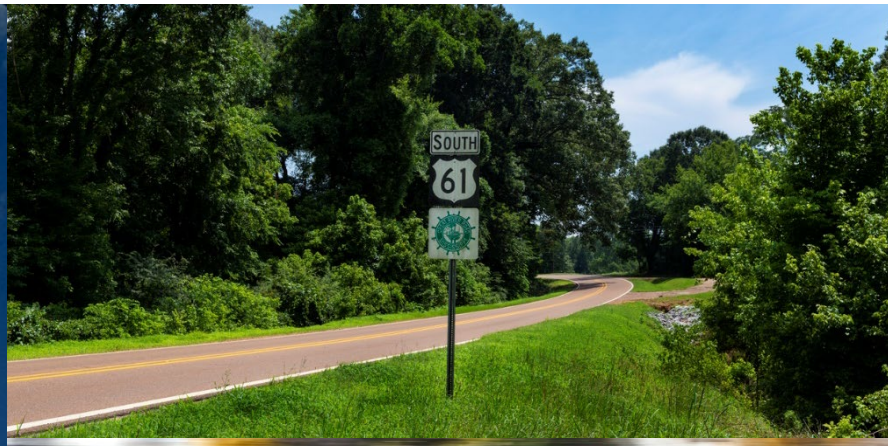

2016 Rural Emergency Medical Communications Demonstration Project

Closeout Report

JANUARY 2020

U.S. Department of Homeland Security
Cybersecurity and Infrastructure Security Agency

Message from the Acting Assistant Director

I am pleased to present the "2016 Rural Emergency Medical Communications Demonstration Project Closeout Report." The report was prepared by the Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA) 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 established the Rural Emergency Medical Communications Demonstration Project (REMCDP) in 2016. 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, DHS 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. This project is a repeatable model for other institutions that face similar communications and medical challenges serving rural communities.

Under REMCDP, Mississippi developed the First Hands Program to improve its statewide public safety communication system and training. In rural and underserved communities, it is often the first responders with limited medical training and equipment who reach those in need first. The First Hands Program combines medical and land mobile radio communications education with hands-on exercises to empower first responders providing medical aid. REMCDP accomplishments include training more than 5,400 first responders across Mississippi, improving Mississippi's statewide public safety communication system, and extending the system's use to support and improve rural medical care, coordination, and communications.

As of April 30, 2019, the period of performance ended. While the 2016 grant program has closed, CISA remains focused on transferring REMCDP information and knowledge to all interested parties. CISA has transitioned a portion of its REMCDP Program Office to support the development of tools, templates, and training to benefit emergency responders operating in rural communities. CISA is also applying REMCDP best practices to the Department's current and future grants, as well as coordinating with other federal agencies to act on recommendations. Please direct any questions to my office at ECD@cisa.dhs.gov.

Sincerely,

Vincent DeLaurentis
Acting Assistant Director for Emergency Communications
Cybersecurity and Infrastructure Security Agency
Department of Homeland Security

2016 Rural Emergency Medical Communications Demonstration Project

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1. Background

The Department of Homeland Security (DHS) is charged with 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 between 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, 2016* (Pub. L. 114-113) authorized the DHS Office of Emergency Communications, re-designated in 2018 as the Emergency Communications Division within the Cybersecurity and Infrastructure Security Agency (CISA), to establish the Rural Emergency Medical 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 specified that the demonstration project shall 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.[1]

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)[2] goals and objectives as demonstrated in **Figure 1**. To implement the 2014 NECP, CISA needed to improve its understanding of communications among emergency responders and medical personnel, especially in rural communities. REMCDP's intent was to work with a public health or medical facility to examine communications barriers and identify solutions that enhance existing emergency communications infrastructure.

