



EMS AGENDA 2050

A PEOPLE-CENTERED VISION FOR THE FUTURE
OF EMERGENCY MEDICAL SERVICES



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16. Abstract <i>EMS Agenda 2050: A People-Centered Vision for the Future of Emergency Medical Services</i> is the culmination of a collaborative and inclusive two-year effort to create a bold plan for the next several decades. Building on the foundation established by the landmark 1996 EMS Agenda for the Future, EMS Agenda 2050 lays out a vision for EMS systems that serve the needs of patients, families, clinicians and communities. To achieve that goal, EMS Agenda 2050 describes six guiding principles that need to be at the heart of efforts to implement the vision. EMS systems must be: inherently safe and effective, integrated and seamless, reliable and prepared, socially equitable, sustainable and efficient, and adaptable and innovative.					
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A NOTE ABOUT EMS AGENDA 2050

When we were tasked with creating this vision for the future of emergency medical services in the United States, our charge was clear: to create a bold vision for EMS and the people we serve. The world in 2050 will be dramatically different, with new challenges and opportunities. We hope this vision, created through a community-driven effort by people like you, will both challenge and unite us as we work to make it a reality.

Our work was guided by a few values:

- › Avoid the temptation to wallow in the problems of today;
- › Focus on bold, ambitious ideas for the future;
- › Commit to open and inclusive input from anyone and everyone; and
- › Listen to opinions, criticism, and critique.

More than 20 years ago, emergency medical services (EMS) pioneers and leaders described a vision of data-driven and evidence-based systems in the EMS Agenda for the Future. Since then, the profession has worked tirelessly to fulfill the vision set out in that landmark document.

This project began as a grassroots effort among leaders in the EMS community to build on that foundational work and advance the vision for the future of EMS. EMS Agenda 2050 was made possible with their support as well as that of the funding Federal agencies. We want to thank our Federal sponsors for providing input and for stepping back and giving us the freedom to execute. We are grateful to the thousands of people involved directly and indirectly in all aspects of EMS. By attending our regional meetings, participating in conference sessions, posting to our website, sending us e-mails, commenting on social media, and grabbing us for one-on-one conversations, you created this document. Dozens of national associations and hundreds of individuals contributed to and critiqued the drafts, passionately debated controversial topics, and stretched their minds to see three decades into the future.

Organizing each of these ideas into a coherent vision was challenging. We had long debates, both within our group and with many of you individually, about what to include, what to omit, and how to make sense of it all. We wrestled with many of the same topics that each of you confronts every day.

Our goal was not to predict exactly what will be, but to create a vision for what could be.

Some of you will easily see your role in the vision described in the following pages. Others may not; you may wonder why your particular service model, job title or certification level isn't mentioned. That is by design. This vision is not intended to address every single aspect of EMS completely. EMS is no longer just "the ambulance service"; rather, it is a complex network of all types of professionals, all of whom serve in a broad range of roles from providing care in an ambulance, to serving as educators, to practicing community paramedicine, to conducting research. How many more areas of EMS expertise will sprout up and evolve by the year 2050? The thought is mind-boggling, intimidating and exciting all at once. Our goal was not to predict exactly what will be, but to create a vision for what could be. We grounded this vision with principles that we believe should guide every step of that evolution. To that end, we've included stories of what one EMS clinician's day may be like in 2050—not to recommend specific technologies, terms or clinical guidelines, but simply to help us envision one version of EMS in three decades.

We hope that you will be inspired by this new Agenda as you build and lead the EMS systems of the future. Think of actions you can take to help make the vision a reality. How will the principles influence you and your role? The future described here glimmers with potential, and it is the people of EMS—patients and communities, the people who care for them, and the people who support those clinicians—who will lead the way toward 2050. That includes you.

It is commonly said that, "The best way to predict the future is to create it." We are committed to creating a people-centered EMS system in the coming decades, starting today. We hope that you'll join us!

Thank you,

**The EMS Agenda 2050
Technical Expert Panel**



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A GLIMPSE INTO 2050

It's Sunday, May 22, 2050, and 9-year-old Carla Hernandez walks into the backyard, taking care not to step on the tomato plants just beginning to grow. As she kneels to begin pulling weeds, she feels a sharp pain in her leg and reflexively swings for the bug that might be biting her. A minute later, she suddenly feels lightheaded and sick to her stomach. The wooziness scares her, and the panic is evident in her voice when she calls out to her grandmother for help.

Carla's grandmother hurries outside and finds her granddaughter lying on the grass, pale and gasping for air. Carla's earring beeps—wearable devices come in almost any shape nowadays—and then a voice comes out of the tiny speaker.

"Carla, Hi, it's Abdi, a telemedic at the Medical Communication Center. We received an alert that there might be a problem. Are you feeling OK?"

Pressing a button on her mobile device, Carla's grandmother activates the emergency program and Abdi's face appears on her screen.

"I see her eyes are open," Abdi says. "Is she responding to you?"

"No, and her breathing doesn't sound good either. Please help! I don't know what to do."

Abdi continues to speak to Carla's grandmother while monitoring the young girl's vital signs. Soon, a familiar voice calls out that he's here to help, and Carla's grandmother recognizes one of her neighbors as he walks around the corner of the house to the backyard. A retired respiratory therapist, he is a registered community medical volunteer and received a notification at home that a serious medical emergency was occurring nearby. Carla's grandmother waves him over, just as an emergency medical kit drone lands safely a few yards away. She feels her heart pounding in her chest as she watches her neighbor talk to Abdi and quickly access the medication administrator from the drone. He programs the device to epinephrine and sticks it on Carla's arm. It quickly reassesses her vital signs, weight and other parameters and administers the calculated appropriate dose.





Jana Nguyen sits in the back of an ambulance watching live video of the stroke specialists treating the patient she brought to the neurology clinic just 15 minutes earlier. Before reaching the station, a voice interrupts as the dispatch system notifies Jana and her partner, Chip, that they are responding to a call for a sick child. The screen on the wall displays information about their new patient. Jana begins reading about Carla's medical history—other than being born 6 weeks premature, she's been healthy—and sees her current vital signs. Based on information collected on the scene, the AIM—artificial intelligence medic—states that there is an 82 percent probability the patient is experiencing anaphylaxis.

