



# 2018 Rural Emergency Medical Communications Demonstration Project

## Closeout Report

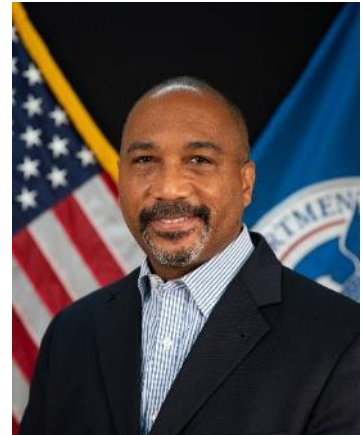
FEBRUARY 2022

Cybersecurity and Infrastructure Security Agency

## Message from the Executive Assistant Director

I am pleased to present the “2018 Rural Emergency Medical Communications Demonstration Project Closeout Report.” The Cybersecurity and Infrastructure Security Agency (CISA) prepared the report to document lessons learned and best practices from administering the grant program.

CISA is responsible for protecting the nation’s critical infrastructure from physical and cyber threats and enhances public safety interoperable communications at all levels of government. In accordance with authorizing legislation, CISA reestablished the Rural Emergency Medical Communications Demonstration Project (REMCDP) in 2018. REMCDP was established as a \$2 million competitive grant program to examine barriers and develop solutions that enhance existing emergency communications infrastructure and the delivery of rural medical care.



Following a merit-based application review process, the Department of Homeland Security selected one public and state-controlled institution of higher education to receive funding, specifically the University of Mississippi Medical Center. The selected project demonstrated an innovative and comprehensive approach and a significant impact on rural community interoperable communications, using existing communications infrastructure, improving operational effectiveness, and providing communications training to enable improved rural medical services.

Under REMCDP, Mississippi continued executing the First Hands Program to improve its statewide public safety communication system and training. The state also added a course specifically designed for Mississippi’s public safety communication personnel and telecommunicators entitled the First Voice Program. Despite challenges associated with the COVID-19 pandemic, REMCDP accomplishments include training more than 2,300 first responders across Mississippi, improving access to just-in-time training, and extending Mississippi’s statewide public safety communication system’s use to support and improve rural medical care and communications.

The period of performance ended March 31, 2021. While the 2018 grant program has closed, CISA remains focused on transferring REMCDP information and knowledge to all interested stakeholders. CISA is applying REMCDP best practices to the Department’s current and future grants, as well as coordinating with other federal agencies to act on recommendations included throughout this report. Please direct any questions to my office at [ECD@cisa.dhs.gov](mailto:ECD@cisa.dhs.gov).

Sincerely,

Billy Bob Brown, Jr.  
Executive Assistant Director for Emergency Communications  
Cybersecurity and Infrastructure Security Agency  
Department of Homeland Security



# 2018 Rural Emergency Medical Communications Demonstration Project

## *Closeout Report*

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# I. Background

The Department of Homeland Security (DHS) is responsible for strengthening preparedness and emergency response capabilities within the United States. To support this mission, emergency responders at all levels of government and disciplines must have the ability to communicate as needed, on demand, and as authorized to coordinate critical response operations. Rural communities face unique challenges associated with emergency medical response. Coordinated response is often delivered by a combination of medical providers and non-medical emergency responders, which requires consistent, reliable communications among public safety telecommunicators, the responder on scene (e.g., volunteer firefighter, law enforcement officer), and medical personnel at various locales.

To address this critical need, the *Consolidated Appropriations Act of 2018* (P.L. 115–141) authorized the Emergency Communications Division within the Cybersecurity and Infrastructure Security Agency (CISA) to reestablish the Rural Emergency Medical

...\$2,000,000 is to continue National Emergency Communications Plan development projects...

- Joint Explanatory Statement (P.L. 115–141)

Communications Demonstration Project (REMCDP), a \$2 million competitive grant program, to provide funding to a public and state-controlled institution of higher education. The legislation implied the demonstration project shall again leverage existing technologies and engage non-medical professionals to help establish or sustain statewide medical communications systems and use existing infrastructures to improve the delivery of rural medical care.<sup>1</sup>

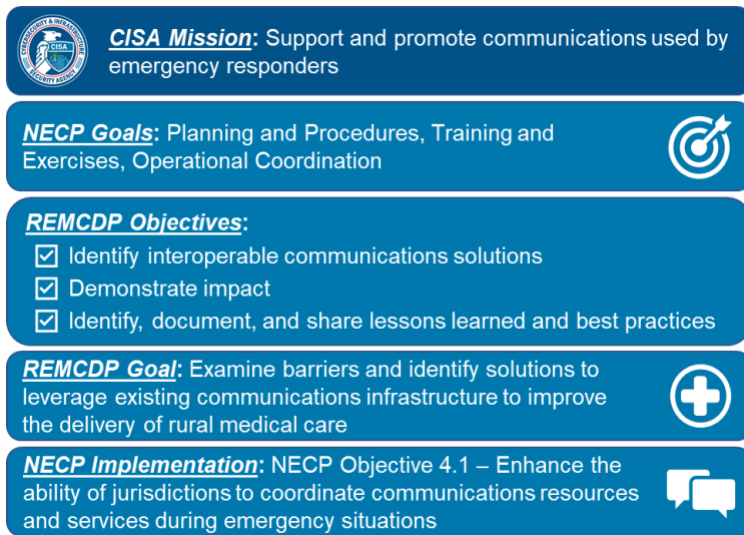


Figure 1. REMCDP Alignment to CISA Mission and 2014 NECP Goals

REMCDP aligned with CISA’s mission to enhance public safety interoperable communications at all levels of government, providing training, coordination, tools, and guidance to help partners across the country develop their emergency communications capabilities. In turn, the REMCDP grant supported the *National Emergency Communications Plan* (NECP)<sup>2</sup> goals and objectives as demonstrated in Figure 1. To implement the NECP, CISA needed to continue to improve its understanding of communications between emergency responders and medical personnel, especially in rural communities.

<sup>1</sup> Statutory language is included in [Appendix A](#) of this report.

<sup>2</sup> The NECP serves as the nation’s strategic plan that promotes communications and sharing of information across all levels of government, jurisdictions, disciplines, and organizations for all hazards, as needed and when authorized. REMCDP supported NECP Objective 4.1 to enhance the ability of jurisdictions to coordinate communications resources and services during emergency situations. Since the NECP’s initial release in 2008, CISA coordinated across the whole community to release an updated NECP in 2014 and 2019. For more information, see: [cisa.gov/necp](https://cisa.gov/necp).



From July 10, 2018, through August 10, 2018, the REMCDP Notice of Funding Opportunity (NOFO) (DHS-18-PD-120-001) was published at [grants.gov](https://www.grants.gov), the governmental website that serves as the central storehouse for information on more than 1,000 grant and cooperative agreement programs. One application for a single project requesting \$2 million was received in response to the solicitation.

The application was subject to the evaluation process described in the 2018 REMCDP NOFO. The evaluation included an initial review for eligibility and completeness, a merit review to score the project based on pre-determined criteria, and final selection by the Objective Review Panel. Table 1 summarizes REMCDP requirements in accordance with the program’s guidance derived from national priorities in the NECP.