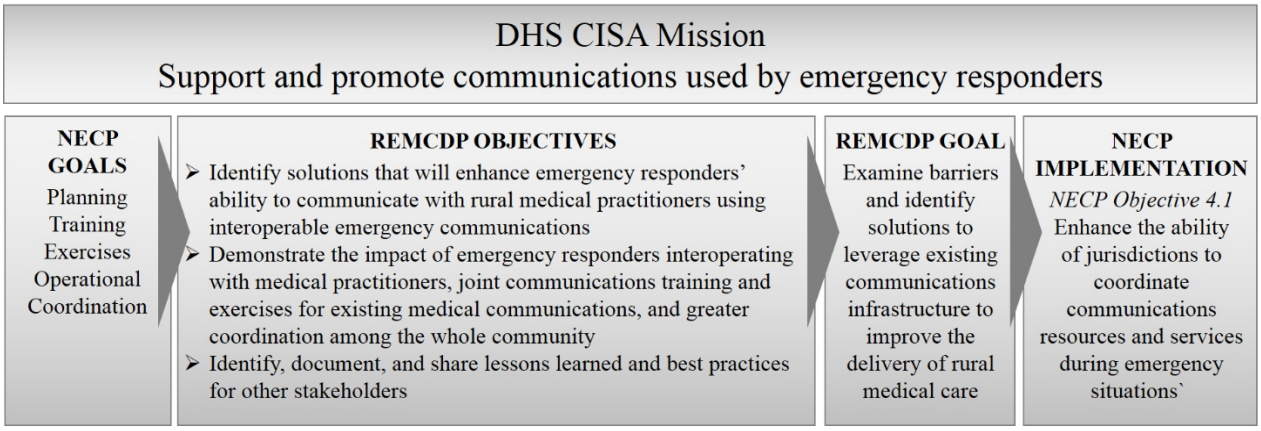

Figure 1. REMCDP Alignment to CISA Mission and 2014 NECP Goals

[1] Statutory language is included in Appendix A of this report.
[2] 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 on the NECP, see: https://www.cisa.gov/necp.

From July 6, 2016 through August 5, 2016, the REMCDP Notice of Funding Opportunity (NOFO) (DHS-16-PD-120-001) was published at www.grants.gov, the governmental website that serves as the central storehouse for information on more than 1,000 grant and cooperative agreement programs. Four applications for four individual projects requesting more than $6.1 million were received in response to the solicitation.

All applications were subject to the evaluation process described in the 2016 REMCDP NOFO. The evaluation included an initial review for eligibility and completeness, a merit review to score projects based on pre-determined criteria, and final selection by the Objective Review Panel. **Table 1** summarizes REMCDP requirements in accordance with the program's authorizing statute and guidance derived from national priorities in the 2014 NECP update.

Table 1. REMCDP Statutory and Program Guidance Requirements

Statutory Requirements
Project Objectives • Aid in developing the NECP • Leverage existing technologies and engage non-medical professionals to help establish or sustain statewide medical communications systems and utilize existing infrastructures to improve the delivery of rural medical care
Program Guidance Requirements
Program Objectives • Use of a current statewide emergency communications system to deliver rural medical care and services • Development of trainings and exercises to ensure that rural emergency responders and personnel can use emergency medical communications systems and equipment effectively • Collaboration with non-medical professionals and emergency communications stakeholders that use emergency medical communications • Solutions to ensure that emergency responders and medical practitioners can communicate in rural, underserved communities, as needed and when authorized • Development of concepts for inclusion of rural medical care and emergency communications support as a component of the NECP • 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 **Evaluation Criteria** • 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 • 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) • 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 • Consideration for the SAFECOM Interoperability Continuum[3] in project planning and development to ensure stakeholders develop, manage, operate, and maintain communications interoperability to enhance existing emergency communications infrastructure **Reporting** • Quarterly progress reports on performance and financials • Annual financial reports • Closeout or final report on performance and financials

[3] DHS, SAFECOM, *Interoperability Continuum: A Tool for Improving Emergency Response Communications and Interoperability*, https://www.dhs.gov/publication/interoperability.

CISA prioritized innovation as the demonstration project's key criterion. 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[4] 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.

One of the four applications was deemed ineligible by the DHS Grants and Financial Assistance Division. From the remaining three applications, DHS selected one 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 2016, DHS announced the University of Mississippi Medical Center (UMMC) as the sole award recipient. Appendix B provides the program financial overview and expenditure information for UMMC.

UMMC's project used existing communications infrastructure to improve operational effectiveness and provided communications training to enable improved rural medical services through its First Hands Program. The project serves 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, 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.

2. Advancing Rural Emergency Medical Communications

Under REMCDP, UMMC's Mississippi Center for Emergency Services (MCES) developed the First Hands Program to improve Mississippi's statewide public safety communication system—Mississippi Wireless Information Network (MSWIN)—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. 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 links between non-professional responders and medical crews, online medical support, and sophisticated medical infrastructure have the potential to greatly improve outcomes for the injured or ill in rural communities across the country.