The ambulance accelerates onto the interstate and a few miles later exits onto Highway 133. Traffic is light in this semirural community, and a few self-driving vehicles automatically get out of the way. As they arrive, Jana finishes reviewing the most recent allergic reaction evidence-based update, looks at Carla's latest vital signs and steps out of the ambulance.

A quick respiratory and cardiac scan with a monitor confirms that Carla has some constriction in her airways. Her perfusion levels have improved, though, and she's beginning to regain color in her skin. "How are you feeling?" Jana asks, putting her hand on Carla's shoulder. Still groggy, she says she's starting to feel better. Over the next several minutes, Jana explains to Carla and her grandmother what has happened, while also continually assessing her comfort.

After a few minutes, Jana contacts Abdi again, and asks him for a connection to the EMS physician on call. The physician talks to Carla and her grandmother, reviews the assessment findings, and asks the paramedics what they think. They discuss their findings and agree that leaving Carla at home with her grandmother is the best plan. Carla breathes a sigh of relief and smiles, squeezing her grandmother's hand.

"If it's OK with you, our telemedics will be monitoring your granddaughter and will call to check in shortly," Jana says. "You should get a notification later today about scheduling a visit with an allergist, and the complete report will be available in just a few minutes in Carla's health portal."

The paramedics help Carla inside and make sure she and her grandmother are comfortable with the plan. They quickly do a home health assessment before heading outside to the ambulance. Heading back to the station, Jana reviews the information in her report, which was created based on voice recordings and data transmitted from the Telemedic Center and the medics' diagnostic equipment.

Meanwhile, Carla rests at home and soon feels better. Her grandmother is too nervous to let her play outside, but they find an old movie to watch—an old 2D classic that she remembers from her childhood in the 1990s. The next day, Carla follows up with an allergy specialist, who is able to identify what she reacted to and prescribe gene therapy to prevent future reactions.

To be continued...

THE VISION

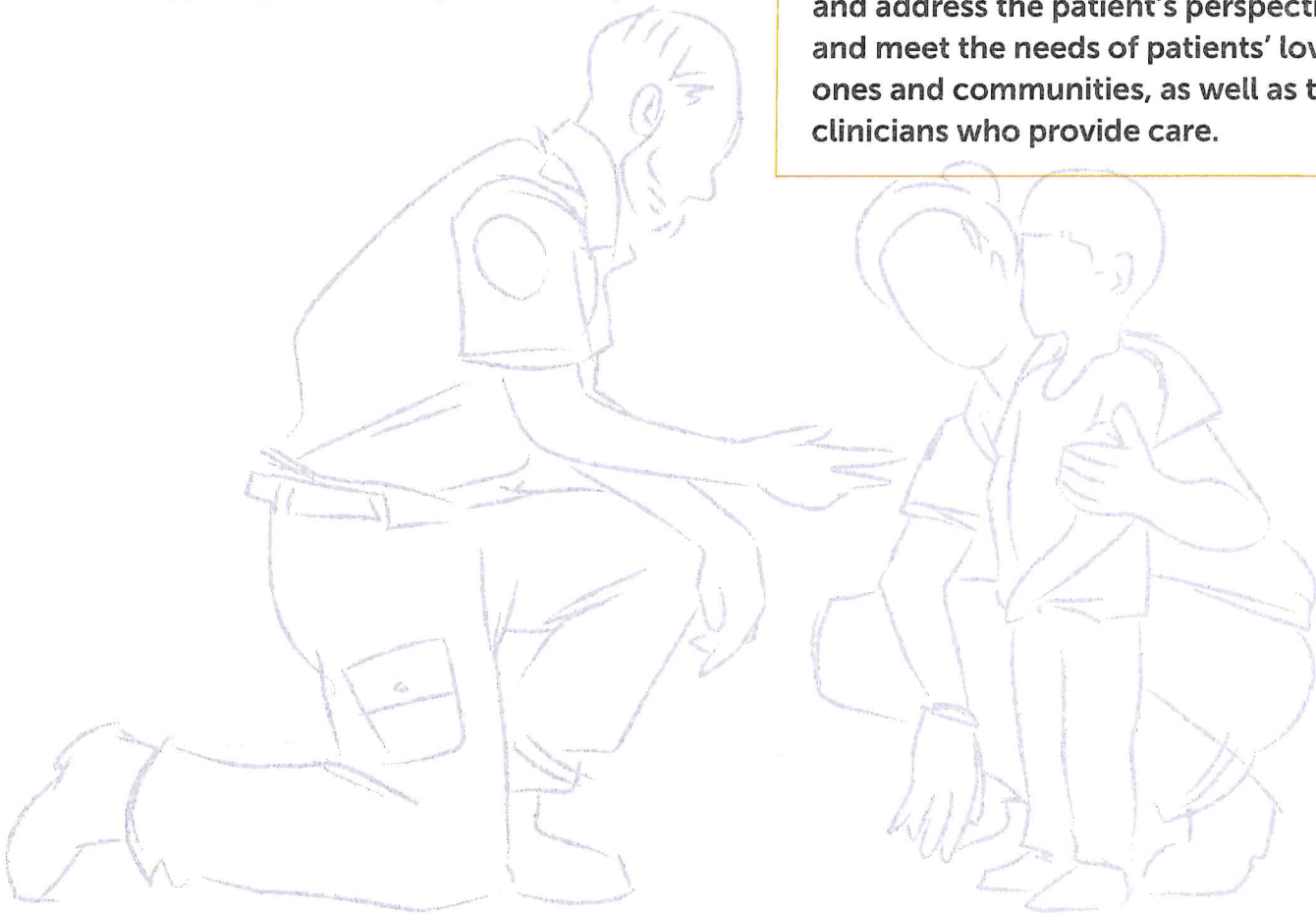
IN 2050, EMS SYSTEMS ARE PEOPLE-CENTERED.

A people-centered EMS system includes processes, protocols, technology, policies and practices designed to provide the best possible outcome for individuals and communities—every day and during major disasters. EMS is a versatile and mobile community healthcare resource, integral to regional systems of care that prevent and treat acute illness and injury, as well as chronic ailments.

