

The EMS and Community Paramedic Workforces Respond to COVID-19

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KEY FINDINGS

In this study, 17 key informant experts shared their perspectives on how the emergency medical services (EMS) and community paramedicine (CP) workforces responded to COVID-19 during the first year of the pandemic, 2020. Experts also described how the pandemic has affected EMS and CP. EMS responders provide 9-1-1 emergency services, while community paramedics (CPs), typically drawn from EMS personnel, provide non-emergent public health services and augment primary care services to patients in the community. Their observations yielded the following findings:

- The pandemic caused dramatic disruptions to EMS agencies and CP programs, which responded by devising creative solutions to these challenges.
- The pandemic reduced revenue while increasing the costs of service delivery, many of which were unreimbursed. The 2020 federal Coronavirus Aid, Relief, and Economic Security (CARES) Act, coupled with reimbursement from the Centers for Medicare & Medicaid Services (CMS) for treatment-in-place services, partially mitigated financial losses. Nevertheless, financial strains led to staff furloughs and spurred redeployments to new types of revenue-generating services.
- Both patients and providers wanted to keep patients out of the emergency department (ED), reserving hospital resources for the most ill patients and reducing the spread of COVID-19. Traditional EMS revenue for providing transports to hospital EDs thus decreased, while demand for non-emergent services provided in the community increased.
- Changes to protocols to protect patients and providers also complicated emergency response and required more staff time per call.
- Emergency responders were redeployed to non-emergent care, and CP personnel were redeployed to emergency care and new types of non-emergent care. These shifts in duties blurred pre-pandemic distinctions between the kinds of services that traditional (9-1-1) EMS versus CP personnel provide.
- Multiple physical and mental health impacts depleted the emergency responder workforce through exhaustion, absenteeism, and attrition, revealing an urgent need to support well-being and resilience in EMS, a high-stress, high-risk, and poorly paid or unpaid health care occupation.

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KEY FINDINGS *continued*

- EMS agencies made connections to new partners and payors, expanding EMS roles in public health and health care systems as well as leading to new opportunities for generating revenue and exercising new leadership roles.
- Though the pandemic provided an opportunity for EMS professionals to meet a wider variety of patient needs in the community compared to before the pandemic, the profession faces uncertainties about the roles that EMS and CP personnel will play now that the federally declared public health emergency has ended. These roles will depend on the willingness of federal, state, and local entities to support both traditional and new types of services that EMS professionals stepped up to provide during the pandemic.
- EMS education and professional development will need to prepare professionals for their evolving roles. Continued monitoring of workforce recruitment, retention, and well-being will be important to ensuring that EMS and CP professionals are able to achieve their full potential to serve diverse patient and community needs.

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BACKGROUND

Emergency medical service (EMS) personnel, including community paramedics (CPs), were at the center of the early medical response to the COVID-19 pandemic and continued to play critical roles throughout the public health emergency. EMS personnel include emergency medical technicians (EMTs), advanced emergency medical technicians (AEMTs), and paramedics that provide 9-1-1 response to health emergencies. CPs are a growing workforce, typically drawn from EMS personnel, to provide non-emergent public health services and augment primary care services to patients in the community, including connecting them to appropriate care. CPs typically perform their work as part of programs based within EMS agencies that offer specific kinds of services to defined patient populations (e.g., post-hospital discharge follow-up of patients with particular diagnoses, falls prevention assessments, etc.). Beginning with the pandemic's onset in March 2020, these essential health care workers bore the burden of responding to the public's initial reactions to a disease about which little was known and remained at the forefront of evolving treatment and safety protocols as new information continually emerged. This study sought to understand how EMS and CP personnel were deployed to respond to COVID-19, how their roles in the health care system changed because of the public health emergency, and how the COVID-19 pandemic affected EMS and CP personnel health and safety. Understanding how COVID-19 affected the EMS and CP workforce is important for longer-term planning to support the care that these professionals provide.

Popular media sources have provided numerous accounts of EMS agency response to COVID-19. In the spring of 2020, emergency responders experienced a record number of 9-1-1 calls in COVID-19 hotspots. To respond to high call volumes, departments instructed EMS personnel in New York City to change their treatment practices. They were to transport only critically ill patients to the hospital and treat other patients at home to relieve already overwhelmed emergency departments¹ and avoid spreading infection further. This led to expanded roles for CPs in communities where they were available to provide out-of-hospital care.² Similarly, in Fresno, California, emergency responders transported only patients with life-threatening conditions and emergency conditions to the hospital.³ In New Jersey and New York, to protect paramedics, EMS units limited patient resuscitation efforts for those who were unlikely to survive.⁴ In Texas and Louisiana, EMS agencies edited protocols to reduce the time emergency personnel spent performing CPR.⁴ In January 2021, following the first winter surge in COVID cases, Los Angeles County instructed EMS personnel not to transport patients to hospitals if they were presumed dead and resuscitation methods were unsuccessful in the field, an update of pre-existing policy that merely discouraged transport of these patients.⁵

