around."

Location is more than a street address. With NG911, a crashed vehicle equipped

with sensors could automatically transmit its location to a PSAP, as well as data such as the velocity of impact and the likelihood of injury. Currently, privately operated systems like OnStar receive the data through their own dispatch centers and verbally relay it to 911 call centers.

NG911 could streamline that process and improve information accuracy. "It would speed getting the crash data directly to PSAPs without verbally transferring the information," explains Dr. Paul Stiegler, Medical Director for OnStar and for the Dane County Public Safety 911 Communications Center in Wisconsin.

In remote areas, a more precise location could shave crucial minutes off the time it takes to discover where a car crashed. "The typical discovery time is 11 to 45 minutes," says Kevin McGinnis, Communications Technology Advisor for NASEMSO. "With data transmitted, that (discovery time) could be cut down to a minute."

② ENHANCING SERVICE TO THE COMMUNITY

Before NG911, Indiana residents dialing 911 waited 23 to 27 seconds for the call to be routed to a 911 operator. That time has been reduced to less than three seconds since implementing NG911, according to Mark Grady, founder of INdigital Telecom, which provides NG911 technology to the state. Grady notes that in an emergency, "If you're waiting

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Faster help also means taking more of the guesswork out of an emergency response and enhancing situational awareness for EMS.

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for someone to take a call, things can go sideways on you pretty quick."

Faster help also means taking more of the guesswork out of an emergency response and enhancing situational awareness for EMS. "We wonder our way through calls. We wonder how severe it is, if a helicopter is available, if a trauma center is available," says McGinnis. "We have no way of knowing any of that quickly and accurately today."

Equipping dispatchers and EMS with such information improves decision-making and buys crucial time for severely ill or injured patients. "Every minute counts in terms of survivability or increased function," says Gainor. She stresses that data flowing into 911 will be sorted, prioritized and sent only to the appropriate fire, police or EMS responder.

Upgrading the emergency response system also supports more reliable public service during a natural disaster or other major emergencies. Overloaded NG911 call centers will automatically re-route calls to other PSAPs.

When Hurricane Irene struck Vermont, the state's second-busiest call center was evacuated. Instead of unanswered 911 calls, other PSAPs took over. "The system was able to distribute the load throughout Vermont, meaning every 911 call was answered swiftly," says Jim Lipinski, former Enhanced 911 IT manager for Vermont, one of the first states with a statewide NG911 system.

3 INCREASING EMS PROVIDER SAFETY

A 'call' can take a variety of forms with NG911. In the future, 911 call-takers will be able to receive, process and store rich data that comes in as text, pictures or videos from the public and other sources. Even better, this information can be relayed quickly to EMS and other responders.

For example, during a chemical leak at an industrial complex, real-time data from sensors could be streamed to dispatch, and then forwarded to responders before they arrive on scene. "We'd know what we're walking into and can have the right resources," says Zavadsky.

Other scenarios include knowing an active shooter's exact location by mapping them with cameras, sensors and other devices; and the option of texting 911 when a phone call poses a potential risk. For example, if a victim texts a message about an assailant threatening her with a gun, this can alert 911 that sending a full response with lights and sirens may pose a safety risk.

In the future, a fully enabled NG911 system will support sharing rich digital data about a dangerous situation with other responders over FirstNet. (See page 2, "Understanding Next Generation 911"). FirstNet is a dedicated wireless public safety broadband network that allows emergency telecommunicators to share enhanced information gathered from the public with first responders—thus improving situational awareness. Responders are also able to communicate and share vital information with each other. Together, NG911 and FirstNet provide a more complete picture of what's happening on scene. The systems are two parts of a whole. Both are required to create an interoperable 21st century public safety system.

4 MAKING EMS SMARTER

A contact lens that transmits alerts when there's a life-threatening change in a diabetic's blood sugar level...

A bra that detects signs of a heart attack in women and relays it to a 911 call center...

Smartphones that are pre-programmed to transmit a patient's medical records to 911 dispatchers...

These innovations are in different stages of development; some are already in use and eventually NG911-enabled call centers will be able to receive this type of rich data. NG911 holds the promise of making EMS smarter by leveraging the fast-evolving world of sensors and medical applications.

To optimize this information flow, PSAPs and public safety will make their own decision about how best to filter, prioritize and utilize it.