*Table 1. REMCDP Program Guidance Requirements.*

Program Guidance Requirements
<p><b>Program Objectives</b></p> <ul style="list-style-type: none"> <li>• Use of a current statewide emergency communications system to deliver rural medical care and services</li> <li>• Development of trainings and exercises to ensure that rural emergency responders and personnel can use emergency medical communications systems and equipment effectively</li> <li>• Collaboration with state leaders to address the addition of or transition to FirstNet (in the planning phase) with the current land mobile radio and statewide emergency communications systems</li> <li>• Collaboration with non-medical professionals and emergency communications stakeholders that use emergency medical communications</li> <li>• Solutions to ensure that emergency responders and medical practitioners can communicate in rural, underserved communities, as needed and when authorized</li> <li>• Development of concepts for inclusion of rural medical care and emergency communications support as a component of the NECP</li> <li>• Identify, document, and share lessons learned and best practices of the demonstration project, which in turn could be shared with other stakeholders addressing rural population healthcare needs, such as high cardiovascular diseases and/or high mortality rates</li> </ul> <p><b>Evaluation Criteria</b></p> <ul style="list-style-type: none"> <li>• Innovation in approach, including strategies for management, governance, operations, training and exercises, and how well the project uses advanced and innovative technology solutions to achieve interoperability with rural communities</li> <li>• Impact of the project on emergency communications capabilities in rural communities (i.e., assess current interactions with rural communities and expected improvements to medical response in these communities resulting from REMCDP funding)</li> <li>• Inclusion and description of partnerships with various disciplines, including non-medical professionals, including how new partnerships and agreements will benefit interoperable emergency communications in rural communities</li> <li>• Consideration for the SAFECOM Interoperability Continuum<sup>3</sup> in project planning and development to ensure stakeholders develop, manage, operate, and maintain communications interoperability to enhance existing emergency communications infrastructure</li> </ul> <p><b>Reporting</b></p> <ul style="list-style-type: none"> <li>• Quarterly progress reports on performance and financials</li> <li>• Annual financial reports</li> <li>• Closeout or final report on performance and financials</li> </ul>

<sup>3</sup> DHS, SAFECOM, *Interoperability Continuum: A Tool for Improving Emergency Response Communications and Interoperability*, [cisa.gov/safecom/resources](https://cisa.gov/safecom/resources).

CISA prioritized innovation as the demonstration project’s key criterion as shown in Figure 2. During the merit review, federal staff knowledgeable in the field of emergency communications and other focus areas evaluated REMCDP applications for their innovativeness in approach. This criterion included strategies for management, governance, operations, training, and exercises, as well as how effectively the project used advanced and innovative technology solutions<sup>4</sup> to achieve interoperability with rural communities. The reviewers also focused on how an existing technical or non-technical solution was altered or enhanced to address the issue or how the applicant used a combination of solutions to address a unique problem.

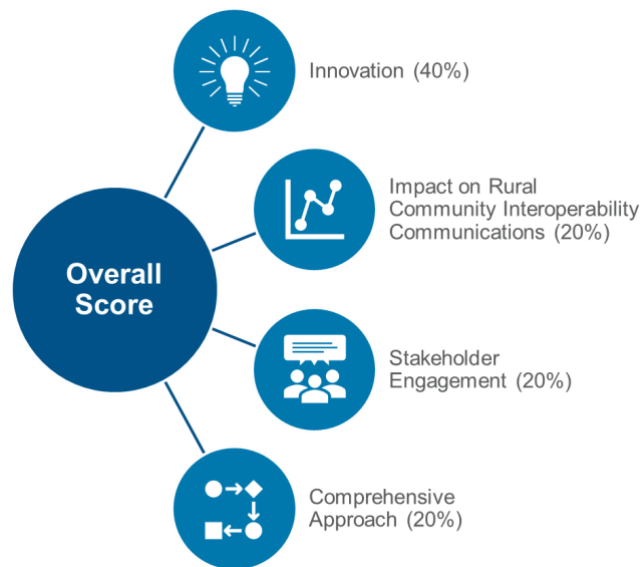


Figure 2. REMCDP NOFO scoring criteria

The one application was deemed eligible by the DHS Grants and Financial Assistance Division based on pre-determined criteria. Then, DHS selected this project based on the results of the merit review, applicability to overall legislative and programmatic goals and objectives, and the availability of funds. In September 2018, DHS announced the University of Mississippi Medical Center (UMMC) as the award recipient. [Appendix B](#) provides the program financial overview and expenditure information for UMMC.

UMMC’s project expanded upon previous programmatic successes and continued the First Hands Program to fulfill high course demand, developed a just-in-time training and operational vehicle platform for rapid deployment across the state, and trialed a refresher program for graduates of the First Hands Program. In addition, UMMC developed and is now offering a companion course for all Mississippi public safety communication personnel and telecommunicators, entitled the First Voice Program.<sup>5</sup> These efforts leverage existing communications infrastructure to continue improving operational effectiveness and serve as a repeatable model for other communities to examine their own communications barriers and enhance the delivery of rural medical care. Throughout the period of performance and as UMMC balanced responding to the 2020 global health crisis while continuing to pursue REMCDP project objectives, CISA worked with UMMC to document lessons learned and capture challenges and successes to ultimately share with the emergency response community in the post-award phase.

<sup>4</sup> The 2018 REMCDP NOFO provided examples of innovative technology solutions that use voice or radio over internet protocol; broadband voice, data, or video applications; mobile public safety networks; multi-band/multi-mode software designed radios; network interconnect technologies; or satellite communication systems.

<sup>5</sup> The terms “public safety communication personnel and telecommunicators” refer to staff working at public safety answering points, emergency communications centers, or other facilities supporting operations or answering 911 calls. Agencies may also refer to these positions as call takers, dispatchers, or operators where terms may be interchangeable, or the positions have unique functions. In addition, the First Voice Program may benefit administrators, uniformed vs. non-uniformed staff, and triage personnel that support the public safety mission.

## II. Advancing Rural Emergency Medical Communications

Under REMCDP, UMMC’s Mississippi Center for Emergency Services (MCES) continued the mission of educating and connecting first responders and public safety users throughout Mississippi. Building on the successful foundation created in the 2016 REMCDP, MCES has expanded the reach, deepened the understanding, and strengthened the preparedness of medical and emergency communications across the state.

The First Hands Program was originally developed to improve Mississippi’s statewide public safety communication system—Mississippi Wireless Information Network—and extend the system’s use to support and improve rural medical care, coordination, and communications. In rural and underserved communities, it is often the first responders with limited medical training and equipment who reach those in need first. Under the 2016 REMCDP, UMMC identified the opportunity to combine medical and land mobile radio communications education with hands-on training to empower non-medical first responders providing medical aid. The success of the First Hands Program drove the need for continued course offerings under the 2018 REMCDP. Additionally, in response to first responders’ suggestions, UMMC developed a separate course for public safety telecommunicators titled the First Voice Program. By improving communication links among first responders, public safety telecommunicators, and medical support teams and ensuring first responders and telecommunicators have a common educational foundation when dealing with an emergency medical situation in the field, MCES sought to improve patient outcomes in rural communities during emergency and hazardous events.



*Figure 3. First Hands and First Voice Program logos*

The 2018 REMCDP period of performance from October 1, 2018, to March 31, 2021,<sup>6</sup> spanned an unprecedented time in United States history. The global pandemic presented a significant challenge to UMMC.<sup>7</sup> Most notably, nearly all the First Hands and First Voice instructors are clinicians, clinical managers, or communications specialists in the MCES disaster communications center. Their primary roles took precedence beginning in March 2020 as MCES shifted into emergency response mode, which left few, if any, personnel available to teach courses. Simultaneously, travel and gathering restrictions made it impossible to teach either First

<sup>6</sup> UMMC received a six-month no cost extension that extended the period of performance end date from September 30, 2020, to March 31, 2021.

