Acute Community Care: Reshaping Healthcare Delivery Through Community Paramedicine

Commonwealth Care Alliance
EasCare Ambulance LLC

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Table of Contents

Executive Summary

To meet the needs of patients and providers, healthcare delivery models must continuously evolve, using innovation to develop cost-effective, safe, and patient-centered ways of maximizing health and well-being. Commonwealth Care Alliance (CCA), a non-profit, pre-paid care delivery system for low-income and elderly or disabled beneficiaries, partnered with EasCare Ambulance, LLC to develop an innovative model of community-based healthcare that enhances the role of traditional home-based services: Acute Community Care (ACC). This model uses a new cohort of clinicians, Acute Community Care Paramedics (ACCPs), to respond to urgent care needs within the comfort of CCA members' homes. With medical oversight provided by CCA clinicians familiar with the member, ACCPs perform physical exams, conduct assessments of members' health needs, craft treatment plans, and administer therapeutic interventions when medically appropriate, avoiding the risks, costs, and burdens associated with unnecessary care in emergency departments.

After 18 months of operation, Acute Community Care has become an integral component of CCA's urgent care system. To date, ACC paramedics have responded to almost 600 dispatches for the urgent care needs of over 200 unique members. During the program's busiest month (January 2016), ACC paramedics responded to 68 calls, averaging 2.2 dispatches per day and exceeding the traditional ambulance call volume during the same period in the previous year.

Specifically developed to address the needs of the complex members CCA serves, Acute Community Care demonstrates the adaptability of community paramedicine. ACC has demonstrated particular efficacy in meeting a number of distinct clinical challenges faced by members: urinary tract infections, behavioral health conditions, pneumonia, and the unique care needs of members at the end of their life, which often result in preventable hospital care, especially for those with complex physical disability. ACCPs responding to these scenarios have enhanced the care available to these members in their home. ACC has also contributed to constantly evolving continuing education curricula for both CCA and EasCare clinicians, creating a unique career advancement arc for paramedics in particular. Finally, development of the program has provided a number of additional lessons for health systems and practitioners looking for innovative solutions to the challenges facing their medical practice.

Specifically developed to address the needs of the complex members CCA serves, Acute Community Care demonstrates the adaptability of community paramedicine.

This program is a life saver for me! The paramedic came out very quickly which prevented me from having to go to the emergency room. The NP came the following morning with the rest of the pills and I never had to go to the hospital. Wonderful!

– CCA Member

Historical Challenges of Traditional Urgent / Emergent Care Delivery

In the late 1960s, driven by an increasing understanding that traumatic injuries were a leading – and preventable – cause of death, the modern emergency medical services (EMS) system emerged to facilitate rapid response to emergent medical needs. Since its inception, EMS has been characterized by regional networks of emergency departments (EDs) and emergency transport systems. A defining feature of EMS is that it has been built to respond to all emergent needs, both acute illnesses and traumatic injuries, as well as those non-life-threatening needs nevertheless perceived by patients or other members of a community to be urgent.

EMS exists as a haphazard patchwork of delivery models: approximately 50% of EMS is provided through local fire departments (nationally, 80% of fire department calls are for EMS), while other locales depend upon municipal or county systems, hospital-based providers, or private ambulance companies.[1] Reimbursement policies of the Centers for Medicare & Medicaid Services (CMS), state Medicaid offices, and private commercial insurers incentivize the use of EMS primarily for stabilization and transportation, rather than meaningful clinical assessment and community-based care. Most insurers only reimburse EMS providers when they transport 911 callers to EDs. These policies create a strong incentive for patients to be transported to hospitals, whether or not they clinically need the level of care an ED is designed to provide. With the exception of a small number of regionally based pilot programs, CMS and other payers do not reimburse EMS for out-of-hospital care (e.g., assessments, treatments) unless patients are transported to EDs.[2] Simultaneously, regulatory structures in most states have created barriers that limit paramedics' ability to care for patients in their home or to transport them to alternative settings for non-emergency needs.