With these changes, new problems emerged. Many EMS agencies and ambulance personnel struggled to obtain enough personal protective equipment (PPE), including masks, gloves, and gowns. Some responders wore the same N95 mask for days, sewed homemade masks with bandannas and coffee filters, and made homemade face shields.^{1,6} The lack of access to PPE exposed not only emergency medical responders to a heightened risk of infection but also their patients, co-workers, and family members. To avoid infecting their families, EMS personnel started sleeping in their cars instead of going home⁷ or moving into a separate bedroom and not interacting with their spouses and children for weeks.⁸

These difficult, unprecedented working conditions took a heavy emotional and physical toll on EMS and CP personnel. EMS personnel experienced increasing burnout, turnover, and suicide during the pandemic.⁷ The pandemic has also overwhelmed volunteer emergency response units. Volunteer agencies have noticed high turnover rates and challenges recruiting new volunteers because they could no longer take classes or ride emergency vehicles as required for certification.⁸

Financial challenges and opportunities in EMS also affected the workforce. EMS agency revenue sources can include state or federal grant funding; local levies or tax subsidies; fee-for-service reimbursements from hospitals, hospice agencies, home health agencies, commercial payers or the Centers for Medicare & Medicaid Services (CMS); or a combination of these revenues.⁹ Because CMS reimbursement of EMS agencies traditionally requires transporting patients to hospital emergency departments (EDs), revenue decreased significantly for many agencies early in the pandemic when personnel had to treat patients at the scene with no transport. Greater use of PPE (combined with cost increases of 20 to 30 percent) and shortages of other equipment and supplies as well as staff, and increasing overtime pay added financial and workforce challenges for many EMS agencies on the front lines of the pandemic.^{10,11} Many EMS agencies—public, private or a combination—reported deep financial distress.¹¹

To address the unique health care challenges during the public health emergency, CMS waived the requirement that EMS agencies transport patients to hospitals in order to receive payment, reimbursing transport to alternate destinations, including skilled nursing facilities, community mental health centers, and patients' own homes.¹² An April 2020 survey of 891 EMS agencies across the U.S. and Puerto Rico, conducted by the National Association of EMTs (NAEMT), showed that 64% relied on treat-in-place protocols to prevent transportation to crowded hospitals, yet only 12% of these agencies were actually being reimbursed for such treatment.¹¹ Of agency leaders responding to the NAEMT survey, 65% reported that their agencies risked financial insolvency within six months.¹¹ The Coronavirus Aid, Relief, and Economic Security (CARES) Act eventually brought critical short-term financial relief. However, the original version of the Act's guiding documents did not explicitly name EMS in funding opportunities. A letter from the NAEMT to Congress and the White House in May 2020 noted that the more than \$2 trillion in pandemic relief funding to state governments and other health care providers did not include direct payments to EMS agencies and would not "trickle down" to EMS.¹³ Advocacy by stakeholder organizations NAEMT, the American Ambulance Association (AAA), the International Association of Fire Chiefs (IAFC), and the National Association of EMS Officials (NASEMSO) helped to clarify that EMS agencies were eligible for funding. Nevertheless, EMS agencies' access to the funds varied depending on local decisions to pursue the funding or not.¹⁴ In December 2020, the American Ambulance Association wrote in a letter to the U.S. Department of Health and Human Services that "the 911 emergency medical system throughout the United States is at a breaking point."¹⁵ "EMS has become healthcare, but we're still recognized as transportation, and I think that's where the difficulty lies," a director of an EMS agency said.¹⁶ More recent commentaries from states as varied as New York and Mississippi indicate that EMS continued to be affected by financial and workforce disruptions throughout the pandemic.^{17,18}

The multitude of challenges that EMS and CP personnel have faced raises essential questions about their deployment during the pandemic, their response to the psychological and physical challenges posed by COVID-19, and the financial impact of COVID-19 on workforce and service sustainability. Key questions we set out to answer in this study include the following:

1. What have the financial impacts of COVID-19 been on EMS and CP services and with what impact on the workforce?
2. How have EMTs and paramedics who serve in traditional (9-1-1) emergency response roles been redeployed because of COVID-19? In what ways were CPs deployed or redeployed to serve in traditional EMS response roles because of COVID-19?
3. How have the well-being challenges posed by the COVID-19 pandemic affected the EMS and CP workforces?

METHODS

The study team recruited EMS and CP key informants for focus groups and individual interviews via Zoom videoconference from June through December 2020 through email invitations sent to two national listservs, one sponsored by NASEMSO, focused on CP, and another focused on rural EMS sponsored by the Joint Committee on Rural Emergency Care, a consortium of the National Organization of State Offices of Rural Health, NASEMSO, and other partners. Interview groups consisted of two to six participants each and lasted 90 minutes; individual interviews were 60 minutes. We audio-recorded and transcribed interviews and took written notes with participants' consent.

To maintain a focused conversation, the interviews and focus groups covered either one or two of three broad topic areas grounded in the study's key questions: finances, with an emphasis on workforce impacts (one focus group and two individual interviews); workforce deployment (three focus groups and one individual interview); and safety and well-being (one focus group). Some participants joined multiple topic discussions based on their interest and expertise. The study team conducted a directed content analysis¹⁹ of the focus group and interview data to derive key themes. This study was reviewed and approved by the University of Washington Human Subjects Division.

