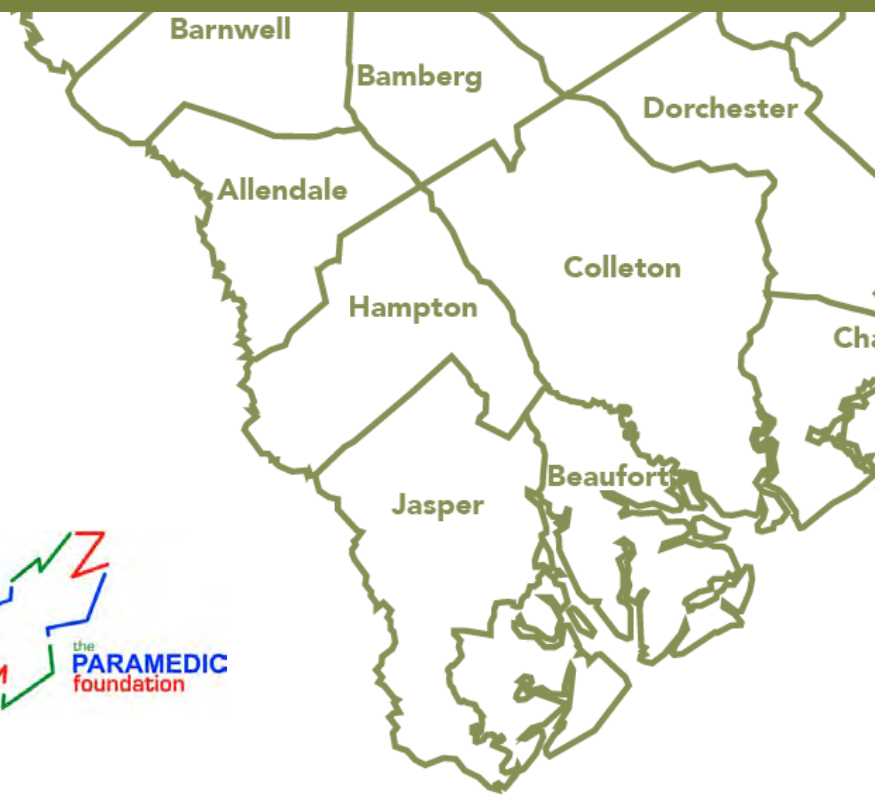

# COMMUNITY PARAMEDIC IMPACT STUDY

## An Analysis of Four South Carolina Programs




SOUTH CAROLINA OFFICE OF RURAL HEALTH
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## Overview

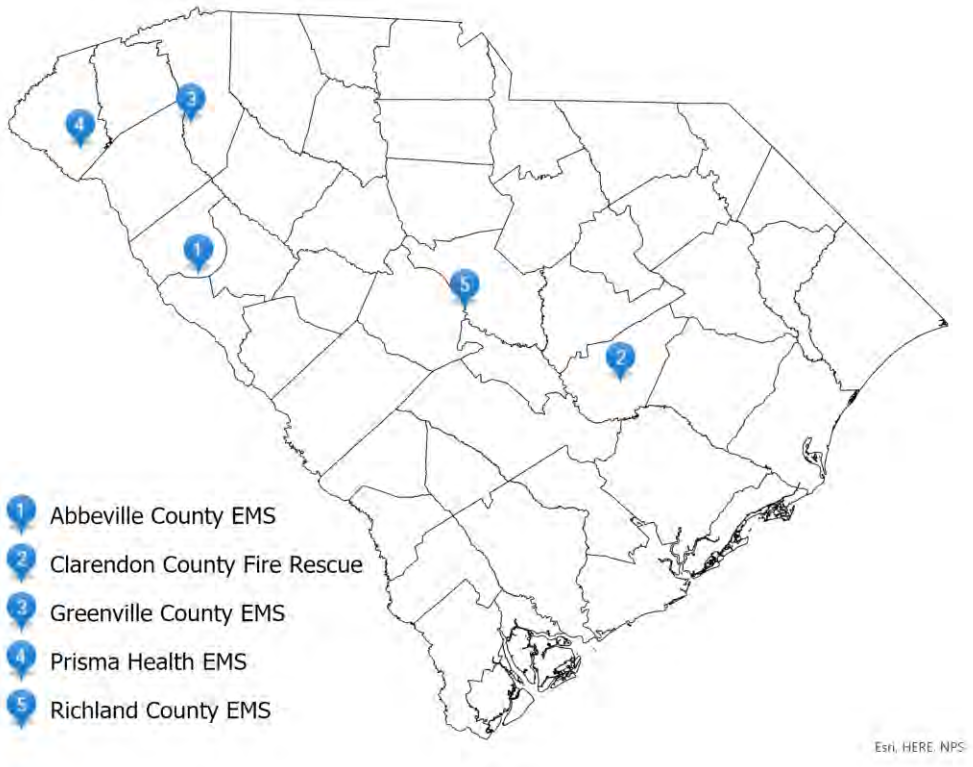
The South Carolina Office of Rural Health (SCORH) received funding from The Duke Endowment (TDE) for the South Carolina (SC) Community Paramedic (CP) Impact Study in 2020. The SC CP Impact Study captures the impact of five community paramedic programs in South Carolina. The goal of the grant is to build evidence that CP/Mobile Integrated Healthcare (MIH) programs are effective at decreasing avoidable emergency department visits and inpatient admissions, reducing EMS calls, and improving clinical outcomes.

In this report, SCORH provides a summative evaluation that outlines the evidence that CP programs achieved the desired outcomes and justifies the business case for reimbursement of community paramedicine services. This report will inform and align statewide partnerships to leverage advocacy resources and advance the goal of reimbursement for these services.

The Paramedic Foundation (TPF) was retained by SCORH to evaluate the South Carolina CP programs that were a part of the expanded community paramedic pilot project in South Carolina.

The EMS agencies participating in the CP Impact Study include Abbeville County Emergency Medical Services (ACEMS), Prisma Health EMS (PH EMS), Greenville County EMS (GCEMS), Clarendon County Fire Rescue (CCFR), and Richland County EMS (RCEMS); shown in Figure 1.

*Figure 1. South Carolina Map of Participating Agencies*



## COMMUNITY PARAMEDICINE

### BACKGROUND

Community paramedicine (CP) is a new and evolving model of community-based health care in which paramedics function outside their customary emergency response and transport roles in ways that facilitate more appropriate use of emergency care resources and enhance access to primary care for medically underserved populations as defined by the National Organization of State Offices of Rural Health (NOSORH). Community paramedicine is also defined as an organized system of services, based on local need, which are provided by paramedics integrated into the local or regional health care system and overseen by emergency and primary care physicians by the US. Department of Health and Human Services. The National Association of Emergency Medical Technicians (NAEMT) defines mobile integrated healthcare (MIH) as the provision of healthcare using patient-centered, mobile resources in the out-of-hospital environment. At the national level, MIH is being used as an overarching phrase for non-emergent, pre/post hospital EMS care initiatives. In South Carolina, CP and MIH programs are held to the same regulatory requirements for CP programs. References to MIH and CP programs are used interchangeably within this report.

Emergency medical services (EMS) provide essential emergency medical care in the form of treatment and transportation for emergent and non-emergent patients. EMS services are provided by emergency medical technicians (EMTs) which include: basic EMTs, advanced EMTs and paramedics. Basic, advanced and paramedic EMTs operate at different skill levels, with paramedics being the highest in knowledge, skill and required education. EMTs and EMS agencies operate under medical oversight of a physician; physicians sometimes delegate care to non-physician providers to provide care in non-clinical settings. The medical director leads the education, protocols, medical consultations, and quality improvement and assurance for the service. These same components must also be directed by a physician in a community paramedic program.

EMS structure, funding subsidies, prevalence of chronic diseases, age of county residents and the local health care system all have an impact on the care EMS agencies provide. Patients with complex medical conditions or challenging socioeconomic situations tend to be more reliant on EMS resources because they face multiple barriers to accessing health care and other services, have unmet medical and social needs, or grapple with unsafe living conditions. The medical, social, and patient safety concerns in the community can increase the burden on EMS and emergency departments (ED) when left unidentified and unaddressed. Weaknesses in the state and national healthcare infrastructure are exacerbated by the persistent shortage of physicians, nurse practitioners and physician assistants who provide primary care, especially following a global pandemic. Community paramedicine programs allow paramedics the ability to not only provide traditional acute illness and injury care but also proactively identify health risks, provide follow-up care to individuals, and monitor the community's health, thereby bolstering the healthcare infrastructure in communities.

Community paramedicine programs have been developing nationally and internationally over the last 20 years. The impact of CP programs include:

- leveraging existing local resources to proactively support primary care;

- improving coordination and collaboration among the local healthcare community;
- providing person-centered health care;
- establishing medical homes;
- lowering health care costs;
- improving access to quality health care;
- providing an additional clinical area for EMS workforce outside of administration and EMTs in the field transporting patients to emergency departments; and
- developing non-traditional EMS services.

CP programs address healthcare challenges and service gaps within local communities. They also aim to increase access to primary and preventive care, provide wellness interventions within the medical home model, decrease the need for emergency department utilization, save healthcare dollars and improve patient outcomes using emergency medical service providers in an expanded role. In South Carolina, CPs operate within an expanded role but within their scope of practice. CP represents one of the most progressive evolutions in the delivery of community-based healthcare.

While community paramedicine programs differ from each other, each focusing on the needs of their local community, most programs have been geared towards post-discharge care, chronic disease monitoring, patient education and primary care services outside of traditional healthcare settings. Thus, community paramedicine programs bridge health care gaps in both urban and rural settings. Community paramedics provide visits in the home or at the location of the patient. Utilizing the assessment skills of a paramedic, the CPs are able to quickly assess the patients' needs and barriers, and convey that information back to the CP program physician and/or EMS medical director. The CPs are able to act as the physician's eyes and ears regarding the environmental and social factors of patients. The identification of these factors greatly impacts disease processes. The intent of a community paramedicine program is not to keep patients continuously enrolled in services. Ideally, the community paramedics should connect the patient to the physical, medical, and possibly even emotional and/or social resources he or she needs, and to follow up as recommended by their physician.

The in-home visits, which occur throughout the enrollment period of a CP patient, facilitate a whole-person view and help to identify factors that might exacerbate the health of the patient. The in-home visits allow the CPs to perform a home safety assessment at the beginning of patient enrollment. The home safety assessment helps the CP inspect the patient's home and focuses on tripping hazards, fire alarms, durable medical equipment, and operational appliances and utilities. The CPs are also able to identify the food security of the patient and prepare the CPs for the depth of social services support that their patients need. During subsequent in-home visits, the CP provides primary care coordination, education and coaching, assistance with financial barriers, housing support, pharmacy support, medication adherence, point of care testing, and chronic care management.

Figure 2 and Figure 3 below demonstrate an example workflow of a CP home visit and a CP follow-up visit respectively. Both processes begin with the CP program receiving a physician order for a patient and end with the proper documentation of the visit being transmitted back to the ordering physician.

Neither figure is an all-inclusive representation, but rather an example of a likely process seen within agencies.

*Figure 2. Flowchart of CP Home Visit Workflow*

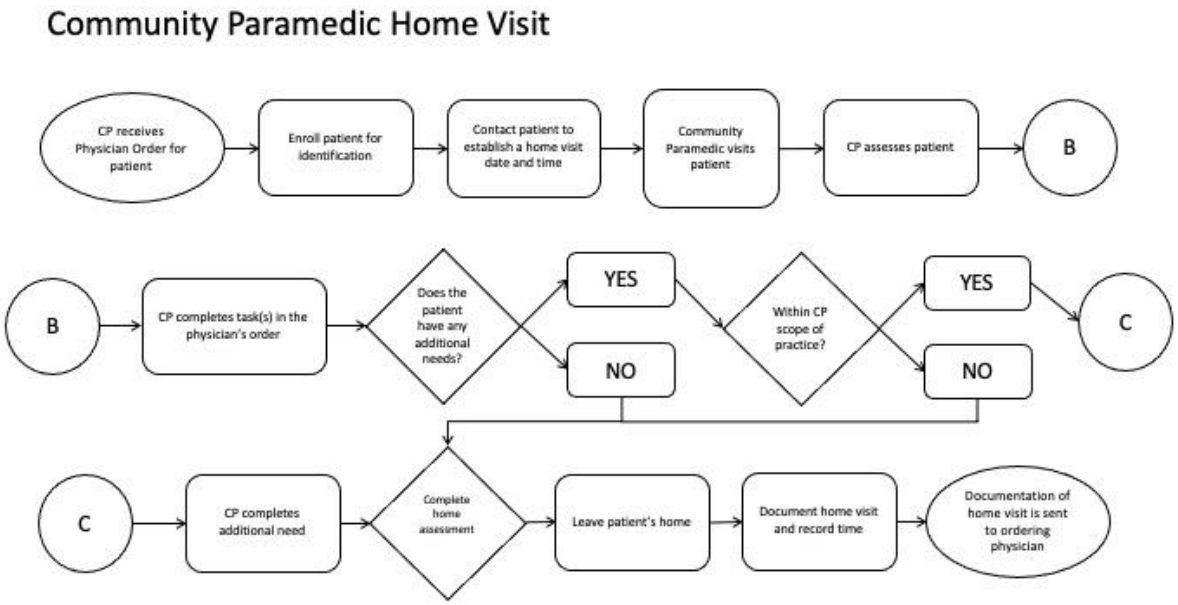
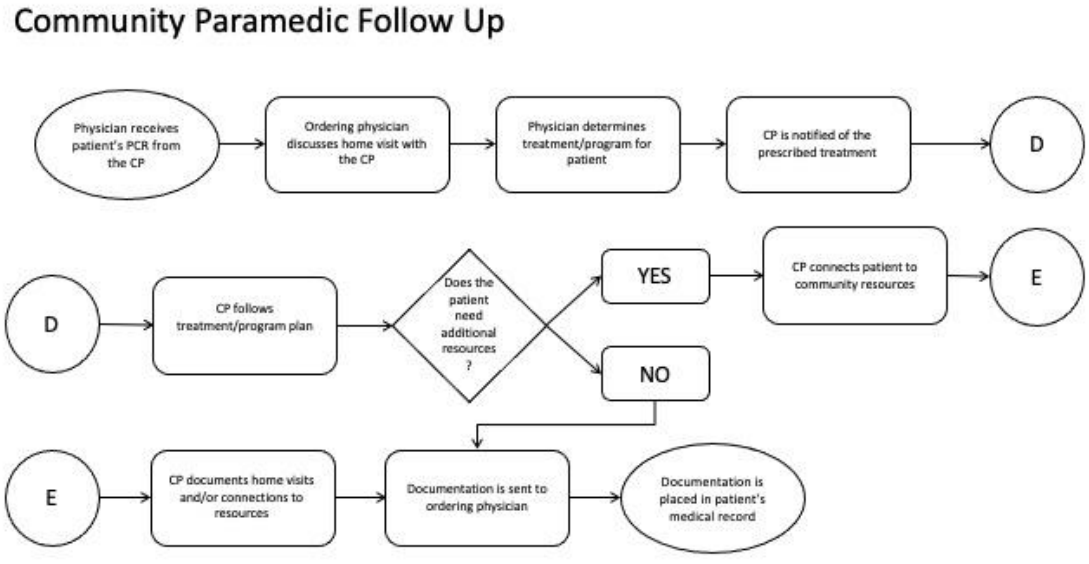



*Figure 3. Flowchart of CP Follow Up Visit Workflow*



In February 2020, the U.S. Centers for Medicare & Medicaid Services (CMS) announced the first cohort of model applicants for an initiative named Emergency Triage, Treat, and Transport (ET3), to allow CMS beneficiaries access to the most appropriate emergency services at the right time and place. ET3 is a voluntary, five-year payment model that provides greater flexibility to ambulance care teams to address emergency healthcare needs of Medicare Fee-for-Service (FFS) beneficiaries during a 9-1-1 call. Under the ET3 model, CMS will pay participating ambulance suppliers and providers to:

1) transport an individual to a hospital emergency department (ED) or other destination covered under regulations;
2) transport to an alternative destination partner (such as a primary care doctor's office or an urgent care clinic); and/or
3) provide treatment in place with a qualified healthcare partner, either on the scene or using telehealth.

