Community Paramedicine Creates Value in Health Care: A Case Study

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Executive Summary

This brief provides an overview of the roles and responsibilities of community paramedics, focusing on an innovative and established community paramedicine (CP) program, Huron Valley Ambulance (HVA), based in Washtenaw County, Michigan. The HVA CP program was one of the first in the state and, over the years, has developed a number of mutually beneficial community partnerships with skilled nursing facilities, health care providers, and social services organizations. These partnerships complement the CP program's primary goal of reducing unnecessary emergency department visits and treating patients in the most appropriate setting with the most appropriate resources.

As CP is a rapidly growing field, both nationally and in the state of Michigan, this brief outlines the value-add of a CP program in the community, as well as the current challenges and opportunities for CP programs. Although each CP program is unique and designed to fill the specific needs of its community, the most common challenge among these programs is financing, namely, reimbursement. This brief delves into the financing challenges and explores the need to seek better payer alignment so that the cost of care is covered by the stakeholders that accrue value from CP services.

Introduction

The term "community paramedicine" was first used in 2001 to describe a model for improving health care delivery in rural communities by training licensed paramedics to address non-emergency medical and social needs in patient homes, rather than transporting patients by ambulance to hospital emergency departments. Over the last two decades, the field has rapidly evolved and expanded. The number of community paramedicine programs operating in Michigan, for example, has tripled, from six to 18, since 2019.

Community paramedics can assess individuals' health and social needs, help patients avoid complications following hospital discharge, connect patients with primary care and social services, and provide specialized care to patients with chronic or post-acute care needs. The focus of CP programs varies by community, but they share a number of overarching goals such as:

- Filling gaps between primary care providers and emergency care providers,
- Delivering care in the most appropriate settings,

- Reducing the utilization of emergency department resources, and
- Linking clients to needed social services, such as transportation and food

As CPs deliver home-based care, they are able to see firsthand whether patients are living in a safe and healthy environment conducive to managing their own health. If patients need additional assistance to manage their health, CPs provide individualized care and referrals to a broader network of community-based health and social service providers.

CP programs aim to reduce health system expenditures by providing treatment in place (TIP) whenever appropriate, avoiding costly and potentially unnecessary ambulance transfers and emergency department interactions. This brief aims to increase awareness about the role of community paramedicine and its value by describing one of Michigan's first community paramedicine programs, Huron Valley Ambulance Community Paramedicine (HVA CP), operating in Washtenaw County, Michigan.

Huron Valley Ambulance Community Paramedicine

One of the first community paramedicine programs in Michigan was established by Huron Valley Ambulance in 2015. The HVA CP program began with the development of a curriculum designed to train community paramedics. HVA's curriculum is now recognized by the Michigan Department of Health and Human Services (MDHHS) Bureau of Emergency Medical Services, Trauma, and Preparedness as the gold standard for CP education in the state.

Licensed paramedics, with multiple years of experience in the field, are eligible for the CP education program, a 160-hour curriculum, at a cost of about $2,400. However, HVA covers the cost of training for eligible paramedics who wish to become community paramedics. To obtain certification, paramedics must complete:

- Fifty-six hours of hospital clinical training,
- An 84-hour paramedic call internship on a CP response vehicle, and
- Courses on the relationship between social factors–such as housing instability–and health, including how stress levels can impact health outcomes.

Growth and Impact

At launch, the HVA CP program employed four full-time paramedics staffing one vehicle 24 hours per day, 365 days per year. Initially, the HVA CP program focused on addressing two specific needs:

- Treating non-emergency patients on site–at home or in the community–to help them avoid costly and unnecessary ambulance rides and emergency department interactions and
- Providing specialized services to patients at skilled nursing facilities (SNF), where staffing shortages limit the types of care that can be provided on site.

To deliver accessible, high-quality care throughout Washtenaw County, the HVA CP program later developed additional partnerships with:

- Home health service agencies,
- Post-acute care departments at local hospitals, and
- Many other community organizations, including local social service and behavioral health organizations that serve some of the most complex residents in Washtenaw County.