First Hands Program Components

- **Communications:** Public safety spectrum, radio frequency and channels, MSWIN system, Mississippi Wireless Communication Commission (WCC), interoperability
- **Medical:** Medical interoperability, disaster response coordination, trauma assessment (adult and pediatric), basic life support training, bleeding control tourniquet training
- **Evacuation:** Identifying criteria for air evacuation, air-to-ground communications, helicopter landing zone identification and requirements

While advancing education to first responders in rural and underserved communities, UMMC also identified the need for supplying Continuing Education (CE) hours to these groups at no cost, which compounded participation rates.

[4] The 2016 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.

Accomplishments

UMMC successfully examined existing communications barriers across Mississippi (primarily lack of training and familiarity with MSWIN) and in delivering the First Hands Program, enhanced the delivery of medical care across the state's rural and underserved communities. UMMC's many accomplishments and successes include:

Program Logistics

UMMC launched a webpage to serve as a central point of information regarding the First Hands Program. The team created a marketing plan and associated materials (e.g., pocket card, field guide, participant certificates) to engage in outreach efforts with public safety groups. The REMCDP recipient hired 19 UMMC adjunct instructors to teach programs and successfully trained additional instructors through a train-the-trainer approach to meet program demands, as well as hired a field support specialist to provide critical technical support. Finally, UMMC developed a database system to track First Hands Program statistics (e.g., number of participants by county), attendee details (e.g., history of medical training, radio background), performance metrics, and participants' feedback (i.e., pre- and post-course self evaluation).

Program Attendance

Between January 2017 and April 2019,[5] UMMC and its training partners (e.g., Mississippi State Fire Academy) hosted 293 classes across the state for more than 5,400 participants representing 79 of Mississippi's 82 counties. Participants received four hours of CE in either emergency medical services (EMS) or law enforcement depending on the audience. UMMC successfully educated first responders across disciplines by incorporating the First Hands Program as a training component at the Mississippi Highway Patrol New Trooper Academy, North Delta Community College Law Enforcement Training Academy, Criminal Investigator Program, Law Enforcement Medical Responder Course, and Mississippi Department of Wildlife, Fisheries and Parks Cadet School. First Hands Program participants represented the following disciplines: law enforcement, emergency management, EMS, fire services (paid and volunteer), and communications/dispatch. See Appendix C for a breakdown of participants per quarter, as well participant demographics.

Though UMMC developed marketing materials (see Appendix D), program attendance was initially driven by UMMC course instructors and the First Hands Program project champion leveraging personal relationships with rural law enforcement and fire personnel. UMMC and MCES promoted the First Hands Program as a dynamic, interactive training program that would equip responders with the knowledge to not only treat citizens, but also, potentially their own partner in an emergency situation. First responder medical training was in high demand across the state, but rural agency attendance at existing offerings was limited by cost, time commitment, and travel to educational sites. With the REMCDP-funded vehicles, First Hands instructors brought the training directly to the rural communities. As responders were exposed to the First Hands Program, peer recommendations drove continued requests for training.

Program Tools

UMMC acquired portable MSWIN radios and bleeding control kits to support and enhance the training classes; both of which proved to be invaluable training tools as further described in the *Lessons Learned* section. As previously noted, REMCDP-funded vehicles facilitated instructor travel to rural areas across the state. Additionally, one vehicle outfitted with custom designed communications interior serves as a mobile radio shop to support hands-on radio training.

[5] 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.

UMMC also designed and launched a mobile smartphone application, entitled MCES, to allow first responders to reference the First Hands communications and radio information while in the field. The MCES application includes important phone numbers (e.g., Mississippi MED-COM, Mississippi Poison Control, WCC), MSWIN special event talkgroups, UMMC MCES talkgroups, and trauma assessment and first aid information. This tool is critical in keeping information accessible to first responders once the First Hands course was completed.

UMMC also designed an Automatic Vehicle Location (AVL) system tied to existing public safety radio infrastructure. The AVL allows for immediate location of assets and personnel while in the field, which is critical with the rural nature of Mississippi.

Program Results

UMMC established a method by which First Hands Program participants can 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. As of April 30, 2019, at least 52 First Hands Program attendees had used the bleeding control kits and tourniquet training in response to an emergency situation. Of those 52 incidents, eight were reported as life-saving efforts using the bleeding control kits. The incidents included officer involved shootings, a dog attack where the responder used the kit on himself, and a chainsaw accident in a remote area where there was not a MSWIN radio available, as well as in undocumented accidents with feedback that the training saved a life. See Appendix D for a sample of the data collected through the bleeding control kit re-supply request form.