The ET3 model illustrates CMS's desire to make significant changes to EMS funding allowing for CP programs to provide the most appropriate care at the right time and place. This effort is in line with the Institute for Healthcare Improvement's Triple Aim which is a framework for 1) improving the patient care experience; 2) improving the health of populations; and 3) reducing the per capita cost of healthcare. Organizations and communities that attain the "triple aim" will have healthier populations because of new designs that better identify problems and solutions further upstream and outside of acute health care. Community paramedicine is positioned to support EMS, health systems and other health care entities in achieving the triple aim.

## South Carolina Community Paramedic Programs

### Active CP Programs

There are currently 10 active CP programs in South Carolina they are located within these EMS agencies – Abbeville County EMS, Calhoun County EMS, Clarendon County Fire Rescue, Fairfield County EMS, Greenville County EMS, Lee County EMS, Lexington County EMS, Marlboro County EMS, Prisma Health EMS Oconee, and Richland County EMS; shown in Figure 4.

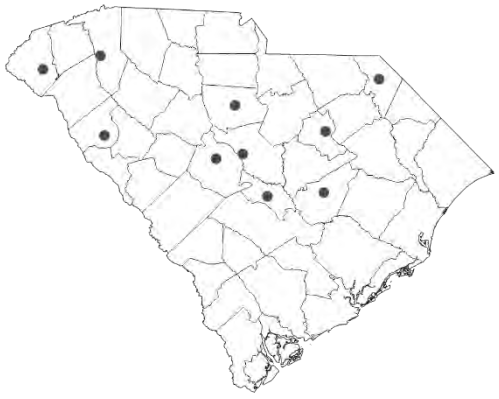


*Figure 4. SC Map of Active CP Programs*

Three programs – Lee County, Lexington County and Marlboro County – provided insight into additional programs not principally involved in this study.

- Lee County EMS has seven community paramedics who were trained in 2020. Their CP program began seeing patients in 2021 and has served 20 patients since then. Lee County EMS received support from the South Carolina Office of Rural Health's Medicare Rural Hospital Flexibility

Program EMS Supplement. The program has designated FTEs and is affiliated with the Carolina Pines Regional Medical Center. There is not a local hospital in Lee County.

- Lexington County EMS has two community paramedics who were trained in 2020. Their CP program began seeing patients in 2022 and has served eight patients to date. Lexington County EMS received funding assistance through The Duke Endowment to support implementation of a CP program. The program has two designated FTEs who operate the program Monday through Friday, 8 a.m. to 5 p.m. The CP program is affiliated with the Lexington Medical Center Foundation, Lexington Medical Center and the SC Department of Mental Health.
- Marlboro County EMS has two community paramedics who were trained in 2020 and 2021. Their CP program began seeing patients in 2021, and has served 46 patients since then. Marlboro County EMS received support from the South Carolina Office of Rural Health's Medicare Rural Hospital Flexibility Program EMS Supplement to implement a CP program. The program has one designated FTE to operate the program daily from 8:30 a.m. to 5 p.m. The CP program is affiliated with Scotland Memorial Hospital and Marlboro Family Practice and Urgent Care.

Five agencies have staff who have received community paramedic training, but the agency does not currently operate a CP program: Edgefield County EMS, Medshore serving Bamberg and Barnwell counties, Mount Pleasant Fire Department, Beaufort Fire, and Bowers EMS; shown in Figure 5. The Mount Pleasant Fire Department has two community paramedics who received their didactic training in 2021. They are currently fulfilling their clinical hours to complete the CP certification.

Spartanburg Regional Healthcare System (SRHS) received funding from TDE for a MIH-CP program that will target heart failure. SRHS expects to be operational in Fall/Winter of 2022.

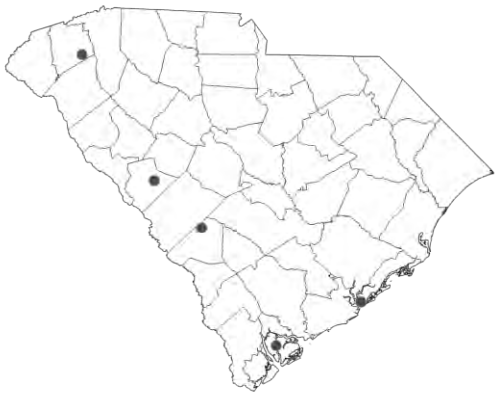


*Figure 5. SC Map of Agencies with CP Training*

# SOUTH CAROLINA COMMUNITY PARAMEDIC TIMELINE

**2010**

Keynote presentation by Dr. Michael Wilcox at SC Rural EMS Conference

**2011**

SCORH begins work on the SC community paramedic (CP) model

**2012**

First NC/SC Community Paramedic Summit held in Charlotte, NC

**2013**

Pilot project approved through SC DHEC

The Abbeville County Community Paramedicine Program is established as the state's first CP pilot program, with support from Abbeville Area Medical Center, Abbeville County Emergency Medical Service (EMS), SC DHEC and SCORH, and funding from The Duke Endowment.

**2014**

SCORH releases its "Blueprint for Community Paramedicine Programs, Especially for EMS Agencies"

South Carolina Community Paramedicine Stakeholders Summit held in Columbia, SC

**2015**

The Abbeville Community Paramedicine Evaluation Report is completed.

Creation of the SC Community Paramedic Advisory Committee, led and staffed by SCORH

**2016**

SC CP Guidelines developed

Prisma Health-Upstate Simulation Center Prehospital Education is established as a CP training institution

CP pilot program expands to Richland County EMS, Greenville County EMS and Prisma Health Upstate, Roper St. Francis Lifelink, and McLeod Health Clarendon EMS.

**2018**

SC CP Protocols developed.

SC CP Quality Measure Set developed.

Community Paramedic endorsement is recognized by SC DHEC.

**2019**

SCORH receives an EMS Supplement grant from Medicare Rural Hospital Flexibility program to implement CP in counties that do not have a hospital.

**2020**

The Duke Endowment funds the South Carolina Community Paramedic Impact Study.

"The SC CP Jam" committee, a statewide community paramedic peer group, is developed.

**2022**

The SC EMS Association develops the Community Paramedic and Mobile Integrated Healthcare committee.

## Program Structure

The Abbeville Community Paramedic Program (ACPP) paved the way for the first statewide Community Paramedic Summit, which was followed by the creation of the SC Community Paramedic Advisory Committee and the subsequent pilot program expansion. The CP Advisory Committee, under the direction of SCORH, developed training guidelines, data metrics and protocols for community paramedics throughout the state. In March 2018, a community paramedic endorsement was officially recognized by SC Department of Health and Environmental Control (SC DHEC), the licensing and regulatory body for EMS in SC.

Within the SC EMS 61-7[1] regulation, the governing language for the endorsement of community paramedic is located under section 116. Under this section, the applicant for endorsement must meet the minimum educational and clinical guidelines and complete an application that includes:

- Documentation of training;
- Documentation that the paramedic is employed by an EMS agency;
- Documentation that the paramedic passes the International Board of Specialty Certification (IBSC) examination;
- Continuing education requirements;
- Endorsement reciprocity requirements;
- Requirements to be paramedics currently certified by DHEC;
- Type of care rendered; and
- Agency license requirements:
    - ALS level care;
    - Approved protocols; and
    - Training plan.

The SC DHEC CP endorsement enforces the state standards and establishes a provider type for other EMS agencies interested in the community paramedic model.

The South Carolina Community Paramedic Guidelines[2] break down the training requirements for community paramedics. In addition, the guidelines provide parameters for how a community paramedic can operate in South Carolina. The parameters include:

- A community paramedic must have a current NREMT-P license and state-only EMT-P license sponsored by a SC licensed EMS Agency;
- Local medical control determines the criteria for an eligible paramedic and will make recommendations for personnel to be trained as a CP. However, at minimum, the paramedic must have two years paramedic experience;
- Reciprocity is allowed for national CP training programs and in-state reciprocity is directed by local medical control;
- Each new CP should participate in one ride-along with an established CP program;
- The medical director provides oversight for training and competencies;
- Details regarding how the curriculum can be taught and which portions should be taught locally;

[1] https://scdhec.gov/sites/default/files/Library/Regulations/R.61-7.pdf
[2] https://scorh.net/wp-content/uploads/2022/05/SC-Community-Paramedic-Guidelines.pdf

- A list of the faculty recommendations for clinicals that reflect the providers in the local community where the CP will be stationed; and
- Accreditation requirements for the training organizations.

The CP guidelines have didactic, clinical and continuing education requirements. The didactive module requires a minimum of 100 hours and the clinical module requires a minimum of 125 hours. The continuing education module requires a minimum of 24 hours and is broken down into 12 practical hours and 12 clinical hours. Overall, the CP guidelines were developed to prepare paramedics with the skills to:

- Identify community health needs and address gaps in care;
- Promote advocacy;
- Enhance community outreach;
- Apply public health concepts and approaches;
- Coordinate care;
- Make home visits;
- Facilitate continuity along the care continuum;
- Develop strategies for care and prevention;
- Reduce unnecessary ED visits and promote better navigation of the healthcare system; and
- Achieve the triple aim.

The South Carolina Community Paramedic Quality Measure Set[3] was developed in 2016. The current data requirements for the CP program include:

- Number, type and rate of CP patient interactions (e.g., interactions per patient per enrollment period);
- Rate of hospital admissions (admissions per patient per enrollment period);
- Rate of ED admissions (admissions per patient per enrollment period);
- The proportion of non-emergent calls to transports (calls per patient per enrollment period);
- Rate of hospital readmissions within 30 days of discharge (readmissions per patient per enrollment period);
- Rate of ED readmissions within 30 days of discharge (readmissions per patient per enrollment period); and
- Primary care practice utilization rate (visits per patient per enrollment period).

This data is requested from SC DHEC and must be provided from each CP program in the state; this data has not been collected by SC DHEC to date.

The South Carolina Community Paramedic Protocols[4] were developed by the SC CP Advisory Committee. The protocols were created from widely accepted treatment practices at local, state, and national levels and were developed for and in conjunction with South Carolina community paramedics. The protocols are divided into five areas: general guidelines, medical guidelines, comprehensive needs assessment guidelines, pediatric guidelines and references. Each guideline, within the protocols, includes a policy, a purpose and a procedure, as illustrated in Figure 6 below. The general guidelines touch on the CP acts

[3] https://scorh.net/wp-content/uploads/2022/05/South-Carolina-Community-Paramedic-Quality-Measures.pdf
[4] https://scorh.net/wp-content/uploads/2022/05/South-Carolina-Community-Paramedic-Protocols.pdf

allowed within the SC EMS formulary and 61-7 regulations, medical direction, medical equipment, CP program referrals and scheduled patient encounters. The medical guidelines are provided for:

- Asthma management;
- Chronic health failure (CHF) management;
- Chronic kidney disease;
- Chronic obstructive pulmonary disease (COPD) management;
- Diabetes management;
- Respiratory management of sleep apnea;
- Hospice/palliative management;
- Hypertension management;
- Lab draw;
- Mental health management;
- Non-emergency 12 lead EKG;
- Post cerebrovascular accident (CVA);
- Post stroke management; and
- Wound check/post-operative dressing change.

The comprehensive needs assessment guidelines encompass the protocol for history and physical assessment, home safety assessment, medication adherence, patient discharge, and resource assistance programs. Pediatric guidelines provide protocols around newborn home assessment, pediatric management of asthma, diabetic education, and pediatric seizures. The Community Paramedic Protocols were intended to be a resource to EMS agencies. The additional resources provided in the protocols include the home safety assessment, newborn home safety assessment, canceled appointment/not home/refusal of service, social assessment form, and physical environment assessment tool.

*Figure 6. Asthma Management Protocol*

# Asthma Management

**Policy:**
The Community Paramedic (CP) will respond to the CP patient location on request from the Ordering Physician and/or patient and follow guidelines outlined by the physician's orders for the management of asthma.

**Purpose:**
To assist the patient (family/caregiver) by increasing awareness of the disease through education on pathology of asthma. To demonstrate and review technique of all devices used to treat asthma. To evaluate and identify home triggers of disease in an effort to lesson exacerbations. To communicate with the Ordering Physician on the general well-being of the patient as well as continuing medication adherence.

**Procedure:**

1. Obtain and review patient health history and physician(s) orders prior to appointment; including plan for diet, exercise, and medication dosages.
2. Follow physician orders.
3. Obtain and trend (if applicable) the patient's vital signs.
4. Review pathophysiology with patient including signs and symptoms of disorder and corrective actions.
5. Record current patient history including frequency of symptoms at rest, activity and with sleep. Further history will include exacerbating factors including virus exposure, aeroallergen exposure, exercise, cold air, tobacco smoke, chemical irritants, etc.
6. Observe home in an effort to possibly identify exacerbating factors.
7. Educate patient in use of inspirometer.
8. Review additional devices used by the patient including short/long acting medications and MDI/continuous nebulizer devices.
9. Connect patient with necessary resources.
10. Document the visit and notify physician office.
11. Determine if follow up is needed with physician and/or community paramedic.

*Values determined and directed by local Ordering Physician.
*Request ambulance response through 911 dispatch for any life-threatening S/S.

## Agency Structure

Each CP program is embedded within a SC licensed EMS agency; however, the structure of the EMS agency varies from program to program. Within Prisma Health-Upstate, Prisma Health EMS in Oconee County is hospital-owned and operated. However, Greenville County EMS is county operated, which is the same structure for Abbeville County EMS and Richland County EMS. Clarendon EMS is a dual service and provides fire and rescue services but similarly is county operated. Each has a defined leadership structure; some include governance and other county departments. With all four programs combined, there are a total of 17 current community paramedics, as shown in Table 1.

| Table 1: Community Paramedics by Agency | |
|---|---|
| | Number of CPs |
| ACPP | 3 |
| CCFR | 2 |
| GCEMS | 2 |
| PH EMS | 7 |
| RCMIH | 3 |

The structure of the community paramedicine program and the administration for the EMS agencies varies across the four programs. While the community paramedic operates in an expanded role within their scope of practice, the CPs might have other duties that are required within the EMS agency. The CP may operate as a paramedic providing 911 services first and then provide CP services during down times, as seen in the Abbeville CP program. Also, the CP may operate solely as a community paramedic and only provide quick response support to 911 calls, as seen in Greenville County EMS.

The Abbeville CP program uses a team approach that includes EMS, emergency management, and the county's special teams (dive and special operations) to guide their program. Prisma Health EMS is a hospital department overseen by a department head. In Greenville County EMS, the salaries are funded by the EMS agency and the CPs are embedded into the Accountable Communities (AC) department at Prisma Health-Upstate and work directly with the AC staff. Clarendon's CP program administrative team includes the county administrator, the community paramedic chief, and an assistant chief. RCMIH is managed by the EMS agency.

## EDUCATION

In South Carolina, the community paramedic training includes didactic, clinical and continuing education requirements. The didactic module requires a minimum of 100 hours and is divided into five areas – the healthcare environment, role within the community, role with the primary referring/control physician, role with the patient, and continual development of the CP role. The clinical module requires a minimum of 125 hours and is divided into clinical topics, clinical sites, and field training. The continuing education module requires a minimum of 24 hours and is broken down into 12 practical hours and 12 clinical hours.