These partnerships have provided many opportunities for HVA CP to demonstrate the program's ability to fill gaps in the local health care and social services system. Table 1 provides a general overview of services provided by HVA CPs through each type of partnership. A full description of CP capabilities can be found on the Washtenaw County website (section 11).

Table 1.

Overview of services provided by HVA CPs by partnership type.

Program partnership types	General description of CP services provided
Home Health Care	Assessments, wound care, foley care, medication administration, blood draws, coordinated care
ED Case Management	Post discharge follow-up, coordinated care
Senior Living Communities	Assessments, wound care, foley care, medication administration, blood draws, coordinated care
Primary Care Clinics	Assessments, wound care, foley care, medication administration, blood draws, coordinated care
Community SUD Outreach	Assessments, coordinated care
Post-acute Care	Assessments, wound care, foley care, medication administration, blood draws, coordinated care
Transition of Care Management	Post discharge follow-up, coordinated care
Social Services	Coordinated care
Acute Care Facilities	Assessments, wound care, foley care, medication administration, blood draws
Health Department	Assessments, medication administration, coordinated care
Hospice	Assessments, medication administration, coordinated care
Health System Infectious Disease Departments	Monoclonal antibody administration

Savings from CP services accrue across multiple system stakeholders, including payers (public and private insurers and self-funded employers or purchasers), health systems, Accountable Care Organizations and other providers, community based social service organizations, and patients. Savings do not, however, benefit HVA - the organization that bears the cost of the program.

While running and growing its programs, HVA CP has sought to develop a case for sustainable funding from organizations accountable for total cost of care–including health insurance payers, health systems, and provider organizations–to support CP services. To accomplish this, HVA CP has participated in a number of studies designed to collect data about the cost, quality, and impact of CP services.

The HVA CP program has collected patient satisfaction survey results since its launch, surveying the entire CP patient population along with a sample of the general EMS population. The most recent survey data was collected from October - December 2021. Over 1,700 patients responded to the organization's patient satisfaction survey, providing an overall service satisfaction rating of 93. Table 2 provides a summary of the most recent patient satisfaction survey results for the HVA CP program, which are consistently higher than national averages for EMS services.

Table 2.

Patient satisfaction survey scores

		HVA CP average (by %n=82)	U.S. EMS average (by %n=18,779)
1	Overall rating of care	98.2	94.4
2	Willingness of the medic to listen to you and your family	98.2	94.8
3	Likelihood of recommending this service to others	98.3	94.0