"Dispatchers can't touch or see the patient. Everything they do is remote through the eyes and ears of someone else," Dale says. NG911 equips dispatchers with virtual eyes and ears through images and rich digital data.

For example, video sent from a caller's smart phone could allow dispatchers to more rapidly and accurately assess a patient's condition, even running diagnostics like a stroke screen. "I could ask you to flip video on and see if their left arm droops down a bit or if they have an asymmetrical smile," explains Fales. "And that information can be pushed to paramedics before they arrive."

That smartphone can also transmit crucial patient data. Callers can pre-authorize their smartphones to deliver their medical histories to dispatch, which can then forward relevant information to EMS responders en route. "It's a window into my assessment of the patient," explains Gainor. "This man had a head injury ten years ago, or evaluating vital signs against their medical records."

For patients dependent on devices like heart monitors or ventilators, NG911 creates an information portal; sensors on the devices can automatically contact 911 for a patient in distress.

NG911 also opens the door to sharing a

A 'call' can take a variety of forms with NG911. In the future, 911 call-takers will be able to receive, process and store rich data that comes in as text, pictures or videos from the public and other sources.

patient's electronic medical record with PSAPs and paramedics and linking 911 call data to that record. Privacy law restrictions remain an issue, but record sharing provides an opportunity for improved continuity of care.

5 MANAGING RESOURCES EFFECTIVELY

At a time when demand for EMS is on the rise, dispatchers empowered with rich digital information and images can deploy limited resources more effectively and efficiently. Instead of automatically responding with lights and sirens, dispatchers will have more options. Fales envisions a future where a low-risk caller complaint "could be referred to a nurse for a thorough exam and an appointment made at a clinic."

NG911 enables this more unified, integrated medical response based on a patient's need. It allows EMS to reduce costs while preserving resources for genuine emergencies. In today's digital world, that is the ultimate benefit. For patients in rural areas where help often takes longer to arrive, it can mean saving lives. Says Gainor, "Technology is the only thing that narrows the gap and gives the patient a chance for a better outcome." ∎

MINNESOTA'S TRANSITION TO NG911 PROVIDES A LOOK INTO THE FUTURE

As states adopt NG911, Minnesota offers a roadmap for change

August 1, 2007. A date that few first responders in the Twin Cities area will forget. At the height of rush hour, the I-35 bridge over the Mississippi River in downtown Minneapolis collapsed, creating a chaotic emergency scene with vehicles crashing into the water, onto the riverbanks, and into a rail yard, stranding injured motorists on slabs of broken roadway and resulting in 13 deaths.

"Within minutes of the bridge collapsing, the commercial wireless network was completely saturated," recalls Dana Wahlberg, director of the state's Emergency Communication Networks.

Emergency responders were unable to use their wireless devices to coordinate their response or contact the 911 center. "The need for critical communication between responders using wireless devices was significantly compromised," Wahlberg says. Even so, first responders earned high marks, relying on Minnesota's statewide land mobile radio system to continue communicating from the field with 911.

Eleven years later, technology has dramatically improved and Minnesota is taking full advantage of the advancements. The first step was recognizing the importance of upgrading the 911 system serving the state's Public Safety Answering Points (PSAPs) from an analog network to a digital network as a first step toward migrating to Next Generation 911 (NG911).

NG911 holds the promise of a more coordinated response not only during large-scale events but also for daily emergencies such as car crashes, allowing EMS and all other responders to work more effectively and efficiently.

Minnesota began implementing NG911 in 2011. By early 2014, the state deployed the digital network to all PSAPs, putting Minnesota among the first states to begin the transition to a more stable and resilient digital network. If PSAPs become overwhelmed with an influx of 911 calls or a situation prevents them from answering calls, the NG911 platform offers the flexibility to reroute them to alternate PSAPs so that 911 calls are answered.

Putting the core NG911 infrastructure in place was just the start. It created what Wahlberg describes as the "information superhighway." Over time, NG911 will allow people to communicate with 911 the same way they use smartphones and other mobile devices to communicate with each other.

Initially, the public saw little change. PSAPs could transfer 911 calls between one another over the network and include a call back number and location information.

Behind the scenes, state officials continued working on two key features that would ride on the NG911 information highway—texting and improved location accuracy using a geospatial dataset. By late 2017, Minnesota

achieved a milestone with the implementation of text to 911 statewide.