<sup>7</sup> Beginning in January 2020, cases of COVID-19 began to climb in the United States and across the globe. COVID-19 is a disease caused by a virus called SARS-CoV-2. Most people with COVID-19 have mild symptoms, but some people can become severely ill. In March 2020, most states and local jurisdictions imposed strict travel and gathering restrictions and encouraged people to stay home and avoid social situations.

Hands or First Voice in person; First Hands especially relies heavily on teaching hands-on motor skills, as well as participant interaction. This significant challenge and UMMC's efforts to still make the most of 2018 REMCDP are described further in the following sections.

## Accomplishments

UMMC successfully expanded existing, and developed new, trainings and educational offerings that Mississippi's public safety professionals need to support rural medical care and communications. In delivering the First Hands and First Voice Programs, UMMC enhanced the delivery of medical care across the state's rural and underserved communities. UMMC's many accomplishments and successes include:

### Expanded Course Content and Variety

UMMC focused much of the 2018 REMCDP efforts on expanding its educational offerings for Mississippi's first responders and public safety telecommunicators by developing the First Voice Program. An advisory team and subject matter experts<sup>8</sup> designed the course to expand radio knowledge and medical communications to those who support first responders in the field. The goal was to enable a better understanding of, and improve advanced interoperable emergency communications for, the telecommunicator working in emergency communications and emergency dispatch centers across Mississippi. Portions of the course included scenario training that allows attendees to understand the flow of communication and why it is important in an emergency setting. UMMC created a detailed Reference Guide (see [Appendix E](#)) to help direct telecommunicators to the appropriate agency in an emergency or disaster. Upon initial course completion, UMMC conducted the First Voice beta course at the 9-1-1 Coordinators Conference in October 2019. The positive response to the beta course led to the official presentation of First Voice to the Mississippi Department of Public Safety's Board; the Board approved the course for four hours of continuing education credit for telecommunicators.

Because COVID prevented the execution of in-person First Voice courses (except the beta course), UMMC approached the Mississippi Department of Public Safety's Board a second time to seek approval to provide First Voice classes online; the Board agreed attendees would receive the same number of education credits as an in-person course. UMMC hired a local production company to film the First Voice presentation at the MCES building and edit it into a format that could be used for online, on-demand learning. Additionally, UMMC selected a software teaching platform to deliver content, monitor attendance, and collect necessary data and course reviews. As

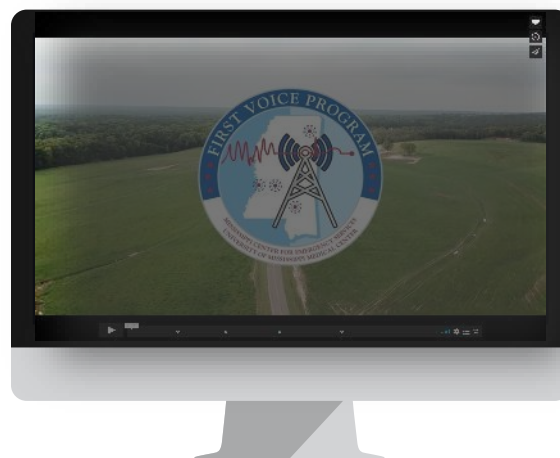


Figure 4. Online version of First Voice program content

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<sup>8</sup> The advisory team included professionals from the Mississippi Emergency Management Agency; Mississippi Highway Patrol; Mississippi Department of Wildlife, Fisheries and Parks; Mississippi Wireless Communications Commission; Federal Bureau of Investigation; and three directors from rural 911 and Emergency Communication agencies. Subject matter experts included a 911 communications consultant and representatives from the National Emergency Medical Service Pilots Association.



further described in the section [Apply Best Practices to DHS Demonstration Projects and Grants](#), these initial steps—developing the video and securing the software platform—permitted UMMC to offer the First Voice program to telecommunicators across the state during the 2020 REMCDP period of performance.

UMMC also designed a First Hands refresher course (90-minute review of the original course material) for those responders who had already completed the course but wanted to keep their skills and knowledge up to date. While the refresher course was useful to a targeted population, most agencies sought the original First Hands course given personnel turnover and new recruits.

### Just-in-Time Training and Operational Platform

UMMC designed the just-in-time training and operational platform specifically to meet the NECP goal of helping coordinate the various methods of public safety communication capabilities for both planned and unplanned events. The training and platform are a mechanism for rapid deployment of equipment, training, and support field operations for mass radio communication needs. They also offer a solution to current barriers in communication capabilities of end users across Mississippi.



*Figure 5. Large radio asset distribution vehicle*

The platform vehicle, or large radio asset distribution (LRAD) as seen in Figure 5, supports a cache of 100 interoperable portable radios, digital training platforms, radio communication technical equipment for supporting radios, and a small radio console for mobile communications. During the COVID-19 pandemic, even before the platform vehicle was available, the REMCDP just-in-time training model dispatched communication equipment and training at some of Mississippi's earliest COVID-19 testing sites.

The process confirmed that this training and the communication platform had both the capacity and capability to be used effectively in rural areas and in untested circumstances.

After the LRAD was delivered in early 2021, UMMC used it to perform physicals for the Mississippi Bureau of Narcotics at its outlying rural locations as a beta test. This provided an environment to test the deployability and functionality of the vehicle in an environment similar to how it would be used operationally. The LRAD is easy to setup and the design is flexible; it could be used as a command and communications center, observation area, staging post, or radio distribution point depending upon the response scenario.

### Program Attendance

Between October 2018 and March 2021,<sup>9</sup> UMMC hosted 120 First Hands, First Hands Refresher, and First Voice classes across the state for more than 2,300 participants.

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<sup>9</sup> For 2016 REMCDP, UMMC received a six-month no-cost extension to the original two-year period of performance, then an additional thirty-day no-cost extension. The extended period of performance ended April 30, 2019. The 2016 REMCDP Closeout Report cites program attendance through April 2019. This report states program attendance for the full 2018 REMCDP period of performance, which began October 1, 2018 and

Participants trained since First Hands was initially launched in January 2017 now represent all of Mississippi’s 82 counties. Participants received four hours of continuing education credits in emergency medical services (EMS), law enforcement, or public safety telecommunications depending on the audience.



Figure 6. First Hands Program in-person instruction

First Hands Program participants represented the following disciplines: law enforcement, emergency management, EMS, fire services (paid and volunteer), and communications/dispatch. The First Voice beta course attendees represented state, county, municipal, and private EMS agencies. See [Appendix C](#) for a breakdown of participants per quarter, as well as some participant demographics.

Given the widespread attendance statewide in the initial years, UMMC originally planned to phase out the First Hands offering in the fourth

quarter of 2019; however, feedback from First Hands participants continued to be positive and clearly demonstrated the need and demand for ongoing training, especially as new recruits joined Mississippi’s law enforcement and volunteer responder agencies. The lack of classes taught in 2020 led to an overwhelming number of agencies requesting First Hands in early 2021. Additionally, continuing to offer the First Hands course supported the NECP goal of enhancing the knowledge of the available emergency communications technologies in a rural state.