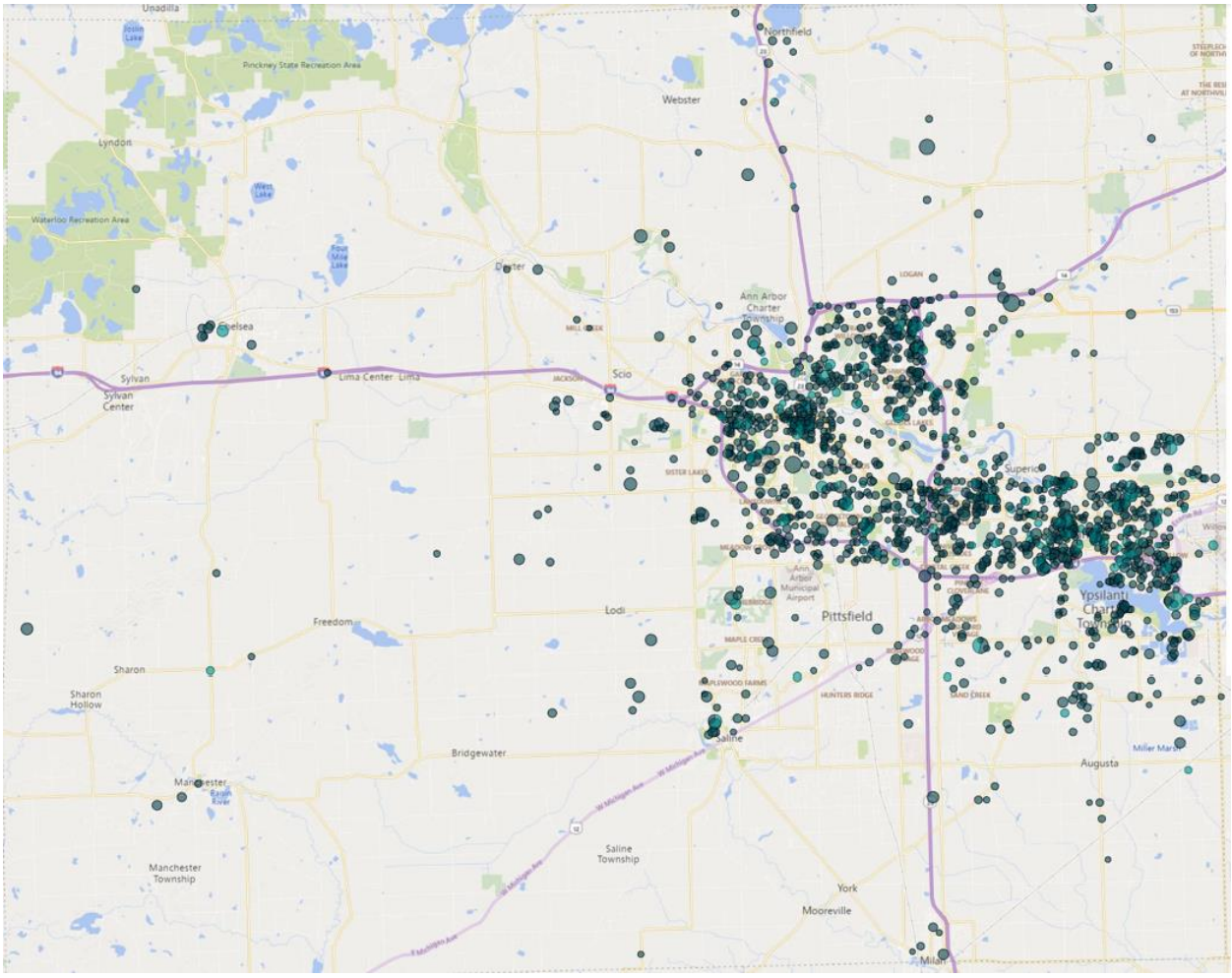
HVA CP serves communities across Washtenaw County, which has a population of nearly 370,000. Many of the individuals receiving CP services are seniors, chronically ill, or have complex care needs, which are often exacerbated by social needs such as food insecurity, housing instability, and poverty.

From late 2015 through the end of 2020, HVA CPs also served as the backbone for non-emergency medical care across Washtenaw County, treating nearly 2,000 patients who had called 911 for low acuity injuries and illnesses.

On August 28, 2018, HVA added a second vehicle to respond during peak demand times. Currently, two vehicles and five CPs cover 3,500 annual responses to calls for assistance across Washtenaw County (figure 1) with an annual operating budget of less than $1 million. This program saves millions of dollars by reducing unnecessary ambulance rides, emergency department visits, and hospital readmissions.

Figure 1.

CP responses across Washtenaw County (1/1/20 – 2/31/21)



ED Diversion in Washtenaw County

Recognizing the value in reducing unnecessary ED visits and the limited ED capacity at local hospitals in Washtenaw County, HVA began exploring CP in collaborations with local health systems in 2014. In 2015, the medical director of the Washtenaw/Livingston Medical Control Authority approved changes to a subset of emergency medical dispatch codes used to identify low acuity health needs. These codes were re-engineered to prompt the region's 911 dispatch team to send out a CP unit instead of a traditional advanced life support (ALS) unit.