RESULTS

Out of 37 personal invitations, a total of 17 individuals participated in 5 focus groups and 3 individual interviews, with 4 individuals participating in 2 different sessions. Study participants represented both rural and urban EMS and CP organizations, public and private sectors, and all Census Regions of the U.S. Thirteen states were represented in the sample, including multiple participants from Colorado, Idaho, and Texas, as well as a variety of roles and organizational foci, from municipal to state organizations. Two participants represented national organizations in addition to their roles at the state and county levels. **Table 1** shows characteristics of the study participants.

Table 1: Study Participant Characteristics, N=17

Participant Characteristics	n (%)
Participant Position/Role*	
Local EMS/CP	11 (64.7%)
State EMS Official	3 (17.6%)
Health care consultant	2 (11.8%)
Health researcher	1 (5.9%)
National organization leader	2 (11.8%)
Program Type	
CP/mobile integrated health (MIH)	8 (47.1%)
Both EMS and CP/MIH	9 (52.9%)
Sector	
Public	10 (58.8%)
Private	3 (17.6%)
Both	4 (23.5%)
Organizational Jurisdiction*	
City	2 (11.8%)
County	9 (52.9%)
State	3 (17.6%)
National	5 (29.4%)
Geography	
Rural	3 (17.6%)
Urban	8 (47.1%)
Both	6 (35.3%)
Census Region	
Northeast	2 (11.8%)
South	6 (35.3%)
Midwest	1 (5.9%)
West	8 (47.1%)

*2 participants held multiple roles in multiple organizational jurisdictions; percentages in these categories do not add to 100.

Below we report key informant observations about the impacts of EMS finances on the workforce, personnel deployment, safety and well-being, and greater implications for the EMS and CP workforces.

FINANCIAL IMPACTS OF THE COVID-19 PANDEMIC ON THE EMS AND CP WORKFORCES

“We had no luck with alternate destinations because half were closed (no PPE), the rest were overflowing, couldn’t see more patients. We transported zero patients to alternate destinations.”

Varied EMS and CP funding sources. Key informants described how EMS and CP programs fund their operations via a range of revenue sources, with considerable variation between agencies. Among agencies and programs described by our key informants, one was funded strictly with fee-for-service reimbursements, a second with multi-year funding through a collaboration with two hospitals and a public grant, a third funded 75% with local and county tax levies and 25% by hospital payments, and a fourth private EMS service received funding from hospitals, hospice care, home health agencies, and CMS.

Because of this variation in revenue streams supporting different EMS agencies and programs, some were more financially vulnerable during the pandemic than others, depending on how their principal revenue sources were affected. Key informants indicated that programs funded through public budgets (e.g., sales tax, property taxes, payroll taxes) were particularly financially vulnerable because many cities and counties had to cut public budgets and received less income from sales taxes. EMS agencies in smaller cities and rural areas appeared to be especially threatened. Meanwhile, programs with multi-year contracts or grants could remain more financially stable with guaranteed revenue during the pandemic. The different financial vulnerabilities that the agencies experienced are a feature of EMS funding in general. However, as a result of the pandemic, key informants reported that many EMS agencies and CP programs, whether public, private, or a combination, were in dire financial distress, some on the verge of closing. Numerous EMS agencies lost revenue while incurring greater operational costs. At the same time, the pandemic also created greater demand for some CP programs and services.

Pandemic impacts on revenue and costs. Several factors contributed to revenue losses for EMS agencies. Many agencies witnessed a drop in the number of 9-1-1 calls during the pandemic as fewer people called 9-1-1 and hospitals canceled elective procedures. Moreover, more patients wanted treatment at home, and public health officials and local policies instructed EMS agencies to transport only critically ill patients to hospitals. The drop in calls reduced programs’ revenue because EMS agencies traditionally only received payment when they transported patients to the hospital. For instance, New York State instructed EMS agencies to attend to low-acuity patients at home. Despite EMS staff in one agency treating thousands of patients at home, one key informant reported that the agency did not receive reimbursement for providing medically necessary care, which resulted in additional expenditures of \$750,000 in the first month of the pandemic on top of their normal operating costs. These additional costs remained largely unreimbursed. Another key informant mentioned that an agency’s patient volume for services provided to a hospice agency dropped because the hospice could not source sufficient PPE for its own staff and stopped seeing patients. A third key informant, whose program was funded through varied sources, witnessed a drop in the proportion of patients covered by commercial insurance, which pays higher rates, from 16% of their patient population to 11%. The key informant attributed this shift to the number of people in the state losing their employment and consequently their health insurance. Local officials told a fourth key informant early in the pandemic that county and sales tax revenues, an important funding source for the agency, had fallen significantly, resulting in postponing replacement of the agency’s vehicle (with 188,000 miles) for two years.

Key informants confirmed media accounts of the increasing operational costs that the pandemic brought. One key informant explained that their PPE costs increased due both to greater usage and price increases: the price for an N-95 mask increased from \$0.67 to \$3.95, while usage increased to 240 masks per day. In total, the agency incurred increased expenses of roughly \$100,000 per week while losing \$250,000 in revenue.

