California Health Care Foundation

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Issue Brief

Community Paramedics Hit the Streets in Stanislaus County: An Early Look

A major goal of an effective and efficient health care delivery system is to ensure that patients have timely access to appropriate care. Building on the national movement toward better and expanded use of paramedics to address community needs, pilot projects across California are testing whether the emerging field of community paramedicine (CP) can play a role in achieving this goal.

"One suicidal patient was on a five-day cycle — he would call 911 every three to five days. He would be transported to the ED and admitted to the hospital's inpatient psychiatric unit and kept for up to 72 hours on a 5150 [involuntary] hold. He would be released back to the streets and would soon call 911 again. This patient was not getting the help he needed. Now, with the Community Paramedicine Pilot, he has been taken directly to the crisis center — they refer him to resources in the community and he gets more help. While he is still calling 911, it's now down to one or two times a month and not every five days."
— Kelly Kjelstrom, community paramedic

This case study describes the Community Paramedicine Pilot project currently underway in Stanislaus County in the Central Valley of California. The pilot employs community paramedics who assess patients with mental health conditions and, when possible, connect them to treatment resources more quickly than if they were transported to a hospital emergency department (ED). In this pilot, patients enrolled in Medi-Cal or who are uninsured and who pass medical and mental health assessments can be transported directly to a mental health facility. This pilot seeks to improve care delivery in the following ways:

- Faster access to appropriate care for all patients
- Avoidance of the ED for patients who have mental health conditions only
- Increased availability of ED resources for patients with medical needs
- Reduced use of law enforcement for transport of patients placed on involuntary psychiatric holds (commonly referred to as 5150s)
- Overall savings to the health care system

"The demand for mental health services requires a greater level of interagency cooperation that includes prehospital care providers. Working together with our EMS partners, this program has truly made a difference in the communities we serve."

— Adam Christianson, sheriff-coroner
Stanislaus County Sheriff's Department

In the first nine months of this pilot, 149 people with mental health conditions were transported directly to a county mental health facility for evaluation rather than to a hospital ED.

What Is Community Paramedicine?

Community paramedicine is a locally designed, community-based, collaborative model of care that leverages the skills of paramedics and emergency medical services (EMS) systems to address specific local problems and to take advantage of locally developed linkages and collaborations between and among EMS and other health care and social service providers.

Community paramedics receive specialized training in addition to general paramedicine training and work within a designated CP program under local medical control as part of a community-based team of health and social services providers.

Source: Kenneth W. Kizer, Karen Shore, and Aimee Moulin of UC Davis Institute for Population Health Improvement, "Community Paramedicine: A Promising Model for Integrating Emergency and Primary Care," July 2013, California Health Care Foundation, www.chcf.org.

Overview

Stanislaus County's CP pilot was developed after a community needs assessment identified "improving care for patients with mental health conditions" as a priority; the county was seeing an increasing number of people requiring crisis evaluation. This project focuses on Medi-Cal and uninsured patients, since these are the populations the county is responsible for serving. This type of project could include commercially insured and Medicare patients with the participation of additional local psychiatric facilities.

Designing the Project

The state's Office of Statewide Health Planning and Development (OSHPD) requires an application and review process for pilot projects designed to test and evaluate new or expanded roles for health care professionals before changes in licensing laws are made. The pilot project application for CP, submitted by the state's Emergency Medical Services Authority (EMSA), was approved in November 2014, after which 12 projects in ten different jurisdictions across the state were selected as pilot projects.

Stanislaus County's project, which began in September 2015, was developed under the leadership of Kevin Mackey, MD, medical director of the Mountain-Valley Emergency Medical Services Agency (MVEMSA). An emergency medicine physician, Mackey began his career as a paramedic. In cooperation with American Medical Response (AMR) Stanislaus County, MVEMSA was granted authority as part of the OSHPD pilot to conduct a study in two cities, Modesto and Turlock, with a combined total population of 280,000 residents.