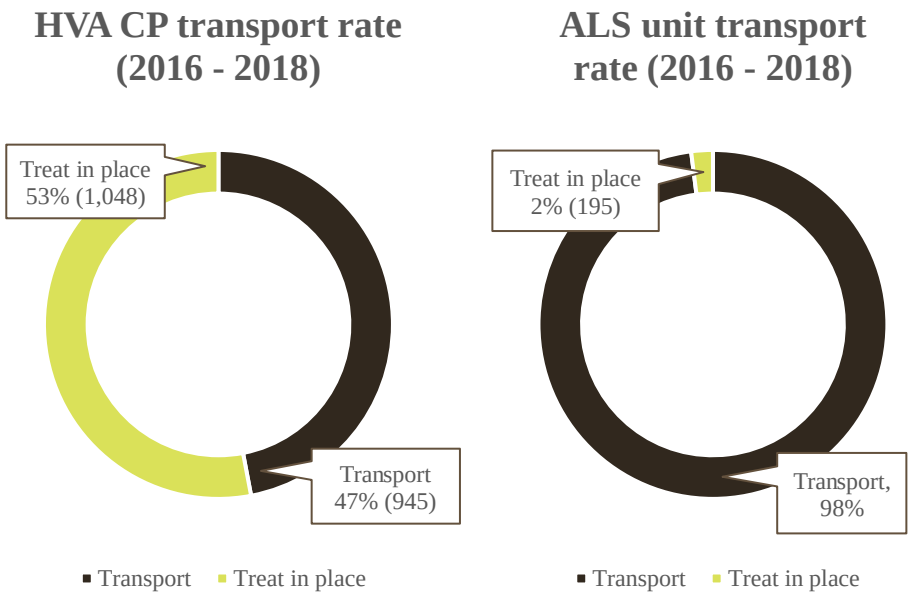
CPs respond to these low-acuity calls with the goal of treating the patient in their home or transporting the patient to an appropriate alternative destination such as an urgent care center instead of an ED. When the best course of action is unclear, CPs and ED physicians connect via video or phone and coordinate with the patient to determine the best possible treatment plan.

At the 2019 National Association of EMS Physicians (NAEMSP) conference, the Washtenaw County medical director presented a comparison of HVA ALS ambulance services and CP services over a three-year period (2016-2018).

Prior to the launch of the HVA CP program, the ED diversion rate for ALS units was just 3 percent. An analysis comparing similar patient populations from 2016-2018 resulted in CPs keeping 53% of patients out of the ED (termed "treat in place") while ALS ambulances kept only 2% of patients out of the ED. The data suggest that dispatching a CP to low acuity 911 calls is an effective care model for keeping patients out of the ED.

Figure 2.

Comparative treatment-in-place vs transport rates for HVA CP units and ALS units



Having established a proof of concept, new ways to request a CP were established. This included a non-emergency phone line for local medical and social service organizations to contact the HVA dispatch center directly. In addition, CP visits may be requested directly by patients who have familiarity with the program. All calls are routed through the same medical triage system to ensure that the most appropriate responders are dispatched.

The HVA CP program continued to provide ED diversion services to Washtenaw County community members who called 911 for medical assistance through the end of 2020, when the county implemented another EMS ED diversion model discussed in greater detail below.

Cost savings - ED diversion

Building on the data presented at the 2019 NAEMSP National Conference (for years 2016-2018), HVA analyzed low acuity 911 calls successfully treated in place for 2019 and 2020. The findings from these analyses demonstrated a total savings of $4.2 million from 2016-2020 across payers, health systems, providers, and taxpayers[1].

From 2017 to 2020 the HVA CP program partnered with local health systems and medical groups to analyze a coordinated care approach for reducing unnecessary ED visits and hospitalizations among Medicare beneficiaries. The findings from this project demonstrated an average reduction of $5,000 per person in 90-day total cost of care for the CP treatment group compared to a control group[2].

This cost savings data supports the prior analyses of HVA CP services and demonstrates the ability of the CP program to have a positive financial impact for patients, health systems, and payers in the surrounding community. Though more data is needed to quantify the impact, these savings indicate potential benefits of:

1. Lessening the financial hardships that sudden medical bills may bring to patients in a given county.
2. Lessening costs for the health systems in a given county by keeping non-emergent patients out of the ED, where hospitals are responsible for the cost of care for uninsured patients.
3. Reducing costs for payers by keeping insured patients at home when appropriate.