### Program Results

Under 2016 REMCDP, UMMC established a method by which First Hands Program participants could request a replacement bleeding control kit after using the kit in an emergency situation. Participants complete a form on the UMMC website or in the mobile smartphone application to request a new kit and provide general details about the incident. During the 2018 REMCDP period of performance, UMMC received replacement kit requests from 72 First Hands Program attendees who had used the bleeding control kits and tourniquet training in response to an emergency situation. The 72 incidents ranged from cutlery mishaps and gunshot wounds, to car accidents; responders described how

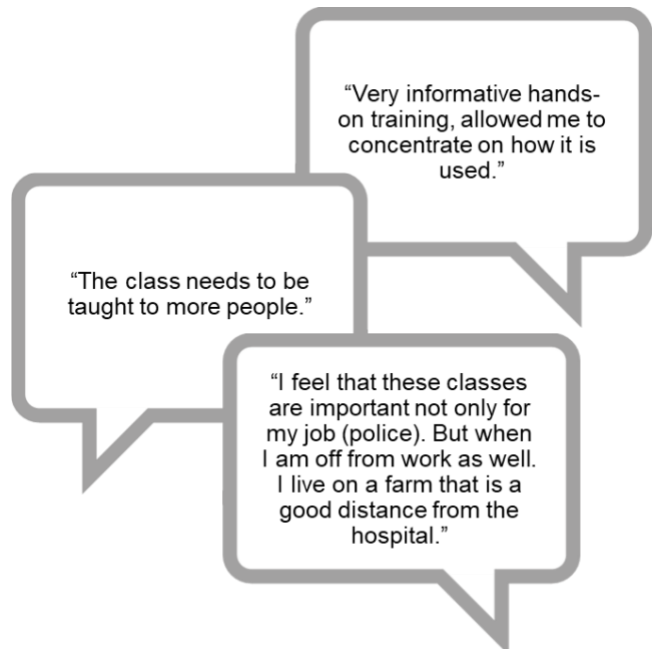


Figure 7. First Hands Program attendee feedback

ended March 31, 2021 given a six-month no-cost extension to the original two-year period of performance. As such, the program attendance overlaps in the two closeout reports.

they used kit components to provide critical care before the arrival of other medical assistance. The pandemic did not seem to have an adverse effect on how often first responders were using their First Hands training in the field. See [Appendix D](#) for a sample of the data collected through the bleeding control kit re-supply request form.

## Lessons Learned

CISA facilitated information sharing throughout the period of performance. UMMC submitted quarterly financial and performance reports and participated in quarterly teleconferences with REMCDP Program Office personnel to discuss and validate its quarterly reports. This comprehensive reporting and coordination allowed UMMC and CISA to collectively recognize problems and challenges early on and brainstorm mitigation strategies to prevent impacts to project implementation. Through this coordination, CISA identified four overarching lessons learned:

### Adhere to the Original Course Design

As previously introduced, UMMC created the First Hands Refresher course as a 90-minute review of the original four-hour First Hands course information and offered it to those who had completed the full First Hands class during the 2016 REMCDP period of performance. Upon launch, UMMC found it difficult to identify agencies that *only* wanted the refresher course; given new recruits and high turnover, agencies continued to see value in offering the full First Hands course to all personnel. The tactical, hands-on instruction is critical for training rural first responders and personnel in the use of emergency medical communications systems and equipment.

Organizations with existing training programs that may be considering offering a pared down version as a refresher course or to accommodate tight schedules should consider the impact of that decision on intended participants. While training may have been provided to the agency previously, there is potential for turnover and thus new personnel who would benefit from the entire course. Organizations should not be pressured to offer a condensed version of a course when the original design and content is well-received and achieves the desired outcomes. Committing time to training—especially tactical, hands-on training—benefits responders and volunteers alike.

### Allow Sufficient Time for Reference Guide Development

As a companion to the First Voice Program, UMMC developed the Communication and Medical Information Reference Guide, which identifies appropriate agencies, departments, or response teams that can be contacted in any foreseeable emergency or disaster. The reference guide includes 44 agencies grouped into the following categories: community, medical emergency, accidents and natural disasters, state and federal law enforcement, and other support services.

<p><b>Mississippi MED-COM</b> <b>AirCare / Adult and Children's Transport Services / Mass Causality Incident / Natural or man-made disasters</b> <b>Phone: 888-862-2345 or 601-984-4367</b> (staffed 24/7 with experienced emergency medical personnel)</p> <p><b>Relevant Events for Notification:</b> AirCare helicopter ambulance launch, Pediatric transport (air or ground), Neonatal transport (air or ground), Level 1 trauma care, Burn patient transfers, MSWIN activated incident or event, any disaster or mass casualty incident, any medical disaster or emergency across the state.</p>	
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Figure 8. Sample agency information contained in First Voice Reference Guide

UMMC intended for each agency or organization listing to include the name, acronym, emergency phone number(s), logo or emblem, and relevant events for notifying that agency. However, identifying the correct emergency phone numbers for each of these agencies was a challenge; websites often only list a main phone number and do not include an emergency, after-hours phone number. When UMMC personnel contacted the agencies directly to seek appropriate numbers, they received push back about why UMMC wanted the number and how it would be used. It was similarly difficult to obtain permission to include agency logos in the guide; as such, many agencies listed in the reference guide have no icon because getting access and approval became too cumbersome. Ultimately, developing the reference guide took longer than originally budgeted given the number of agencies included (44 versus the original list of 25) and the need to individually contact agencies instead of obtaining necessary information through open-source resources.

Organizations interested in creating a similar reference guide must allow sufficient time to compile the desired content, as well as have a plan for how to approach agencies who do not publicly advertise an emergency or after-hours phone number. In anticipation of many explanatory conversations, develop a succinct “pitch” to explain the purpose and intended use of the emergency phone number and agency logo. Consider having the request come from a senior person within the organization to his or her equivalent at the agency in question; this approach lends credibility to the request.

#### Leverage Existing Vehicle Designs

UMMC’s vision for the just-in-time training and operational platform required a complex, time-consuming custom design. Once the design was complete, it was a challenge to find a manufacturer who could fulfill the custom order within the budget and timeframe necessary given the grant’s period of performance. The time required to complete all the LRAD’s requirements was further complicated by the backlog created by COVID shutdowns at various manufacturing plants. Finally, once the vehicle was received, there were several weeks of work in assembling all the separate equipment and installing it in the vehicle.



*Figure 9. UMMC’s custom just-in-time training and operational platform*

Organizations interested in acquiring a similar just-in-time training and operational platform should consider the amount of time required to design a custom vehicle. Though there is value in designing a vehicle that meets an agency’s specific needs, there may be benefits and significant timesaving in examining existing vehicle designs. Agencies could contact other public safety agencies with similar platforms to the desired outcome, solicit examples through participation in statewide or regional organizations, or contact CISA for a specification list based on UMMC’s LRAD.



### III. Looking Forward

CISA continues to work to improve rural emergency medical communications through various activities where the 2018 REMCDP information and knowledge can be shared. This includes outreach with rural communities and states with significant rural populations; integration of program outcomes into CISA service offerings and technical assistance (TA); development of tools, templates, and training materials; application of best practices to the Department’s current and future demonstration projects and grants; and replication of the First Hands and First Voice Programs in other communities. Figure 10 depicts how CISA is transferring the 2018 REMCDP information and knowledge to rural communities and beyond.