Across the nation, policymakers, insurers, and health providers are seeking to address soaring healthcare costs while delivering improved outcomes to patients. A key driver of those costs is unnecessary ED visits. Nationally, between 14 and 27% of all ED visits could be managed in a primary care, urgent care, or retail clinic setting for savings of $4.4 billion annually.[3] In Massachusetts, from 2010 to 2014, non-emergent ED visits accounted for an estimated 22% of all ED visits, while another 25% were considered primary care-treatable. (47% of all visits were thus considered avoidable.)[4] Despite well-established evidence that a significant proportion of 911 EMS responses are for medical or behavioral health complaints that could have safely been managed in a primary care or urgent care setting, including one of every three EMS calls for Medicare patients,[5] EMS remains poorly integrated into most healthcare delivery systems.

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This was an amazing visit, prevented a hospital admission.

– CCA Member

Novel Solutions to Familiar Problems

Founded in 2003, CCA is a non-profit, consumer-directed organization that operates as both as a health insurer and direct provider of care to low-income and elderly or disabled individuals. CCA operates two programs to serve individuals who are dually eligible for Medicare and Medicaid. Senior Care Options (SCO) enrolls individuals ages 65 or older, the majority of whom are dually eligible for Medicare and MassHealth (Massachusetts Medicaid). The second program, One Care, covers individuals aged 21 to 64 who are dually eligible for MassHealth (due to income status) and Medicare (due to disability). One Care is a demonstration project supported by CMS under its Financial Alignment Demonstration Initiative. At the end of 2015, CCA had over 7,000 SCO and over 10,000 One Care enrollees receiving care, making CCA by far the largest health plan for dual-eligible individuals in Massachusetts.

Commonwealth Care Alliance Programs

Two Programs for Dual-Eligible (Medicare / MassHealth) Beneficiaries

Senior Care Options (SCO) – begun in 2003
- Seniors (95% duals, 5% MassHealth only)
- Voluntary enrollment, currently > 7,000 members
- >75% Nursing Home Certifiable; >99% community-dwelling
- Highly successful in reducing hospitalizations, promoting quality of life, and earning high quality marks

One Care – Part of the Financial Alignment Demonstration, begun in October 2013
- People with disabilities under age 65 who have MassHealth and Medicare
- Voluntary and passive enrollment, currently > 10,000 members (>80% of total enrolled population in MA)
- >50% have a behavioral health diagnosis; 15-20% drug or alcohol dependence

Attributes of CCA's Revolutionary Care Model

Primary Care-centered Interdisciplinary Teams	Professional and para-professional staff accesses, manages, and coordinates care across all settings members touch. This model replaces the conventional ineffective, 20-minute-long, medically focused physician office visit.
Individualized Care Plans	Care plans are co-developed by CCA clinicians and members. Plans guide resource allocation for long-term care, durable medical equipment, behavioral health services, and other key components of care. Flexible care plans coupled with member engagement prevent the widespread under- and over-resourcing that often characterizes more conventional rule-based benefits management.
Elastic Home Response	Flexible home response capability allows nurse practitioners and other care team staff to assess and manage new problems, and replaces physician telephone management and a tendency toward EMS transport to emergency departments.
Integrated Durable Medical Equipment	Clinical assessment and management replaces distant prior approval processes and months of delay for those with physical disabilities.
Cultural and Linguistic Familiarity	Culturally and linguistically familiar community health worker engages members and prevents social isolation.
Behavioral Health Services	Services are integrated throughout clinical assessments, individualized care plan development, implementation (including clinical services and care management) replaces inaccessible behavioral health carve-out options or inaccessible services.
Crisis Stabilization Units	CCA-run units are integrated, community-based treatment facilities for members with serious mental illness and prevent unnecessary acute hospitalization.
24/7 Clinical Availability	24/7 clinical availability and continuity management replaces "going it alone."
Electronic Medical Record	Web-based EMR support replaces absence of clinical information transfer capabilities.
Innovation	Innovation and commitment to patient-centered care for all human beings, no matter physical, behavioral, or social health, or ability to pay, replaces bottom line-oriented conventional care.