Mackey and his team approached local hospitals, along with officials from law enforcement, behavioral health, and public health, to design and implement the pilot. The major steps involved in the project design were:

1. Community needs assessment to identify county health care needs that could be filled by CP
2. Identification of key partners
3. Design of protocols and policies
4. Community paramedic selection and training/curriculum development
5. Human subjects review by an institutional review board (IRB)[1]
6. Identification of data elements to track

The leadership team developed the following criteria to screen paramedics interested in one of the pilot's four community paramedic positions:

- Commitment to an additional 200+ hour training program[2]
- Four years of experience as a California licensed paramedic
- Two years of paramedic experience in the county
- Current MVEMSA accreditation in good standing

- No clinical deficiencies or disciplinary actions in the past 12 months

Paramedics participating in CP pilots across the state completed a 120-hour core curriculum. Stanislaus County's community paramedics completed an additional 80 hours of local training including advanced clinical assessment and use of a breathalyzer, crisis intervention, personal instruction with a behavioral health clinician, and local policies and procedures. The county's four full-time community paramedics serve dual roles — as a paramedic first responder to any emergency situation and as a community paramedic. Thus, although they are "full-time" community paramedics, only a portion of their time is spent providing CP services. Two additional paramedics serve as alternates and are called upon when one of the full-time community paramedics is not available.

How It Works

Modeled after CP programs in North Carolina and Texas, Mackey developed and implemented two protocols that were approved by the health system partners to guide care in the field: (1) a well-person assessment, which includes heart rate, blood pressure, blood glucose, and oxygen level, to identify any underlying medical or traumatic conditions requiring immediate attention, and (2) a mental health assessment, which confirms that the patient primarily has a psychiatric complaint and screens for alcohol use/dependence and non-accidental overdose.

To be eligible for transport to the crisis center rather than to the ED, patients must meet several specific criteria (see Table 1). Patients who do not meet the criteria, or who are violent or refuse assessment, are transported to a hospital ED.

Table 1. Patient Eligibility Criteria for Stanislaus County's CP Pilot

- No acute medical or traumatic conditions
- Age 18 to 59
- Primarily a psychiatric/mental health complaint
- Pass well-person assessment
- No active wounds requiring closure
- Ambulatory without assistance
- Blood alcohol level below 0.08
- Does not admit to or show signs of non-accidental overdose

There are several emergency medical care and mental health treatment resources in the areas served by the pilot (see Table 2). Prior to the start of the pilot project, all patients with a mental health condition who were identified through the 911 system were transported to a hospital ED, such as Doctors Medical Center (DMC) or Memorial Medical Center.

Under the pilot program, new care pathways have been forged, and eligible patients are transported for evaluation at the county-licensed mental health crisis center.[3] The psychiatric services providers participating in the pilot are both county facilities — the crisis center and the inpatient Psychiatric Health Facility[4] (PHF), which together have responsibility for the county's Medi-Cal enrollees and the uninsured.

CP services can be requested through multiple pathways (see Figure 1, page 4):

- A paramedic who responds to a 911 call for a patient with a mental health condition and completes the well-person assessment
- A law enforcement officer who has identified a person suspected of having an acute psychiatric illness

Table 2. Emergency Medical Care and Inpatient Mental Health Treatment Resources in Area Served by CP Pilot

PROGRAM/FACILITY NAME	DESCRIPTION	OWNERSHIP (TYPE)	INPATIENT PSYCHIATRIC BEDS
Crisis Center	Outpatient mental health crisis intervention program	Stanislaus County (public)	0
Psychiatric Health Facility	Inpatient county mental health facility	Stanislaus County (public)	16
Doctors Medical Center / Doctors Behavioral Health Center[5]	465-bed hospital	Tenet Healthcare (private, for-profit)	67
Memorial Medical Center	423-bed hospital	Sutter Health (private, nonprofit)	0
Emanuel Medical Center	209-bed hospital	Tenet Healthcare (private, for-profit)	0
Kaiser Permanente Modesto Medical Center	112-bed hospital	Kaiser Permanente (private, nonprofit)	0