Figure 10. CISA Actions to Transfer the 2018 REMCDP Information and Knowledge

## Conduct Rural Community Outreach

One of CISA's functions is to conduct outreach with its public safety stakeholders. CISA will share the 2018 REMCDP best practices and lessons learned directly with rural communities, as well as states with significant rural populations. Through additional outreach with public safety stakeholder bodies (e.g., SAFECOM, National Council of Statewide Interoperability Coordinators, National Public Safety Telecommunications Council), CISA will continue to address and bring attention to the communications barriers and challenges that are unique to rural communities.

## Integrate Program Outcomes into CISA Service Offerings

Building on 2016 and 2018 REMCDP successes, CISA identified a potential opportunity to develop its own rural or medical communications-focused technical assistance service offering or training course based on UMMC's First Hands and First Voice Programs. The offering or course would cover key REMCDP elements, including radio/talkgroup operation, basic medical training, and rural community considerations. These proposed offerings are consistent with and would complement the *CISA Emergency Communications Technical Assistance and Planning Guide* (TA/Statewide Communication Interoperability Plan [SCIP] Guide).<sup>10</sup> The TA/SCIP Guide includes approaches to help public safety and government officials meet the challenges in the rapidly changing voice and data interoperability landscape and the expanding communications ecosystem. Through the development of its own course, CISA would simultaneously expand its technical assistance offerings and provide aid to communities in addressing rural and medical communications-focused issues. CISA will investigate adding a First Hands/First Voice-inspired training course in future TA/SCIP Guides, then promote the offering through the Statewide Interoperability Coordinators' request process and training calendar to reach the broadest set of public safety agencies.

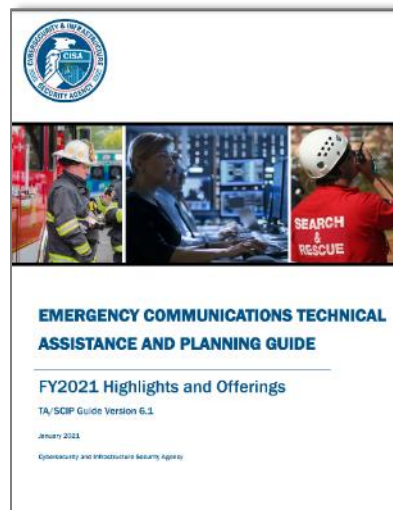


Figure 11. FY 2021 TA/SCIP Guide

CISA also gained valuable insight regarding training in rural communities from the implementation of First Hands and First Voice Programs in Mississippi. For example, the lack of reliable broadband connectivity in rural areas impacted how participants completed pre- and post-training questionnaires, requiring paper Scantron forms instead of online surveys. This lesson learned has informed CISA's service offerings in rural communities, including the importance of traveling to public safety agencies in remote outposts that would otherwise be unable to spare staff from their regular duties to attend training.

## Develop Tools, Templates, and Training Materials

In addition to general information sharing, CISA is developing tools and templates to assist other rural communities. These include, but are not limited to, training briefings and materials that can be customized to reflect relevant existing emergency communications infrastructure and systems, marketing and promotional materials to encourage training participation, and reference guides to

<sup>10</sup> The TA/SCIP Guide lists available TA service offerings and the request process for Statewide Interoperability Coordinators. For a copy of the TA/SCIP Guide, see: [cisa.gov/publication/ictapscip-resources](https://cisa.gov/publication/ictapscip-resources).

reinforce training content for program completers. Based on UMMC’s LRAD, CISA is considering developing an operational platform design template and specifications; agencies could leverage this template instead of starting from scratch for future vehicle acquisitions.

### Apply Best Practices to DHS Demonstration Projects and Grants

CISA is applying the 2018 REMCDP best practices to 2020 REMCDP. The latest iteration required applicants to demonstrate alignment to the updated NECP released in 2019, as well as compliance with program objectives (e.g., collaboration with non-medical professionals, solutions to ensure communications in rural communities) and the *SAFECOM Guidance on Emergency Communications Grants* (SAFECOM Guidance).<sup>11</sup> The 2020 REMCDP grant focused on innovation as the key component of a demonstration project while also addressing all lanes of the SAFECOM Interoperability Continuum (i.e., Governance, Standard Operating Procedures, Technology, Training and Exercises, and Usage). CISA released the 2020 REMCDP NOFO in May 2020, and following a competitive merit review process, awarded grant funds to UMMC in September 2020.

With the 2020 REMCDP grant, UMMC will continue to offer in-person First Hands courses to fulfill unmet demand due to the COVID-19 pandemic. UMMC will begin offering the First Voice Program to telecommunicators across the state using the selected online platform, as well as in-person. The online First Voice course is an example of UMMC’s new approach to disseminate medical response and communication training for public safety professionals using TeleTraining; UMMC will create a library of training and education videos for first responders who are unable to attend in-person training (e.g., due to COVID-19 pandemic, travel restrictions, budget constraints). UMMC will continue offering just-in-time training in situations that require rapid deployment of equipment and support for field operations needing radio communications (e.g., COVID-19 testing facilities or vaccination sites, planned events, mass casualty emergencies), as well as develop additional just-in-time trainings to provide further capabilities during field operations. Finally, UMMC will redesign the existing MCES mobile application on a more interactive platform to allow for improved collaboration and connectivity among rural public safety professionals and MCES personnel.



Figure 12. Existing mobile smartphone application

Additionally, CISA is coordinating with the Federal Emergency Management Agency to incorporate rural considerations and medical emergency communications aspects into the DHS Preparedness Grants. As a lesson learned, confirmed by the 2016 and 2018 REMCDP implementation, the Department requires in Standard Terms and Conditions that grant recipients use and comply with the SAFECOM Guidance. DHS will continue monitoring grant recipient compliance with the SAFECOM Guidance across its grants.

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<sup>11</sup> SAFECOM Guidance provides recommendations to grant applicants seeking federal funding for emergency communications projects, including typical allowable costs, grants management best practices, and information on standards that ensure greater interoperability. For a copy of the guidance, see: [cisa.gov/safecom/funding](https://cisa.gov/safecom/funding).

## Replicate First Hands and First Voice Programs

The goal of any demonstration project is for similar communities to replicate the project's successes and apply the lessons learned. UMMC's REMCDP project, such as the First Hands and First Voice Programs and LRAD specification list, are repeatable models for other communities to examine their own communications barriers and, ultimately, enhance the delivery of rural medical care. With CISA's guidance, communities across the United States could replicate these programs and offer similar training and tools to first responders. Communities could tailor the hands-on radio training and tools to address state and local emergency communications infrastructure and systems, combining with medical response and bleeding control training and guidance for medical evacuation procedures. CISA could develop a 4-hour technical assistance offering and conduct 5–8 pilot workshops to tailor implementation of training programs or tools for the requesting state or territory, using the existing TA request process.

## IV. Recommendations

CISA strives to improve emergency communications nationwide by promoting consistent national policies such as the NECP. Grants, including 2018 REMCDP, are essential in implementing these national policies as they provide funding to state, local, tribal, and territorial public safety agencies with associated performance and reporting requirements to measure implementation. CISA will continue to share 2018 REMCDP best practices and lessons learned and provide services that meet rural communities' needs. To assist in this endeavor, CISA recommends the following congressional actions:

### Implement and Require Grant Recipient Compliance with the SAFECOM Guidance

State, local, tribal, and territorial agencies have championed the SAFECOM Guidance and should use it as the all-inclusive guidance for grant applicants planning emergency communications projects. As a result, DHS requires its grant recipients to comply with SAFECOM Guidance when using federal funds for emergency communications projects. DHS shared these adopted policies with federal partners, which were then incorporated as best practices and voluntarily adopted by many federal agencies. However, voluntary adoption is only an initial step. The optimal approach is to mandate grant recipient compliance with SAFECOM Guidance for all federal funds with emergency communications as an allowable cost to increase coordination efforts and impact across emergency communications nationwide. CISA recommends Congress require this compliance through the Office of Management and Budget Circulars that govern federal grant funding.