Enhanced location accuracy is a more complex statewide undertaking. The process is expected to take through 2019. Since 2015, Minnesota has been using geospatial mapping to create a statewide dataset, which will be shared with all public safety entities so that a call's location can be more exactly pinpointed and routed to the correct PSAP.

Paramedics are impatient for this NG911 feature, which will shave minutes off their search for a patient. "That's a huge game changer for EMS," says Joe Glaccum, Director of Ambulance Services Technology at North Memorial Healthcare in Robbinsdale, a Minneapolis suburb. "If you're calling from a cell phone now, finding the patient isn't guaranteed. NG911 creates an environment in which we'd have a much better chance of finding that dot on the map."

The full potential of NG911 won't be realized until dispatchers can receive video, photos and rich digital data from the public. Although the core technology is in place, NG911 experts estimate it could take years to establish standards and protocols for securely transferring and retaining such data from the public.

For responders like Brian LaCroix, President of Allina Health Emergency Medical Services, these transforma-

tional benefits mean arriving better prepared. "For the first time, we'll have photos and streaming video of a patient experiencing a medical event," LaCroix says.

Minnesota's experience offers a guide for states transitioning to NG911, providing a window into the challenges and strategies to navigate them.

"There's apprehension among all of us who are responsible for deploying NG911 because there's no single blueprint to follow. Every state is approaching it differently," Wahlberg says. Minnesota created its own blueprint using best practices. The initial challenge was obtaining PSAP support to opt in to NG911. Officials used a collaborative approach, including PSAPs in the planning process and conducting significant education and outreach. Every PSAP opted in.

Many variables came into play. Each PSAP equipment room is different and there's a variety of 911 call handling systems used by PSAPs across the state, requiring multiple migration plans. "It wasn't like repeating the same process over and over again," notes Wahlberg. As PSAPs migrated, a support team of subject matter experts was poised to address issues that cropped up. Although a telephone surcharge funded a majority of NG911 transition costs, some PSAPs required additional funding. Minnesota looks for grant opportunities to help supplement costs.

As an early adopter, what suggestions does Wahlberg have for states experiencing the apprehension she felt? "My advice? Start with the known NG911 requirements and just do something." Wahlberg adds, "The train has left the station. Get on board!"

WAHLBERG OFFERS FOUR OTHER MAJOR TIPS:
▶ Implement a governance structure to ensure all stakeholders have a voice
▶ Develop standards and conduct training so all PSAPs operate consistently
▶ Conduct extensive testing before going live with new features
▶ Consider interoperability opportunities with PSAPs across state borders

Together, with North Dakota—which also has a statewide NG911 network—Minnesota established the nation's
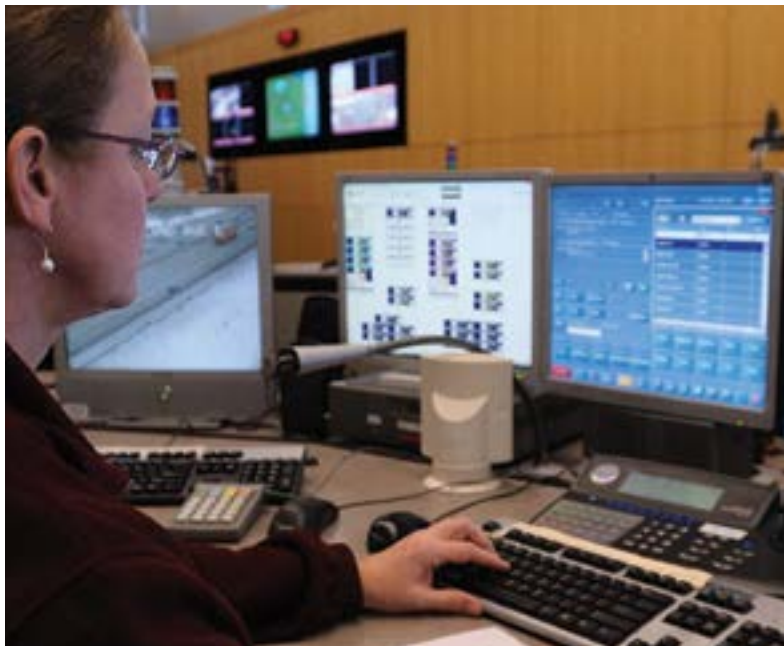
first interstate 911 call transfer capability, which includes call-back and location functionality.