The in-state training prepares CPs with the skills to:

- identify community health needs and address gaps in care;
- promote patient advocacy;
- provide community outreach;
- apply public health concepts and approaches;
- coordinate care;
- make home visits, facilitate continuity along the care continuum;
- develop strategies for care and prevention;
- reduce unnecessary ED visits and promote better navigation of the healthcare system; and
- achieve the triple aim.

In addition to the state training standards, each community paramedic must pass the International Board of Specialty Certification[5] (IBS) Community Paramedic – Certification (CP-C) examination. CP-C is a four-year certification that is required for the SC DHEC CP endorsement. The CP-C certification requirement demonstrates baseline knowledge and competence of the CP model.

Since the inception of the community paramedic model, three training facilities have provided community paramedic courses. Two of the three institutions, Piedmont Technical College[6] and TriCounty Technical College[7], are not currently providing the CP course. TriCounty Tech trained a total of 24 paramedics in a two-year time span; 14 were trained in 2016 and 10 trained in 2017. This course is provided in-person and is active if demand in the surrounding local area warrants another class.
The Prisma Health - Upstate Simulation Center, Prehospital Education department[8] has been offering a virtual community paramedic course since 2016 and has trained 55 students. See table 2 below.

**Table 2: Prisma Health – Upstate Community Paramedic Course Graduates**

| | 2016 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Number of Course Graduates | 5 | 6 | 10 | 15 | 19 |

## South Carolina CP Impact

### Public and Health Equity Perspective

In 2019, South Carolina had a population of 5.15 million people with a median age of 39.9 and a median household income of $56,227. Between 2018 and 2019, the population of South Carolina grew from 5.08 million to 5.15 million people, a 1.27% increase, and its median household income grew from $52,306 to $56,227, a 7.5% increase. The three largest ethnic groups in South Carolina are white (non-Hispanic) (63.5%), Black or African American (non-Hispanic) (26.3%), and white (Hispanic) (3.16%). 7.47% of the households in South Carolina speak a non-English language at home as their primary language (Data USA, 2020). Table 3 presents the ranking of the five counties in comparison to the 46 counties in South Carolina in terms of the health outcomes and health factors as presented by the 2020 County Health Rankings report from the Robert Wood Johnson Foundation. The rankings of the other counties can be seen in Figure 7 and 8.

**Table 3: 2020 County Health Rankings in South Carolina**

| | Abbeville | Clarendon | Greenville | Oconee | Richland |
|---|---|---|---|---|---|
| Health Outcomes | 20 | 26 | 2 | 10 | 11 |
| Health Factors | 17 | 33 | 1 | 10 | 12 |

The overall rankings in health outcomes represent how healthy the county is within the state; there are 46 total counties in South Carolina. The healthiest county in the state is ranked #1 and the sickest is #46. The ranks are based on how long people live and how healthy people feel while alive. Abbeville County and Clarendon County rank lower than the other three counties; seen in Figure 7. The overall rankings in health factors represent what influences the health of a county. The ranks are based on health

[5] https://www.ibscertifications.org/roles/community-paramedic
[6] https://www.ptc.edu/
[7] https://www.tctc.edu/
[8] https://academics.prismahealth.org/academics/education/prehospital-education

behaviors, clinical care, social and economic, and physical environment factors. Abbeville County and Clarendon County once again rank lower than the other three counties as seen in Figure 8.

*Figure 7. SC Map of Health Outcome Rankings*

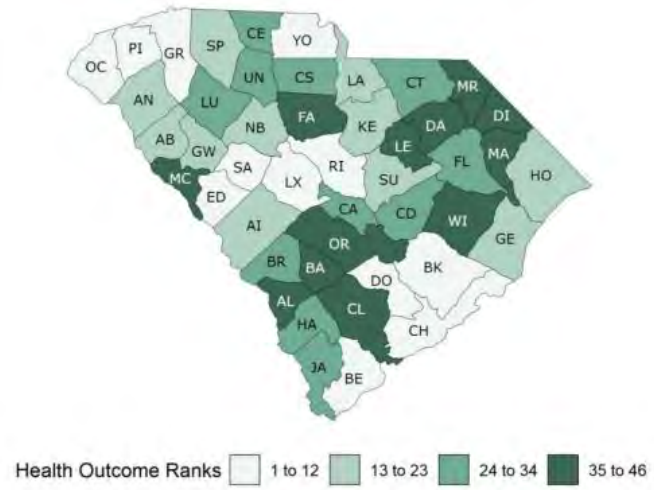
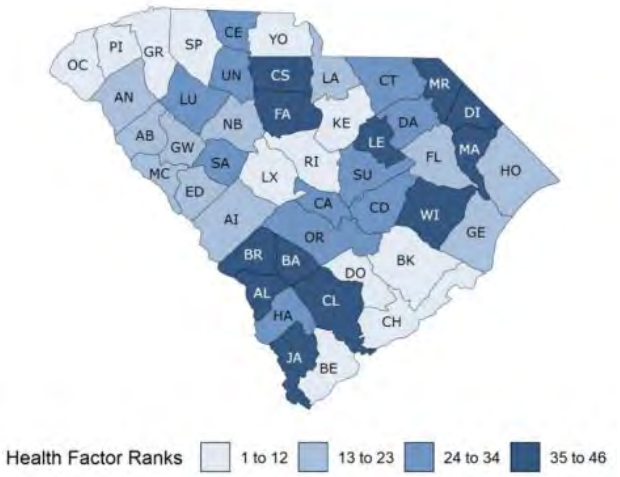



*Figure 8. SC Map of Health Factor Rankings*




In 2019, South Carolina was ranked 42 out of 50 in the America's Health Rankings from the United Health Foundation. South Carolina, in 2021, has a high prevalence of multiple chronic conditions, and obesity increased 12% between 2016 and 2022. Under the measures collected for South Carolina, three stand out as relevant to the community paramedic model:

- Social and economic factors - ranked 44 out of 50: encompasses community and family safety, economic resources, food insecurity, education, social support and engagement;
- Clinical care - ranked 38 out of 50: encompasses access to care, preventive clinical services, and quality of care;
- Behaviors - ranked 43 out of 50: encompasses nutrition and physical activity, sexual health, sleep health and smoking and/or tobacco use.

Programs that provide support around management of multiple chronic conditions, obesity management, family safety, social support, access to care, preventive clinical services, quality care, nutritional education, and tobacco cessation support will impact the health of the state residents. Community paramedicine programs provide these services to patients. CP programs are able to bridge the gaps within the community by engaging with the CP patient within their home, identifying needs and plugging them into the local resources to get the care and services that are needed to support health and wellness of the patient.

Each community paramedic program identified in this report was uniquely developed to meet the needs and fill the gaps of the community it serves. With that in mind, it is important to identify some of those needs from both a public health and health equity perspective before examining the programs themselves. The following sections delve into background information of the five counties served by the agencies participating in this study.

## Abbeville County

The Abbeville County Community Paramedic (ACPP) program is located in Abbeville County, South Carolina. Abbeville County is 511 square miles and serves a static population of about 24,582 as of the 2019 U.S. Census. The county has a median age of 44.3 and a median household income of $38,741. Between 2018 and 2019, the population of Abbeville County saw a 0.122% decline, and its median household income grew from $36,685 to $38,741. The three largest ethnic groups in Abbeville County are white (non-Hispanic) (68.9%), Black or African American (non-Hispanic) (27.6%), and two+ (non-Hispanic) (1.65%). Of the population, 11.1% lack health care coverage; illustrated in Table 4. (Data USA, 2020)

**Table 4: Abbeville County Demographics**

| Physicians per 1,000 | Percent >30 minutes from a hospital | Percent Unemployed | Percent in Poverty | Percent Uninsured |
|---|---|---|---|---|
| 0.56 | 46.14% | 2.9% | 18.7% | 11.1% |

According to the SC Rural Healthcare Resource Dashboard, the top five inpatient and emergency room visits are for the same five chronic conditions; table 5 and 6. Congestive heart failure and COPD swap positions 4 and 5 between the two data points. The ACPP program treats the following diagnoses: hypertension (HTN), diabetes (DM), chronic heart failure (CHF), asthma, and chronic obstructive pulmonary disease (COPD). The community paramedics fill gaps in care and help patients manage these chronic diseases.

**Table 5: Top Five Conditions, Inpatient Admissions per 1,000 Population**

| Hypertension | Type II Diabetes | Mental Disorders | Congestive Heart Failure | COPD |
|---|---|---|---|---|
| 189.95 | 145.41 | 124.98 | 90.632 | 84.744 |

**Table 6: Top Five Conditions, Emergency Room Visits per 1,000 Population**

| Hypertension | Type II Diabetes | Mental Disorders | COPD | Congestive Heart Failure |
|---|---|---|---|---|
| 752.91 | 362.24 | 234.86 | 141.96 | 125.68 |

CP agencies are poised to work with patients who have these chronic conditions. It is interesting to note that while unemployment is low, the number living in poverty is six times higher, and the number of uninsured is nearly four times higher than the unemployment rate. As mentioned above, Abbeville's CP program is addressing each of the five conditions.

ACPP started as a pilot under the EMS office at SC DHEC in October 2013. Abbeville County Emergency Management Services (ACEMS) and Abbeville Area Medical Center (AAMC) pioneered the CP program with the help of TDE and SCORH. The relationship between the hospital and EMS agency strengthened when the Abbeville CP program partnered with AAMC to target and treat patients identified through the SC Department of Health and Human Services (SC DHHS) Health Outcomes Plan[9] (HOP) via Proviso

[9] https://msp.scdhhs.gov/proviso/site-page/healthy-outcomes-plan-0

33.34. HOP supported participating hospitals who proposed service delivery models to coordinate care for chronically ill, uninsured, high utilizers of emergency department services.

The Abbeville CP program is the longest-running program in South Carolina and the ACPP model heavily influenced the state CP standards. The Abbeville CP program's mission is to “bridge the gap of unmet healthcare needs for the citizens of Abbeville, providing for a healthier and safer community while reducing the unnecessary accrual of healthcare costs, providing medical care to the underserved, improving our patients’ quality of life and ensuring a whole community approach to preparing for disasters.” The goals of ACPP are to strengthen the primary healthcare delivery system, implement change in patient outcomes, reduce healthcare costs, and meet unmet healthcare needs. The reduction in healthcare costs include reducing non-emergent 911 calls, non-emergency ED visits, and inpatient hospital readmissions.

The Abbeville CP program uses a combination of educational resources. The initial program was provided by Tri-County Technical College and consisted of a 140-hour course with numerous hours in clinical settings. The last program used was from Piedmont Technical College which followed a similar schedule. Abbeville CPs have participated in training provided by local physicians.

The ACPP is operated and maintained by Abbeville County EMS. The department consists of EMS, emergency management, and the county’s special teams, such as the Abbeville County Emergency Response Team (ACERT) and dive teams. The CP program is overseen by a deputy director and is managed by a captain and a lieutenant. The agency has four shifts (24 hours on duty/72 hours off duty rotation) with eight field management personnel. Currently, the director, deputy director, and an EMS manager are trained as CPs. Their goal is to have the remaining five managers trained and actively participating in the program. Abbeville uses dual-role (9-1-1 and CP) paramedics to see community paramedic patients. The funding for these positions is covered by the county so they incur no supplemental costs. At the end of TDE funding, Abbeville Area Medical Center provided a per-member/per-month stipend to Abbeville County EMS for patients identified by the hospital.

The CP program saw 140 patients before the program was halted during the COVID-19 public health emergency in an effort to reduce the exposure of Abbeville CP patients to pathogens. In 2015, 75 CP patients accounted for 773 visits; averaging 10.3 visits per patient (Bennett, 2015). Utilizing the 10.3 visits per CP patient average, 140 patients could account for 1,442 total patient visits. As COVID-19 numbers have improved, Abbeville County EMS is rebuilding its program. The Abbeville Area Medical Center and its surrounding family healthcare entities are the main source of patient referrals. They are still accepting referrals from these facilities but are also accepting referrals from ambulance personnel as they identify and recruit individuals in the 9-1-1 setting.

As identified in the county demographics, most of the patient population is elderly and currently suffering from diabetes, COPD, CHF, and/or other comorbidity issues. To address these concerns, the types of services offered are phone consultations, in-home visits, chronic disease education and care coordination to meet each patient’s needs. A typical visit lasts about an hour and occurs either weekly or bi-weekly through in-home visits and care coordination depending on the patient’s needs. The Abbeville CP program does not track mileage for their patient encounters.

Initial patient visits are scheduled over the phone after a referral is received. The patient provides consent for the CP to enter their home. Follow-up visits are scheduled by the provider and are recorded on an agency-wide calendar. After each visit, the provider completes the visit by alerting dispatch of the incident and then communicates any findings from the visit with the patient's healthcare provider and/or hospital liaison. ACPP initial visit and follow-up visit/s protocol is shown in figures 9 and 10.