- Crisis center staff after mental health evaluation of a walk-in patient

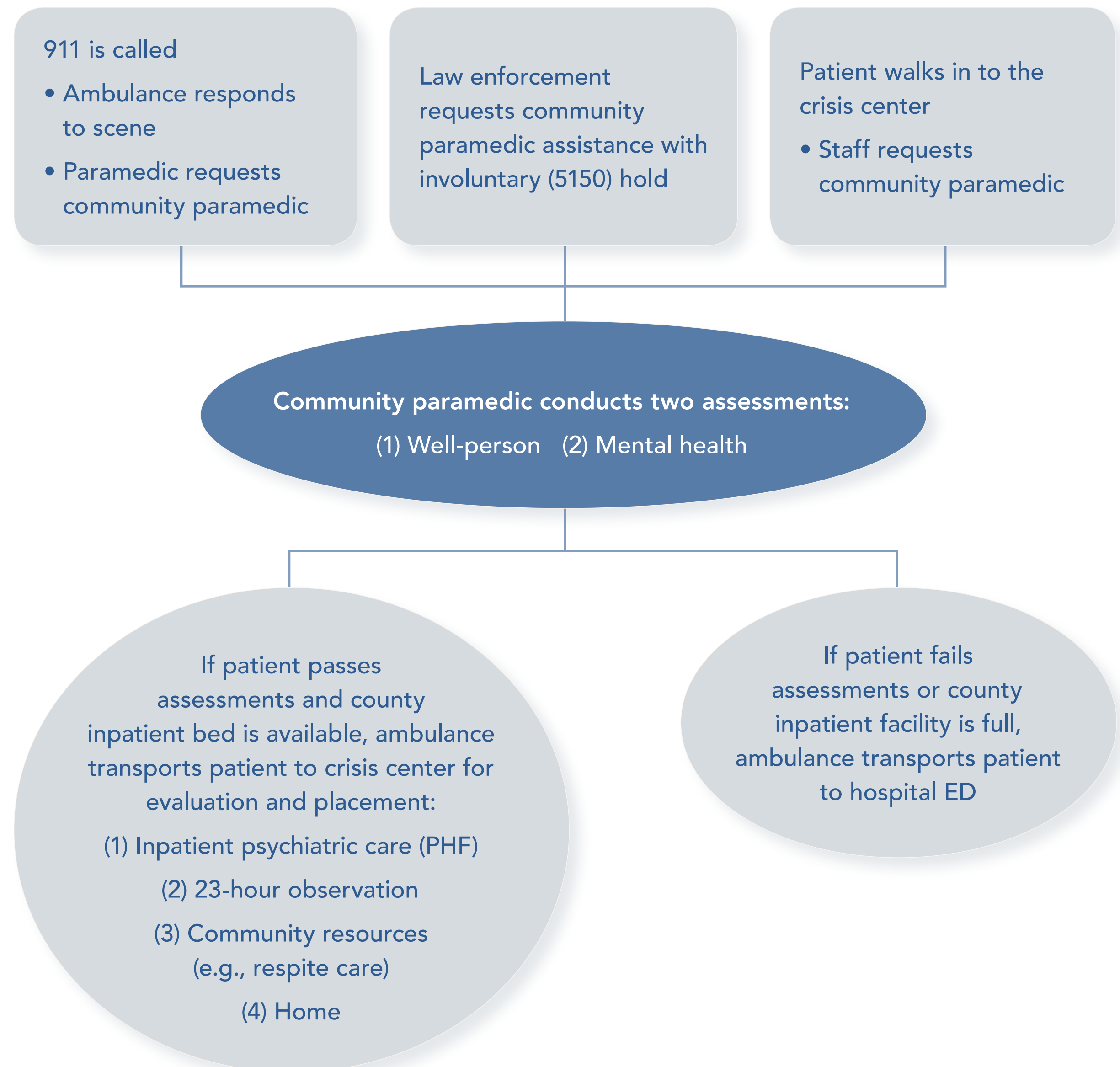
As noted above, violent patients are transported to the ED because the crisis center does not have on-site security personnel who can restrain patients.