First Hands in Action

"Studies have shown that the ultimate outcome of a patient is based on the first set of hands that touch them. And it's generally not somebody at the hospital. That's generally first responders like law enforcement officers and fire personnel."

- Kevin Sanderson, Mississippi Center for Emergency Services

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 three overarching lessons learned:

Implement Data Gathering Techniques that Do Not Require Internet Connectivity

UMMC recognized early on while administering the First Hands Program that inconsistent internet access in rural communities would hinder the Program's ability to gather participants' feedback in a timely manner. The original web-based entry form required participants to either use their personal smartphone devices or complete the form at a later time; both options greatly impacted the response rate. UMMC opted to purchase Scantron machines to allow instructors to collect standardized feedback immediately following class via pencil and paper with rapid future data compilation and analysis. This solution ensured high response rates (nearly 95 percent completion rate) and avoided issues with web-based entry.

Organizations must consider and plan for resources needed to conduct trainings. Classrooms and logistical conditions (e.g., WiFi availability, broadband availability) vary across agencies, thus instructors must bring all necessary materials with them and not rely on internet availability in rural communities.

Understand Participants' Familiarity with Communications Technology and Medical Concepts and Adjust Materials Accordingly

UMMC underestimated how many first responders did not know how to use the statewide communications system. There had been very limited formal education on use of the MSWIN system besides the basic push-to-talk individual radio use. The Program Director noted during congressional testimony that "[m]any responders have been users of the MSWIN system for years and didn't understand basic interoperability concepts or technology specifications of the system."[6] For example, many users were unaware of the breadth of support and interoperability channels that MSWIN supports (e.g., dedicated medical frequencies). UMMC gathered data from program participants that confirmed 69 percent of those attending the First Hands course had no formal training on the MSWIN system, and 77 percent had never used a MSWIN special event talkgroup. UMMC identified the need to adjust and tailor presentations and materials to better match participants' skills and knowledge for radio concepts. UMMC worked with the Mississippi WCC and applied existing DHS educational materials to improve the First Hands presentations.

As previously noted, UMMC acquired portable MSWIN radios to allow for hands-on operational radio training during the First Hands courses, which was invaluable, especially for agencies that are unable to assign individual radios or are not currently operating on MSWIN. The training included an explanation of the available communication resources, how those resources can be used in connection with other agencies, the zones and regions that comprise the MSWIN system, and how talkgroups are used during a major communication events within those sections.

The First Hands Program was initially targeted for first responders with limited medical training as these individuals often reach those in need first in rural areas. As such, the First Hands curriculum includes topics such as identifying and managing life-threatening conditions and immediate response interventions and recognizing the need to apply basic life-saving care. In support of this curriculum, UMMC acquired basic medical or bleeding control kits as both on-site materials for use during training sessions and tools that participants took with them to have available in moments of crisis. The kits include a medical grade tourniquet and first aid supplies that can be used in the field for bleeding injuries. In the classroom, these kits facilitate improved education and prompt participants to connect radio training with life-saving actions. Mississippi's powerful informal marketing prompted professional medical responders to request First Hands training, which required UMMC to adapt the course for participants whose medical knowledge base far exceeded the level of medical materials provided.

Organizations looking to implement similar training programs should seek to understand potential participants' familiarity with communications technology and medical concepts to tailor materials accordingly. If it is not possible to establish a knowledge baseline, include time in the program's roll-out schedule to revise materials after a short series of initial or test classes.

Leverage Project Champion to Identify and Facilitate Training Partners to Handle Program Demand

UMMC experienced unprecedented demand for the First Hands Program, which was partially driven by the project champion's concerted efforts to tout the course in many formal (e.g., board meetings) and informal venues across the state. To keep up with the demand, in addition to the 19 UMMC adjunct instructors, UMMC established a train-the-trainer approach. UMMC executed a contract with the Mississippi Fire Academy, which hosted a train-the-trainer session in November 2017 that trained an additional 80 instructors. UMMC recognized the importance of partnering with other training organizations and hosting classes at existing training facilities

[6] U.S. Congress. Senate. Committee on Commerce, Science, and Transportation. *An Update on FirstNet: Hearing before the Subcommittee on Communications, Technology, Innovation, and the Internet*. 115th Cong., 1st sess., July 20, 2017. https://www.commerce.senate.gov/2017/7/an-update-on-firstnet.

across the state (e.g., Mississippi Law Enforcement Officer Training Academy). Not only did this approach expand the trainer pool, it allowed smaller departments to send a couple people instead of taking all personnel out-of-service for an in-house class.