The people-centered EMS system serves as the front line of a region's healthcare system and plays a core role in supporting the well-being of community

residents and visitors through data-driven, evidence-based and safe approaches to prevention, response and clinical care. EMS organizations collaborate with their community partners and have access to the resources they need, including up-to-date technology and a highly trained, healthy workforce.

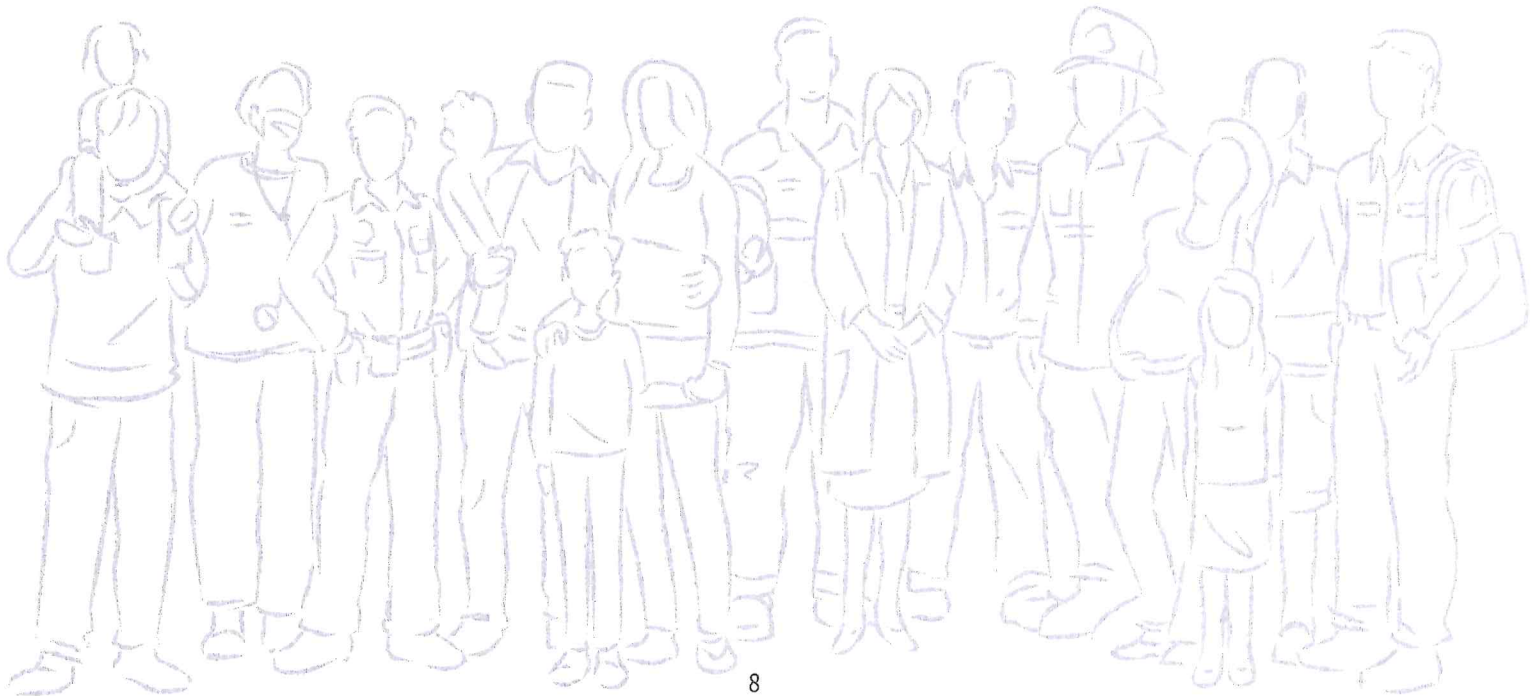
WHY PEOPLE-CENTERED? Because while caring for patients is our top priority, we must strive to understand and address the patient's perspective and meet the needs of patients' loved ones and communities, as well as the clinicians who provide care.



In a people-centered EMS system:

- › People will receive comprehensive quality care in the place that is most convenient and comfortable.
- › Clinical care will be driven by methodologically sound research, with patients receiving interventions that are proven to produce the outcomes they desire.
- › If people would benefit from being transported, they will be moved efficiently and safely using technology that minimizes the risk of injury to both patients and clinicians. The ambulance will not require lights and sirens, but will take advantage of other advances that expedite transit and prevent collisions.
- › People will not only receive lifesaving and disease-treating care, they will also receive care that reduces physical, emotional and psychological suffering; EMS clinicians will be given the education and training that adequately prepares them to meet the needs of the people they are called to help.
- › EMS systems will be an integral piece of a public health and healthcare system focused on preventing injuries and illnesses, rather than simply responding to and treating them.
- › EMS clinicians will have access to, and contribute to, a person's comprehensive medical record, the same one that is used by all other aspects of the healthcare system.
- › Prevention, diagnosis and treatment will be supported by comprehensive expert systems that are continuously updated in real time as new scientific advancements emerge.