ACC paramedics responded to almost 600 dispatches for the urgent care needs of over 200 unique members. During the program's busiest month (January 2016), ACC paramedics responded to 68 calls in a month, averaging 2.2 dispatches per day.

Given their frailty, poor health, and significant disabilities, many CCA members require ambulances for medical transport needs, ranging from EMS transports to EDs directed by CCA clinicians, to transportation to primary care sites for routine office visits. For routine transport needs within covered geographic regions, CCA contracts with EasCare LLC, a private ambulance company with approximately 95 paramedics providing full-spectrum ambulance services in Massachusetts. EasCare is owned by Medavie EMS, a Nova Scotia subsidiary of Blue Cross Blue Shield of Canada, with a track record of pioneering innovative and comprehensive EMS services in Canada. As with all residents of the Commonwealth, CCA members access EMS for life-threatening emergencies through regional 911 systems.

In 2014, we undertook a review of ED transports for CCA members over the prior two years. This review revealed an opportunity to improve the quality of care for our members, while also reducing overall healthcare costs. Results of a targeted case review suggested that 60% of ED visits could have been successfully managed in the member's home or in a more appropriate setting, such as a behavioral health facility, crisis stabilization unit, urgent care, primary care practice, or skilled nursing facility.

Potentially avoidable ED visits unnecessarily expose members to the risks of healthcare-associated infections and medication errors. They create disruptions in care plans and drive up the costs of care. These ramifications are detrimental to both our members and the healthcare system. However, a history of misaligned incentives and the dysfunction stemming from uncoordinated components of the healthcare delivery system makes solving these problems and aligning members' clinical needs with the settings in which they receive care enormously complex. Correcting these issues would require greater communication, more frequent interactions, and close partnership between CCA's practitioners and EasCare's paramedics as they assessed members' clinical status and made a determination about the best course of care. It also would require changing the incentives facing EMS providers, moving away from a model in which they are only compensated for transporting patients to an ED.

Acute Community Care

In July 2014, EasCare and CCA partnered with the Massachusetts Department of Public Health to test implementation of a novel program for acute care management, Acute Community Care. EasCare and CCA believed that EMS providers should be better integrated into healthcare delivery systems to improve care coordination and the overall quality of care members receive; to improve experience of care, especially by keeping members in their homes; and to maximize the efficiency of care delivery by keeping members out of high cost hospital settings. This model of care, a form of community paramedicine (sometimes referred to as "mobile integrated health"), would require that paramedics, the most advanced members of the EMS care team, provide diagnostic and treatment services that exceed the breadth of services that EMS commonly provides.

Developing ACC to respond to urgent care needs among the dual-eligible population is a unique innovation rooted in sound evidence. Models similar to ACC have been used elsewhere, relying on experienced paramedics to provide non-urgent and primary care services in the community. Most programs have been motivated by over-burdened EMS providers and EDs, the same challenges seen all across Massachusetts and the U.S.[1, 7] This approach has gained particular traction in areas with low emergency call volumes, where expanding paramedic services to include primary care activities extends essential primary care into underserved rural communities and allows paramedics to use their clinical skills to maximum advantage.[6, 7] Similar programs have been used for many years to avoid unnecessary ED transports in England,[8, 9, 10, 11] Wales,[12] Canada,[13, 14] Australia,[8, 15] and New Zealand.[16] Implementation of an ACC-like program in the United Kingdom has been particularly effective. In 2000, 90% of 999 emergency calls in England resulted in transport to EDs compared with 58% in 2012 after ACC implementation.[6] New Zealand's comparable extended care paramedic program reduced ambulance transports to EDs from 74% to 40% by giving paramedics decision-making capacity regarding whether or not patients required ED care.[14] In contrast, in the 200 largest U.S. cities, only 7% of EMS agencies have policies that allow paramedics to decide not to transport patients to EDs.[19]

The Department of Public Health was also interested in studying and promoting models of care that enhance home- and community-based services, and thus supported CCA and EasCare in their efforts to initiate the pilot ACC program. The scope of the pilot program, which began in October 2014, is all geographic areas within Greater Boston (all areas circumscribed by Route 128). This region is home to approximately 2,600 of CCA's SCO and One Care members.