Organizations interested in establishing similar medical and communications training programs should identify a project champion who has an extensive network and credibility amongst target audiences. Not only can the project champion drive interest in and demand for the training course, but he or she can help facilitate relationships with like-minded or complementary organizations and broker an agreement to formalize partnerships to handle program demand.

3. Looking Forward

CISA continues to work to improve rural emergency medical communications through various activities where the 2016 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; 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 Program in other communities. **Figure 2** depicts how CISA is transferring the 2016 REMCDP information and knowledge to rural communities and beyond.

Figure 2. CISA Actions to Transfer the 2016 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 2016 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 [NCSWIC], National Public Safety Telecommunications Council [NPSTC]), 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 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 Program. The offering and/or course would cover key REMCDP elements, including radio/talk group operation, basic medical training, and rural community considerations. These proposed offerings are consistent with and would complement the CISA *Technical Assistance (TA)/Statewide Communication Interoperability Plan (SCIP) Guide*.[7] 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 assistance to communities in addressing rural and medical communications-focused issues. CISA will investigate adding a First Hands-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.

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 reinforce training content for program completers. Based on UMMC's MCES smartphone application, CISA is considering a similar application that outlines program components and serves as a training course companion (e.g., medical or first aid content, types of radio communications information) that can be accessed in the field.

Apply Best Practices to DHS Demonstration Projects and Grants

CISA is applying the 2016 REMCDP best practices to 2018 REMCDP. Similar to the initial release, 2018 REMCDP required its applicants to demonstrate alignment to the 2014 NECP, 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).[8] The 2018 REMCDP grant focused on innovation as the key component of a demonstration project while also addressing all lanes of the Interoperability Continuum (i.e., Governance, Standard Operating Procedures, Technology, Training and Exercises, and Usage). CISA released the 2018 REMCDP NOFO in July 2018, and following a merit review process, awarded grant funds to UMMC in September 2018.

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[7] 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: https://www.dhs.gov/publication/ictapscip-resources.

[8] 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: https://www.dhs.gov/safecom/funding.

With the 2018 REMCDP grant, UMMC will continue to offer the First Hands Program to fulfill unmet demand and target those counties where the fewest first responders have participated in the course. UMMC will also create a refresher training for past program graduates who attended the First Hands Program in the last 12 to 18 months; this refresher will highlight key concepts and inform participants of the companion smartphone application. UMMC will also design a course for all Mississippi public safety communication personnel and dispatchers, entitled the First Voice Program. Finally, UMMC will address a need identified during the 2016 REMCDP implementation for just-in-time training at planned events, medical disasters, or mass casualty emergencies. The 2018 REMCDP grant will fund a just-in-time training and operational vehicle platform to provide a mechanism for rapid deployment of equipment, training, and support field operations for mass communications needs.

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 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.

Replicate First Hands Program

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, specifically the First Hands Program, is a repeatable model 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 the First Hands Program. Communities could tailor the hands-on radio training to address state and local emergency communications infrastructure and systems, combining with medical response and bleeding control training and guidance for medical evacuation procedures.

4. Recommendations

CISA strives to improve emergency communications nationwide by promoting consistent national policies such as the NECP. Grants, including 2016 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 2016 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.[9] DHS shared these adopted policies with federal partners, which were then incorporated as best practices into the *Emergency Communications Preparedness Center Federal Financial Assistance Reference Guide for Federal Program Managers* 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 to increase coordination efforts and impact across emergency communications nationwide. CISA recommends that Congress require this compliance through the Office of Management and Budget Circulars that govern federal grant funding.

[9] Grant recipient compliance with SAFECOM Guidance is also in accordance with the DHS Standard Terms and Conditions for preparedness grants, which fulfills statutory requirements to establish requirements for capabilities and equipment purchased with homeland security assistance.

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 2016 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 emergency communications solutions that could be replicated in other communities, 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.

5. Conclusion

The 2016 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. UMMC developed and executed the First Hands training program that, as of April 2019, had reached more than 5,400 public safety stakeholders across Mississippi. By effectively incorporating lessons learned throughout the demonstration project, UMMC evolved the training and improved its effectiveness, provided hands-on experience, distributed simple but crucial medical supplies, and ultimately, enabled non-medical emergency responders to save lives. The 2016 REMCDP 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 2016 REMCDP or this report, please contact CISA.[10]

[10] Contact CISA at: ECD@cisa.dhs.gov.