Key informants welcomed the CMS waiver that allowed transport of patients to alternate (non-ED) destinations and hoped it would eventually become permanent. However, the new policy did not improve finances for all agencies, because alternate destinations were not always open or receiving patients. In May 2021, a year after the relaxation of these regulations, CMS announced that it would allow EMS agencies in communities with established protocols for in-person visits to submit claims retrospectively for initiating treatment-in-place services.¹²

For one of our key informants, CARES Act funding helped offset costs at the beginning of the pandemic: “CARES funding has helped us out. It helped us purchase things we hadn’t been able to, such as for telemedicine.” Another key informant said that the temporary funding enabled them to purchase much-needed technology to facilitate telehealth visits. Despite the temporary relief the CARES Act offered, one informant stressed that the relief funding only covered a fraction of the costs incurred during the pandemic. Moreover, the CARES Act was a loan against future Medicare reimbursements. Key informants expressed concern that patient volumes might not return to levels that could sustain sufficient operational and clinical functions to repay loans. One key informant commented, “the ICUs are very empty, outpatient [numbers] are slow...If revenue is that low, how do you pay back a loan? That concern sticks out.” While temporary CMS reimbursement for transport to alternate destinations and the relief bills offered ways to compensate for revenue losses and increased operational costs, according to the key informants, these supports were not enough to address pandemic financial challenges.

Just as the number of 9-1-1 calls and hospital transports ebbed and flowed during the pandemic, demand for some CP services increased during the pandemic, as hospitals and public health departments started to recognize the value of CP services to assist with managing patients in the community with COVID-19 and other conditions. Other CP programs ceased services they had provided prior to the pandemic for safety reasons or other health care disruptions wrought by the pandemic. These fluctuations in demand for CP services had both financial and workforce impacts on EMS agencies. The next section describes these and other changes in workforce deployment in response to COVID-19.

HOW THE COVID-19 PANDEMIC AFFECTED EMS AND CP WORKFORCE DEPLOYMENT

“It’s a brave new world in EMS.”
“EMS providers are masters of the workaround.”

The COVID-19 pandemic affected the deployment of the EMS and CP workforces in complex and interconnected ways, including changes both in demand for services and the supply of providers available to provide care. The impacts of the pandemic varied across jurisdictions, from agency to agency, and over time. In this section, we describe key informant perspectives on the ever-changing dynamics shaping the activities of traditional (9-1-1) EMS and CP professionals.

Changing patient volumes and service needs. Key informants described dramatic shifts in patient volumes for both EMS and CP services. In the first pandemic wave in spring 2020, call volumes increased in many areas as COVID-19 cases spiked. In other communities and over time, 9-1-1 call volumes decreased, even relative to pre-pandemic levels in some cases, due to a combination of patient desire to avoid potential COVID-19 exposure in hospitals and hospitals’ desire to manage volumes so that they could focus on the most ill patients. Meanwhile, other sources of care for less acute patients restricted access or temporarily suspended services. A higher-order effect of these health care systems dynamics was an increase in patients who needed emergency care as their conditions became more acute because they had delayed necessary care—out of fear of contracting COVID-19 or because their usual care was not available. At the same time, certain kinds of CP services had to be suspended for any of several reasons: the need for all EMT and paramedic “hands on deck” to respond to emergent calls, the goal of limiting potential patient or provider exposure to COVID-19 for services that were not an emergency, and the inability of CPs to carry out

their usual activities if, for example, the alternate (non-hospital) transport destination, such as a sobering center, was closed or not receiving new patients. Finally, even when the number of calls was not substantially different during the pandemic compared to before, the amount of responder time required increased due to greater overall patient acuity and the need for additional safety precautions, not the least of which were PPE protocols that could double the time needed to respond.

Responses of EMS agencies and CP programs. Key informants noted that state and local contexts—the EMS regulatory environment, resources available, geography, and EMS workforce composition—all affected the ability of EMS agencies and CP programs to respond to health care needs during the pandemic. For example, in some states, EMS practices are specifically delineated and authorized in state regulation, while in others, authority resides at the local level, allowing for more flexible response. Rural communities that rely more heavily on volunteers may have had limited surge capacity to manage increased patient volumes and response times.

EMS agencies devised varied solutions to manage increased response demands, according to key informants. One agency started paying volunteer firefighters to drive ambulances so that, instead of occupying two paramedics on a single call as is customary, available paramedics could be dispatched to a larger number of calls by having someone other than another paramedic drive. Once patient volumes decreased three months later, the agency reverted to its pre-pandemic system. EMS agencies also created dedicated COVID-19 crews and ambulances to contain risk. In some cases, instead of a typical crew response of at least two persons, only one person evaluated suspected COVID patients to reduce risk of multiple personnel exposures.