ACC requires specially trained and highly skilled paramedics, as well as a vehicle equipped with extra diagnostic and therapeutic capabilities. Eighteen paramedics applied to be in the first cohort trained; four were selected through a rigorous interview process specifically tailored to seek out individuals with a combination of clinical expertise and a desire to disrupt and challenge the current status of EMS delivery models. The first ACC paramedics to be trained were experienced clinicians, each with many years' experience in critical care transport and 911 pre-hospital emergency care. They were also excellent communicators, flexible and resourceful in their thinking, and ambitious in their personal and professional goals.

Great service, so happy she didn't have to go to the Emergency Room.
– Relative of a CCA Member

How does ACC work?

CCA members with acute complaints after normal business hours contact CCA's Urgent Care Call Line. On-call clinical staff (usually a nurse practitioner or physician assistant) assess whether callers are appropriate for ACC. This triage analysis includes the member's chief complaint, a discussion with the member about what clinical supports they are seeking (frequently conversations involve family members or other caregivers), a review of the member's health record, and, as necessary, consultation with other CCA clinicians. Paramedics are then dispatched for members who are considered appropriate for ACC. Members are seen from approximately 6PM to 2AM, every night. Generally, members who receive ACC care are those where there is no concern for an immediately life-threatening condition but the member's needs are sufficiently urgent to require treatment before 8AM the following morning, when the usual care team would be available. In addition to member-originated calls, CCA's clinicians are able to schedule after-hours follow up with members who have particular care needs that would benefit from a rapid response. For example, a CCA member recently discharged from the hospital who has particularly complex needs may benefit from an ACC visit the night of their discharge to help facilitate their return home.

CCA and EasCare designed a 312-hour training curriculum covering the role and scope of paramedic practice in an ACC model, including community paramedicine; medical-legal considerations; communication with members; detailed body systems review; in-depth information about end-of-life care and advance directives; advanced equipment training; home safety review; and laboratory testing. Approximately half of the training program was didactic, and the other half was practical clinical skill development, including shadowing CCA advance-practice clinicians in the community, observing inpatient hospitalist teams, and learning or refreshing bedside diagnostic skills. Following training, CCA physicians tested paramedic performance at the Boston University School of Medicine Simulation Center using a series of case-based assessments incorporating simulation machines (manikins) and standardized member encounters.

"Daniel"* ended up going to the hospital. However, having the paramedic there was just great. He went to the hospital with us and helped facilitate the entire process. "Dan" was admitted to the hospital for three days with pneumonia. Love the service...

– Relative of a CCA Member

**Name was changed to protect the member's privacy.*

ACC Components

Embedded in and Responsive to Comprehensive Primary Care

- Dedicated paramedic available 7 days a week, 6PM to 2AM
- Paramedic deployed by on-call CCA advanced-practice clinician, who performs initial telephonic triage in order to determine member suitability and obtain consent
- Real-time medical control by CCA on-call physician via conference call
- Paramedic accesses and documents in CCA electronic medical record (EMR)
- Paramedic communication with primary care team for next-day follow up
- Closed-loop community between primary care team and paramedics after follow up

Enhanced Diagnostic and Treatment Capabilities

- iSTAT machine; bedside laboratory testing comprehensive metabolic panel and hemoglobin/hematocrit
- Bedside urinalysis
- Ultrasound guidance for IV placement
- Expanded formulary: intravenous and oral antibiotics, diuretics, anxiolytics, analgesics
- Blood collection for chemistry, hematology, and microbiology
- Field EKG (and ability to transmit findings in real-time to the on-call team)
- Rapid influenza, rapid strep testing