*Figure 9. ACPP CHF Initial Visit Workflow*

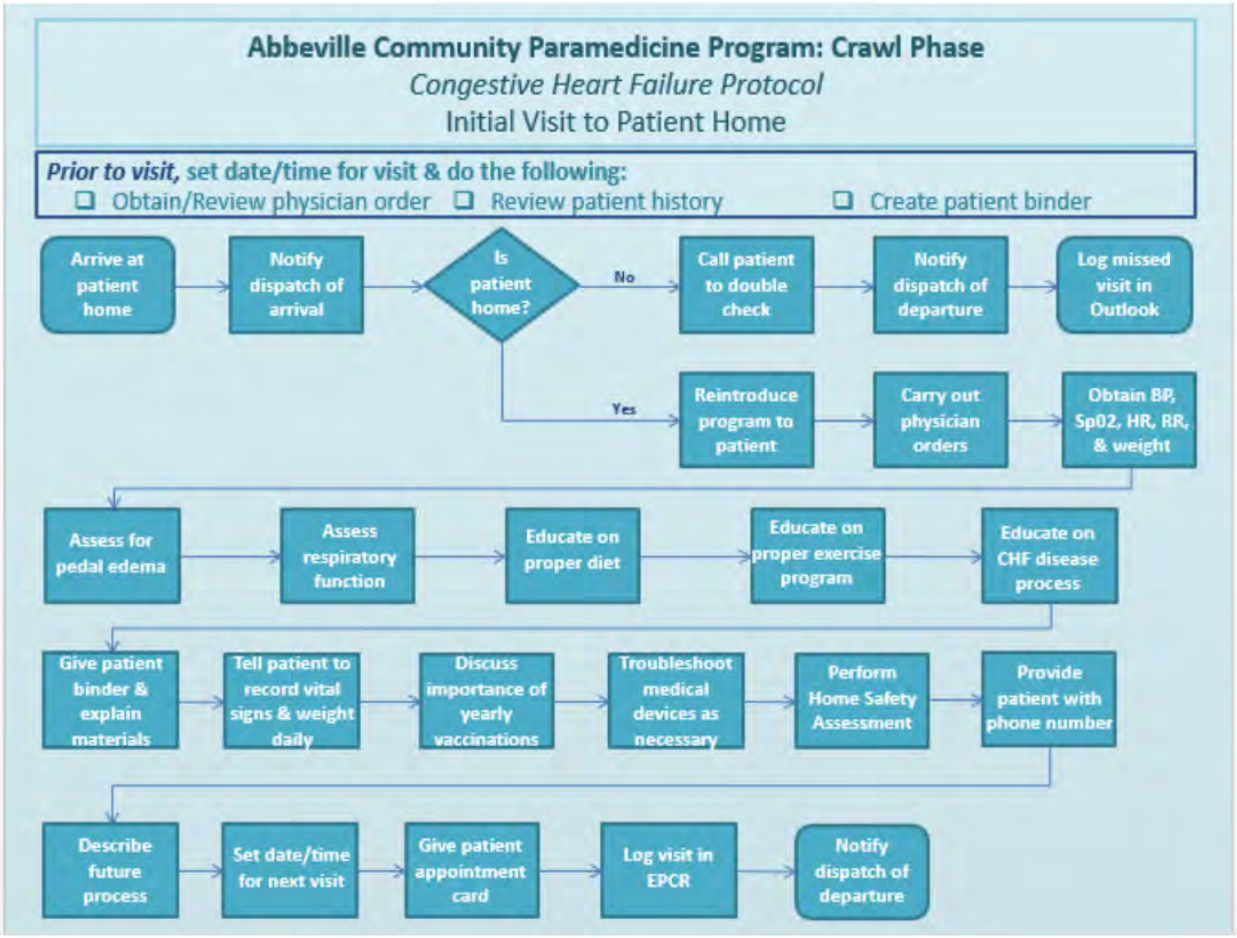
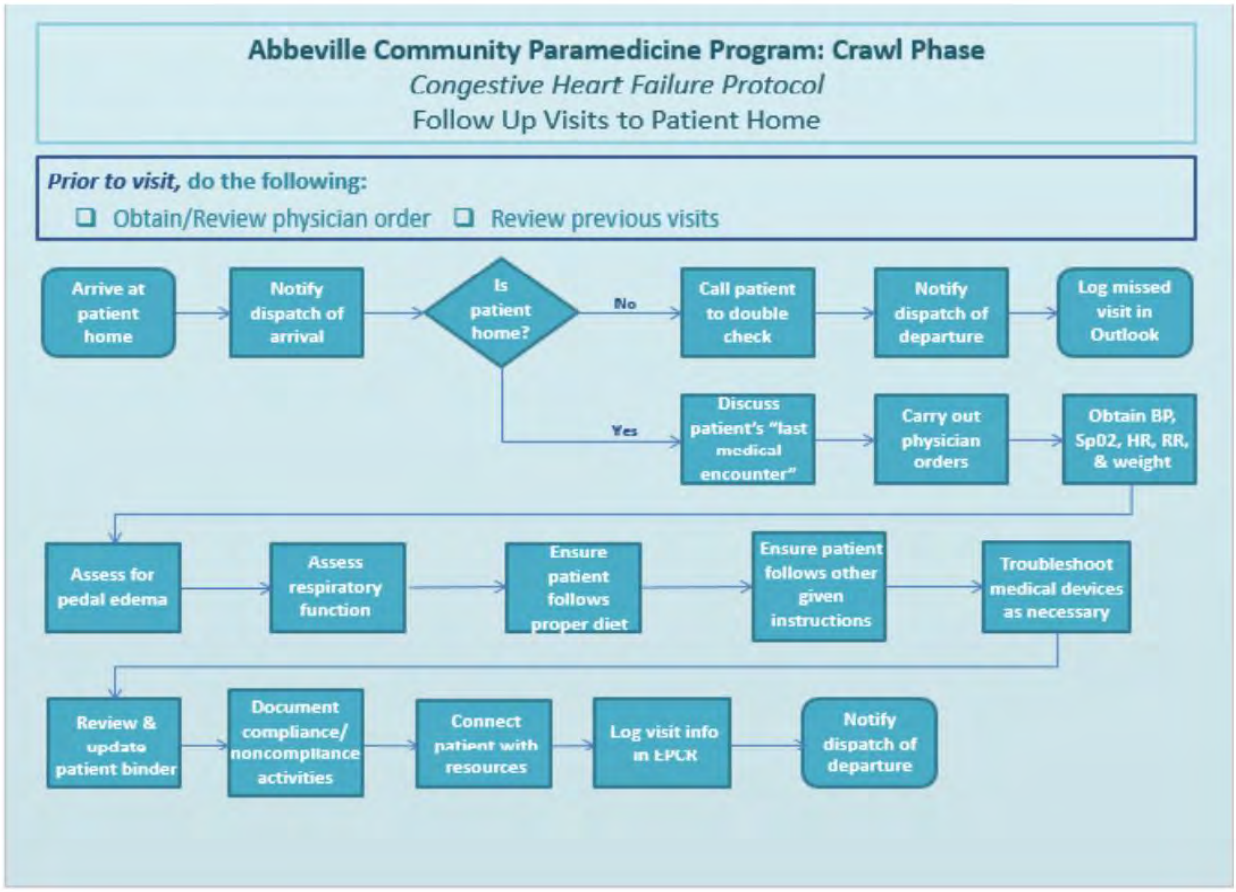


*Figure 10. ACPP CHF Follow Up Visit Workflow*




The Abbeville CP program has a mixture of outcomes from a variety of patients. A few patients bought into the program made great improvements and turned into long-term maintenance patients[10] who are seen regularly. Other patients have a shorter program duration and are discharged after four to six weeks. Improvements were seen in glucose levels, blood pressure, weight, and overall health. In most cases, these improvements were attributed to education on diet, self-care, and medication adherence. Table 7 shows patient health outcomes achieved in 2015 from the Abbeville Community Paramedicine Evaluation Report.

**Table 7: Abbeville CP Patient Health Outcomes**

| | Percent Decrease | Average Decrease |
|---|---|---|
| Diabetes | 85% | 33.7 mmol BGL |
| Hypertension | 69.9% | Systolic – 7.2 mm Hg<br>Diastolic – 4.0 mm Hg |

[10] Maintenance patients: Patients that haven't been discharged from the CP program because regular check-ins are provided to ensure patient health.

In addition to the patient health outcomes, ACPP was able to achieve a 58.7% reduction in emergency room visits, 60% reduction in in-patient admissions, and 41.2% reduction in 30-day readmissions (Bennett, 2015).

A cost-related analysis of the Abbeville CP program, pulled from the CP evaluation report, showed that the difference in average charges decreased from $3,412.88 to $2,533.82 after CP patients were enrolled in the program. This represents an average charge reduction of $879.06 per CP visit. The program was able to provide CP visits at an average cost of $205.78 per visit and operate the program with $90,954.24 in total costs. In addition, given the reductions in inpatient visits, emergency department visits, and shorter length of stay for CP patients enrolled, the program was able to avoid $97,940.09 in associated costs. This allowed the Abbeville CP program to save 33% more than was spent. (Bennett, 2015)

### Prisma Health - Upstate

Prisma Health EMS and GCEMS, in partnership with Prisma Health-Upstate, provide community paramedic services to Greenville and Oconee Counties. Prisma Health is the largest private, non-profit healthcare system in South Carolina. It operates in the Upstate and Midlands regions, covering 4,320 square miles (about the area of Connecticut).

The largest county in which Prisma Health operates is Greenville County which is 795 square miles and serves a population of 69.6k people as of the 2019 U.S. Census. It has a median age of 38.2 and a median household income of $64,412. Between 2018 and 2019, the population of Greenville County saw a 1.81% increase, and its median household income grew from $61,183 to $64,412. The three largest ethnic groups in Greenville County are white (non-Hispanic) (67.8%), Black or African American (non-Hispanic) (17.1%) and white (Hispanic) (4.66%). Of the population, 10.8% lack health care coverage, as illustrated in Table 8. (Data USA, 2020)

**Table 8: Greenville County Demographics**

| Physicians per 1,000 | Percent >30 minutes from a hospital | Percent Unemployed | Percent in Poverty | Percent Uninsured |
|---|---|---|---|---|
| 3.54 | 16.11% | 2.8% | 11.5% | 10.8% |

According to the SC Rural Healthcare Resource Dashboard, the top five inpatient and emergency room visits vary in Greenville County; see table 9 and 10. Greenville County's congestive heart failure rate is lower than in other parts of the state. While the unemployment rate is low, the percentage of people living in poverty and uninsured is 3-4 times higher.

**Table 9: Top Five Conditions, Inpatient Admissions per 1,000 Population**

| Hypertension | Type II Diabetes | Mental Disorders | Congestive Heart Failure | COPD |
|---|---|---|---|---|
| 120.28 | 87.986 | 86.57 | 63.122 | 53.862 |

| Table 10: Top Five Conditions, Emergency Room Visits per 1,000 Population | | | | |
|---|---|---|---|---|
| Hypertension | Type II Diabetes | Mental Disorders | Asthma | COPD |
| 422.2 | 203.26 | 187.34 | 154.3 | 92.5 |

The CPs in Greenville County focus on the management of hypertension, BMI, opioid overdoses, chronic care and EMS high utilizers within their program. Support for the CP patients include partnerships with appropriate healthcare facilities that serve the county. GCEMS is addressing each of the five ED conditions.

In contrast, the Prisma Health EMS CP program operating in Oconee County is 674 square miles and serves a population of 77.5k people with a median age of 45.7 and a median household income of $49,134. Between 2018 and 2019 the population of Oconee County saw a 1.08% increase and its median household income grew from $46,056 to $49,134. The three largest ethnic groups in Oconee County are white (non-Hispanic) (84.4%), Black or African American (non-Hispanic) (6.82%) and white (Hispanic) (3.35%). Of the population, 11.1% lack health care coverage, as illustrated in Table 11. (Data USA, 2020)

| Table 11: Oconee County Demographics | | | | |
|---|---|---|---|---|
| Physicians per 1,000 | Percent >30 minutes from a hospital | Percent Unemployed | Percent in Poverty | Percent Uninsured |
| 1.53 | 18.19% | 2.9% | 17.5% | 11.1% |

According to the SC Rural Healthcare Resource Dashboard, the top-five inpatient and emergency room visits vary in Oconee County; see table 12 and 13. Asthma did not make the list in Oconee County, but COPD is much more prevalent there. While unemployment is only 2.9%, nearly six times as many are living in poverty.

| Table 12: Top Five Conditions, Inpatient Admissions per 1,000 Population | | | | |
|---|---|---|---|---|
| Hypertension | Type II Diabetes | Mental Disorders | COPD | Congestive Heart Failure |
| 194.96 | 129.32 | 121.85 | 119.1 | 86.42 |

| Table 13: Top Five Conditions, Emergency Room Visits per 1,000 Population | | | | |
|---|---|---|---|---|
| Hypertension | Type II Diabetes | COPD | Mental Disorders | Asthma |
| 487.06 | 221.37 | 146 | 134.24 | 113.43 |

Similar to GCEMS, Prisma Health EMS CPs support the management of hypertension and BMI. In addition to these two areas, there also continues to be a focus on the vulnerable population within Oconee County. Additionally, the PH CPs have expanded to infectious disease management and 30-day readmissions support. PH EMS is addressing four of the five top ED conditions.

An overview of Prisma Health EMS and GCEMS CP programs is provided below.

**Greenville County**

In 2016, Prisma Health-Upstate (PH) and Greenville County Emergency Medical Services (GCEMS) were awarded their first grant, named Community Care Outreach, from the BlueCross BlueShield of South Carolina Foundation (BCBSSC Foundation) to develop its patient-centered medical neighborhood (PCMN) model. The BlueCross BlueShield of South Carolina Foundation is an independent licensee of the Blue Cross Blue Shield Association. What started with one paramedic and one social worker in phase three of the grant has now grown into two full-time community paramedics in Greenville County. Their PCMN model has become a robust approach to improving the health of patients in the neighborhoods where they reside. Grant funding for the program ended in May 2018 but the program is still active today as GCEMS and PH are committed to keeping the program operational.

The community paramedics' salaries are funded by GCEMS, and the PH Accountable Communities (AC) department funds space, supplies, etc. The community paramedics are embedded in the AC office and they work directly with the AC staff (program navigators, community health workers, social workers, etc.). Since the program's inception, the team has graduated 246 patients but collectively has completed interventions on more than 750 patients.

GCEMS has a contract with the state's Community Opioid Paramedic Education (COPE) Program. (The COPE program is a post-overdose outreach program through SC DHEC in which individuals who have been rescued through Narcan are provided follow-up information, screening tests, and access to treatment. The COPE program is an opportunity which CPs may participate. COPE works to decrease subsequent overdoses by identifying survivors through EMS and hospital referrals. Through COPE, CPs visit survivors of an overdose event within 72 hours to provide educational materials and connect them with drug treatment and peer support programs. Each COPE team typically consists of a paramedic, peer support specialist, and law enforcement officer who work together to reach the survivor and/or their family.) Through this program, GCEMS attempts to convince patients encountered on 9-1-1 calls with an opioid overdose to enter a counseling program offered by a local mental health facility. GCEMS addresses many high utilizers of GCEMS and works closely with AccessHealth to support the uninsured population in need of chronic condition management.

**Oconee County**

Prisma Health EMS was awarded funding from BCBSSC Foundation in 2019 to expand community paramedic outreach to rural Oconee County. The Prisma Health EMS CP program is embedded within the EMS agency as part of a value-based care model for healthier communities. The CP program operates as its own specialty and has dedicated full-time trained employees who make up the team. The Oconee EMS is a department that is owned by the Prisma Health system.

Prisma Health EMS's CP program is currently operating with seven FTEs. Two more FTEs will join the team in July 2022. They have attended to 100 patients, 11% of whom were enrolled for more than six months. Forty-five CP patients have graduated from the program. This grant is set to expire on December 31, 2022, but Prisma Health EMS plans to continue to support the program. However, it is imperative that a reimbursement model is developed for the program's services.

The Prisma Health EMS CPs work with an infectious disease program that is piloting treating Hepatitis C. To date, they have cured eight of 13 enrolled patients. They implemented a program that assesses and treats patients in skilled nursing facilities for a variety of medical conditions in collaboration with a geriatrician to reduce or eliminate unnecessary emergency department and inpatient admissions. Telehealth and care plans are created with initial treatment by CPs and continuing treatment in place occurs by nursing staff at the facilities. A new effort at reducing less than 30-day readmission rates is being implemented with referrals tied to LACE + scores. This program will improve value-based community health while reducing readmission penalties for the organization.

The CPs received their training from the School of Medicine in collaboration with the University of South Carolina. Their goal is IBSC CP-C certification for all CP providers. The course includes a six-month didactic course with 200+ hours of clinical experience added.

GCEMS and Prisma Health EMS are connected to Prisma Health's electronic medical record (EMR) system, Epic. Epic is used to receive referrals and document patient interventions. GCEMS also uses ImageTrend, its electronic patient care record (ePCR) software to receive referrals and document patient interventions. Both programs serve vulnerable patients, which is defined in many ways not related to socioeconomic status. The primary CP patient conditions include body mass index and hypertension. Both CP teams provide telephone consultations, in-home visits, telehealth treat-in-place, vaccinations, ultrasounds, point-of-care testing, and care coordination. Collectively across both locations, the CPs spend approximately 35% of each workday with patients. The balance of their time is used for charting, telephone calls, coordination with physicians, and meetings.

In Oconee County from 2019 to 2021, the Prisma Health EMS CP program patients have avoided 575 EMS calls, 493 ED visits and 547 in-patient admissions due to the CP intervention. They have decreased BMI for 49 CP patients and 43 patients have an average 42.65 reduction in systolic blood pressure (SBP), as seen in Table 14. In addition to these metrics, the PH EMS and GCEMS CP programs focus on all vulnerable adults, and additional clinical impacts include mental health, substance abuse and infectious diseases.