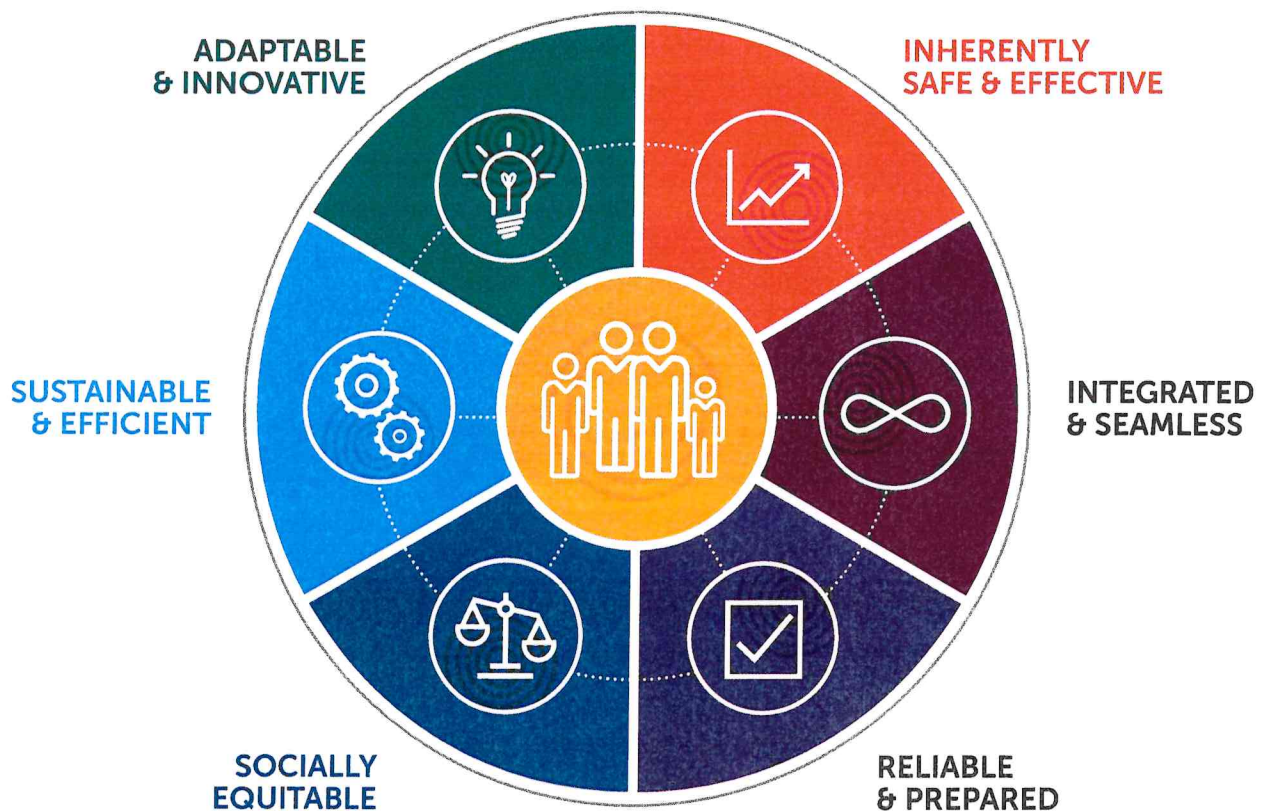
EMS is a versatile and mobile community healthcare resource, integral to regional systems of care that prevent and treat acute illness and injury, as well as chronic ailments.



THE GUIDING PRINCIPLES

To achieve this vision, EMS systems in 2050 will be designed around six guiding principles.

These principles provide a framework for addressing the most critical aspects of developing a people-centered EMS system. By considering the future of EMS through the lens of these principles, the EMS profession can imagine how the individual attributes of an EMS system—described by our predecessors in the original EMS Agenda for the Future—fit together to create a people-centered system.





WHY 2050?

To some readers, 2050 sounds like some futuristic time, a date we associate with the science fiction books and movies of our youth. In just over three decades, so much can change. Where were we in 1986? The first mobile phones in the United States had been introduced to the market three years earlier—for \$4,000 each, equivalent to about \$10,000 in 2018. Approximately 10 percent of American households owned a personal computer, and the majority of homes still did not have remote controls for their televisions.

What did EMS look like in 1986? In some ways, very similar to where we are now. People called for help, and ambulances responded, often with two people trained as emergency medical technicians (EMTs) or paramedics. They communicated with dispatchers and the hospital using radios and took most of their patients to hospital-based emergency departments. Many of the basics of clinical care looked the same as well, from defibrillation for cardiac arrests, to epinephrine for anaphylaxis.

EMS has also changed quite a bit since 32 years ago. When people do access 911, they no longer have to find a landline, but instead usually call using the cell phone in their pocket or even send a text message. Hospitals have become specialized, with EMS clinicians making critical decisions about the transport of trauma, stroke and heart attack patients to referral centers, often bypassing other emergency departments along the way. Many EMS systems now have policies to transport patients to mental health

facilities when appropriate. Some have implemented policies to treat patients at home and safely avoid unnecessary and expensive transports at all. Technology has also changed, with automated external defibrillators (AEDs) bringing defibrillation first to basic life support (BLS) providers and then to the public. Almost every ambulance has at least one computer, if not two or more, displaying critical information and allowing for real-time communication and data entry. Clinical care has evolved based on research and evidence, with many once-heralded treatments now known to be ineffective or even harmful. And EMS is now recognized as a physician medical subspecialty, with hundreds of board-certified EMS physicians practicing across the country.

History shows that while change can occur rapidly, many systemic and cultural shifts take a generation. EMS Agenda 2050 looks to create a vision for what EMS should become, free from many of the constraints of today's environment. Trying to think that far ahead is a challenge. Some of the ideas presented here will be feasible immediately, while others may take decades to achieve. Many aspects of society, including healthcare, technology and politics, will evolve between now and 2050 in ways that we cannot imagine. But no matter what the future brings us, the principles described in EMS Agenda 2050 are intended to serve as a guide to help us create systems that truly allow EMS to fulfill its mission.



WHAT'S IN A NAME?

The profession continues to debate how well the term “emergency medical services” describes the full scope of services provided by EMS organizations and the EMS workforce. Some leaders have proposed alternatives, including using the term “paramedicine” to describe the profession and “paramedic” for EMS clinicians of all levels.

The EMS Agenda 2050 Technical Expert Panel considered this debate and chose to use “EMS,” not necessarily as an endorsement of the continued use of this term or a rejection of alternatives, but in recognition that members of the community who participated in the process of creating this vision have not coalesced around new terminology.

While words certainly matter, even more important are actions. EMS professionals can—and must—take ownership of the future of their profession by implementing the principles of people-centered care, emphasizing the importance of education and embracing their role as providers of healthcare in non-emergent and emergent situations. This culture change will be a significant challenge. Once it takes hold, a change in nomenclature won’t just make sense, it will be the only clear path forward.