Additionally, treating patients' non-emergency needs at home with CP resources likely creates a more efficient EMS system because ED and first responder resources can be more effectively allocated to address emergencies involving patients with higher acuity injuries and illnesses.

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[1] This figure is based on an average ambulance and ED treatment cost of $2,263.78 per patient, cited in the 2019 NAEMSP abstract (see appendix).

[2] *Huron Valley Ambulance Community Paramedic Program*. *YouTube*, 2018, https://www.youtube.com/watch?v=rbQjPQEUGUg.

Win/Win Partnerships

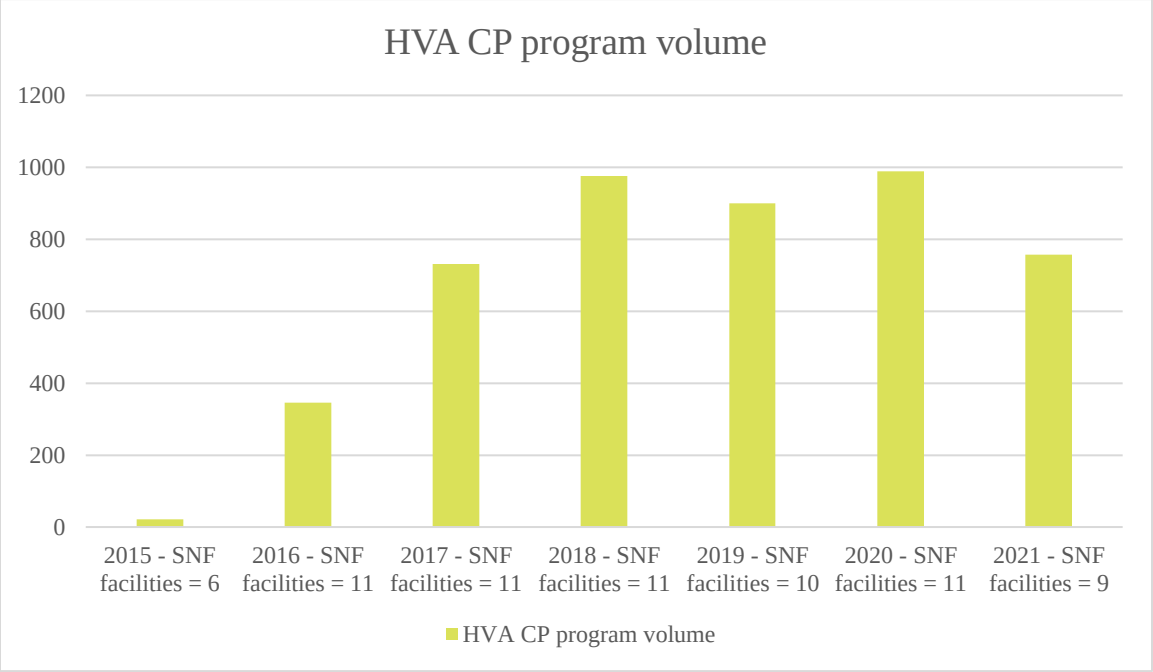
Skilled nursing facilities (SNF) and post-acute in-home services

In addition to ED diversion, the HVA CP program supports population health through partnerships with skilled nursing facilities (SNFs). The HVA CP program works collaboratively with SNF administrative and clinical leaders to provide post-acute care services for common medical needs that can be safely treated out of the hospital including:

- Troubleshoot feeding tubes, foley catheters, and PICC lines
- Care for wounds as patients heal
- Start IVs, draw blood
- Provide bedside 12 lead EKG, urinalysis, and comprehensive metabolic panels
- Administer IV fluids and other efforts to address dehydration or early onset of infections

Figure 3.

HVA CP program volume (2015 – 2021) with partner SNFs



Staffing shortages in post-acute and long-term care have resulted in risks of closure and financial fragility[3,4]. For SNFs, CPs can function as staff extenders and can quickly treat issues that may otherwise result in an ED visit and possible readmission.