Appendix A. Statutory Language

Title III of the *Consolidated Appropriations Act, 2016* (P.L. 114-113) sets forth the following:

TITLE III PROTECTION, PREPAREDNESS, RESPONSE, AND RECOVERY

NATIONAL PROTECTION AND PROGRAMS DIRECTORATE

INFRASTRUCTURE PROTECTION AND INFORMATION SECURITY

For necessary expenses for infrastructure protection and information security programs and activities, as authorized by title II of the Homeland Security Act of 2002 (6 U.S.C. 121 et seq.), $1,291,000,000, of which $289,650,000 shall remain available until September 30, 2017.

The Joint Explanatory Statement accompanying P.L. 114-113 sets forth the following:

DIVISION F—DEPARTMENT OF HOMELAND SECURITY APPROPRIATIONS ACT, 2016

TITLE III PROTECTION, PREPAREDNESS, RESPONSE, AND RECOVERY

NATIONAL PROTECTION AND PROGRAMS DIRECTORATE

INFRASTRUCTURE PROTECTION AND INFORMATION SECURITY

COMMUNICATIONS

A total of $198,842,000 is provided for Communications. Of the total provided, $34,205,000 is for the Office of Emergency Communications (OEC), of which $2,000,000 is to establish a demonstration project to aid in developing the National Emergency Communications Plan. The demonstration project shall leverage existing technologies and engage non-medical professionals to help establish or sustain statewide medical communications systems and utilize existing infrastructures to improve the delivery of rural medical care. OEC shall submit a plan for establishing this demonstration project to the Committees within 90 days of the date of enactment of this Act.

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 B-1. REMCDP Program Financials

REMCDP Cumulative Award Amount	$2,000,000.00
FY 2017 Funds Drawn Down	$734,632.69
Percentage of Total Award	36.7%
FY 2018 Funds Drawn Down	$1,350,811.16
Percentage of Total Award	67.5%
FY 2019 Funds Drawn Down	$1,998,775.17
Percentage of Total Award	99.9%
Deobligated Funds	**$1,224.83**

Appendix C. First Hands Program Statistics

First Hands Program training began in January 2017 and continued through April 2019. The program was promoted by the program champion, past participants, and a marketing campaign, resulting in 293 classes held across the state. More than 5,400 first responders participated in the training, representing 79 of Mississippi's 82 counties.

Table C-1. First Hands Program Statistics by Quarter

Quarter Ending	Participants per Quarter	Total Participants	Classes per Quarter	Total Classes
March 2017	202	202	9	9
June 2017	476	678	28	37
September 2017	576	1,254	29	66
December 2017	408	1,662	20	86
March 2018	708	2,370	35	121
June 2018	1,135	3,505	60	181
September 2018	1,079	4,584	63	244
December 2018	384	4,968	23	267
March 2019	403	5,371	23	290
April 2019*	34	5,405	3	293

* Quarter abbreviated due to REMCDP end of period of performance.