THE EMS CLINICAN OF THE FUTURE

EMS clinicians of the future will likely differ significantly from today's emergency medical responders, EMTs, paramedics and other professionals. Already in 2018, organizations and some states have developed certifications or credentials for critical care, community or advanced practice paramedics, whose training and sometimes scope of practice extend beyond the traditional paramedic's. Other services have given roles to behavioral health specialists, physician assistants, nurses and nurse practitioners, among others. In addition, the critical role of EMS physicians has evolved from one who establishes protocols to an integral part of the leadership team, often not only overseeing clinical care, education and other aspects of EMS delivery, but also playing a proactive role in direct patient care, whether through telemedicine or in person.

A future EMS system will rely on a strong backbone of responders with training to provide immediate lifesaving care. Supplementing and overseeing that level of response will be a highly educated EMS professional providing more advanced care. The deployment of all of these clinicians will be based on providing the best care, with the best outcomes, in the most efficient way possible, while providing joy in work for the practitioners.

In today's terms, one might see this as a large network of trained emergency medical responders and emergency medical technicians, with the basic tools and training to stabilize an incident, supported by degreed paramedics, with more extensive education equipping them to work hand-in-hand with other medical professionals, including EMS physicians.

These future clinicians may evolve solely from today's EMS clinicians, with additional clinical and public health education, as well as from other education and certification levels being piloted across the country. No matter how exactly their education is delivered, or what the patch on their shoulders might say, these EMS professionals must be prepared to play a much larger role in managing the health of the patient and the community.





INHERENTLY SAFE AND EFFECTIVE

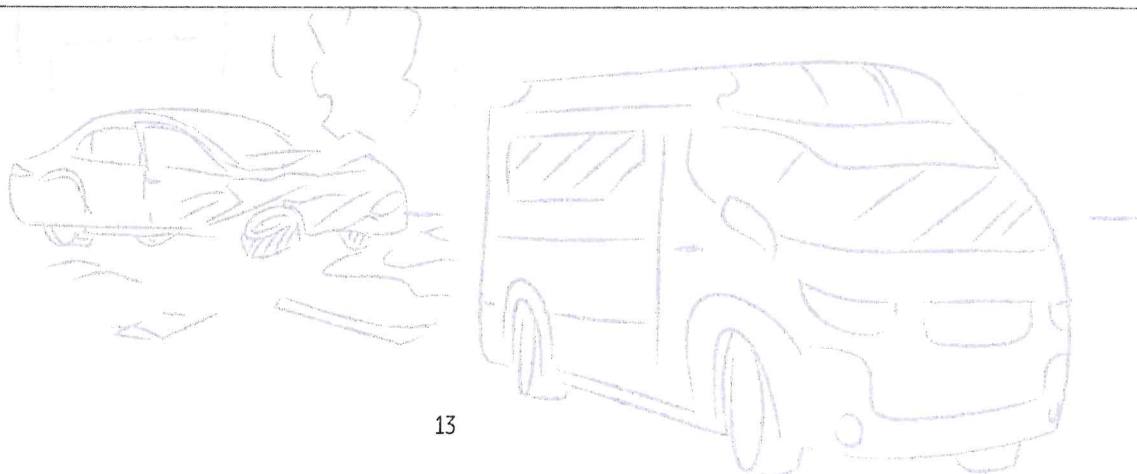
A GLIMPSE INTO 2050

After returning to the community health center where she and her partner are based, Jana heads to the training room to quickly complete the afternoon fatigue assessment and ensure she's safe to continue her shift. Taking advantage of a few minutes of downtime, she initiates a training scenario. The walls of the training room suddenly change, now appearing like a restaurant. She puts on her safety goggles, which automatically activates a heads-up display and 3D virtual scenario. A woman frantically waves her toward what appears to be a middle-aged man—he can't be over 70—lying on the ground near the door. She quickly scans him and finds that he is not breathing and his heart is in ventricular fibrillation. Her goggles immediately remind her to place a Defib patch on the man's chest, which administers an electric shock and medication to remove any clots in his blood vessels.

Before Jana can initiate a teleconsult with the EMS physician, the walls turn white and she's back in the training room as she's alerted by her watch that there's a real call. An antique 2018 electric sports car struck a deer—vehicle collisions are rare, but occasionally still occur.

In the ambulance, the screen displays the views from a police cruiser and officer's body camera. There's a little bit of damage to the vehicle, which is pulled over on the side of the road. It looks like another car has stopped in front of the damaged one and a bystander is talking to the car's driver and the police officer. Other traffic has been diverted so no vehicles are on the road near the scene of the crash.

Once on the scene, Jana introduces herself to the driver of the car, who is holding his left arm and wincing in pain. Liam, who is 57 years old, thinks his arm is just bruised and he'll be fine. Jana puts a small sticker on his wrist to assess his vital signs. The sticker turns green, indicating that no immediate life threats have been detected—the full set of vital signs soon appears on her watch. Liam's arm is extremely tender and starting to bruise, so Chip puts the imaging gloves on his hands and holds them over the spot of the injury. The display on the glove indicates no fracture was found and there is less than 0.5 percent chance of any vascular injury. It also indicates that based on his vital signs and the injury, it is safe to treat his pain if he has any. Jana puts a nonaddictive pain patch on the site of the injury to provide some localized relief tailored to him specifically.





THE VISION ▶▶▶

The entire EMS system, from how care is accessed to how it is delivered, is designed to be inherently safe and to minimize exposure of people to injury, infections, illness or stress. Decisions are made with the safety of patients, bystanders, the public and practitioners as a priority, from how people are moved to hygiene practices in the field and in the ambulance. Clinical care, operations and other aspects of the system are based on the best evidence in order to deliver the most effective service, with a focus on outcomes determined not only by the EMS service but by the entire community and the individuals receiving care.

TODAY'S CHALLENGES

The field of EMS in 2018 has made long strides since the Institute of Medicine described prehospital emergency care as a “stark example of how standards of care and clinical protocols can take root despite an almost total lack of evidence to support their use.”¹ With a growing research base and more attention being paid to evidence and outcomes, most EMS clinicians are now using clinical care guidelines rooted in science, but much work remains.