CP programs also experienced a variety of changes and disruptions. Some CP programs decreased or suspended services entirely, such as follow-up of certain types of post-acute patients or transport to alternate destinations when they were either closed or unable to accommodate more patients. This led to the furlough of some CPs who could not be otherwise redeployed. Yet the pandemic also created demand for the kinds of services that CPs were well suited to provide. CPs supported patients in managing chronic diseases to prevent them from needing hospital care. Some agencies used CP personnel as the primary COVID-19 responders while EMS responders handled all other medical calls. COVID-19 services that CPs provided included screening, testing, contact tracing, transport of patients to quarantine sites, treatment of low acuity patients at home, connecting patients to primary or urgent care, and follow-up for COVID-19 patients, whether managing their illness entirely at home or after hospital discharge. CPs performed COVID-19 services in a wide variety of settings besides patient homes, including schools, skilled nursing facilities, retirement homes, encampments of persons experiencing homelessness, shelters, and other congregate settings. One key informant commented that these services were especially important in a rural COVID-19 hotspot where a Critical Access Hospital had closed, noting that about 80% of patients given the choice of CP care did not want to go to a hospital anyway. Providing these services also generated new revenue for some CP programs. For example, some hospitals realized that they could discharge patients with COVID-19 who needed follow-up care but did not qualify for home health services if they paid CPs to monitor patients at home.

Deploying CP personnel to respond to COVID-19 sometimes meant suspending usual CP activities. In other cases, the increased need for non-emergency services of the type normally handled by CPs meant that in many communities, “CPs and pretty much all other EMS personnel were drafted to do CP work,” leading to a situation that one key informant described as “CP on steroids” for the whole county service area. The combination of task-sharing or shifting between EMS and CP personnel, along with the need to limit unnecessary risks of COVID-19 infection, led to dynamic development of new skills and protocols in the midst of the early pandemic response. For example, responders evaluated suspected COVID-19 patients at the door rather than inside buildings whenever possible, calling a dedicated COVID-19 transport vehicle if needed. New scripts had to be created to support a slower, more careful approach to keep patients and their families calm when interacting with personnel in PPE, described by one key informant as “moon suits.”

Use of telehealth. As elsewhere in the health care system during the pandemic, telehealth use expanded as a mode of delivering EMS and CP services. Key informants cited more examples of the use of telehealth for CP than for EMS services. For example, CPs used telehealth to evaluate the seriousness of COVID-19 symptoms of patients at home, sometimes augmenting the roles of EMS dispatchers to determine the level of EMS response needed. Some CPs worked to implement telehealth visits by assisting patients in the community to connect remotely with local physicians. CPs used telehealth for post-acute care follow-up monitoring, assisting patients with substance use disorder to access peer support specialists, and providing wound care.

Key informants also noted barriers to using telehealth, including lack of access to telehealth technology. Some paramedics and CPs resisted using telehealth due to lack of familiarity, training, and comfort with telehealth assessment, particularly if they were not physically present with patients, being accustomed to hands-on patient evaluation. Barriers for health care providers with whom EMS and CP personnel interacted included lack of telehealth infrastructure, discomfort of primary care providers with the technology, and provider resistance due to initial concerns about eligibility for reimbursement or uncertainty about how to bill for telehealth services. Patient barriers included lack of access to devices (e.g., smartphones), other technical challenges, and discomfort using telehealth during an emergency.

EMS AND CP WORKER WELL-BEING DURING THE COVID-19 PANDEMIC

“There’s always been a physical danger part of it—for bad or good it was a recruiting point. Rushing toward car accidents and fires, you can see it. This [COVID-19] is not known. You can bring it home and not even know it—an additional level of danger that folks don’t have any interest in going down that road.”

Staffing reductions. A direct impact of COVID-19 on worker well-being was illness from exposure to infected patients. Key informants commented that the EMS workforce overall exhibits greater health risk factors, such as chronic disease and age, that make EMS responders more vulnerable than the general population to severe COVID-19 disease, particularly before the development of effective vaccines. A common view, even within the health care sector, of EMS as primarily a transportation provider meant that in some cases, EMS providers were lower priority than others for PPE. Some agencies had to ration PPE, for example, by reserving it for higher-risk procedures such as intubation, amplifying the overall risk of COVID-19 exposure. Potential exposures required isolation, which took responders out of service and increased the workloads of coworkers. One key informant noted that due to low pay, many responders hold more than one EMS job, and thus the effects of exposure and illness could have a cascading effect on staffing in multiple agencies.

Mental health impacts. Like other health care workers, EMS and CP personnel experienced multiple mental health consequences from providing care in the pandemic, including fear about catching COVID-19 themselves and bringing it home to their families. Some isolated themselves over long periods of time to protect family members, which was emotionally challenging. Having to wear a mask at all times and the physical impact of wearing PPE outdoors in hot weather were also mentally and emotionally draining. As waves of the pandemic created COVID-19 hotspots, staff were particularly vulnerable to burnout. One key informant described the changes wrought by the pandemic as a “transition from civilian medicine to battlefield medicine...PTSD [post-traumatic stress disorder] is the big risk here because you compound anxieties.” Caring for a large volume of patients and sometimes having to make decisions about rationing care took a high mental health toll.

Some agencies, particularly those that were smaller or more financially precarious, did not provide paid sick leave for staff in quarantine or isolation or for staff experiencing mental health challenges. These staff had to forego pay, creating further strain. Key informants also noted an erroneous perception among some in EMS that absence for mental health reasons was not covered by insurance or worker’s compensation.

Agencies that adhered to strict protocols learned that they could prevent infection, which built confidence. Nevertheless, the combination of low pay and high risk led to concerns among key informants that an underpaid workforce would walk away in the face of a deadly disease. Thus, COVID-19 expanded awareness of the need for greater attention in EMS to overall well-being, including mental and physical health and safety.