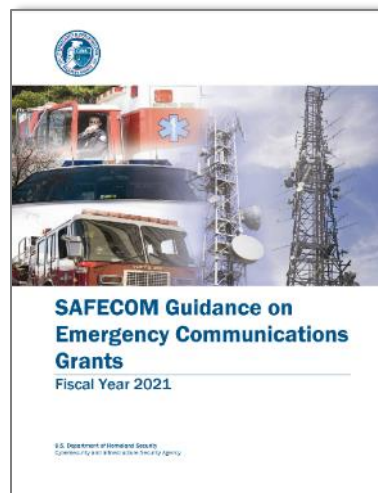


Figure 13. SAFECOM Guidance



## Authorize and Appropriate Similar Demonstration Projects to Inform Large Grants

Demonstration projects require substantial involvement by federal personnel. For example, CISA personnel had regular interactions with the 2018 REMCDP grant recipient through quarterly teleconferences to provide guidance and customized assistance. As a result, UMMC successfully completed its project to examine communications barriers and identify solutions that improve the delivery of rural medical care. Though this level of support is not feasible or replicable for large grant programs that administer hundreds of emergency communications projects, it does not diminish the impact of demonstration projects. These projects generate valuable lessons learned that will be applied to all grant programs and used to inform the type of large-scale grant programs that could be funded in the future. For instance, there are numerous NECP implementation gaps that could be explored by a future demonstration project, such as developing a program to oversee Communications Unit personnel training and tracking, test innovative cybersecurity planning and solutions, or explore alerting systems and social media guidance for providing resilient and interoperable notifications to the whole community. Subsequent solutions and lessons learned generated would then be shared and replicated in other communities nationwide. CISA recommends Congress establish similar demonstration projects as small investments impacting billions in federal financial assistance programs.

## Continue Investing in Rural and Underserved Communities

Rural communities present the perfect opportunity to focus on coordination in a targeted environment as they face unique challenges in providing quality emergency medical care. For example, first responders need to cover large geographic areas with sparse populations and challenging terrain. This leads to long travel distances and times to not only reach patients but then transport them to trauma centers. Additionally, limited funding availability in rural communities impacts communities'

ability to hire career first responders and thus results in volunteer forces. Limited funding can also impact the ability to provide advanced training for responders. Finally, rural communities face potentially limited radio and broadband system coverage, which impacts their ability to communicate with medical personnel for advice or to

hospitals to inform them of patient status. CISA recommends Congress continue investing in rural and underserved communities to adequately address NECP implementation gaps, including those gaps that impact communities' ability to provide quality emergency medical care.

### Rural Communities' Lack of Cybersecurity Planning

According to the 2018 Nationwide Communications Baseline Assessment, fire departments and organizations located in rural areas tend to be least prepared for cybersecurity attacks. Two-thirds of fire departments and almost 60 percent of public safety disciplines located in rural areas indicate they do not conduct cybersecurity planning.

## V. Conclusion

The 2018 REMCDP grant provided \$2 million in funding to a public and state-controlled institution of higher education that effectively used existing emergency communications infrastructure to improve the delivery of rural medical care. Despite the COVID-19 pandemic, UMMC continued executing the First Hands Program (as permitted) and developed the First Hands refresher course and First Voice Program. As of March 2021, these programs combined had reached more than 7,000 public safety stakeholders across Mississippi since the initial First Hands courses in January 2017. By effectively incorporating lessons learned throughout the demonstration project, UMMC evolved and adapted the First Voice training from an in-person to online course, continued providing hands-on experiences, distributed simple but crucial medical supplies, and ultimately, enabled non-medical emergency responders to save lives.

This grant fulfilled the authorizing legislation's requirement to leverage existing technologies and engage non-medical professionals to help establish or sustain statewide medical communications systems and use existing infrastructures to improve the delivery of rural medical care. Congress has funded a successful demonstration project that will continuously share lessons learned and best practices with other rural communities, enhance existing emergency communications infrastructure, influence other grant programs across the Department and federal government, and ultimately, save lives. For questions on 2018 REMCDP or this report, please contact CISA.<sup>12</sup>

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<sup>12</sup> Contact CISA at: [ECD@cisa.dhs.gov](mailto:ECD@cisa.dhs.gov).

## VI. Appendices

### Appendix A: Statutory Language

Title III of the *Consolidated Appropriations Act, 2018* (P.L. 115–141) sets forth the following:

TITLE III  
PROTECTION, PREPAREDNESS, RESPONSE, AND RECOVERY

National Protection and Programs Directorate  
operations and support

For necessary expenses of the National Protection and Programs Directorate for operations and support, \$1,482,165,000, of which \$8,912,000 shall remain available until September 30, 2019: Provided, that not to exceed \$3,825 shall be for official reception and representation expenses.

The Joint Explanatory Statement accompanying P.L. 115–141 sets forth the following:

DIVISION F—DEPARTMENT OF HOMELAND SECURITY  
APPROPRIATIONS ACT, 2018  
TITLE III PROTECTION, PREPAREDNESS, RESPONSE, AND RECOVERY  
NATIONAL PROTECTION AND PROGRAMS DIRECTORATE  
OPERATIONS AND SUPPORT  
EMERGENCY COMMUNICATIONS

The total includes \$118,456,000 for Emergency Communications, of which \$1,785,000 is for the EISI and \$2,000,000 is to continue National Emergency Communications Plan development projects.

## Appendix B: Program Financial Overview

The Department of Homeland Security (DHS) Grants and Financial Assistance Division (GFAD) served as the Rural Emergency Medical Communications Demonstration Project (REMCDP) Grants Officer. DHS GFAD collected the REMCDP award recipient financial reporting and maintained the official grant file. This appendix provides the financial information, including the award recipient’s cumulative award, draw down amounts, and percentages for each fiscal year, and deobligated funds, where the recipient completed its project under the proposed budget; therefore, the recipient deobligated and returned funds to the U.S. Department of the Treasury as documented in a deobligation memorandum.

*Table 2. REMCDP Program Financials*

<b>REMCDP Cumulative Award Amount</b>	<b>\$1,999,998.00</b>
<b>FY 2019 Funds Drawn Down</b>	\$565,113.93
<b>Percentage of Total Award</b>	28.3%
<b>FY 2020 Funds Drawn Down</b>	\$1,214,481.56
<b>Percentage of Total Award</b>	60.7%
<b>FY 2021 Funds Drawn Down</b>	\$1,980,433.24
<b>Percentage of Total Award</b>	99.0%
<b>Deobligated Funds</b>	<b>\$19,564.76</b>



## Appendix C: Program Statistics

The First Hands Program training began in January 2017 under the 2016 Rural Emergency Medical Communications Demonstration Project (REMCDP). From October 2018 through March 2021, the University of Mississippi Medical Center (UMMC) conducted First Hands Program training, First Hands refresher training, and preliminary First Voice training. The COVID-19 pandemic greatly impacted UMMC’s ability to conduct in-person courses in calendar year 2020 and into 2021; the resulting lull in participation is reflected in Table 3. This table reflects the course and participant counts as provided in UMMC’s quarterly and final performance reports. Overall, UMMC still conducted 120 classes across the state between October 1, 2018 and March 31, 2021. More than 2,300 first responders participated in the three training courses (i.e., First Hands, First Hands Refresher, and First Voice).