**Table 14: Prisma Health EMS Community Paramedic Program Clinical Improvements**

| Condition | Evidence of meaningful clinical improvements provided for each condition: |
|---|---|
| **BMI** | BMI for 49 pts. decreased an avg. of 5.62, 4 pts had no change, and 6 pts had an increase in BMI of 3.64 avg |
| **Hypertension** | 43 pts had an avg. of 42.65 reduction in SBP and an avg. of 24.26 in DBP with a decrease in MAP of 29.92 avg. - 1 patient had an increase in mean arterial pressure (MAP) and 2 pts had no changes noted. |
| **Other** | The program focuses on vulnerable adults. The span of clinical coverage ranges from respiratory to mental health, substance use disorders to infectious diseases. The CPs utilize telehealth, treat in place, iStat POC under a mobile CLIA, and physician collaboration to create treatment plans. |

Overall, the two CP programs achieved a total cost decrease of $2,544,144 from a reduction in utilization of in-patient admissions, out-patient services, and primary care visits (Table 15). Encompassing the utilized services, the CPs saw a decrease in 5,810 cases from 2016 through the end of 2021.

| Table 15: Prisma Health CP Program Utilization Decrease | | | | |
|---|---|---|---|---|
| | **Variable Cost** | **Overall Case** | **Overall Case Percentage** | **Total Cost** |
| In-patient: | $830,477 | 547 | 57.9% | $1,586,473 |
| Out-patient ED: | $161,695 | 493 | 61.5% | $338,916 |
| Facility Out-patient (including Observation) | $398,284 | 1,500 | 59.2% | $804,398 |
| Primary Care | $109,922 | 917 | 59.3% | $804,398 |
| **Total Cost:** | **$1,303,373** | **2,353** | **59.4%** | **$2,544,144** |

Since this study, Prisma Health EMS has expanded its services to cover Anderson, Greenville, Laurens, Pickens and Spartanburg counties.

### CLARENDON COUNTY

The Clarendon County Fire Rescue (CCFR) CP program is dedicated to coordinating care for its patients between all aspects of healthcare and is operated in Clarendon County. Clarendon County is 696 square miles and has a population of 34,971 as of the 2019 U.S. Census. Clarendon County EMS responds to 6,000 calls each year. The county has a median age of 45.1 and a median household income of $40,900. Between 2018 and 2019, the population of Clarendon County saw a −0.176% decline, while its median household income grew from $37,525 to $40,900. The three largest ethnic groups in Clarendon County are white (non-Hispanic) (47.7%), Black or African American (non-Hispanic) (47.2%) and white (Hispanic) (1.54%). Of the population, 10.9% lack health care coverage, as illustrated in Table 16. (Data USA, 2020)

| Table 16: Clarendon County Demographics | | | | |
|---|---|---|---|---|
| Physicians per 1,000 | Percent >30 minutes from a hospital | Percent Unemployed | Percent in Poverty | Percent Uninsured |
| 1.08 | 22.97% | 25.5% | 22.9% | 10.9% |

According to the SC Rural Healthcare Resource Dashboard, the top five inpatient and emergency room visits vary in Clarendon County. Working with partners to address these five conditions would have a great impact on the county's health; Table 17 and 18. Compared to the other counties, Clarendon has significant unemployment and poverty, yet their uninsured rate mirrors the others.

| Table 17: Top Five Conditions, Inpatient Admissions per 1,000 Population | | | | |
|---|---|---|---|---|
| Hypertension | Type II Diabetes | Congestive Heart Failure | COPD | Mental Disorders |
| 224.28 | 181.02 | 137.29 | 112.55 | 109.4 |

| Table 18: Top Five Conditions, Emergency Room Visits per 1,000 Population | | | | |
|---|---|---|---|---|
| Hypertension | Type II Diabetes | Mental Disorders | Congestive Heart Failure | COPD |
| 626.88 | 332.01 | 146.42 | 127.28 | 125.33 |

The Clarendon CP program treats patients that have COPD, diabetes, and mental health disorders. The CPs utilize the COPE program and assist in care coordination with a home health agency in the county. The CPs address three of the five conditions.

The CP team aims to put the CP patient first and to utilize the greater healthcare system to accomplish the goals of the individual patient. The Clarendon County EMS CP program leadership includes the county administrator, CP chief, and an assistant chief. They have one CP that is overseen by the assistant chief, medical director, and deputy chief. Dr. Robert Ridgeway serves as the medical control physician for both the 9-1-1 operation and the CP program.

Clarendon was funded by TDE from 2017-2020 and is now fully funded by Clarendon County. They have additional funding from the COPE Program. During the pandemic, they received funding from the state to provide COVID-19 testing and vaccinations, but that funding has now ended.

Clarendon's CP program was established in 2017. From 2017 to early 2020 there was one FTE. In 2020, Clarendon County approved a second FTE funded by the American Rescue Plan Act (ARPA). They currently have one position filled and the second position is open. From December 2017 through April 2019, there were 87 patients participated in the program and generated 801 CP visits; averaging 9.2 visits per patient. In July 2020, the focus of the program adapted to the challenges of the COVID-19 pandemic. At one point during the pandemic, the number of positive cases in the county per capita was the highest in South Carolina. Early in the pandemic, many of the residents did not want in-home visits. From July 2020 to March 2021, they transported more than 20 patients and admitted 15 new patients to the program. From July 2020 to December 2020, they conducted 362 in-home COVID tests for patients who were not admitted to the program. From January 2021 to June 2021, testing slowed but they still tested 188 patients in their homes. From January 2021 to April 2021, they administered 40 vaccinations to home-bound patients. From December 2017 to the end of 2021, the CP program had a total of 310 CP patients. In summary, using the 9.2 visit average per CP patient, the total home visits are estimated at 2,852 from the start of the CP program in 2017 to the end of 2021.

Clarendon's CP program conducts both in-home visits and telephone consultations, with the majority being in-home visits. The CP program partnered with a local physician to establish a telehealth program for patients who were bed-bound or had transportation challenges that prevented them from being seen in the doctor's office. In 2021, they conducted 87 telehealth visits and have since turned this program over to the physician's office, as the telehealth program no longer met the mission of the CP program. With Clarendon being entirely funded by taxes, they were providing this service at no charge to patients of an individual physician, although the physician can bill for the service. The CP program also provides care coordination with local home health nursing, mental health officials, and South Carolina Department of Social Services to meet the needs of their patients. Clarendon's CPs continue to provide services under the COPE Program.

Clarendon's average time per patient visit was 29 minutes each visit in March 2022. The total time for 98 visits is 2,854 minutes. The average travel time per visit is 13 minutes, and total travel time is 1,273 minutes. Clarendon's March 2022 data includes an average of 9.1 miles per visit, and total miles traveled of 891.75 miles for 98 patient visits.

Clarendon's captain completed the CP education through a community college system over the course of one college semester, including clinical hours. This education was funded by a scholarship from SCORH. Clarendon County Fire Rescue guidelines require all new CP hires to obtain college-based education within an acceptable amount of time.

Clarendon's CPs maintain a cell phone 24/7 that is the main number for the CP program. Referrals to the program are generated by ER physicians, hospitalists from the local hospital, and local physicians. They often receive referrals from home health agencies in the case of the patient failing to qualify for their services any longer but still having needs. The 9-1-1 EMS staff can refer a patient to the program directly. The CP maintains a visit schedule and coordinates visits through the 9-1-1 dispatch center. The dispatch center is notified each time the CP arrives on scene of a patient visit and provides 10-minute radio checks until the CP advises them everything is alright, and they can cancel checks.

Clarendon's goal is to identify the unmet needs of the patient to improve their health and well-being on the first assessment visit. They formulate a plan to resolve the issues that need to be corrected and correct those issues within a 90-day period. They maintain flexibility in this goal as many patients require a longer period to accomplish the needed changes. Conditions for which patients were treated included COPD, diabetes, and mental health disorders among others.

If the patient requires long-term care and is eligible for home health nursing, they will be referred to an appropriate agency. The CP program maintains a follow-up report that is HIPAA compliant. If the patient is referred to the program by a physician, the proper release forms are obtained on the initial visit and all information is shared with the referring physician's office. In the case of a patient being referred by a community individual or EMS personnel, a follow-up report advises them that the patient has been seen, but it does not include any confidential information.

### Richland County

The Richland County EMS CP program is called the Richland County Mobile Integrated Healthcare (RCMIH) and is operated in Richland County. Richland County is 772 square miles and has a population of 416,417 as of the 2019 U.S. Census. Annually, Richland County EMS responds to more than 74,000 calls each year. The county has a median age of 33.8 and a median household income of $52,293. Between 2018 and 2019, the population of Richland County grew from 414,576 to 415,759, a 0.285% increase, and its median household income grew from $52,159 to $52,293, a 0.257% increase. The three largest ethnic groups in Richland County are Black or African American (non-Hispanic) (47.5%), white (non-Hispanic) (41.4%) and Asian (non-Hispanic) (3.03%). Of the population, 9.6% lack health care coverage, as illustrated in Table 19. (Data USA, 2020)

**Table 19: Richland County Demographics**

| Physicians per 1,000 | Percent >30 minutes from a hospital | Percent Unemployed | Percent in Poverty | Percent Uninsured |
|---|---|---|---|---|
| 3.49 | 15.42% | 4.1% | 16.2% | 9% |

According to the SC Rural Healthcare Resource Dashboard, the top five inpatient and emergency room visits vary in Richland County; see table 20 and 21. Of the five counties with CP programs, Richland is the only county where obstetrics is in the top five admissions per thousand. While the unemployment rate is

4%, those living in poverty are four times as many and there is a significant number of uninsured. Richland's coverage area includes the state capitol. The hospital's number of obstetrics admission reflects the fact that small rural hospitals no longer have OB resources available.

| Table 20: Top Five Conditions, Inpatient Admissions per 1,000 Population | | | | |
|---|---|---|---|---|
| Hypertension | Type II Diabetes | Mental Disorders | Congestive Heart Failure | Obstetrics |
| 129.55 | 100.82 | 80.801 | 65.79 | 55.322 |

| Table 21: Top Five Conditions, Emergency Room Visits per 1,000 Population | | | | |
|---|---|---|---|---|
| Hypertension | Mental Disorders | Type II Diabetes | Asthma | COPD |
| 437.37 | 222.94 | 221.01 | 150.14 | 60.5 |

The RCMIH patient conditions include diabetes, hypertension, chronic heart failure, and asthma. Emergency preparedness and social needs/barrier support is also provided by the MIH team. The MIH team provides services for 4 of the 5 conditions listed under emergency room visits.

RCMIH is a standalone program supported by the Richland County government and works alongside the EMS program to help improve the overall health of the community. The program was set up with two MIH paramedics and has grown to four paramedics. After the COVID-19 pandemic started, the team shifted members to support other recovery operations.

The startup funding was provided by a grant through the BCBSSC Foundation. The grant covered startup costs, training and initial years of the MIH program through 2017. An additional grant from the Foundation funded the program in 2018. Since 2019 the program has been funded by the Richland County government.

Richland's MIH program enrolls patients, usually for two to four months for medical case management. Some patients receive consultation or assistance from the MIH program, but do not desire or need enrollment. These patients receive three to four interactions and minimal resources. Other patients receive services specific to a county or statewide emergency. Examples would include hurricane evacuations or the COVID pandemic.

RCMIH initially limited its operations to a partnership with Palmetto Health Midlands (before the merger of two larger health systems in South Carolina now referred to as Prisma Health) which focused its efforts on providing services to the uninsured and underinsured population in the county. RCMIH focuses on primary care providers, coordination of transportation, and connection with medications. Additionally, RCMIH paramedics seek to connect CP patients to financial assistance available through one of the three hospital systems in the area, or to a large community provider such as a Federally Qualified Health Center (FQHC). Similarly, the MIHs assist in connecting patients with pharmacy support via Welvista[11] or Physicians Pharmacy Alliance[12]. Often the MIH paramedic assists the patient in completing the application, obtaining the necessary supporting documentation, and delivering the

[11] Welvista is a 501(c)3 organization, founded in 1991, that helps uninsured and underserved South Carolinians gain access to essential health services while reducing the long-term costs of health care that result from untreated conditions.

[12] Physician Pharmacy Alliance is a medication management organization which would provide medication delivery and reconciliation services to Medicare and Medicaid patients with multiple prescriptions.

application directly to the financial counselor at the hospital system. This often resulted in a significant reduction in the wait time for the approval of the application.

They provide education and coaching on preventable conditions like diabetes and hypertension, as well as managing conditions like heart failure and asthma. RCMIH paramedics also provide a comprehensive assessment and follow-up assessments. As illustrated in Table 22, between 2016 and 2019, the RCMIH program had 837 coordinated physician office visits, 209 successful home visits, 274 completed comprehensive assessments and 597 follow-up assessments.

**Table 22: RCMIH Program Modalities**

| | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| **MD Office Visit** | 207 | 222 | 218 | 190 |
| **Documentation / Chart Review** | 554 | 1052 | 1310 | 1578 |
| **Initial Home Visit** | 65 | 49 | 44 | 51 |
| **Comprehensive assessment** | 19 | 102 | 87 | 66 |
| **Follow-up Assessment** | 129 | 160 | 190 | 118 |
| **Hospital Visit** | 75 | 43 | 30 | 45 |
| **Telephone Contact** | 259 | 302 | 399 | 367 |
| **Patient Education** | 38 | 79 | 89 | 116 |
| **Referral Coordination** | 52 | 111 | 122 | 109 |

The RCMIH program does not track mileage driven. They operate four quick response vehicles. These vehicles are equipped with data terminals that allow for charting and access to hospital charting systems while in the field. Each vehicle has a set of equipment for home visits (scales, blood pressure cuffs, etc.), in addition to a set of ALS equipment for emergencies.

RCMIH developed an in-house training program to meet the training requirements for the pilot program. It was developed in partnership with Palmetto Health (the hospital system before the Prisma Health merger) and approved by SC DHEC. This training included education on chronic condition management, medication review, home safety, nutrition, community resources, and interview techniques. In addition, education was provided on the hospital charting system and proper charting. The team members have had the opportunity to train in substance abuse interviews and referrals in partnership with the Lexington/Richland Alcohol and Drug Abuse Council (LRADAC). Additionally, during the COVID pandemic, team members received education on testing techniques and contact tracing to provide home COVID testing to residents and caregivers of the homebound population. The team members continue to seek out continuing education that will support attaining CP-C certification through IBSC. One team member is currently IBSC certified.

RCMIH's early program received referrals from the staff at Palmetto Health. They expanded the program to allow 9-1-1 EMS providers to refer patients who were experiencing barriers to accessing healthcare. Currently, the RCMIH program has over 30 sources who are able to make a referral to RCMIH.

RCMIH has impacted patients and caregivers throughout the community. They provide assistance in applying for community resources and financial support, and have provided access to medications, primary care, and specialist care at little to no cost. Transportation resources help patients make follow-up appointments that they may not have otherwise attended. Their comprehensive assessments provide a complete overview of a patient's barriers for providers. Home safety assessments provide

education on hazards to help create safer home environments. Testing resources and education helped keep patients and caregivers safely isolated during the COVID-19 pandemic.

Since the program's inception, the RCMIH program has had a total of six community paramedics – two community paramedics in 2015 and six community paramedics by 2017. Currently, there are three CPs serving Richland County; workforce shortages occurred during the pandemic which reduced the number of CPs. From 2015 to 2022, Richland County MIH served 1,798 patients. Out of these patients, 772 CP patients were enrolled, 379 received consultations, 285 were part of emergency operations, and 363 patients declined CP services (Table 23). "Emergency operations" shown in Table 23 indicates a group of patients that the MIH team engaged with during times the county was in a declared emergency or supported evacuations from other counties. For instance, in 2015, Richland County experienced a major flooding event that resulted in displaced persons who needed to enter Red Cross shelters. MIH paramedics went into those shelters to assist patients with reconnecting with medications or durable medical equipment that may have been lost to flooding. Also, RCMIH assists shelters when residents of the coastal communities need to evacuate. The MIH team assisted patients with obtaining dialysis appointments or other continuing treatments while they were evacuated. Lastly, the RCMIH team engaged with emergency operation patients as part of the COVID pandemic response.