Robust Quality and Compliance Assessment

- Paramedics undergo comprehensive ACC training program
- All clinician communication occurs on a recorded line
- All charts reviewed by EasCare clinical director for quality of documentation and compliance with standard processes
- Monthly interdisciplinary case review
- Monthly reporting to DPH

Having the visit was wonderful. I did not have to go to the Emergency Room which saved me a lot of time. My caretaker would have gone to the ER also so this saved her a lot of time also.... I didn't feel rushed and he was willing to stay with me as long as needed.

– CCA Member

Outcomes and Benefits

The first 18 months of the ACC program clearly demonstrated the enormous potential of this care model to enhance member care, decrease hospitalizations, and improve clinical outcomes. During this time, ACC paramedics responded to almost 600 dispatches for the urgent care needs of over 200 unique members. During the program's busiest month (January 2016), ACC paramedics responded to 68 calls in a month, averaging 2.2 dispatches per day. The January 2016 volume was more than double the ACC call volume in January 2015, and also exceeded the traditional ambulance call volume from January 2015, suggesting that CCA members and clinicians are increasingly choosing to use the ACC model. ACC has demonstrated particular efficacy in meeting a number of distinct clinical needs: members with urinary tract infections (UTIs), altered mental status/behavioral health conditions, respiratory distress, complex physical disability, and members nearing the end of their lives and engaged in CCA's palliative care program.

For many individuals with complex physical and behavioral health comorbidities, the process of accessing care in the ED and subsequent admission is both physically and emotionally traumatic. Additional risks of fragmentation of care structures, miscommunication, opportunity costs, true costs of care, risks of healthcare-associated infections, and other complications from medical harm also make the ED a less than ideal location for the management of non-life-threatening conditions.

CCA and EasCare have conducted surveys of members and caregivers after every encounter. These survey data reveal universally high member and caregiver satisfaction with this program. When members were asked if the ACC visit was as good as a regular ED visit, 95% agreed or strongly agreed; zero members disagreed. The vast majority (85%) of members reported that an ACC visit averted an ED visit, and 93% reported that the paramedic visit enabled them to see a health provider sooner. Similarly, providers report high levels of approval of this new modality of acute care delivery.

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To date, there have been no adverse clinical outcomes associated with ACC visits. Approximately 8% of members evaluated by an ACC paramedic have been transported to the ED at the time of evaluation. Most frequently, these have been members determined to be more acutely unwell than had been previously anticipated, or whose symptoms were not responsive to initial treatment by the paramedic. An additional 4% of members were transported to the hospital within 72 hours of the ACC visit; many of these were scheduled transfers. Several were transfers as a result of insufficient response to therapy or inability of home-based care structures to adhere to the appropriate therapy or monitoring needs of the member. A small number were for management of an unrelated clinical issue.

A robust external evaluation of the cost-effectiveness of the pilot is currently underway, and a large, multi-year study of member outcomes of the ACC program funded by the Patient Centered Outcomes Research Institute (PCORI) is also underway.

ACUTE COMMUNITY CARE

COMMONWEALTH CARE ALLIANCE LEADS NATIONAL EFFORTS TO DEVELOP VALUE-BASED HEALTHCARE DELIVERY MODELS

Commonwealth Care Alliance (CCA) and EasCare Ambulance's innovative **Acute Community Care Paramedicine Program** allows specially trained paramedics to provide urgent care in CCA members' homes.