Table 3. UMMC Program Statistics by Quarter

Quarter Ending	Participants per Quarter			Total Participants	Classes per Quarter	Total Classes
	First Hands	First Hands Refresher	First Voice			
December 2018	405	--	--	4,968 <sup>13</sup>	23	267*
March 2019	403	--	--	5,371	23	290
June 2019	256	--	--	5,660	15	305
September 2019	278	--	--	5,938	21	326
December 2019	150	487	100	6,725	21	347
March 2020	10	0	0	6,735	2	349
June 2020	0	0	0	6,735	0	349
September 2020	125	0	0	6,860	7	356
December 2020	35	0	0	6,895	0 <sup>14</sup>	356
March 2021	121	0	0	7,016	8	364

<sup>13</sup> Added to the running total beginning January 2017 under 2016 REMCDP.

<sup>14</sup> Discrepancy between quarterly and final performance report. The quarterly report indicated no courses taught between October and December 2020, but the final report identified 35 participants.

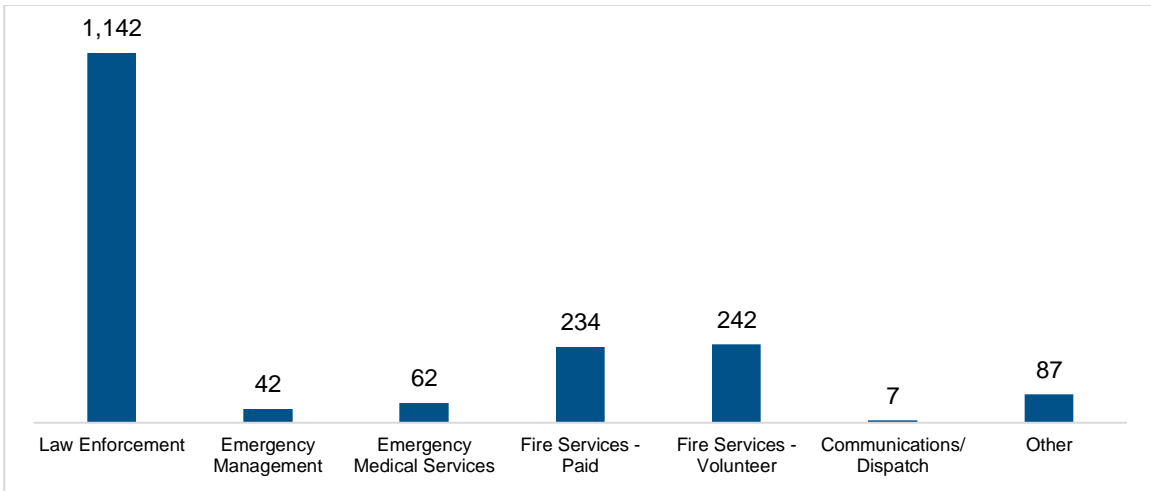


Figure 14. First Hands Program Participants by Discipline (October 2018 through March 2021)

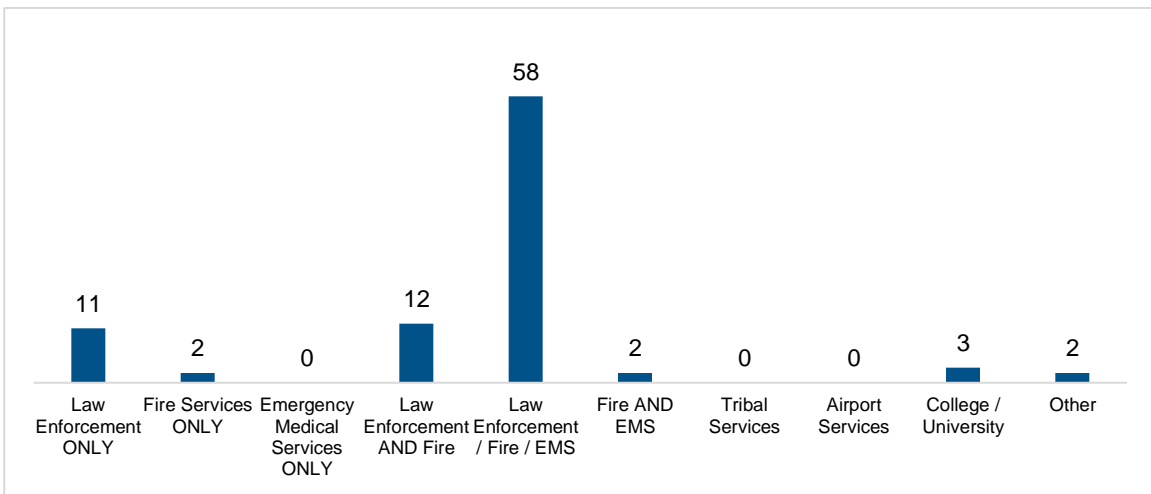


Figure 15. First Voice Participants by Dispatch Service Category (May 2019 – March 2021)



## Appendix D: First Hands Program Bleeding Kit Re-Supply Request

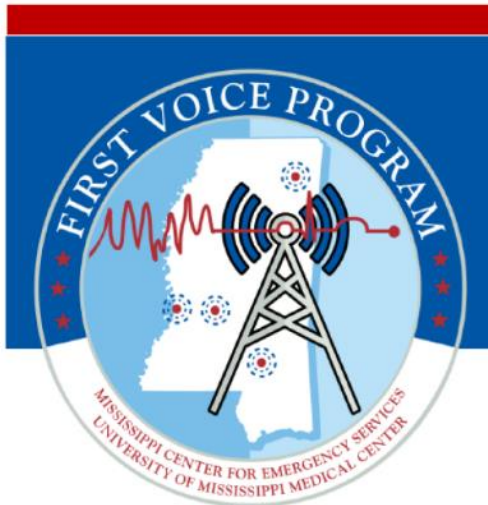
The University of Mississippi Medical Center (UMMC) continued its previously established method by which First Hands Program participants could request a replacement bleeding control kit after using the kit in an emergency situation. Participants completed a form on the UMMC website or in the mobile smartphone application to request a new kit and provided general details about the incident. Between October 2018 and March 2021, UMMC received 72 bleeding control kit replacement requests. The following table includes a sample of the data collected through this form.

*Table 4. First Hands Program Bleeding Kit Re-Supply Requests (October 2018 – March 2021)*

Responder Category	Comments
Law Enforcement	Kit used to aid in a shooting. I cut his sleeve to his shirt and applied C.A.T Tourniquet.
Fire Services – Volunteer	Kit used during a motor vehicle accident. One person had a bleeding gash from her artery in her thigh. I applied pressure with gauze and then applied tourniquet.
Fire Service – Paid	The tourniquet was used to control bleeding from the wrist.
Law Enforcement	Kit used for someone attacked by large dog, profuse bleeding.
Emergency Management	Kit was used to provide aid to for persons involved in a motor vehicle accident. I used the gloves for BSI, and trauma shears to remove clothing on arms and legs to expose injuries. Pressure applied to injuries to control bleeding and roll gauze for dressing.
Fire Service – Paid	Used the kit for training exercise for new recruits
Emergency Management	Motorist vs train incident. Trauma kit utilized to attempt treatment for two victims. Tourniquet applied. Dressing applied. Gloves used as protective barrier.
Law Enforcement	I put a CAT tourniquet on a gunshot victim's leg.
Law Enforcement	Major injuries to her right leg due to motor vehicle accident. I applied a tourniquet and wrapped her leg in gauze to help control the bleeding.