**Table 23: RCMIH Community Paramedic Program Patients**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|
| **Total Patients** | 62 | 263 | 485 | 412 | 182 | 188 | 156 | 50 |
| **Enrolled** | 36 | 121 | 268 | 234 | 73 | 12 | 9 | 19 |
| **Consultations** | 12 | 103 | 103 | 58 | 52 | 29 | 18 | 4 |
| **Emergency Operations** | 13 | 4 | 7 | 5 | 0 | 130 | 103 | 23 |
| **Patients who declined to engage** | 2 | 35 | 107 | 115 | 57 | 17 | 26 | 4 |

The RCMIH community paramedic program successfully avoided 1,636 EMS calls, 1,386 ED visits and 861 inpatient admissions, which resulted in a 75% reduction in EMS visits, a 86% decrease in emergency department visits and 64% reduction in inpatient admissions (Table 24). Overall, the RCMIH program had 1,391 patients achieve meaningful clinical improvements; Table 25 displays a portion of these improvements. The RCMIH team had a total of 10,391 total patient interactions from the start of the MIH program.

**Table 24: RCMIH Community Paramedic Program Utilization Decrease**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|
| **Emergency Medical Services** | -12% | -24% | -36% | -37% | -33% | -49% | -75% | N/A |
| **Emergency Department** | -20% | -22% | -30% | -31% | -20% | -50% | -86% | N/A |
| **Hospital Admissions** | -69% | -46% | -58% | -60% | -51% | 0% | -64% | N/A |
| **30 Day Hospital Readmissions** | 10 | 27 | 56 | 33 | 10 | 2 | 1 | 0 |
| **Total Patient Interactions** | 397 | 1493 | 3402 | 3153 | 1200 | 394 | 282 | 70 |

| Table 25: RCMIH Clinical Improvements | |
|---|---|
| | **Evidence of meaningful clinical improvements provided for each condition:** |
| **Asthma/COPD/CHF** | Asthma and COPD were combined into respiratory patients. RCMIH had 60 patients who only had a respiratory complaint. There was a 37% reduction in hospital admissions or a reduction of 54 hospital admissions. |
| **Diabetes** | 109 patients were enrolled with a complaint of diabetes. This group had a reduction of 41% in hospital admissions, or a reduction of 68 hospital admissions. |
| **Hypertension** | 37 patients were enrolled for hypertension alone. This population had a 54% reduction, or 22 prevented hospital admissions. |
| **Other** | Most of the patients engaged between 2015 and 2022 were experiencing significant social needs/barriers which contributed to their non-compliance and high admission rate. These patients were rolled into the "social needs" group and received education, assistance with financial barriers, housing, mental health, pharmacy, and transportation aid. 688 patients have been enrolled in this group with 43% or 358 reductions in hospital admissions. |

Richland County MIH provided primary care connection, home safety assessments, coordination of transportation, medication review, education and coaching around diabetes, hypertension, chronic heart failure and asthma. In addition, social needs and barriers of CP patients were addressed and the CPs provided assistance with education, financial barriers, housing, mental health, and pharmacy.

### Service Provision

As mentioned above, community paramedic programs are poised to offer a variety of services. CP programs select areas of focus, and the services offered are adjusted to fit the target population's needs. At the core of all CP programs exists a focus on patient education, chronic care management and care coordination. Beyond this, CP programs can offer patient home assessments, vaccinations, and point-of-care testing among many other services. The services of a CP can be offered through multiple mediums such as in-person and over-the-phone. Community paramedics can see patients in their own home, in a healthcare facility such as a skilled nursing facility, or in a public space such as drive-through vaccine clinics. The agencies respond to requests for service originating from health facilities, clinics, hospitals, and their own 9-1-1 EMS units. The versatility of the service type allows CPs to provide care in the format and location best suited to the patient.

The programs focus on managing patients with chronic conditions, managing high utilizers of either the EMS agency or hospital, and filling local gaps in service. All the programs had to shift focus during the COVID-19 pandemic; three of the four programs took on COVID testing, treatment, and/or vaccinations during this time. One agency paused their CP program completely to address the pandemic in other ways.

Through the COVID-19 public health emergency, the expansion of telehealth has extended into CP programs. Telehealth is billable by a clinic or hospital and generates fees that could be split with a CP program. One program has utilized this telehealth opportunity. This represents a new possibility for both financial and operational expansion within CP programs. Additionally, alternative destination model was allowable for EMS providers during the public health emergency. CP programs throughout

the state utilized this provision. The alternative destination sites include FQHCs and local physician offices.

### Time with Patients

The time spent by a CP with a patient varies across patients and programs. Each of the four CP programs provide in-home CP visits. Traditionally, the first visit, the "intake" visit, is the longest and can last up to two hours. During the first visit, the CP will review the patient's history, complete an assessment, perform a medication adherence check, check vital signs, assure compliance with any physician orders, educate the patient about their condition/s and support management of chronic conditions. During this visit, the CP may discover other social or physical needs through the process of reviewing the social determinants of health. The CP will perform any procedures that have been ordered for the patient, and before they leave ensure the patient fully understands their care plan.

Subsequent visits require less time (30-60 minutes) and are usually dedicated to current assessment, home safety assessment, screening and treatment, testing, coordinating ancillary services, medication adherence, and patient education. During these visits, the CP will conduct an assessment and perform any point-of-care testing that has been ordered, and assure the patient is complying with medication instructions and their care plan. Additionally, CPs might also engage a telehealth visit if deemed necessary. Adverse findings are reported to the patient's primary care provider. Medication adjustments are made in coordination with the primary care provider. At each visit, the CP must also devote time to reviewing the patient's records before arrival and charting during or after the visit. One CP program averaged 29 minutes per visit with established CP patients.

### Millage

The distance traveled to and from each patient visit is not an element captured by most of the participating CP programs. The one CP program that currently tracks mileage reported an average of 9.1 miles per patient visit. Mileage can be difficult to track in consistent and meaningful terms due to the nature of a CP program. Community paramedics may travel directly to and from a patient's place of residence and the base of operations, or travel from one patient's home to the next on a fully scheduled day. This aspect of the CP program stands in contrast to the standard EMS mileage component of paying a base rate with mileage for transports between the incident location and the hospital. Mileage varies by program structure and rurality of the service area; therefore, travel time can consume either a little or a substantial portion of the workday for community paramedics.

### Financial Model

The community paramedic programs in this study were implemented utilizing initial funding support from either The Duke Endowment or the BlueCross BlueShield of South Carolina Foundation. This is true of many other CP programs throughout North Carolina and South Carolina that have relied on a benefactor to cover startup costs. Since 2013, The Duke Endowment has supported four CP programs with a total investment of $1,053,788 in South Carolina. The BlueCross BlueShield of South Carolina Foundation has funded six community paramedic projects since 2012 totaling $2,605,000. Between the two philanthropic organizations, a total of $3,658,788 has been leveraged for the seven CP programs, reflected in Table 26.

| Table 26: SC CP Grant Funds | | |
|---|---|---|
| **The Duke Endowment** | **Year** | **Award Amount** |
| AAMC/ACEMS | 2013 | $306,460 |
| Mcleod Health Clarendon/EMS | 2017 | $272,478 |
| McLeod Health Foundation/EMS – Marlboro | 2019 | $261,850 |
| Spartanburg Regional Health Care Foundation | 2021 | $213,000 |
| **BlueCross BlueShield of South Carolina Foundation** | **Year** | **Award Amount** |
| Greenville County EMS | 2012 | $300,000 |
| Greenville County EMS | 2015 | $520,000 |
| Richland County ES | 2015 | $760,000 |
| Abbeville County EMS | 2016 | $50,000 |
| Richland County ES | 2018 | $300,000 |
| Prisma Health EMS | 2018 | $675,000 |

The amounts detailed above represent a wide range of funding allocation. For example, the BlueCross BlueShield of South Carolina Foundation awarded Richland County EMS $760,000 in 2015 compared to $50,000 awarded to Abbeville County EMS the following year in 2016. This is due in part to the difference in the size of the target service areas and the scope of the project for the awarded programs. Additionally, the population of Abbeville County and the patient enrollment of Abbeville County EMS are both far lower than the respective counts in Greenville. Additionally, the funding provided by the BlueCross BlueShield of South Carolina Foundation to Prisma Health Upstate in 2018 included support for both Greenville and the CP expansion into Oconee County. The combination of these factors and others resulted in a dynamic funding amount over the years rather than a static, flat award amount.

After the conclusion of the initial funding cycle, each agency has assumed fiscal responsibility for the program's continued costs. The average salary of a community paramedic, within three of the four agencies, is $63,402. The CP salary cost is the largest ongoing cost of the community paramedic programs. South Carolina currently has 17 CPs employed across the state. The estimated total annual salary cost for all four CP programs is $1,077,834, as shown in Table 27.

| Table 27: Community Paramedic Annual Cost | |
|---|---|
| | Number of CPs |
| ACPP | $190,206 |
| CCFR | $126,804 |
| GCEMS | $126,804 |
| PH EMS | $443,814 |
| RCMIH | $190,206 |
| **Total** | **$1,077,834** |

The South Carolina Medicaid program does not provide payment for community paramedic services, which leaves the fiscal burden on the shoulders of the EMS agencies and their supporting bodies. Agencies have taken various approaches for fiscal sustainability including billing for services, pursuing insurance contracts, entering a per member/per month (PMPM) payment arrangement with their local hospital, and applying for the recent Medicaid Innovation project, ET3. Securing state Medicaid program payment for community paramedic services would be a significant step forward in the sustainability of this service type.

## SUSTAINABILITY

Each of the hospitals in the counties the EMS agencies serve has a larger (sometimes significantly) number of emergency room visits than inpatient admissions for the top five conditions. Some of these patients are consuming both 9-1-1 ambulance and emergency room resources. Each agency should routinely connect with the local hospital/s to determine if these patients can be identified and if community paramedic visits would benefit them. Abbeville and Prisma Health Upstate already operate this way and there are system savings that are shared with the CP programs.

Several states are currently paying for CP visits under Medicaid. An effort should be made to achieve South Carolina Medicaid coverage. The coverage should include mileage, as a 30-minute visit isn't 30 minutes of time on task. If the patient is in a rural area, it can be 30 minutes of driving to the home, a 30-minute visit, and 30 minutes driving back to the station. In addition, the CP agencies should begin collecting Medicaid ID numbers on all future visits. A 2017 article that lists the top 10 ways CP programs are paid for includes internal funding, grant funding for startup costs, hospitals (to avoid readmissions and reduce spending per beneficiary), partnerships with hospice, partnerships with home health, partnerships with care management, Medicaid, managed care, patient concierge services, and direct insurance reimbursements (Zavadsky, 2017).

Across the country, a 2018 National Association of EMTs survey shows that 44% of the CP programs use various methods to recoup at least partial cost. Among the ways revenue is generated is fee for service, a fee per patient, enrollment fee, shared savings from another healthcare provider, capitated payments, and others. The revenue generated ranges from less than $10,000 to over $50,000. According to the National Association of State EMS Officials, within the survey, Arizona, Georgia, Minnesota, Wyoming, and Nevada have Medicaid plans that reimburse at least some community paramedicine services. Fourteen states have Medicaid plans that enable reimbursement of some treat-and-no-transport calls. Seventeen states have commercial insurance providers (including 14 Anthem BlueCross BlueShield states starting in 2018) that reimburse some community paramedicine services.

While Medicare does not yet pay for community paramedic services, there are ways for the programs to work together with hospitals and clinics to effect payments that can be transferred in whole or in part from the hospital or clinic to the program. In a report completed for the Minnesota Department of Health in 2016, billing options for CP services provided "incident to" in a clinic[13] or home[14], and include detailed billing instructions[15]. The instructions include how to bill in a clinic, in home, annual wellness

[13] http://paramedicfoundation.org/Portals/TPF/toolkit/Incident_to_CP_Services_in_a_Clinic.pdf?ver=2016-08-21-105650-000
[14] http://paramedicfoundation.org/Portals/TPF/toolkit/Incident_to_CP_Services_in_a_Patients_Home.pdf?ver=2016-08-21-105606-000
[15] http://paramedicfoundation.org/Portals/TPF/toolkit/Incident_to_CP_Services_Clinic_Coding_and_Billing.pdf?ver=2016-08-21-105524-000

visits, transitional care management, and chronic care management. Also, ”incident to” is a billing practice used to bill for nursing and other care provided by someone other than a physician in a clinic.

In 2017, the North Carolina legislature invested $6.5 million to expand community paramedicine pilot programs statewide “for the purpose of expanding the role of paramedics to allow for community-based initiatives that result in providing care that avoids nonemergency use of emergency rooms and 911 services and avoids unnecessary admissions into healthcare facilities". The legislature further directed the Department of Health to ensure the funds went to “locations in a manner that ensures distribution across the State in all catchment areas and according to the greatest need based on hospital emergency room utilization data”.

### Community Paramedic Community Benefit

During the data collection portion of this study, Prisma Health-Upstate, which includes Greenville County EMS and Prisma Health EMS services, agreed to participate in beta testing a new product that calculates the benefits they provide to their service area that are not funded by reimbursement or other program support. Since non-profit hospitals are required to report community benefits, this tool[16] was created for ambulance services and aims to mirror how hospitals report community benefits. The community benefit tool has five core areas and a separate item for hardship discounts; the results are shown in Table 28. Utilizing the nationally standardized data provided by this tool may support ambulance services when applying for grants and reporting community benefits to regulators and policymakers.

**Table 28: Community Paramedic Community Benefit**

| | Net Community Benefit | Definitions |
|---|---|---|
| Core Area 1 | $1,002,255 | **Subsidized or Mission-Driven Health Services**<br>This core area includes things such as standby activities for fires, sporting events and county fairs, and discounts given to public payers such as Medicare and Medicaid. |
| Core Area 2 | $86 | **Community Health Services**<br>This core area includes things such as bicycle helmets and car seat safety programs provided to the public. |
| Core Area 3 | $32,288 | **Health Professions Education**<br>This core area includes providing paramedic education and providing field experience to students. |
| Core Area 4 | $717,337 | **Community Building Activities**<br>This core area includes things such as community education, responder education, and cost-sharing for dispatch services. |
| Core Area 5 | $1,311,427 | **Community Benefit Operations**<br>This core area includes things such as blood draws and unreimbursed treat, but no transport, 9-1-1 ambulance runs. |

[16] Community Benefit Tool is available from the Technical Assistance and Service Center via Nicole Clement at nclement@ruralcenter.org

| | | |
|---|---|---|
| Hardship Discount | $8,355 | **Hardship discounts**<br>This core area includes amounts written off for private pay patients who do not have the capacity to pay all or any part of their bill. |
| Total Community Benefit | **$3,071,748** | **Total Community Benefit**<br>Combination of the 5 core areas and the hardship discount. |

## CONCLUSION

As illustrated above, one of the greatest benefits of community paramedicine programs is their ability to meet the needs of the community and to fill the gaps within the local healthcare system. A successful CP program is an adjunct to, not replacement for, existing providers of care as detailed in the partnerships above. The CP program elements that are consistent across all four programs are in-home visits, care coordination, disease education and coaching, chronic disease management, and medication adherence. Table 29 illustrates the similarities and differences in how each CP program interacts with its patients.