Community paramedics assess patients with mental health conditions in the field and then transfer responsibility for their care to an ambulance crew for transport. The ambulance transports patients who pass the CP assessments to the crisis center for further evaluation and assessment of the level of care they need. Once at the crisis center, patients needing inpatient care are transferred to the county's adjacent PHF. If beds are not available at the PHF, the patient is transported by ambulance to DMC for evaluation. If CP services are requested but cannot be provided within 30 minutes, patients are transported to a hospital ED.

"The patients have all been pleased with the opportunity to avoid the ED, seem to engage us enthusiastically, and have a better mood when it all works in their favor. It seems that seeing someone advocating for them starts the patient/provider relationship on a good note, and judging from the lack of 'bounce-backs' to the ED, it would appear the outcome has been positive from the crisis center and PHF perspectives as well."

— Dennis Flannery, community paramedic

Figure 1: Assessment/Referral Process for Stanislaus County CP Pilot



Results

All of the state's CP pilot projects are being reviewed as part of an independent evaluation conducted by researchers at the University of California, San Francisco (UCSF). The evaluation report summarizing the first-year results should be available in early 2017. The results described below are preliminary and offer an early view of the project's impact on the community and the patients served. These issues, and more, will be explored in detail by the independent evaluators.

Patients Served

In the first nine months of the pilot, Stanislaus County community paramedics assessed 550 patients. Of these, 149 (27%) passed the assessments and were transported to the crisis center for evaluation (see Table 3). Absent this pilot, these patients would have been transported directly to a local hospital ED. Another 167 (30%) passed the assessments but could not be transported to the crisis center for a variety of reasons (e.g., the PHF had no beds available or the patient had private insurance or Medicare). The rest of the patients evaluated by a community paramedic failed the well-person or mental health assessments. Of the patients transported to the crisis center, 65% were male, 18% Latino, 68% white, and 8% African American. The average age was 33. More were enrolled in Medi-Cal (83%) than were uninsured (17%).

Table 3. Stanislaus County CP Pilot: Assessment Outcomes, September 2015 to June 2016

RESULT	NUMBER (%) OF PATIENTS
Passed assessments and transported to crisis center	**149** (27.1%)
➤ Transported to ED in less than six hours	8
Passed assessments but not transported to crisis center*	**167** (30.4%)
➤ PHF at capacity — no beds available	73
➤ Insurance reasons (not Medi-Cal or uninsured)	49
➤ Behavior inappropriate for crisis center	33
➤ Refused / no consent	12
Failed assessments*	**234** (42.5%)
➤ Age	26
➤ Agitation/uncooperative	46
➤ Alcohol/substance abuse	43
➤ Vital signs unacceptable	63
➤ Medical/trauma complaint	56
TOTAL	**550**

*Only the primary reason is recorded.

Source: American Medical Response (AMR).

Getting Patients to Care More Quickly

A major goal of the pilot is to safely reduce the amount of time it takes for a patient with mental health needs to get appropriate care. In the first nine months of the pilot, the average time between a patient's arrival at the crisis center and their being admitted to the PHF, transferred to other care in the community, or sent home was just over 2.5 hours (158 minutes). After a full year of data are available, the UCSF evaluation team will compare the timeframes for patients transported to the crisis center versus a local hospital ED.