Though overall Medicare utilization (and SNF utilization) decreased in 2020, SNFs saw the largest total increase in Medicare spending that year[5]. Exploring cost effective methods for delivering specialized services in these settings is a high priority for SNF leaders due to rising healthcare costs.

Provider organizations

Opportunities to work with accountable care organization (ACO) leaders can improve understanding of specialized services CPs can offer to SNFs and post-acute in-home services focused on lowering total cost of care. These conversations are particularly valuable as provider organizations look to engage in value-based incentives for outcomes, such as reducing readmissions. In addition, provider organizations are often competing against vendors that contract directly with payers under full risk-shared saving models.

HVA CPs have a well-established, proven model for working with SNFs and in-home services to increase quality of care while avoiding unnecessary ED visits and inpatient readmissions. By responding to acute needs and treating patients in place–treatments can include EKGs, first dose antibiotics, point of care labs analysis, IV placement, fluid administration and catheter care–patients are able to remain at the SNF or in their own homes. After the CP visit, patients have a scheduled visit with a provider to follow up on their care, thereby avoiding an ED visit and possible readmission to the hospital for noncritical post-acute care needs.

The model also increases quality of care and efficiency through economic specialization. For example, though SNF and in-home service staff may be able to perform an intravenous placement (IV) and administer IV fluid, CPs by nature perform a higher number of IVs and may have a higher success rate. By outsourcing this task to a CP, the SNF or in-home service staff members are able to focus more time and attention on other tasks related to improving the overall quality of patient care.

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[3] Dennis Thompson, "Staffing Shortages Have U.S. Nursing Homes in Crisis," *U.S. News,* 29 June, 2022, https://www.usnews.com/news/health-news/articles/2022-06-29/staffing-shortages-have-u-s-nursing-homes-in-crisis

[4] Ginger, Christ, "Battling bottlenecks: Post-acute staffing shortages cause months of hospital discharge delays," *Modern Healthcare,* 4 October, 2022, https://www.modernhealthcare.com/post-acute-care/hospitals-battle-bottlenecks-post-acute-staffing-gaps

[5] Jeannie Fuglesten Biniek, Juliette Cubanski, and Tricia Neuman, "Amid the COVID-19 Pandemic, Medicare Spending on Skilled Nursing Facilities Increased More than 4% Despite an Overall Decline in Utilization," *Kaiser Family Foundation,* 1 June, 2022, https://www.kff.org/medicare/issue-brief/amid-the-covid-19-pandemic-medicare-spending-on-skilled-nursing-facilities-increased-more-than-4-despite-an-overall-decline-in-utilization/

COVID-19 Response

Throughout the COVID-19 pandemic, the HVA CP program supported three local health systems, the Washtenaw County Health Department, and other partners by making house calls and keeping patients out of EDs.

The CP program also led a collaborative effort to deliver monoclonal antibody treatments (MAB) to patients with COVID-19. These infusion treatments decreased the likelihood of hospital stays due to COVID-19 and helped decrease the severity of symptoms for many patients[6]. From January 2021-July 2022, HVA delivered 2,081 MAB treatments to patients in Washtenaw, Livingston, and Wayne Counties, with 1,803 of the total MAB administrations provided during a six-month surge (August 2021-January 2022).

In a case review conducted by St Joseph Mercy Health System (now Trinity Health) of patients who received at-home MAB infusion treatments from CPs for COVID-19 infections, MAB was found to be a critical intervention to prevent high-risk patients from seeking ED care or requiring hospitalization. This study analyzed data for 144 patients who received MAB infusions at home through the partnership, showing that just eight (5.6%) were hospitalized because of worsening COVID-19 symptoms[7]. These hospitalizations lasted an average of 3.3 days, none of these patients required intubation, and all were successfully discharged[8].

Financing Community Paramedicine

Medicaid is one of the only payers that consistently reimburses CPs and licensed paramedics in Michigan for treatment in place through the state's A0998 TIP billing code. While some private and commercial insurance plans will reimburse for portions of itemized CP services, the HVA CP program is typically not reimbursed for these types of calls.