**Table 29: Community Paramedic Interactions**

| | Telephone Consultation | In-home visits | Care Coordination | Chronic Disease Education/ Coaching | COPE | Home Safety Assessment | Medication Adherence | Treatment in Place/ Telehealth | 9-1-1 Ambulance Referrals |
|---|---|---|---|---|---|---|---|---|---|
| ACPP | x | x | x | x | | x | x | | x |
| PH EMS | x | x | x | x | | x | x | x | |
| GCEMS | x | x | x | x | x | x | x | x | x |
| CCFR | x | x | x | x | x | x | x | x | |
| RCMIH | | x | x | x | | x | x | | x |

The patient conditions that CP programs focus on are greatly influenced by the community's needs as illustrated earlier in this report. A community needs assessment is completed by each CP program in South Carolina for SC DHEC CP program endorsement. Within the four programs, there is a crossover on the conditions that the CPs are treating (Table 30).

**Table 30: Community Paramedic Conditions**

| | COPD/ASTHMA | Hypertension | Diabetes | Chronic Heart Failure | Substance Abuse | Infection Disease |
|---|---|---|---|---|---|---|
| ACPP | x | x | x | x | | |
| CCFR | x | x | x | | x | x |
| GCEMS | x | x | | | x | x |
| PH EMS | x | x | | | | x |
| RCMIH | x | x | x | x | x | x |

Table 31 shows the various interventions that were provided by the CPs. The services described are not representative of every service provided by a CP program, but provide an example of the different services offered between programs. While staying within the approved scope of practice for EMTs in South Carolina, there is still variation between what each agency medical control approves and what needs are identified in the community served.

**Table 31: Community Paramedic Treatments**

| | Point of Care Testing | Ultrasound | Vaccinations | BGL | Vital Signs | 12 Leads for cardiac patients | Weight | Temperature |
|---|---|---|---|---|---|---|---|---|
| ACPP | | | | x | x | x | x | x |
| CCFR | | | x | x | x | x | x | x |
| GCEMS | X | x | x | x | x | x | x | x |
| PH EMS | X | x | x | x | x | x | x | x |
| RCMIH | | | x | x | x | x | x | x |

In addition to the interactions, conditions and treatments listed above, each CP program provided environmental and social assistance to help patients navigate any additional barriers for that fall outside of traditional medical services. Richland County MIH stated that "*RCMIH focuses on the identification of barriers, and education on overcoming these barriers, as well as self-advocating. The MIH team seeks to empower the CP patients to overcome their barriers so that when they leave the program, they have the understanding and ability to advocate for themselves and manage their health needs.*" While this report underrepresents the social service linkages and support provided to CP patients, the impact it provides should not be underestimated. The common social and environmental services that were provided are:

- Emergency preparedness: identifying and noting needs that would arise in an emergency situation; i.e. in a power outage, a patient's medical equipment might not function properly.
- Coordination of transportation: helping to establish a reliable mode of transportation to healthcare appointments whether utilizing local transportation services or coordinating with the primary care physician and/or family members.
- Food insecurity: supporting access to adequate nutritionally balanced food by linking to food share services, local church ministries and Meals on Wheels programs. One CP program has a community garden and provides fresh vegetables to CP patients.
- Pharmacy support/filling of medication/medication adherence: supporting medication review and continuity across patient prescriptions and providers, supporting adherence to medication, helping review weekly and monthly pill containers, supporting medication refills and linking patients to the most appropriate pharmacy whether in proximity or discount pharmacy programs.
- Governmental assistance programs: identifying eligibility and supporting the application process for assistance programs, which include Medicaid/Medicare eligibility, WIC, supplemental food insurance program (SNAP), housing, etc.
- Durable medical equipment: supporting access, proper maintenance and ensuring operational equipment.

- Home safety needs: identifying additional needs, including wheelchair accessibility (if needed), operational fire alarms, availability of utilities, ability to refrigerate food and medicine, etc. and linking to local resources.
- Patient abuse: identifying landlord issues, family neglect, and/or other similar situations and engaging the appropriate contacts locally to ensure a safe and healthy home environment.

Lastly, table 34 provides information on conditions tracked through various CP programs and the improvements that have been seen. This is not an all-inclusive list, but provides highlights on several successes.

| **Table 34: Community Paramedic Conditions Tracked** | |
|---|---|
| **Asthma and COPD** *RCMIH* | Asthma and COPD were combined into respiratory patients. They had 60 patients who only had a respiratory complaint. They had a 37% reduction in hospital admissions, or a reduction of 54 hospital admissions. |
| **BMI** *PH EMS* | 49 patients decreased an average of 5.52, four patients had no change, six patients had an increase of 3.64 on average |
| **Diabetes** *RCMIH* | 109 patients were enrolled with a complaint of diabetes. This group had a reduction of 41% in hospital admissions, or a reduction of 68 hospital admissions. |
| **Hypertension** *PH EMS* | 43 patients had an average 42.65 reduction in SBP, 24.26 average reduction in DBP, and a 29.92 average reduction in MAP. Two patients had no changes noted and one saw an increase in MAP. |

Of the comparable and available data, the combined findings of the SC CP Impact Study include:

- Hired 17 community paramedic positions with an annual total cost of $1,077,834;
- Received combined grant support of $3,183,938;
- Provided CP services to 3,986 patients;
- Achieved 17,038 total patient interactions; and
- Improved healthcare volumes:
    - Avoided 2,211 EMS calls;
    - Decreased ED visits by 1,879, which resulted in an average 72.3% reduction of ED visits in the CP patient population;
    - Decreased IP admissions by 1,408, which resulted in an average 62% reduction in inpatient visits in the CP patient population.

The numbers represented in healthcare volumes only include counts from agencies that were comparable. This resulted in the data provided from at least one agency being excluded for each data point. Therefore, the values would be greater than listed above.

The average ambulance service sees an increase in their volume of 10% year over year. Volume increases naturally lead to the need for additional ambulances to meet reasonable response times for life-threatening emergencies. While reducing ambulance runs helps an agency control expense growth, the average ambulance cost for a patient in the US is $1,211, costs the patients seen by CPs no longer bear (Hurst, 2021). The average emergency department cost for a patient in the US is $2,200 (Corso,2022) and the average hospital admission is $13,200 (Dahlen, 2022). Utilizing these numbers, the

CP programs potentially saved patients and the local healthcare system $2.7 million in EMS costs, $4.1 million in ED costs, and $18.6 million in inpatient costs, totaling $25.4 million since 2015. Additionally, the CPs have reported a reduction in hospital readmissions during the grant funding periods. Readmissions are important to avoid for both the patient and the hospital. A second admission for the same problem adds cost and inconvenience to the patient and their family. For the hospital, readmissions can mean reductions in future reimbursement.

In conclusion, by treating patients and managing their care, community paramedics have:

1. leveraged existing local resources to proactively support primary care;
2. improved coordination and collaboration among the local healthcare community;
3. provided person-centered health care;
4. established medical homes;
5. lowered healthcare costs;
6. improved access to quality health care;
7. provided an additional clinical area for EMS workforce outside of administration and EMTs in the field transporting patients to emergency departments; and
8. developed non-traditional EMS services.

The community paramedic programs provided support for the management of multiple chronic conditions, obesity management, family safety, social support, access to care, preventive clinical services, quality care, nutritional education, and tobacco cessation support to impact the overall health of their patient population. The areas of impact from these CP programs encompass a diverse spectrum with a significant depth. These impacts extend beyond a superficial benefit to one agency or hospital, but have been shown to meaningfully improve the lives and businesses of those involved.

When the grant period ends for the final agency in late 2022, South Carolinians can feel confident the community paramedics will continue to meet their needs, as all the funded startups will continue operations. The programs were developed with a sustainable future from the beginning. For long-term success of CP programs, payment for CP services is vital. This will ensure that CP programs will be able to continue to provide the most appropriate care at the right time and place.

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## Methodology

### Quantitative Data & Methods

The project team requested and received the data from the CP agencies. Demographic data was sourced from the US. Census, Data USA, SC Rural Healthcare Resource Dashboard, America's Health Rankings and County Health Rankings.

### Qualitative Data & Methods

In 2021 and 2022, TPF conducted interviews with the CP stakeholders in the agencies.

This report does not contain all the analyses we performed on the information we collected as some of the critical informant input validated a good practice or was otherwise helpful but may not have addressed the primary study questions and, as a result, do not require specific mention in the report.

### Limitations

Our analysis is limited by the data that could be made available to us by the CP agencies. The reliance on CP agencies to provide data limits our ability to verify the claims made independently. The SC Office of Rural Health offered financial incentives to agencies to participate outside of our work's scope. This study was initiated during the COVID-19 pandemic, with most healthcare systems being significantly impacted and resource-constrained.

## South Carolina Office of Rural Health

The South Carolina Office of Rural Health (SCORH) is a non-profit organization with a mission to close the gap in health status and life expectancy between rural and urban communities in the Palmetto State. SCORH has been promoting investment, opportunity and health within rural communities since 1991.

SCORH is the sole organization in South Carolina that is federally designated to address the health needs in rural communities. SCORH works with local, state and national partners to:

- increase access to quality health care,
- improve the social determinants that contribute to a community's overall health, and
- connect available resources across the state with local needs in rural communities.

To accomplish these goals, SCORH:

- provides technical and financial assistance to healthcare providers,
- advocates to local and state leaders to encourage rural-friendly policy, and
- invests in educational activities and health programs at the local level.

With 27 percent of our state's residents living in rural areas, SCORH believes in preserving the unique character of rural communities without compromising their opportunities and access to critical services.

The Health System Innovation team at SCORH provides targeted support to rural hospitals, EMS systems and primary care providers through several funding sources. The majority of support for rural EMS

agencies is provided through SCORH's Medicare Rural Hospital Flexibility (Flex) Program from the Federally Office of Rural Health Policy (FORHP). The Flex program was established by the Balanced Budget Act (BBA) of 1997. The Flex funding encourages the development of cooperative systems of care in rural areas, joining together critical access hospitals (CAHs), EMS providers, clinics, and health practitioners to increase efficiencies and quality of care. Through Flex, SCORH has been able to invest in EMS innovations. Without this funding, support for the South Carolina Community Paramedic model would have been limited in South Carolina for EMS.

## THE PARAMEDIC FOUNDATION

The Paramedic Foundation (TPF) is a Minnesota non-profit corporation. It is tax-exempt under section 501(c)3 of the Internal Revenue Code as an IRS designated 170(b)(1)(A)(vi) public charity. It has no employees but is overseen by five volunteer directors. Professionals from across the country can also be contractually engaged as needed for specific projects. TPF headquarters are in Duluth, Minnesota.

TPF has a long history of performing statewide EMS, critical access hospital, and rural EMS evaluations and consultations for dozens of EMS systems across North and South America, Australia, and the Near East. TPF also completed an ambulance rate rebasing analysis for the North Dakota Medicaid agency, which resulted in the governor including enhanced reimbursement in his budget the following year. TPF is the only EMS consulting firm that has ever completed a Medicaid ambulance rate rebasing study in any state.

TPF specializes in evaluating integrated medical communities and is unsurpassed in experience working with communities that rely on levies for program support. TPF understands that each program, community, and system require unique and thoughtful considerations that do not favor cookie-cutter solutions for obtaining superior, medically oriented, patient-centered outcomes. In this manner, TPF's subcontractors are seasoned EMS professionals averaging over 20 years of experience in EMS.

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## APPENDIX A

### FREQUENTLY USED ACRONYMS

The emergency medical services (EMS) field frequently uses acronyms that may not be familiar to many people. To reduce confusion, the following acronyms are defined:

| | |
|---|---|
| AC | Accountable Communities |
| ACEMS | Abbeville County Emergency Medical Services |
| ACCP | Abbeville County community paramedic program |
| AEMT | Licensed by SCDHEC as an advanced EMT |
| ALS | Advanced life support (i.e., EMT-I/AEMT or paramedic level service) |
| BGL | Blood glucose level |
| BLS | Basic life support (i.e., EMT/EMR level service) |
| CAD | Computer Aided Dispatch software system |
| CCFR | Clarendon County Fire Rescue |
| CHF | Chronic heart failure |
| CMS | Centers for Medicare and Medicaid Services |
| COPE | Community Opioid Paramedic Education |
| COPD | Chronic obstructive pulmonary disease |
| CP | Community paramedicine and/or community paramedic |
| CP-C | Community Paramedic – Certification |
| CVA/TIA | Cerebrovascular accident/transient ischemic attack |
| ED | Emergency department |
| EMR | Electronic medical record |
| EMR | Emergency medical [first] responder |
| EMS | Emergency medical services |
| EMT | Licensed by SCDHEC as an EMT |
| ePCR | Electronic patient care record |
| ET3 | Emergency Triage, Treat, and Transport |
| FFS | Medicare Fee-for-Service |
| FQHC | Federally Qualified Health Center |

| | |
|---|---|
| GCEMS | Greenville County Emergency Medical Services |
| HOP | Health Outcomes Plan |
| IBSC | International Board of Specialty Certification |
| MIH | Mobile integrated health |
| NAEMT | National Association of Emergency Medical Technicians |
| Paramedic | Licensed by SCDHEC as a paramedic |
| PCMN | Patient-centered medical neighborhood model |
| PMPM | Per member per month |
| PH EMS | Prisma Health Emergency Medical Services |
| RCEMS | Richland County Emergency Medical Services |
| RCMIH | Richland County Mobile Integrated Healthcare |
| SBP | Systolic blood pressure |
| SC | South Carolina |
| SCDHEC | South Carolina Department of Health and Environmental Control |
| SCORH | South Carolina Office of Rural Health |
| TDE | The Duke Endowment |
| TPF | The Paramedic Foundation |

## FREQUENTLY USED EMS TERMS

The following terms may be found in this report or may be heard during meetings and discussions regarding EMS services. To aid the reader in understanding some of the vernacular specific to the discipline, we provide these layperson descriptions for your consideration.

*9-1-1 response* is those calls that originate through a telephone call to the emergency number and are processed by public safety answering points (PSAP). These are unanticipated emergency requests for any social or medical emergency need.

*Medical transport* requests are for those people who do not have a medical emergency but need an ambulance to transport them. In some cases, this transport may be from a hospital to a rehab facility, a discharge to home, or a return to home for someone technology-dependent (ventilators, feeding tubes, or cannot sit in a car).

*Intercepts* are when a paramedic responds to 'intercept' an EMT-staffed ambulance somewhere between the scene of the emergency and the hospital. This may happen if a BLS ambulance is initially dispatched with an extended response by the ALS ambulance.

*Interfacility Transport* is a transport that started at a facility with medical staff and ended up in an emergency department. This could be from a clinic, doctor's office, or nursing home. It can also represent patients who require specialized care not available locally, such as pediatric, trauma, burns, and stroke care.

*Mutual aid* is a request from another jurisdiction, often because of an overwhelming need for additional resources not available in that jurisdiction. It may also occur due to proximity when a request is initially dispatched into the jurisdiction but is found to be in another jurisdiction.

## APPENDIX B

### SC COMMUNITY PARAMEDIC GUIDELINES

SC Community Paramedic Guidelines.

### SC COMMUNITY PARAMEDIC QUALITY MEASURES

SC Community Paramedic Quality Measures.

### SC COMMUNITY PARAMEDIC PROTOCOLS

SC Community Paramedic Protocols.

# South Carolina Community Paramedic (CP) Guidelines

The Community Paramedic curriculum will prepare Paramedics with the skills to: Identify community health needs and address gaps in care; promote advocacy; provide community outreach; apply public health concepts and approaches; coordinate care; make home visits; facilitate continuity along the care continuum; develop strategies for care and prevention; reduce unnecessary ED visits/promote better navigation of the health care system; achieve the triple aim.