During an 18-month pilot of the program, paramedics:

WERE DISPATCHED TO MEMBERS' HOMES **600+** TIMES

TREATED **200+** INDIVIDUAL MEMBERS

CCA members surveyed after paramedic visits voiced high approval rates:

95% AGREED THE VISIT WAS AS GOOD OR BETTER THAN AN EMERGENCY ROOM VISIT

85% REPORTED THAT THE VISIT AVERTED A VISIT TO AN EMERGENCY ROOM

93% REPORTED THAT THE VISIT ENABLED THEM TO SEE A PROVIDER SOONER

> **Absolutely fantastic program.** This truly saved me from another trip to the Emergency Room.
> – *CCA Member*

To date, the program has:

ENHANCED MEMBER CARE

DECREASED HOSPITALIZATIONS

IMPROVED CLINICAL OUTCOMES

cca commonwealth care alliance

EASCARE AMBULANCE

Source: *Acute Community Care: Reshaping Healthcare Delivery Through Community Paramedicine*, Commonwealth Care Alliance, EasCare Ambulance LLC, May 2016.

Case Reports

In the following sections, we will detail the observed benefits for specific clinical conditions and provide case reports of relevant members. *Notably, these case reports are intended for professional clinical audiences and may include technical terminology.*

Urinary Tract Infections

Urinary symptoms, which comprised 15% of call volume during the first 12 months of the ACC pilot program, represent a significant portion of urgent complaints that can lead to emergency department visits and potential hospitalizations. Our experience has shown that with a sufficient index of suspicion and corresponding positive urine dipstick, antibiotic therapy can be initiated in a member's home ahead of more comprehensive laboratory testing, including culture, speciation, and sensitivities. As such, the early diagnosis and treatment of urinary tract infections through the ACC program is an area of particular value.

During the first 12-month period, a total of 59 ACC dispatches were in response to urinary complaints. After paramedic evaluation and discussion with the on-call provider, 27 members received a urine dipstick with 24 members subsequently receiving empiric antibiotic therapy for urinary tract infections with a reflex culture, speciation, and sensitivity analysis. All members received follow-up evaluations within 24 hours to ensure optimal therapy had been initiated by the ACC clinician.

Case: Urinary Tract Infection

A CCA member with a history of vascular dementia, hypertension, and frequent drug-resistant urinary tract infections requiring hospitalization lived at home with a family member. One night, the relative called CCA's on-call clinician to report that the member had worsening dysuria, a week of malodorous urine, and the development of lower back pain over the previous 24 hours – common symptoms of a UTI. An ACCP was dispatched to evaluate the member. Upon arrival, the member had normal mentation and vitals were within normal limits. The member was in no acute distress, without chest pain, dyspnea, nausea, or dizziness, and had normal oral intake. On exam, the member had left costovertebral tenderness. Paramedics collected urine for culture using aseptic technique. Urine dipstick analysis revealed grossly positive findings for UTI with large amount of leukocytes, positive nitrates, significant protein, and moderate blood. A complete blood count, an iStat, and a chemistry panel were also collected. In consultation with the on-call physician, the determination was made to start IV antibiotics with next-day follow-up by the member's PCP for continuation of antibiotic therapy, speciation, and antibiotic sensitivities. The ACCP in this case facilitated the prompt initiation of antibiotics earlier than would have been possible otherwise.

Very courteous and professional, he offered to take family to hospital with "Jack"* in his vehicle. Unfortunately "Jack" needed to go to the hospital this night but the paramedic helped facilitate the entire process. We were streamlined through the Emergency Department and our visit was much easier with the paramedic there.

– Relative of a CCA Member

**Name was changed to protect the member's privacy.*

Altered Mental Status and Behavioral Health

ACC paramedics were dispatched 20 times during the first year of the program to members with complaints of altered mental status or behavioral health illness, including suicidal ideation and anxiety. While behavioral health complaints comprised only 5% of call volume, this statistic fails to represent the underlying role that behavioral health and anxiety exacerbations play in urgent care needs and subsequent ACC dispatches across nearly all conditions. In the One Care population as a whole, over 50% of CCA enrollees have at least one psychiatric diagnosis; 15% are people living with schizophrenia, at least 15-20% of members have a drug or alcohol dependency, and 7% are homeless individuals. Anxiety, social isolation, depression, and substance use are among the major drivers of ED utilization in this cohort. The ACC program has shown immense promise in enabling urgent evaluation and management of individuals with co-occurring behavioral health needs. The ability of the paramedics to obtain a complete history of the presenting complaint, to reference the individual's full medical history and current medications, to obtain necessary diagnostics to rule out an acute physical health cause, and to reassure and redirect patients is critical to averting unnecessary ED visits.