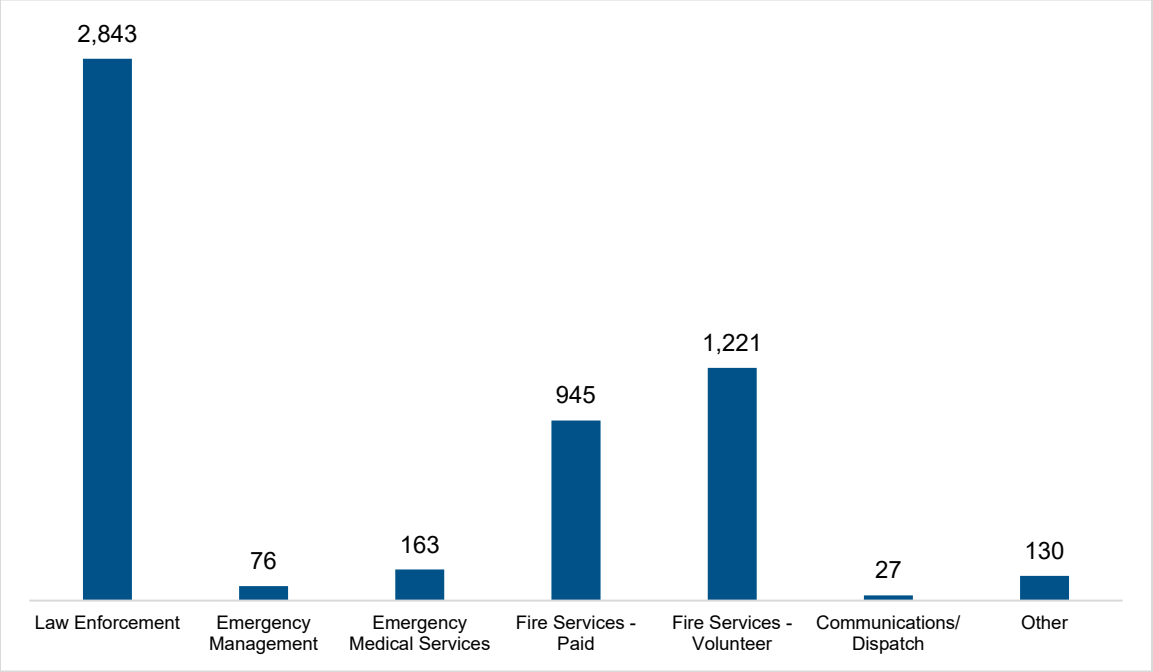

Figure C-1. First Hands Program Participants by Discipline (January 2017 through April 2019)

Appendix D. First Hands Program Bleeding Kit Re-Supply Request

The University of Mississippi Medical Center (UMMC) established a method by which First Hands Program participants can 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. As of April 30, 2019, at least 52 First Hands Program attendees had used the bleeding control kits and tourniquet training in response to an emergency situation. The following table includes a sample of the data collected through this form.

Table D-1. First Hands Program Bleeding Kit Re-Supply Requests (June 2017 through July 2019)

Agency Category	Responder Category	Comments
Municipal Agency	Fire Services – Volunteer	Tourniquet used in a chainsaw accident
Municipal Agency	Law Enforcement	The kit was very efficient in stopping the bleeding caused by K-9 apprehension
County Agency	Fire Service – Paid	Utilized on a gunshot wound to the patient's lower extremity above the knee
County Agency	Law Enforcement	I found a subject involved in an incident who had severe bleeding on his right arm. I was able to stop the bleeding and wrapped the wound before EMS arrived
Federal Agency	Law Enforcement	The kit came in handy to treat a gunshot wound. Recommend all law enforcement are equipped with one
County Agency	Fire Services – Volunteer	Use CAT tourniquet on a multiple vehicle MVC, patient. Tourniquet was placed below the elbow to stop bleeding until Helicopter Emergency Medical Service made scene
Municipal Agency	Law Enforcement	Dressing and immediate aid was rendered to multiple gunshot wounds to the chest
Municipal Agency	Fire Services – Volunteer	Traumatic bleeding from possible arterial laceration on leg controlled by use of CAT and Gauze wrap provided by UMMC
County Agency	Emergency Management	Utilized the kit to control bleeding on an elderly person who partially severed hand with a chain saw. The [tourniquet] was utilized to stop the bleed
County Agency	Fire Services – Paid	Bleeding from laceration on left arm, unable to control with pressure and elevation, controlled with bleeding control kit

Appendix E. First Hands Program Marketing Materials

Improving Emergency Medical Care and Communications in Mississippi

First Hands

First Hands Project is a program developed by the University of Mississippi Medical Center (UMMC) to improve the State of Mississippi's statewide public safety communication system and to extend the use of this system to support rural medical care and communications. The *First Hands* training course includes medical education along with communications education and exercises to empower first providers giving medical aid. Those *First Hands* have the greatest impact on the outcome of the patient.

First Hands Training Course

The First Hands Project will focus on medical care and the importance of early communication.

Emergency Communication and Medical Care:

- Utilization of MS MED-COM for resource acquisition
- Criteria for air evacuation and landing zone operations

Mississippi's Emergency Communication System

- MSWIN Statewide P25 system
- Talkgroups for regional events
- Agency interoperability
- Communications with medical assets

Life Saving Medical Applications and Skills

- Basic trauma assessment and traumatic injury care
- Bleeding control and tourniquet application
- Basic life support care
- Recognition of signs and symptoms for heart attack and stroke

For more information or to schedule a training class, contact:

umc.edu/publicsafetysupport
601.815.6060
Email: publicsafetysupport@umc.edu

Grant disclaimer:
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Figure E-1. First Hands Program Flyer 8.5" by 11"