Recommendations:
*For Current NREMT-P and State-only EMT-P in South Carolina who is sponsored by a SC Licensed EMS agency.

*A pre-requisite to being chosen for CP training; local medical control will determine the criteria for an eligible Paramedic and will make recommendations for personnel to be trained as Community Paramedics. However, at minimum, the Paramedic must have two years Paramedic experience.

*Reciprocity; students completing the Hennepin program will be awarded reciprocity for a majority[1] of the didactic portions. Reciprocity in-state will be directed by local Medical Control.

*Field time; recommended but not mandatory to have one ride along with an established program. Reciprocity between established programs should be awarded here based on Medical Control.

*Medical Control oversight for training and for competencies. Additionally, Medical Control has the ability to address skills of the paramedic and can "sign off" on competencies; however, appropriate level of documentation supporting the "sign off" of competencies will be necessary.

*The majority of the curriculum can be taught online except the sections that should be taught locally which includes the pathophysiology education, US and state healthcare system, and local social supports. However, would like an option to get the three topics areas, mentioned above, taught online if the competency of the methods were approved by DHEC for each institute/entity that is interested in an online format.

* Training programs should develop a list of faculty recommendations for clinicals that reflect the providers in the local community where the CP will be stationed. At minimum a certified EMT paramedic instructor, as defined in the 61-7 Regulations, is recommended for teaching the didactic portion of the CP curriculum.

* The recommended training organizations, as long as CoAEMSP accreditation or other approved accreditation has been obtained:

i) Regional EMS Offices
ii) Vocational/Tech schools
iii) Medical schools

[1] To be determined by DHEC



Updated: 07/01/2019
The South Carolina Community Paramedic Advisory Committee
Point of Contact: Sarah Craig, SC Office of Rural Health, craig@scorh.net

# South Carolina Community Paramedic (CP) Guidelines

## I. Didactic Modules (100 hours minimum)

### 1) Health Care Environment (16 hours)

A. Healthcare System
- 1. Overview of the U.S. Health Care System
  - aa. History of governmental programs and legislation actions
  - ab. Current Environment
    - i. Affordable Care Act
    - ii. Risk-based Contracts
  - ac. Reimbursement Models
    - i. Value-Based Purchasing and Pay for Performance
  - ad. Healthcare Entities
- 2. South Carolina Healthcare System aa. History
  - ab. Current Environment/Initiatives[2]
    - i. Healthy Outcomes Plan (HOP)
  - ac. Healthcare Entities
    - ii. SC Department of Health and Human Services
    - iii. SC Area Health Education Consortium
    - iv. SC Department of Mental Health
    - v. SC Department of Alcohol and Other Drug Abuse Services
    - vi. SC Department Health and Environmental Control
  - ad. Social Service Entities
    - i. SC Department of Social Services
    - ii. SC Department of Disabilities and Special Needs
    - iii. SC Council of Aging

B. South Carolina EMS Regulatory Body (DHEC)
- 1. Overview
  - aa. History
  - ab. Current Activities
- 2. 61-7 Regulations
  - aa. Scope of Practice vs Expanded Role ab. Medical Control Physician

C. CP role within the Health Care System
- 1. Community Paramedic
  - aa. National Models
  - ab. International Models
- 2. Mobile Integrated Healthcare
  - aa. National Models
  - ab. International Models
- 3. CPs and Public Health
  - aa. Overview of Population Health
- 4. CPs and Primary Care
  - aa. Overview of Primary Care
  - ab. Primary Care Practices
  - ac. Free Clinics
  - ad. Federally Qualified Health Centers ae. Rural Health Clinics
- 5. Medical and Legal Concerns
  - aa. EMTALA
  - ab. HIPPA
  - ac. Ethical Concerns

[2] State initiatives will change from year to year

## 2) Role within the Community (32 hours)

*(Customization for particular topic areas can be addressed in the community needs section/hours.)*

A. Social Determinates of Health
- i. Health Disparities
- ii. Social Variability

B. Culturally and Ethically Competent
- Care i) Care Coordination
- ii) Health Literacy
- iii) Self-Management
- iv. Cultural Competency
- v. End of life

C. Community Gap Analysis and Needs Assessment
- i. Safety Net Providers
- ii. Barriers
  - aa) Transportation
  - ab) Technology
- iii. Demographics
- iv. Health of Local Population

D. Access and Right to Refuse
- i. Insurance Eligibility/Enrollment
- ii. Waivers

E. Partner Development
- i. Hospital(s)
- ii. Fire/EMS
- iii. Primary Care Practice(s)
- iv. Home Health
- v. Coalition(s)
  - aa. Community
  - ab. Statewide
  - ac. National
- vi. Pharmacy
- vii. Urgent Care
- viii. Community Level Groups/ Organizations
  - aa. Faith-Based Organizations
  - ab. Free Clinics

## 3) Role with the Primary Referring/Control Physician (24 hours)

A. Patient Assessment
B. Preventative Medicine
C. Care Plan
    i. Role of the Registered Nurse vs Community Paramedic
D. Care Management
E. Communication with Physician
    i. Point of care testing
        aa. Lab values
        ab. Portable Machines
F. Documentation
    i. Reporting and Sharing of Information with Physician aa. Quality Reporting

## 4) Role with the Patient (24 hours)

*(Customizable to individual communities/programs to reflect the needs of community)*

A. Home Visits
    i. Customer Service
    ii. Follow-up and Patient call-back
    iii. High Risk Patients
    iv. Mentoring/Coaching
        aa. Communication Techniques
B. Assessments
    i. Patient Assessments
    ii. Home Safety Assessments
    iii. Fall/Injury Prevention
    iv. Home Health Assessment
C. Medication Reconciliation[3]
D. Chronic Disease Education
    i. Pathophysiology of DM
    ii. Pathophysiology of CHF and Cardiovascular
    iii. Pathophysiology of COPD and Asthma
    iv. Pathophysiology of HTN
    v. Other
E. Behavioral Health
F. Transitions of Care
    i. Patient Referrals
    ii. Support Systems
G. Health Promotion
    i. Nutrition
    ii. Physical activity
    iii. Healthy Behaviors
H. Patient Advocacy
I. Special Needs (Special Population)
    i. Adult
    ii. Pediatric
    iii. LVAD
    iv. Renal
    v. In-home Dialysis
    vi. Special Cardiac
    vii. Ventilator Patients
J. Advanced Pharmacology
    i. DM Medication
    ii. Cardiovascular Medication
    iii. COPD Medication
    iv. Behavioral Health Medication
    v. Geriatric Disease Medication Management
    v. Pediatric Disease Medication Management
    vii. Other
K. Rehabilitative Education
    i. Stroke
    ii. Trauma
    iii. Surgical

[3] To gain a comprehensive understanding of patient medication

## 5) Continual Development of the CP Role (4 Hours)

A. Quality Improvement and Quality Assurance
- i. Quality Improvement/Quality Assurance aa. History of Quality Improvement
  - ab. Closing the Loop of QI/QA
- ii. Documentation
- iii. Data Collection
  - aa. Root Analysis: what a CP needs to know and what CP needs to do with the numbers
- iv. Coordinating Improvement with Partners
  - aa. CQI: documentation for variables that can be linked all the way through to outcomes
- v. Just Culture

B. Personal Safety and Wellness
- i. Violence Protection from Patient(s)
- ii. Mental Health of the Community Paramedic
  - aa. Coping Mechanisms

## 2. Clinical Module (125 hours minimum)[4]

*(Customizable to individual communities/programs to reflect the needs of community)*

Clinical Topics

- A. Common Chronic Conditions
  - i. CHF
  - ii. Respiratory
    - aa. COPD
    - ab. Asthma
  - iii. Hypertension
  - iv. Oral Health
  - v. Mental Health
  - vi. Behavioral Health
  - vii. Infections/Wound Care
  - viii. Diabetes
  - ix. Other
- B. Education
  - i. Chronic Disease Education
    - aa. CHF
    - ab. Respiratory
      - i. COPD
      - ii. Asthma
    - ac. Hypertension
    - ad. Oral Health
    - ae. Mental Health
    - af. Behavioral Health
    - ag. Diabetes
    - ah. Other
  - ii. DME
  - iii. Community Resources
  - iv. Home Safety Assessment
  - v. Medication Compliance
  - vi. Nutrition and Exercise Education
  - vii. Patient Interviewing
  - viii. Motivational Interviewing
  - x. Crisis Intervention
  - xi. Other

Clinical Sites (a minimum of 4 hours per clinical site required)

- A. Home Health
- B. Senior Programs
- C. Primary Care/Family Medicine
- D. Emergency Department
- E. Mental Health
- F. Behavioral Health
- G. Free Clinic
- H. FQHC / RHC
- I. Hospital
  - i. Discharge Planning
  - ii. Pharmacy
  - iii. Labs
- J. Pharmacy
- K. Community Based Organizations
- L. Emergency Management
- M. Hospice and Palliative Care
- N. Respiratory Therapy
- O. Alternative Site

Field Training

Recommended but not mandatory, to have one ride along with an established program. Reciprocity between established programs should be awarded here based on Medical Control.

[4] Supervised/Approved training by a Medical Director

**3) Continuing Education (24 minimum hours annually)**

*(Clinical portion supervised and approved by Medical Control)*

Practical (12 Hours)
Clinical (12 Hours)

A. Based on initial Community Paramedic Guidelines and subject to medical director recommendations. The Community Paramedic continuing education credits can be incorporated into the NREMT-P annual requirements.

**SOUTH CAROLINA COMMUNITY PARAMEDIC QUALITY MEASURE SET**

Revised Date: 12/5/2016

**CURRENT REQUIREMENTS (adjusted):**

For this population, the requestor should describe how data will be collected to measure against, at a minimum, the following performance markers (best practice of benchmark of pre and post enrollment period):

- Number, type, and rate of CPP patient interactions (e.g. interactions per patient per enrollment period)
- Rate of hospital admissions (admissions per patient per enrollment period)
- Rate of ED admissions (admissions per patient per enrollment period)
- Proportion of non-emergent calls to transports (calls per patient per enrollment period)
- Rate of hospital readmissions within 30 days of discharge (readmissions per patient per enrollment period)
- Rate of ED readmissions within 30 days of discharge (readmissions per patient per enrollment period)
- Primary care practice utilization rate (visits per patient per enrollment period)

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**SOUTH CAROLINA COMMUNITY PARAMEDIC (CP) QUALITY MEASURE SET**

1) Global

- *Number of referral to the CP program*
- *Number of enrolled CP patients*
- *Average enrollment period*

2) Care Coordination (requires more than one quarter of data, so they are captured on an annual basis)

- Number of visits to a medical home (visit per patient per enrollment period)

3) Quality of Care (requires more than one quarter of data, so they are captured on an annual basis)

- **Percentage of patients 18 years and older seen for a visit who were screened for tobacco use and who received cessation counseling if identified as user in measurement year** (screening per patient per enrollment period)

4) Utilization (Captured on a quarterly basis)

- **Rate of 30 day readmissions**
- Rate of ER visits
- *Proportion of non-emergent calls to transports (calls per patient per enrollment period)*
- *Number, type, and rate of CPP patient interactions (e.g. interactions per patient per enrollment period)*

Key: *Represents EMS measures,* **Represents CMS measures,** Adapted CMS measures

    - *a. Proportion of non-emergent calls to Community Paramedic (calls per patient per enrollment)*

5) Expenditures (Captured on a quarterly and annual basis)

- **Inpatient hospital facility payments** (PM per enrollment period)
- *EMS agency payments (PM per enrollment period)*

6) Patient Engagement

- *Patient Experience Survey as measured by self-report (Per Member Per Quarter)*
- *Rate of CP appointment no-shows and cancelations (PMPM)*
- *Rate of home visits (per member per month, quarter, annual)*

7) Quality Measures

- *Follow-up contact with 48 hours of ordering physician referral (PMPM)*
- *Medicine reconciliation in the home within 48 hours of ordering physician referral (PMPM)*
- *Home visit duration (PMPM)*

8) Community Care Team

- *Community Resource Referral (PMPM)*
    - *Has a medical home*
    - *Referral to coverage option*
- *Alternative Case Management Referral (PMPM)*
- *Behavioral Health Referral (PMPM)*

9) EMS Agency Balancing Measures

- *Community Paramedic Satisfaction Survey as measured by self-report (Per provider per 6 months)*
- *Community Paramedic Retention Rates*
- *Call times when Community Paramedic is on duty (per provider per 6 months)*

10) Physician Balancing Measures

- *Physician Satisfaction Survey as measured by self-report (per provider per year)*

**Measures in Development:**

1) Care Coordination (requires more than one quarter of data, so they are captured on an annual basis)

- **Percentage of acute inpatient hospital admissions with a follow-up visit (any provider) within 14 days** (interactions per patient per enrollment period)

2) Quality of Care (requires more than one quarter of data, so they are captured on an annual basis)

- NQF Specific Chronic Disease Measures

3) Utilization (captured on a quarterly basis)

Key: *Represents EMS measures,* **Represents CMS measures,** Adapted CMS measures

- **Rate of ER visits that resulted in an inpatient hospital admission**
- **Rate of ER visits that did not result in an inpatient hospital admission**
- **Ambulatory care sensitive condition admissions**
- **Rate of all-cause acute inpatient hospitalizations**

4) Expenditures (Captured on a quarterly and annual basis)

- **Inpatient hospital facility payments (PMPM)**
- **Non-Inpatient facility payments (PMPM)**
- Primary care payments (PMPM)

5) Patient Engagement

- *STATEWIDE Utilized Survey- Patient Experience Survey as measured by self-report (Per Member Per Quarter)*

6) Quality Measures

- **Follow-up contact with 48 hours of a hospital admission, hospital discharge or ER visit (PMPM)**
- **Medicine reconciliation in the home within 48 hours of a hospital discharge or emergency department visit (PMPM)**

8) EMS Agency Balancing Measures

- *STATEWIDE Utilized Survey - Community Paramedic Satisfaction Survey (Per Provider per 6 months)*
- *Severity of EMS calls, by responder (per responder per 6 months)*

9) Physician Balancing Measures

- *Physician Satisfaction Survey as measured by self-report (per provider per year)*

**DHEC in Development:**

- Prescription payments (PMPM)
- Extent to which special populations participated in the program

**DATA COLLECTION (when appropriate):**

1) CP Visit Information

- Date of visit
- Date of birth
- Gender
- Primary Diagnosis
- Secondary Diagnosis
- Body Weight (lb)
- Blood Glucose
- Diastolic BP/Systolic BP
- Pulse

Key: *Represents EMS measures,* **Represents CMS measures,** Adapted CMS measures

- Pulse Oximetry
- Respiratory Rate
- Education give
- Falls Assessment
- Home Health Assessment
- Medications
- Primary Care Provider / Medical home
- Seen Primary Care Provider Since Last Visit
- Other providers (specialist) and visits
- Referrals to Physician
- Referred to an alternative Program
- Primary, secondary insurance coverage

2) Acute Care Visit Information

- ED Visit Date
- ED Visit Reason / diagnoses
- IP Visit Date
- IP Visit Discharge
- IP Reason/ diagnoses
- ED Cost / payment
- IP Cost / payment

3) EMS Visit Information

- EMS Use Data
- EMS On Scene
- EMS Reason
- EMS Dispatch Time
- EMS Return to Service

4) PCP / specialist / ambulatory visit info

- Visit date(s)
- Reason / Diagnoses
- Charge / payment

**JUSTIFICATIONS for the Community Paramedic Model**

Value to EMS

Value to Hospital

Value to Primary Care

Value to Payors

Value to Patient

Achieving the IHI Triple Aim

Key: *Represents EMS measures,* **Represents CMS measures,** Adapted CMS measures

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