Cost Savings

Based on an estimated $5,500 charge per patient[6] for ED care, leaders of the Stanislaus County pilot project estimate that the 141 patients who were not transported to the ED in the first nine months of the pilot led to health care system savings of about $775,000. This amount does not include additional savings, for example, from law enforcement personnel not needing to transport mental health patients to the ED or waiting with them there, freeing the personnel to provide law enforcement services to their

"Community paramedicine is a game changer for our community. In fact, community paramedicine is a game changer for health care. For our community, every patient that is safely triaged away from a hospital emergency department has measurable effects, like reducing bed space demand as well as reducing demand on resources. However, the unexpected benefits have been systemwide support, law enforcement utilization improvements, and most importantly, reduced time to definitive care for our patients."

— Kevin Mackey, MD, medical director
Mountain-Valley EMS Agency

communities. The UCSF evaluation will take these factors into account.

Since only one-quarter of the patients who qualified for the pilot were included (i.e., transported directly to the crisis center), the potential savings could have been up to two or three times greater if all local psychiatric facilities participated in the pilot.

Patient Safety

Another important aim for the CP pilot is to ensure that patient care is appropriate and that patients are not harmed by participating in the project. Oversight is provided by the local EMS agency director, EMSA, and OSHPD. No patient safety or quality problems have been identified in this pilot.

Eight of the 149 patients transported to the crisis center passed the well-person and mental health assessments in the field but were transferred to a local ED within six hours of arrival at the crisis center. Of these, six patients had acute medical needs that were identified after their arrival at the crisis center, one patient was not a county resident, and another was transferred because a new crisis center staff member was unfamiliar with the pilot. The medical needs that necessitated a transfer to the ED included urinary incontinence, sleep apnea requiring specialized equipment, and higher blood pressure than the crisis center would accept.[7] AMR reviews the records of all patients transported directly to the crisis center, and Mackey reviews the records for patients subsequently transferred to the ED; he determined that none of the eight patients who were transferred were put at medical risk.

Implementation Challenges

Despite the community paramedics' successful assessment of many more patients than anticipated, the pilot encountered some operational challenges. One of these related to obtaining patient data for oversight and evaluation purposes; it initially seemed that some of the required data elements were not captured in the crisis center's data systems. The quality improvement / trauma coordinator for the local EMS agency worked on-site with the crisis center staff to ensure that, ultimately, all necessary data could be extracted and submitted.

One main challenge remains: limited inpatient mental health capacity. The county PHF, at 16 beds, is too small to meet the inpatient care needs of the population served by the pilot. The beds at the PHF are often full, particularly on weekends, which means patients otherwise eligible to be transported to the crisis center are taken to a hospital ED. DMC, the region's largest inpatient hospital with a 67-bed behavioral health unit, initially committed to the pilot project but ultimately did not participate. Without these capacity limits, the pilot would be able to have an even greater impact.

Drivers of Implementation Success

Several factors were identified as contributing to the project's early implementation success:

- The vision and unwavering commitment, engagement, and round-the-clock availability of the medical director
- The skills and commitment of the community paramedics delivering these services
- Stakeholder engagement in the entire process from conceptualization to implementation, with benefits accruing to all participants
- Strong communication between the various partners (e.g., the medical director has made presentations about the pilot to the crisis center staff, the community paramedics stop by the crisis center to strengthen relationships with counseling staff, community paramedics with specific expertise are known and available to law enforcement)
- The engagement and support of the paramedics' leaders, as well as of local law enforcement, behavioral health, public health, and elected officials
- The geographic colocation of the crisis center and the PHF with its 16 inpatient psychiatric beds

Because of their strong commitment to their community, the paramedics have gotten to know not only their clients, but also available local resources (e.g., social services). The community paramedics can refer clients to needed services, which may reduce future 911 calls. Another factor for success is understanding the characteristics of patients who are best served by the project. The community paramedics believe that they are most successful with patients with a mental health condition who have not harmed themselves but have reached out for help because they are having negative thoughts or ideations.

Future Considerations

For communities interested in starting a CP program, participants in the Stanislaus County pilot recommend first identifying the community's resources (e.g., government agencies, county systems, private providers / health care systems) and its greatest needs, and then tailoring the program to meet those needs.