Despite the improvements, EMS systems across the country, both large and small, rural and urban, sometimes fall short of providing safe and effective care. Best practices, based on evidence and patient-centered outcomes, frequently take years—or decades—to become broadly implemented across the country. Many organizations lack the resources, initiative or desire needed to implement meaningful performance measurement and quality improvement systems, leaving them in the dark as

to whether the care they are providing is truly safe or effective.

Creating a safer and more effective EMS system has been a priority of many EMS leaders, as evidenced by the development of the *Strategy of the National EMS Culture of Safety* and creation of the National EMS Safety Council and National EMS Quality Alliance. But these national efforts will only be effective if they translate to local action. EMS systems must adopt a culture of safety that retains existing initiatives to improve driving and patient lifting techniques and also addresses other areas of patient, public and clinician safety, including diagnostic and treatment errors, hygiene practices, and much more.

A people-centered approach to a safe and effective EMS system will focus on interventions that have demonstrated benefit and prevent further injury and illness, while avoiding those that are ineffective or harmful.

¹Institute of Medicine. Emergency Medical Services at the Crossroads. Washington, DC: National Academies Press; 2006.



WHAT 2050 LOOKS LIKE

EMS care and operations across the country focus on practices that yield good outcomes and reduce harm.

EMS care in every community is based on the best available evidence and best practices, with a focus on outcomes determined by the community and the patients, including patient-reported outcome measures. These outcomes, as well as the evidence-based processes involved in achieving them, are measured and publicly reported.

EMS leaders, including administrators, physicians and EMS clinicians, take ownership and responsibility for ensuring the care delivered in their systems adheres to evidence-based practices.

Community and regional quality improvement systems measure, analyze and work to improve

outcomes for patients, EMS professionals and members of the broader community. These systems cut across organizational boundaries and include input from across the care continuum, including, but not limited to, patients and their families, first responders, EMS professionals, hospitals and medical specialists.

“The entire system design should be refocused on producing good outcomes.”

— Member of EMS Agenda 2050
Technical Expert Panel

EMS systems at local, regional and state levels embrace a culture of safety.

Education and training for EMS professionals covers all aspects of clinician and patient safety with a focus on evidence-based methods of harm reduction.

EMS systems across the country use a standardized method of collecting and reporting data on medical errors, injuries to patients, clinician injuries and illnesses, near-hits, and other safety issues in order

to evaluate improvement efforts, facilitate research, and develop evidence-based safety training and procedures.

Funding and regulatory mechanisms promote safe and evidence-based practices, with a focus on improving outcomes and reducing harm rather than rewarding specific procedures or services.



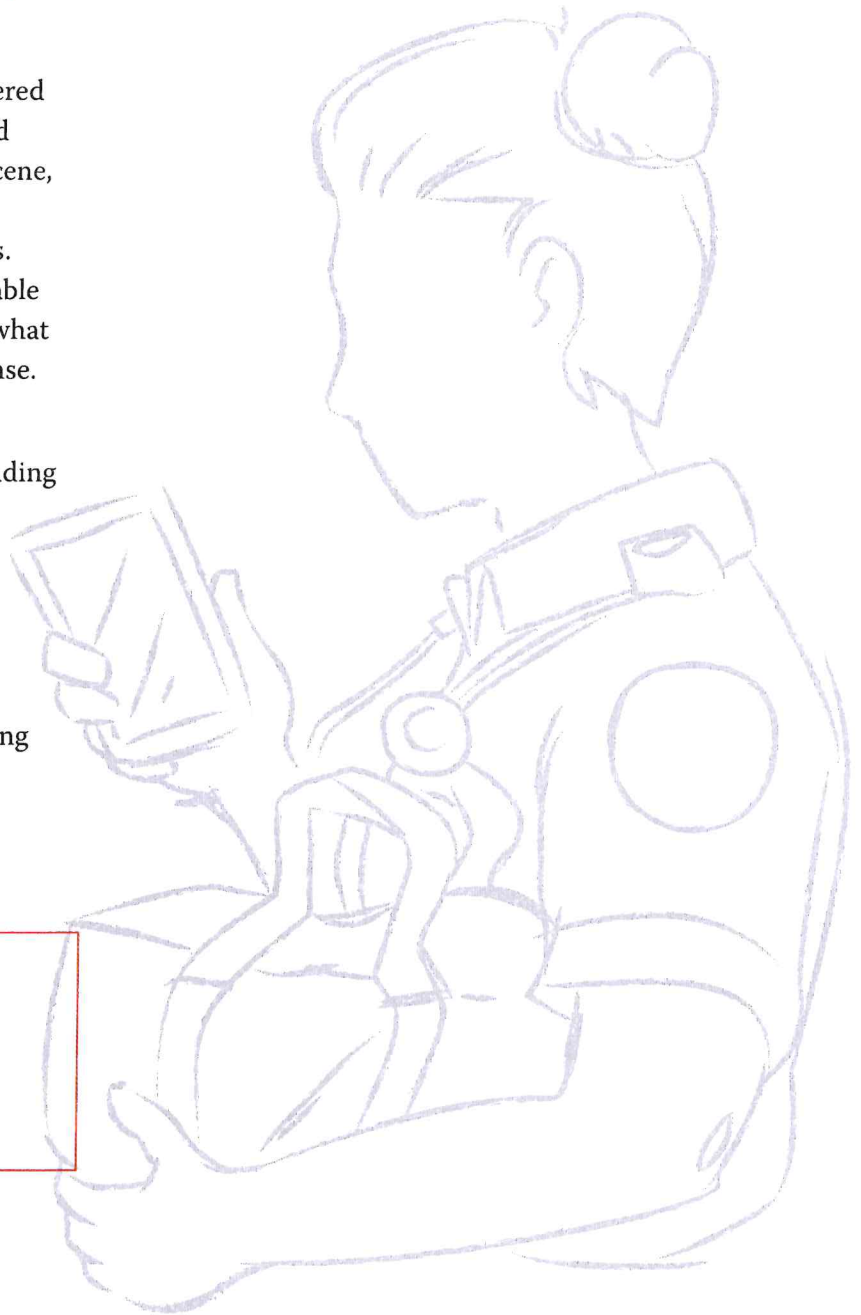
Integrated technology provides real-time situational awareness and decision support to improve safety and reduce errors.