## Appendix E: Course Materials

### First Voice 4" x 9" Rack Card



#### First Voice Program

First Voice is a 4-hour training course created to improve public safety and emergency medical communication. First Voice brings practical knowledge and reference materials to communication professionals throughout rural Mississippi and across the state.

First Voice was developed by UMMC and an advisory group of industry experts from federal, state and local agencies. It is designed to educate communication professionals and dispatchers in the use of the statewide public safety communication platform, MSWIN, and introduce important resources that will better support medical response in Mississippi.

First Voice delivers a strong foundation for all professionals involved in medical emergency and crisis communications.

*First Voice is an extension of First Hands, a successful course providing similar training to Mississippi's first responders.*

(front)

#### FIRST VOICE PROGRAM:

- MSWIN Emergency Communication System \*
- Emergency Radio & 911 Operations
  - Communications with medical assets
  - Statewide P25 system
  - Talkgroups for events
- Federal / State Resources and Roles
- Disaster Communications
- Medical Emergency Information
  - Criteria for air evacuations
  - Connecting to MEDCOM
- Helicopter Operations, Dispatch and Landing Protocols
- Federal, State and Regional Emergency Response Capacity and capabilities

\* MSWIN is Mississippi's statewide emergency communication network and is available for use by both state and local public safety entities/agencies.

To register for a course near you, go to [www.umm.edu](http://www.umm.edu) and search for:

**First Voice Program**

Or scan this QR Code:



Email: [publicsafety@umm.edu](mailto:publicsafety@umm.edu)  
Phone: 601-815-6060

The University of Mississippi Medical Center  
Mississippi Center for Emergency Services  
Public Safety Support Division  
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Figure 17. First Voice Program rack card



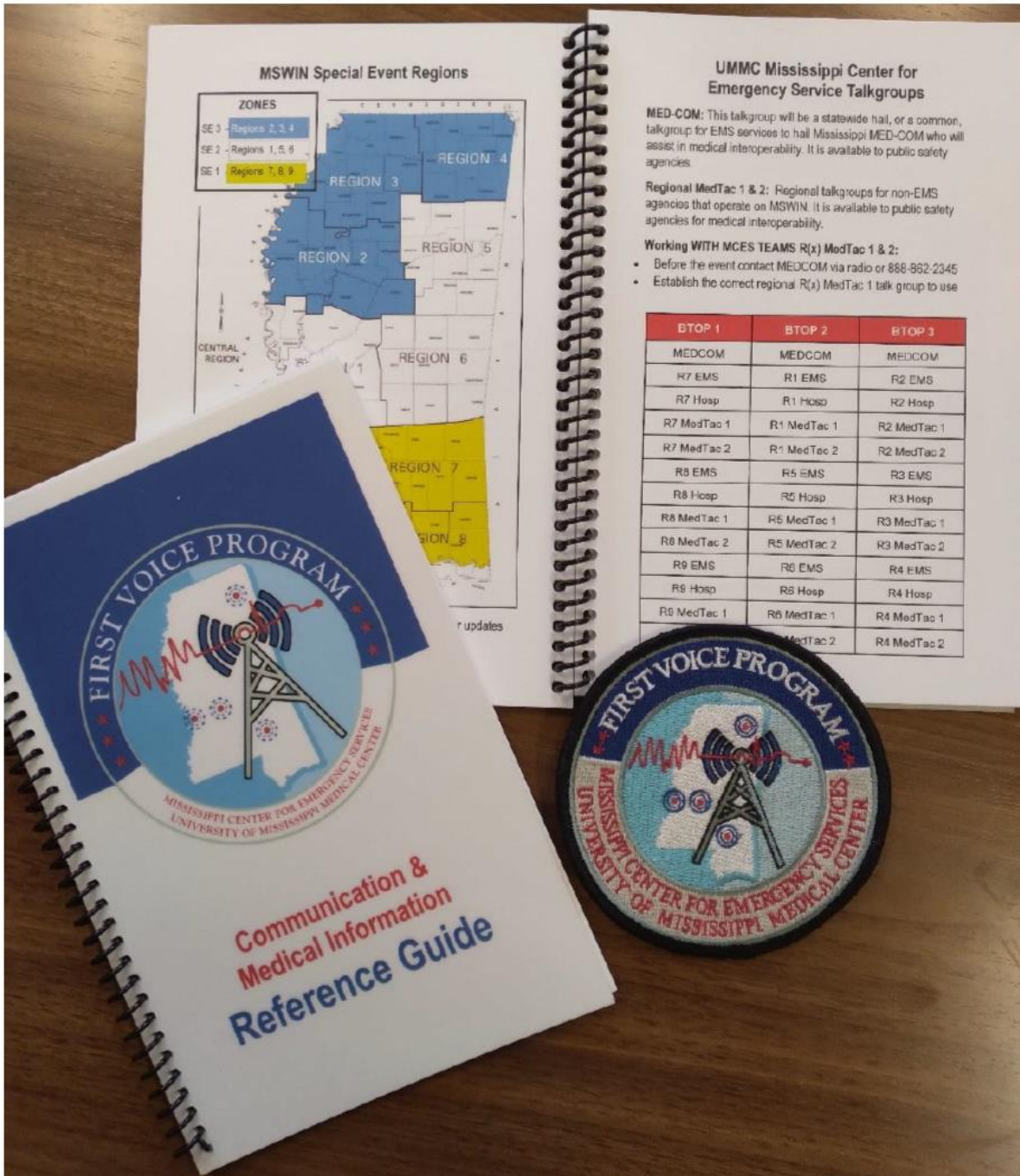


Figure 18. First Voice Program attendee materials, including reference guide and patch

## Helicopter Air Ambulance Scene Request Checklist

Date: \_\_\_\_\_ Time: \_\_\_\_\_

### Required Information

Agency Name & Your Name: \_\_\_\_\_

Your Phone Number: \_\_\_\_\_

County & State accident is in: \_\_\_\_\_

Direction and distance from the town to the accident site: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

### Follow Up Information

Landing Zone Information: \_\_\_\_\_

LZ coordinates: \_\_\_\_\_ Landmarks: \_\_\_\_\_

Landing Zone Commander/Coordinators: Call sign: \_\_\_\_\_

Frequency: \_\_\_\_\_

PL Tone: \_\_\_\_\_

Is this a HAZMAT situation YES \_\_\_\_\_ NO \_\_\_\_\_

Type of incident: MVA \_\_\_\_\_ FIRE \_\_\_\_\_ GSW \_\_\_\_\_ Drowning \_\_\_\_\_ MCI \_\_\_\_\_

Other: \_\_\_\_\_

Number of patients for transport: \_\_\_\_\_

Patient Information: ADULT \_\_\_\_\_ PEDIATRIC \_\_\_\_\_

Age: \_\_\_\_\_

Weight: \_\_\_\_\_

Vitals: \_\_\_\_\_

Condition: \_\_\_\_\_

Other: \_\_\_\_\_

Aircraft responding or called: \_\_\_\_\_

Additional Notes:



Figure 19. Helicopter Air Ambulance Scene Request Checklist