A second strong recommendation is to recruit and train as many CP personnel as possible. Several key traits for community paramedics were identified, including being patient, open-minded, energetic, attentive and willing to listen, compassionate, willing to look at a patient holistically and not just at the emergency situation, and able to establish trust with patients — to get beyond the uniform and talk to them on a human level. A final recommendation relates to data — all partners should be able to exchange data electronically and understand the importance of and be committed to data collection and analysis.

Believing that community paramedics can contribute substantially to the well-being of the community, the leadership of the Stanislaus County CP pilot project is contemplating the program's financial sustainability (since none of the CP services can be billed to a patient's insurance)[8] and the future pipeline of community paramedics. Because the pilot program is limited by the number of available inpatient psychiatric beds and insurance status restrictions, the current community paramedics and the project leadership believe they are addressing only the tip of the iceberg in terms of community need. To more fully address the mental health needs in the community, the project leadership would like to retain and expand the program, which requires attracting sustainable funding sources and a larger pool of community paramedic candidates for the job.

"Our patients have experienced a more rapid and precise route to care. Knowing that they can speak to a clinician within the hour at the crisis center, compared to hour(s) after sitting in the ED seems to give them comfort and possibly prevents a more emergent crisis if the program wasn't in place. Being in an ED can further agitate patients with mental health conditions, and getting the patient to the crisis center diffuses this, calms them down, and lets them start working on their issues and addressing their situation."

— John Perino, community paramedic

About the Author

Karen Shore, PhD, is a principal at Transform Health. Shore previously served as program director for the Institute for Clinical and Economic Review, where she ran the California Technology Assessment Forum, and as the president and CEO of the Center for Health Improvement.

Acknowledgments

Cover photo courtesy of Ada County Paramedics of Boise, Idaho.

About the Foundation

The California Health Care Foundation is dedicated to advancing meaningful, measurable improvements in the way the health care delivery system provides care to the people of California, particularly those with low incomes and those whose needs are not well served by the status quo. We work to ensure that people have access to the care they need, when they need it, at a price they can afford.

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Endnotes

1. The project was reviewed by the Western IRB and obtained a waiver of informed consent due to the individual experiencing a medical emergency who cannot reasonably give informed consent. It was also determined that nothing is being done to put the human subjects/patients at risk (i.e., they are receiving standard care).
2. California paramedics receive a minimum of 1,090 hours of training in addition to the 160 hours of training they received as an emergency medical technician (EMT).
3. The crisis center provides emergency mental health assessment and referral services for behavioral health situations in collaboration with families, consumers, law enforcement, and emergency personnel. It also has an outpatient/observation unit where patients can voluntarily admit themselves for up to 23 hours.
4. The PHF is an acute inpatient facility with 16 beds that is licensed by the state for patients experiencing an acute emergency related to a mental health disorder, where they can receive intensive mental health and psychiatric treatment services to assist in stabilization. Services are provided by professional and paraprofessional staff as per licensing and certification requirements. Admission is voluntary or involuntary (via §5150).
5. DMC, with an off-campus 67-bed inpatient psychiatric facility (Doctors Behavioral Health Center) is not participating in the pilot; if it had participated, the pilot would have included patients with private health insurance or Medicare coverage.
6. This estimate was determined by project leadership before the CP pilot began based on a request to two local hospitals for charges (i.e., billed costs for one patient transported by EMS, including nursing time, labs, physician medical clearance, and consultation for discharge/placement) for two "model" patients with various mental health conditions; the $5,500 estimate represents the average charge across patients and hospitals.
7. Initially, the blood pressure limits of the well-person assessment were higher than those accepted by the crisis center; they were subsequently aligned.
8. For private insurance and most public insurance, EMS services can only be billed when a patient is transported to the ED, not for transport to another location or for services provided in the field.