LARGER IMPLICATIONS OF THE PANDEMIC FOR THE EMS AND CP WORKFORCES

“My community needs me and I’m going to step up.”

“Mobile integrated health has taught me that EMS is at the center of public health. We should be at the forefront because a lot of communities have disdain for health care, government, but they will always let us in...For the record, the genie does not fit back in the bottle!”

EMS Recruitment and Retention. Key informants had mixed opinions about the impacts of the pandemic on recruitment and retention in EMS. Some thought that responders had been resilient, with little change in recruitment and retention, noting that in some places, applications for volunteer positions had actually increased since before the pandemic. Other key informants had observed short-term negative effects of the pandemic, such as the disruption to EMS education, since students were not allowed to participate in EMS calls; an inability to provision volunteers with PPE, preventing their safe deployment; and greater difficulty recruiting volunteer responders. Some key informants also feared downstream effects on EMS workforce retention due to burnout, physical and mental health issues, and responders questioning if the risks and dangers were worth staying in the career.

Evolving Roles of EMS in Health Systems. Key informants reported that the pandemic response had increased interactions between EMS and other health entities, noting several new opportunities that could have implications for the future of the EMS and CP workforces more generally after the pandemic. Relationships developed and strengthened with existing EMS partners, such as hospitals, and with new partners, such as state and local public health agencies and nursing facilities. Examples of these new connections for EMS included playing a key role in the emergency operations center that managed the local COVID-19 response, joining a statewide COVID-19 planning taskforce, staffing mobile immunization programs, as well as teaching proper disinfection of rooms and use of PPE in healthcare facilities. Whereas home health providers had at times in the past perceived CP programs as competitors, the pandemic allowed them to work together in a complementary way to address home health patients’ needs because EMS agencies often had more access to PPE.

Key informants also described the importance of establishing relationships with local and state politicians, communicating and working with public health officials, and demonstrating to payers with data the relevance and cost-effectiveness of EMS and CP programs. A key informant explained, “I think that EMS historically in our county had not sat at public health tables; we were grouped in with public safety...When we started community paramedicine, we became the safety net for everyone in the county. With COVID, more doors open, more people [were] looking to contract us to see their underserved patients, something they hadn’t offered before.” The pandemic provided an opportunity for the community members they served to gain broader knowledge of EMS and its capabilities: “A lot of doors opened, especially with CP...Now the state is encouraging CP programs to partner with public health, send CPs to test, do a follow-up after discharge.” Key informants hoped that these relationships would continue as the pandemic subsided.

The flexible deployment of agency staff, whether for emergency or non-emergency care, meant that the usual distinction between traditional (9-1-1) EMS responders and CP personnel became blurred during the pandemic, illustrating the ability of these workforces to meet a much wider scope of patient needs in the community than had been widely recognized in pre-

pandemic times. Yet despite the ways EMS and CP providers were able to demonstrate their importance to community health, key informants thought the transformation in the way EMS viewed itself and was viewed within health care was far from complete. Not all in the world of EMS were convinced of the benefits of deploying EMS professionals in non-emergent CP roles: “There is still a large percent of the EMS community that doesn’t understand and recognize what CP can do or what CPs are. Conferences like EMS Today don’t really push it. Our state conference doesn’t have a CP track.” One key informant described the profession as having an identity crisis, trying to determine what EMS professionals should call themselves and what services they should provide. Nevertheless, to further this transformation, key informants also noted the need to do more to attract potential recruits motivated to address population health in both non-emergency and emergency roles. They expressed an urgent need to invest resources in preparing the workforce with the skills needed for their new roles and support structures to foster mental health, resilience, and overall wellbeing.

Payment for non-emergency services. Another significant shift that all key informants welcomed was the prospect of federal legislation to pay for providing treatment in place that would enable EMS and CP to care for patients at home, follow up regularly with them, and reduce transportation and hospitalization costs. CMS announced in May 2021 that it would reimburse treatments in place back to March 2020 and through the end of the public health emergency, which ended on May 11, 2023. While this policy change offered important alternative revenue, one key informant noted that organizations would still have to adapt and change, stressing the need to collaborate with stakeholders at the national, state, county, and city levels; find new funding sources; and provide care for diverse patient populations. The key component to the survival of the EMS industry, before and after COVID-19, many key informants argued, is programs’ ability to innovate: “If you have shown local organizations that you do more than wait for 9-1-1 calls and schlep someone to the hospital, they will call you and pay you...If you are unable to change your model because of leadership, culture, governance – you will wither on the vine. If you are innovating, great.” At the same time, key informants thought that changes to national EMS policy were required to allow flexibility to tailor resources and solutions to meet individual community needs rather than a one-size-fits-all approach. More broadly, there was consensus among key informants that federal action was needed for new payment models (e.g., for non-transport services) that reflect what EMS and paramedics had already done and, importantly, would continue to do after the pandemic.

DISCUSSION

The timeframe of our key informant interviews was earlier in the pandemic, a time of great stress and confusion for EMS and CP personnel. This presented challenges in recruiting study participants, who were extremely occupied with pandemic response. Conducting this study in later stages of the pandemic would certainly have yielded new findings not captured here, but the perspectives shared nevertheless offer important lessons for health care both during a public health emergency and beyond.