The general lack of reimbursement from Medicare, Medicare Advantage Plans, and some commercial payers leaves HVA unable to financially sustain its CP program through 911 diversion alone. The HVA CP program continues to rely on contracted work with SNFs and assisted living communities, as well as scheduled follow up visits with patients in their homes, commonly known as mobile integrated health, which is reimbursed through either health system contracts or by a handful of payers.

Historically, if paramedics arrive on scene and a patient declines transport to an emergency department, EMS agencies do not receive reimbursement from Medicare – even if paramedics provide services to the

[6] Administration for Strategic Preparedness and Response, "COVID-19 Treatment Information for Patients," 2022, https://aspr.hhs.gov/COVID-19/treatments/Pages/default.aspx

[7] One patient developed a hypersensitivity reaction requiring hospitalization and two patients required an ED visit for hypersensitivity reactions without admission

[8] Malani AN, LaVasseur B, Fair J, et al. Administration of Monoclonal Antibody for COVID-19 in Patient Homes. *JAMA Network Open.* 2021;4(10):e2129388. doi:10.1001/jamanetworkopen.2021.29388

patient in their home. However, for agencies enrolled in Medicare's new Emergency Triage, Treat and Transport (ET3) payment model, Medicare will now cover transportation to alternative destinations, including physician offices, urgent care clinics, and community mental health centers. In addition, CMS will pay participating EMS agencies to provide treatment in place (TIP) with a qualified health care partner[9].

While the ET3 program represents progress toward Medicare reimbursement for TIP, reimbursement is limited to situations where a licensed *transporting* vehicle provides care. Since a CP operates out of a *non-transporting* vehicle, CPs are not eligible providers in the ET3 model[10].

HVA's goals for the CP program include seeking better payer alignment so that cost of care is covered by health insurance stakeholders who accrue value from CP services. In addition, deepening HVA's partnerships with local health systems may allow HVA CPs to resume providing 911 diversion services – a key component of CP work – a service that was disrupted when the ET3 payment model was implemented.

Conclusion

CP programs continue to grow, both nationally and in the state of Michigan. The evidence is building for cost savings, strengthening the case for implementing reimbursement policies that include CP services. However, widespread reimbursement for CP services is still missing. Financial sustainability – specifically, the ability to bill payers and providers for services – is key to the long-term success of these programs.

[9] Centers for Medicare & Medicaid Services, "Medicare Benefit Policy Manual Chapter 10 - Ambulance Services," 13 April, 2018, https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/bp102c10.pdf

[10] Centers for Medicare & Medicaid Services, "Emergency Triage, Treat, and Transport (ET3) Model - Frequently Asked Questions," 6 September, 2023, https://www.cms.gov/priorities/innovation/innovation-models/et3/faq#ipt_telehealth

Appendix A.

Community Paramedic Capabilities and Services

Current abilities.

- Perform advanced patient assessments and develop a treatment plan which is reviewed and discussed with our medical control physicians
- Blood draws, IV starts, IV medications, administer IV fluids for rehydration
- PICC line maintenance along with dressing changes to the site
- Perform cardiac monitoring which can include a 12 lead EKG with interpretation
- Wound care
- Foley catheter insertions and care which includes supra-pubic catheters
- Ostomy care
- POC or onsite testing which includes:
    - Urinalysis
    - Hgb and HCT
    - PT/INR
    - Blood glucose levels
    - Comprehensive metabolic panel
    - Urine pregnancy test
- Incentive spirometry
- Suture and staple removal
- Medication reconciliation and post-acute care transition and case manager assistance
- Feeding tube maintenance and replacement
- Home safety assessment
- CP's serve as a resource to other ALS units to determine the best treatment plan for patients

Future abilities.

- The unit will carry an Ultrasound device which will initially be used for IV starts and blood draws.
- The plan is to train the CPs on more advanced ultrasound procedures such as pulmonary assessments for CHF, cardiac and vascular studies.