Case: Medical Complexity with Underlying Anxiety

A CCA member with anxiety, diabetes, and congestive heart failure called CCA's on-call clinician for generalized weakness and concerns about low blood glucose. The on-call nurse practitioner instructed the member to have a glass of juice and reassess, at which point the blood glucose measured at 129. However, the member still reported feeling uncomfortable and an ACCP unit was dispatched. Upon arrival, the paramedics spoke with the member as well as a relative, who stated that the member's discomfort had persisted for several days. Paramedics conducted an iStat blood test determining that the member had signs of dehydration, with normal blood glucose. They administered 500mL of normal saline and 4mg of Zofran, and the member subsequently reported significant improvement. However, upon the paramedics' exit, the member became distressed, tearful, and nervous. The member's relative then revealed that the same cycle of events had occurred earlier in the day when the home nurse left. At this point, the ACC paramedic recognized the underlying role of anxiety in this member's chief complaint. They reassessed and assured the member that everything was fine. The member would be seen by the primary care team in the morning but could call the paramedics back if needed. Because the paramedics appropriately documented the encounter within the EHR, the primary care team was able to appropriately address the true underlying behavioral health need the next day.

Anxiety exacerbations can lead to unnecessary medical testing that can be costly, time-consuming, and even more distressing to members. The ability of ACC paramedics to respond in those instances represents a great example of the opportunity to decrease unnecessary ED visits and healthcare costs. It also provides an invaluable role in providing supportive member care.

In addition to the majority of CCA's population for whom behavioral health concerns are secondary or underlying components of their clinical presentations (as in the case described on the previous page), CCA also cares for a significant cohort of individuals with severe persistent mental illness. Care needs for individuals with schizophrenia, major depressive disorder, or bipolar disease center around the management of their significant behavioral health illness. However, when these individuals develop new acute medical issues or exacerbations of their chronic medical illnesses, the need for flexible, tailored, comprehensive medical and behavioral health integration becomes critical. The ACC paramedics, by virtue of their training and prior experience, are able to adeptly straddle the medical and psychiatric disciplines, and, in so doing, provide a valuable adjunct to CCA's intensive behavioral health program.

Case: Behavioral Health Admission Requiring Medical Evaluation

A CCA member was admitted to one of CCA's community respite units for acute psychiatric evaluation and treatment. The member had a history of alcohol dependence, malnutrition, chronic obstructive pulmonary disease, and gastrointestinal bleeding. On admission to the unit, the member was noted to have low blood pressure and an elevated heart rate. The member also complained of dizziness, which was felt by the staff on the unit to be likely a result of dehydration and possibly alcohol withdrawal, but which, given the member's history, could also signal another gastrointestinal bleed. The ACC paramedic was dispatched and was able to obtain repeat vital signs suggestive of dehydration, as well as laboratory testing that corroborated this diagnosis. The ACCP also tested for and found a normal blood count to provide reassurance that the member was not actively bleeding. The paramedic administered intravenous fluids, and the member's symptoms of dizziness resolved. The member stayed at the unit to continue psychiatric care. In the absence of the ACC program, the member would have undoubtedly required transfer to the ED in order to receive the appropriate medical evaluation and treatment, thus disrupting psychiatric care.

Absolutely fantastic service. This truly saved me from another trip to the Emergency Room. I was dehydrated and the paramedic started an IV. He was very calm, professional and compassionate. Thank you, thank you!