Real-time and predictive information is delivered to emergency medical telecommunicators and first responders prior to their arrival on the scene, including video and sensor data provided by patients, bystanders or devices such as drones. With this information, responders are better able to assess the safety of a scene and determine what resources might be needed early in the response.

Wearable devices alert EMS professionals to any potential safety hazard, from threats including nuclear, chemical or biological contamination to personal health issues that might impede their performance, such as heat exhaustion or excessive fatigue.

Real-time, automated artificial intelligence supports clinician decision-making by analyzing information instantaneously, including data from patient records, diagnostic equipment and other inputs.

EMS clinicians can focus on clinical decision-making and compassionately communicating with patients.





EMS systems prioritize technology, equipment and policies that use proven methods to limit the safety risk to EMS clinicians and patients.

EMS clinicians only lift and move patients in extremely rare circumstances, instead using technologies and mechanized equipment, avoiding injuries to both providers and patients.

Responders no longer use lights and sirens to race to a scene or transport patients. Instead, bystanders on the scene initiate first aid using public access equipment and guided by real-time integration with medical telecommunicators or other medical professionals. EMS clinicians deliver time-sensitive, lifesaving interventions on scene. In rare situations when rapid movement is required, infrastructure design and integrated technologies allow for more efficient and safer response and transportation of patients.

Medication delivery systems use real-time and historical data from health records to deliver appropriate and correctly dosed medications

specific to each patient. EMS clinicians never calculate or measure out a drug dose, eliminating medication-dosing errors completely. Instead, they can focus on clinical decision-making and compassionately communicating with patients about their condition.

Evidence-based methods prevent EMS personnel fatigue from impacting the safety of the workforce, their patients or the public. These methods may include, but are not limited to, regulations to limit the number of consecutive hours worked by EMS personnel; adequate breaks and rest during shifts; sufficient pay and staffing to avoid the need for working extensive overtime or multiple jobs; and physiological or other types of testing to objectively measure an EMS worker's level of fatigue before, during and after shifts.

EMS data systems securely protect patient information and privacy.

Patient health information is owned by patients, but relevant information is readily accessed by EMS professionals and other personnel, as appropriate.

EMS systems invest in the equipment and expertise necessary to maintain and adequately secure data systems, which use the most advanced methods of protecting patient privacy.



AN INHERENTLY SAFE AND EFFECTIVE FUTURE

EMS systems must no longer be based on unproven processes, outdated medical interventions and outcomes determined by organizations and EMS clinicians without input from members of the community. Instead, EMS professionals should foster a culture that champions safety, the delivery of high-quality care and consistent performance. A people-centered EMS system will be built on a foundation of people-centered goals, focused on achieving patient-determined and community-guided outcomes.



INTEGRATED AND SEAMLESS

A GLIMPSE INTO 2050



With the patch helping to manage the pain in his arm, Liam is feeling much better. As Jana reviews the relevant information in Liam's medical record to make sure he has no major risk factors, an alert appears—Liam's blood sugar is a little outside his normal range. She's surprised—her teachers had taught her that these alerts happened so rarely now that most people monitor their own vitals regularly at home and received immediate treatments.

She tells him what she found, and says that while it's urgent, it doesn't need immediate treatment—but she tells him to continue to wear the vitals monitor for a few days to track his blood sugar. "Your primary medical team will

contact you if they notice anything that needs attention," she explains. "They'll also follow up with you to make sure your arm is feeling better."

The self-driving transit vehicle, automatically sent by a Telemedic, arrives and Liam gets in, headed home. Jana and Chip return to the ambulance. They view the automated report, compiled by the computer through data transmission and voice recognition. It looks good, so Jana verbally confirms her authorization to complete the report and send it to Liam and his medical team.



THE VISION ►►►

Healthcare systems, including EMS, are fully integrated with each other and with the communities in which they operate. Additionally, local EMS services collaborate frequently with their community partners, including public safety agencies, public health, social services and public works. Communication and coordination between different parts of the care continuum are seamless, leaving people with a feeling that one system, comprising many integrated parts, is caring for them and their families.

TODAY'S CHALLENGES

EMS cannot adequately serve members of the community without being better integrated with its partners in healthcare. While the healthcare industry has made some progress breaking down barriers and removing silos, much work remains—and EMS has often struggled to find a “seat at the table.”

EMS must also collaborate closely with public safety colleagues and emergency communications systems, as well as public health, mental health and social service resources, and many other public and private organizations. At any given time, EMS services may need to integrate with these agencies while responding to a major disaster, work with them to create an individual care plan for a patient, or share data in order to plan for future events.

The potential to improve information sharing already exists but has yet to be realized. Technology has made it possible for EMS to provide and receive real-time data that can help with decision-making, from patient's health records to safety information

about a response location. In some ways, the inability to fully integrate data and technology is emblematic of EMS's challenges in integrating with healthcare at a higher level. EMS agencies trying to convince healthcare and hospital systems to share data frequently report difficulty convincing others of the value of that information exchange. A concerted effort to show how integration of information, communication and care will improve outcomes needs to be undertaken to help bring EMS and its partners in healthcare closer together.

Integrated and seamless goes well beyond technology platforms, though. In a seamless system, jurisdictional borders matter less than getting the right care to the right patient; and the entire team—first responders, healthcare providers, social services and many more—shares unified goals and objectives. Technology can serve to facilitate the system, but education, communication and collaboration will serve as its foundation.



WHAT 2050 LOOKS LIKE

EMS personnel have immediate access to any resources they need for their patients, including other healthcare providers, social services and community resources.

EMS clinicians know what resources are available and are able to connect patients to the appropriate organization or person who will provide the care or service they need.

Information and communication systems are connected and continuously updated and improved to ensure immediate access to the right resource for the right patient.

Medical communication centers, integrated with public safety answering points, serve as hubs for acute and non-acute unscheduled healthcare, using evidence-based methods to triage potential patients and provide the appropriate resource or referral, including telemedicine care.

EMS and its partners coordinate to provide the most appropriate care to the patient, with transport to a healthcare facility being just one option.