The benefits of transferring 911 calls without losing a caller's phone number and their location information speeds the response by minimizing conversation between PSAPs. The telecommunicator receiving the transfer is provided with the same screen information as the originating call taker.

Implementing NG911 is also important as Minnesota deploys FirstNet, the nationwide public safety broadband network for first responders. FirstNet and NG911 are two complementary parts of one public safety system that will enable a reliable exchange of

mission critical data. To maximize the benefits of FirstNet, public safety leaders, technology providers and stakeholders must to work together to develop connectivity standards.

How important is it to deploy both networks? Flash back to the 2007 bridge collapse when responders lost wireless access to 911.

FirstNet would have automatically given local and mutual aid responders priority on the wireless network, preempting other wireless calls and fostering communication across jurisdictions and agencies. "Responders could have continued communicating with each other," Wahlberg says.

The benefits of a fully-developed NG911 system on August 1, 2007 would have enhanced emergency responders' situational awareness with: improved location accuracy to pinpoint victims and vehicles; telematics information to gauge a vehicle's impact and severity of occupants' injuries; and videos and photos to more quickly evaluate the incident to provide more immediate access for emergency vehicles to the scene.

"The response to the bridge collapse went well, but this could have helped make it better in terms of locating patients and transporting them to staging areas," says LaCroix, who was on the scene that day.

Wahlberg agrees. "We could have received more robust information from callers and telematics devices, which in turn could have been shared with responders in the field, allowing them to triage their responses more quickly and effectively." ■

NG911 RESOURCES

HERE ARE SOME RESOURCES TO HELP YOU LEARN MORE ABOUT NG911

NATIONAL 911 PROGRAM
911.gov

DEPARTMENT OF HOMELAND SECURITY (DHS) OFFICE OF EMERGENCY COMMUNICATIONS (OEC)
dhs.gov/office-emergency-communications

FCC'S TFOPA REPORT
https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_WG2_Supplemental_Report-120216.pdf

FEDERAL COMMUNICATIONS COMMISSION (FCC)
fcc.gov

FIRSTNET FIRST RESPONDER NETWORK AUTHORITY
firstnet.gov

INDUSTRY COUNCIL FOR EMERGENCY RESPONSE TECHNOLOGY (iCERT)
theindustrycouncil.org

INTELLIGENT TRANSPORTATION SYSTEMS JOINT PROGRAM OFFICE (ITS JPO)
its.dot.gov/research_archives/ng911/index.htm

INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE (IACP)
theiacp.org

INTERNATIONAL ACADEMIES OF EMERGENCY DISPATCH (IAED)
emergencydispatch.org

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS (IAFC)
iafc.org

NATIONAL ASSOCIATION OF EMERGENCY MEDICAL TECHNICIANS (NAEMT)
naemt.org

NATIONAL ASSOCIATION OF EMS PHYSICIANS (NAEMSP)
naemsp.org

NATIONAL ASSOCIATION OF STATE 911 ADMINISTRATORS (NASNA)
nasna911.org

NATIONAL ASSOCIATION OF STATE CIOS (NASCIO)
nascio.org

NATIONAL ASSOCIATION OF STATE EMS OFFICIALS (NASEMSO)
nasemso.org

NATIONAL CONGRESS OF STATE LEGISLATORS (NCSL)
ncsl.org

NATIONAL EMS MANAGEMENT ASSOCIATION (NEMSMA)
nemsma.org

NATIONAL EMERGENCY NUMBER ASSOCIATION (NENA)
nena.org

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
nfpa.org

NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL (NPSTC)
npstc.org

NG911 NOW COALITION
ng911now.org

NIST'S PUBLIC SAFETY COMMUNICATIONS RESEARCH PROGRAM (PSCR)
https://www.nist.gov/ctl/pscr/about-pscr

PUBLIC SAFETY TECHNOLOGY ALLIANCE (PSTA)
pstalliance.org

SAFER BUILDINGS COALITION
saferbuildings.org

TRANSPORTATION SAFETY ADVANCEMENT GROUP (TSAG) REPORT
www.tsag-its.org/products/ng-9-1-1-whats-next/

NG911

NEXT GENERATION 911 FOR LEADERS IN EMS

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