The 17 key informants interviewed in the first year of the COVID-19 pandemic shared remarkably consistent perspectives on how the EMS and CP workforces responded to the pandemic and how it has affected EMS and CP. The pandemic evolved over time and its impact varied across geographies and types of EMS agencies, but overall, key informants described dramatic disruptions, consistent with media reports about EMS in crisis, as well as creative solutions, which received less media attention.

The pandemic disrupted revenue streams while increasing the costs of delivering services, many of which were unreimbursed. These fundamental economics of EMS agency and CP program operations affected the workforce in various ways, including furloughs when funds were insufficient to pay staff but also redeployment to new types of revenue-generating services. The extent to which an agency was financially vulnerable depended on both the robustness of its pre-pandemic funding model as well as its ability to innovate and identify new funding opportunities. The federal CARES Act and CMS waiver providing reimbursement for treatment-in-place services offered lifelines, but the pandemic’s financial impacts on EMS and CP were severely negative

and undoubtedly widespread. EMS leaders continue to express concerns about the precarity of EMS systems, suggesting that continued monitoring of the financial health of EMS agencies is needed to ensure their viability.

The goal of health care providers to keep all but the most ill patients out of facilities aligned with the public's desire to stay home and reduce the risk of COVID-19 infection. This situation led to a shift in the kinds of services patients needed, where they received that care, and how care was delivered. Except for patients who truly needed care that could only be provided in a hospital, demand for transports to hospital ERs—the traditional source of EMS revenue—fell. At the same time, demand for non-emergent services in the community—including prevention, diagnostics, treatment in place, and transport to alternate destinations—increased. Whether or not EMS and CP professionals were able to obtain payment for this care, they were often called upon to perform a variety of services that were not part of their customary roles before the pandemic. Meanwhile, infection-control protocols made emergency calls more complicated and time-consuming, all while staff themselves were experiencing multiple physical and mental health impacts that depleted the workforce through exhaustion, absenteeism, and attrition. To adapt to these changing circumstances, EMS agencies and CP programs devised new response protocols, found new types of customers that would pay for new services, and made connections to new partners in the public health and health care systems.

Many EMS agencies had to respond to changes in the care patients needed, blurring the distinctions between the kinds of services that 9-1-1 EMS personnel versus CP personnel provided. The Mt. Sinai Community Paramedicine Program in New York City, aimed at preventing unnecessary visits to the ED through patient evaluation and in-home treatment as appropriate, provides a notable example of the pandemic's impact on EMS.² The CP program, already established before the arrival of COVID-19, experienced five times the normal demand during the pandemic because of the desire of patients and providers to keep patients out of the ED. As a result, the program trained 16 additional CPs to meet the demand. Paramedics who performed in CP roles reported greater satisfaction than in their other work because they were able to meet patient needs. With CMS reimbursing EMS agencies to provide treatment in any location during the public health emergency, including services via telehealth, the care that EMS professionals once provided only through CP programs could suddenly be provided by any EMS agency, whether or not they had a CP program. The pandemic thus provided an opportunity for EMS professionals to meet a wider variety of patient needs in the community. This transformation built on the pre-pandemic successes of CP programs like Mt. Sinai's and led to increased awareness about the potential for deploying the EMS workforce in new ways. To continue in these expanded roles in the long term will require substantial rethinking of the education of EMS providers.²⁰

Regardless of the services emergency responders and CP personnel will be expected to provide in the future, the pandemic posed new dangers and also revealed pre-existing threats to EMS workforce safety, health, and sustainability. The recent National Academy of Medicine plan for health workforce well-being lists numerous resources for physicians and nurses while mentioning EMTs once, despite their essential role during the pandemic.²¹ Whatever the reasons for this discrepancy, our findings suggest that more attention and resources are needed to support well-being and resilience in EMS, a high-stress, high-risk, and low-paid (sometimes unpaid) health care occupation.

The intermediate- and long-term impacts of the pandemic on recruitment to and retention in the EMS profession as a whole remain to be seen. It is also unknown to what extent EMS will revert to the pre-pandemic status quo now that the public health emergency declaration has expired. This will depend on the extent to which federal, state, and local incentive structures evolve to continue supporting the new types of services EMS professionals have provided during the pandemic. It seems likely that the EMS profession will need more personnel with the motivation, diverse skills, and specific training to provide both emergent and non-emergent care to a wider variety of patient populations. EMS education and professional standards will need to evolve accordingly. Building the evidence base on EMS and CP patient outcomes as well as continued monitoring of workforce preparation, recruitment, retention, and well-being will be important to ensuring that EMS and CP professionals are able to provide diverse patient populations the right care in the right place at the right time.