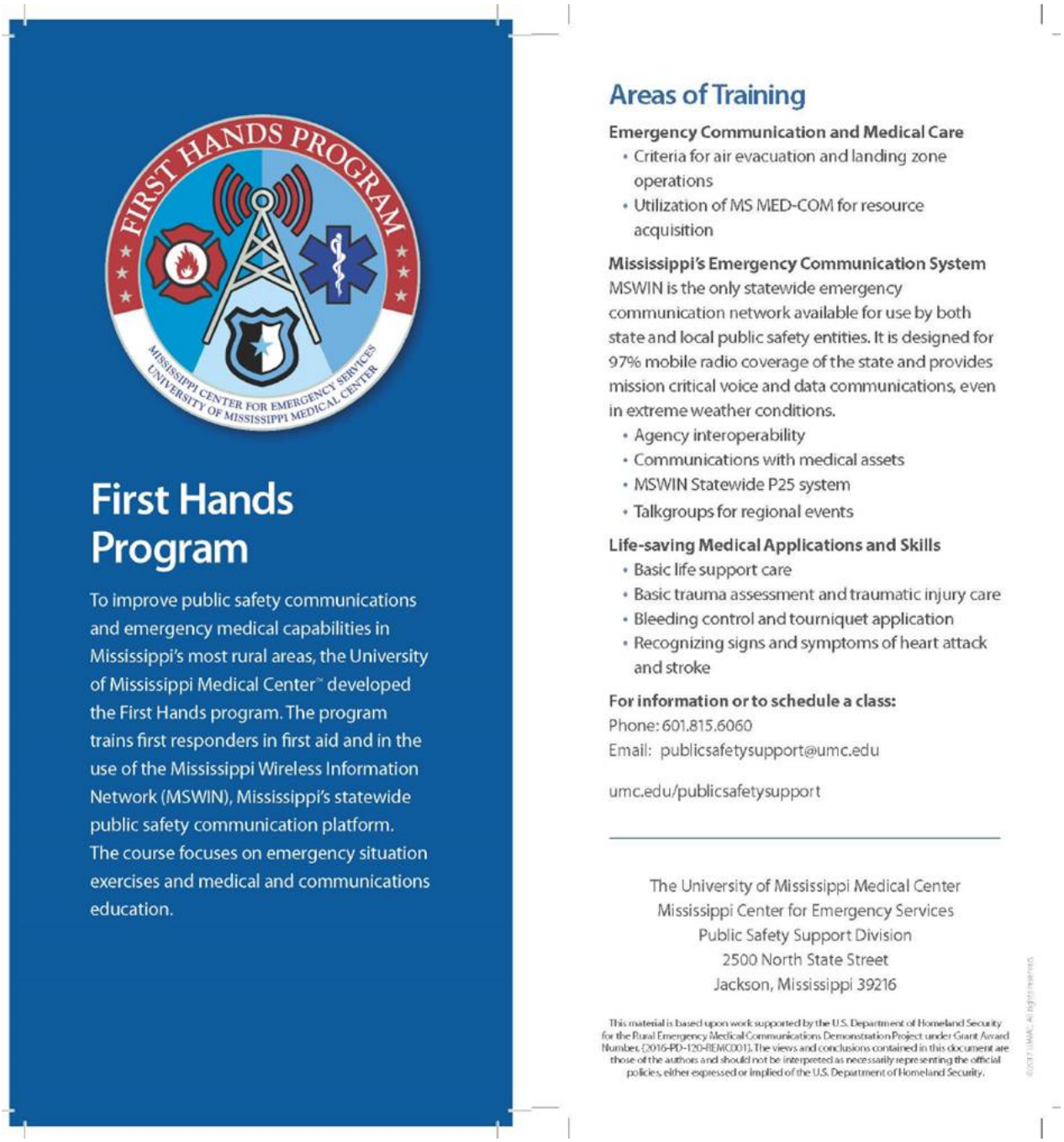

Figure E-2. First Hands Program Panel Card 4" by 9" (printed two-sided)

Appendix F. Acronyms and Abbreviations

AVL	Automatic Vehicle Location
CE	Continuing Education
CISA	Cybersecurity and Infrastructure Security Agency
DHS	Department of Homeland Security
EMS	Emergency Medical Services
GFAD	Grants and Financial Assistance Division
MCES	Mississippi Center for Emergency Services
MSWIN	Mississippi Wireless Information Network
NCSWIC	National Council of Statewide Interoperability Coordinators
NPSTC	National Public Safety Telecommunications Council
NECP	National Emergency Communications Plan
NOFO	Notice of Funding Opportunity
REMCDP	Rural Emergency Medical Communications Demonstration Project
SCIP	Statewide Communication Interoperability Plan
TA	Technical Assistance
UMMC	University of Mississippi Medical Center
WCC	Wireless Communications Commission