Hospitals, skilled care facilities, medical offices and EMS communicate and collaborate to ensure smooth transitions of care for patients and their families.

All EMS assets in a region, including air medical resources, public and private systems, response agencies and inter-facility transport agencies, are part of a regional system of care that takes advantage of each partner's strengths to deliver the optimal, efficient and effective services needed at any moment.

"As EMS becomes more integrated into the broader healthcare delivery model, the need for collaboration and stakeholder engagement is going to be vital."

— EMS Professional





EMS professionals can access and contribute to a fully integrated, patient-centered medical record that is owned by the patient.

A real-time healthcare data system that can be accessed remotely by both patients and clinicians through a safe and secure authentication process delivers pertinent patient health information to EMS personnel in the field. The information is easily digestible and relevant to the care and treatment decisions being made in the field.

Interoperability guidelines for healthcare information exchange at local, state and national levels include EMS as an essential provider and recipient of critical data.

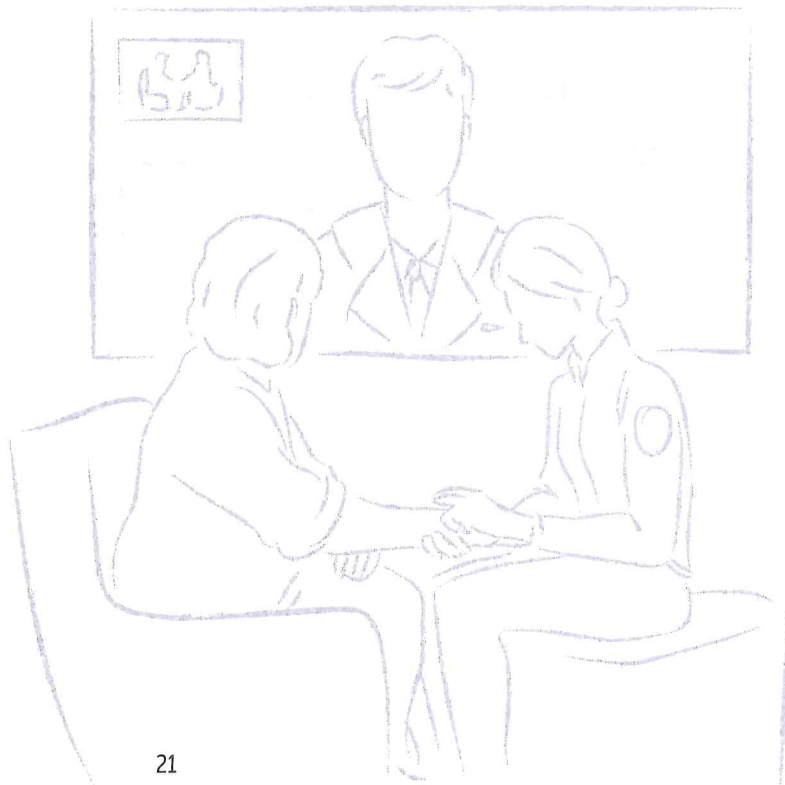
EMS professionals are part of the patient's medical team, with access to their care plans and providers. Patient medical information is updated in near real time, so the entire care team is aware of what other providers are doing as they are doing it.

EMS clinicians and EMS system leaders receive rapid feedback, including patient outcome information and other patient data from the healthcare continuum, in order to improve performance measurement, quality improvement and education.

EMS data inform decisions made not only in EMS, but also in other areas of the community and to support population health and preparedness.

EMS data systems deliver real-time knowledge about patterns of disease, injury and access to care. Information collected and shared in these systems informs decisions made related to healthcare operations, public health and interventions related to social determinants of health and injury and illness prevention.

EMS and public health data are integrated in ways that aid in the monitoring and identification of emerging outbreaks or demographic trends in injury and illness patterns.





The education of EMS and other healthcare professionals promotes and supports an integrated system of care.

Interprofessional education systems prepare EMS professionals and their healthcare colleagues to work collaboratively together. Students learn early on in their education about the roles and responsibilities of other providers on the healthcare team and also spend time with those providers in both the clinical and educational environments.

Education of advanced EMS clinicians includes a comprehensive orientation to public health, social services, mental health and social determinants of health in a way that truly empowers them to provide integrated care. Curricula also ensure that EMS professionals are prepared to collect, share, analyze and use the data available to them.

EMS physicians lead a collaborative system of medical oversight and direction that also draws on other providers' expertise when needed.

EMS physicians' education and training prepares them to be leaders and patient advocates who lead the medical oversight of regional systems for acute and non-acute unscheduled healthcare, with expertise in the clinical aspects of care, as well as disaster management, telemedicine, care coordination, patient navigation and the social determinants of health.

EMS medical oversight for specific patients and populations includes close collaboration with the physicians who make up the patients' medical home. Care plans are developed in conjunction with EMS physicians to ensure the most appropriate use of EMS resources to care for the patient.

Input from other specialists, including but not limited to pediatricians, psychiatrists and other behavioral health experts, pain specialists, cardiologists, neurologists and pharmacists, is a key part of EMS care—from overall system development to real-time decisions for individual patients.

Technology connects patients, EMS clinicians and EMS physicians, patients' doctors or specialists when direct consultation adds value and improves outcomes.



EMS and its partners in public safety learn together, train together and prepare together in order to respond as a unified team.

EMS education systems include other public safety partners to ensure members of the team are aware of each other's roles and limitations and work together to coordinate operations and patient care.

Planning and training for scheduled and unscheduled events that will impact the health and wellness of the community includes EMS leaders and clinicians.

Interoperability of communications and data systems ensures that organizational and jurisdictional differences do not inhibit sharing of critical information before, during or after any incident.



AN INTEGRATED AND SEAMLESS FUTURE

A truly integrated system will go beyond sharing data and communicating during or after a specific incident or episode of patient care. To create a seamless system, EMS professionals and their community partners must commit to the same shared objectives and find ways to achieve them together. A people-centered EMS system takes advantages of the strengths and resources brought by each organization and clinician to protect the health and wellness of individuals and communities.