REFERENCES

1. Watkins A. N.Y.C.'s 911 System Is Overwhelmed. 'I'm Terrified,' a Paramedic Says. *The New York Times*. March 28, 2020. Accessed March, 6, 2023. <https://www.nytimes.com/2020/03/28/nyregion/nyc-coronavirus-ems.html>
2. Munjal K. The Critical Role of EMS in Injury and Illness Prevention: How the Mt. Sinai Community Paramedic Program has Protected Seniors During the Pandemic. EMSWorld on Demand Webinar. Accessed April 4, 2021. <https://www.hmpglobelearningnetwork.com/site/emsworld/webinar/1225645/critical-role-ems-injury-and-illness-prevention-how-mt-sinai-community-paramedic?key=sinai&elastic%5B0%5D=brand%3A145495>
3. American Ambulance will only transport Fresno County 911 callers who have life-threatening or emergency conditions. *ABC.com*. December 2020. Accessed March 8, 2023. <https://abc30.com/american-ambulance-fresno-county-911-emergency-call/8962755/>
4. Callimachi R. Paramedics, Strained in the Hot Zone, Pull Back From CPR. *The New York Times*. May 10, 2020. <https://www.nytimes.com/2020/05/10/nyregion/paramedics-cpr-coronavirus.html>
5. Fink S. Los Angeles County urges ambulance crews not to bring to hospitals patients they cannot resuscitate. *The New York Times*. Jan.7,2021. Accessed March, 6, 2023. <https://www.nytimes.com/2021/01/07/us/california-covid-ambulance-memo.html>
6. Levin D. Volunteer Emergency Responders Face a Dilemma: Save Lives or Stay Safe. *The New York Times*. April 26, 2020. Accessed March 6, 2023. <https://www.nytimes.com/2020/04/26/us/coronavirus-volunteer-emergency-responders.html>
7. Maguire B. Will an Ambulance Be Available When You Call? *Inside Sources*. September, 2020. Accessed March 8, 2023. <https://insidesources.com/will-an-ambulance-be-available-when-you-call/>
8. Watkins A. Possible Covid': Why the Lulls Never Last for Weary E.M.S. Crews. *The New York Times*. April, 2020. Accessed March 8, 2023. <https://www.nytimes.com/2020/04/27/nyregion/fdny-coronavirus-paramedics.html>
9. Zavadsky M. Top 10 MIH or community paramedicine program funding sources. *EMS1.com*. November, 2017. Accessed March 8, 2023. <https://www.ems1.com/ems-products/community-paramedicine-software/articles/top-10-mih-or-community-paramedicine-program-funding-sources-gDFqADEkuC5c3lvB/>
10. Wilson R. Coronavirus crisis squeezes ambulance operators. *The Hill*. May 19, 2020. Accessed March 8, 2023. <https://thehill.com/homenews/state-watch/498336-coronavirus-crisis-squeezes-ambulance-operators>
11. National Association of Emergency Medical Technicians (NAEMT). EMS Agencies, Paramedics and EMTs Need Immediate Help. May 2020. Accessed March 8, 2023. <http://naemt.org/docs/default-source/advocacy-documents/2020-ems-needs-help-5-14-20.pdf>
12. Centers for Medicare & Medicaid Services. Fact Sheet. Waiver for Ground Ambulance Services: Treatment in Place. Accessed March 8, 2023. <https://www.cms.gov/files/document/covid-waiver-medicare-ground-ambulance-services-treatment-place.pdf>
13. French L. NAEMT issues call to action, demands federal COVID-19 support for EMS. *EMS1.com*. March 2020. Accessed March 8, 2023. <https://www.ems1.com/coronavirus-covid-19/articles/naemt-issues-call-to-action-demands-federal-covid-19-support-for-ems-XW0nznNVs1AHmZ99/>
14. C. Hanson. Personal communication, May 20, 2021

15. McCausland P. Ambulance companies at 'a breaking point' after receiving little Covid aid. *NBC News*. December 2020. Accessed March 8, 2023. <https://www.nbcnews.com/news/us-news/ambulance-companies-breaking-point-after-receiving-little-covid-aid-n1249586>
16. Burt R. In New York, COVID Compounds Rural Services` Struggles. *EMS World Print Online Expo*. September, 2020. Accessed March 9, 2023. <https://www.emsworld.com/news/1224918/new-york-covid-compounds-ems-rural-services-struggles>
17. State EMS Sustainability Technical Advisory Group. *New York State 2023 Evidence Based EMS Agenda for Future*. Accessed February 20, 2023. https://www.health.ny.gov/professionals/ems/docs/february_2023_sustainability_tag.pdf
18. DiNatale, S. Mississippi ambulance providers fear a system collapse is near. *Mississippi Today*. February 3, 2022. Accessed February 20, 2023. at <https://mississippitoday.org/2022/02/03/mississippi-ambulance-providers-fear-system-collapse/>
19. Assarroudi A, Nabavi FH, Armat MR, Ebadi A, Vaismoradi, M. Directed Qualitative Content Analysis: The Description and Elaboration of its Underpinning Methods and Data Analysis Process. *J Res Nur*. 2018;23(1):42-55.
20. EMS Agenda 2050: EMS Agenda 2050 Technical Expert Panel. *EMS Agenda 2050: A People-Centered Vision for the Future of Emergency Medical Services*. 2019. National Highway Traffic Safety Administration. <https://www.ems.gov/pdf/EMS-Agenda-2050.pdf>
21. National Academy of Medicine 2022. *National Plan for Health Workforce Well-Being*. Washington, DC: The National Academies Press. Accessed March 9, 2023. <https://doi.org/10.17226/26744>

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