– CCA Member

Respiratory Distress

Respiratory distress is an alarming trigger for urgent and sometimes emergent medical evaluation, especially among members who have chronic conditions placing them at greater risk of compromise such as those with tracheostomies, ventilator dependence, and COPD. Because members with these conditions comprise such a significant portion of the CCA member population, ACC paramedics are trained to assess and treat respiratory distress promptly to make the most appropriate decision regarding on-site treatment or emergent transport.

Case: Early Pneumonia in a Tracheostomy-dependent Member with Quadriplegia

A CCA member with quadriplegia secondary to transverse myelitis and chronic respiratory failure with a tracheostomy was experiencing tachypnea and low oxygen levels at home. Caregivers reported that the member's vital signs were refractory to suction and albuterol nebulizer so they were concerned about a mucous plug. ACC paramedics were dispatched and found that the member was in no acute distress but with spO2 at 88% on 4L of oxygen with audible rhonchorous breath sounds throughout both lungs. They promptly suctioned the inner cannula of the tracheostomy, leading to immediate improvement of oxygen levels to above 90%. Given concern for a developing pneumonia, the on-call physician was consulted. The care team discussed the initiation of antibiotics at home with the member and caregivers, who all expressed comfort with the treatment plan. The ACC paramedic administered antibiotics and an albuterol nebulizer, followed by a round of chest physical therapy and deep suctioning. The member was left in the care of caregivers with instructions to call with any difficulty or concern.

Case: Hypoxia in a Member with Quadriplegia

A CCA member with cerebral palsy, quadriplegia, a tracheostomy, and asthma was assessed by ACC paramedics at the request of the nursing staff in the member's group home. The group home called the urgent care line reporting low oxygen saturation despite administration of oxygen via nasal cannula. The member was experiencing an increase in airway secretions. Upon arrival of the ACCP, the member had bilateral rhonchi and expiratory wheezing. The paramedic administered an albuterol nebulizer treatment, with O2 saturations improving to the 90s. The on-call physician was consulted, and the team determined that, despite the standing order for albuterol treatment, the member had not received any. The ACCP spoke with the member's nurses about the need for closer monitoring given the possibility of a developing infection and to ensure the member received the necessary albuterol dose. The member would then be reassessed the following day by a nurse practitioner. The nursing staff, member, and care team were comfortable with the care plan. Without the ACC program, this individual likely would have been admitted to an inpatient hospital setting from the ED for workup and stabilization, but instead, was able to be monitored and treated at home.

Complex Physical Disability

Members with complex physical disabilities require vigilant coordination of the multiple services and providers involved in their preventive and acute care, both inside and out of the hospital. CCA's model of care both allows and depends upon constant communication and feedback from members to enhance the quality of the care provided, as well as identify early warning signs of exacerbations and complications.

Case: Chronic Respiratory Failure

A CCA member with quadriplegia secondary to a neurodegenerative disorder and chronic respiratory failure with ventilator dependence contacted a primary care provider one evening with shortness of breath, "heart racing," fatigue, and concerns about dehydration. The member had previous episodes of dehydration believed to be associated with medications to treat endometriosis. Upon the ACCP's arrival, the member was found to have a heart rate of 127 beats per minute, systolic blood pressure of 170 mmHG, and a physical exam noting skin tenting on the hands. The on-call physician was consulted, and it was determined that the symptoms were consistent with the member's previous presentations with dehydration. They determined that stopping the inciting medications and initiating IV fluids would be the most appropriate intervention. Paramedics explained the condition, risks, and benefits of the intervention and administered 1500 mL of normal saline with subsequent improvement of a heart rate to 90 beats per minute. The member reported a significant improvement of symptoms and was left resting in the care of home nursing staff.

This case was the first instance in which the ACCPs were dispatched to this member's home. When the member's PCP suggested sending ACCPs, the member was very nervous. But once the paramedics arrived, the member quickly felt at ease. This member hates going to hospital and was instantly relieved to receive care at home.

In the News

CCA's partnership with EasCare was featured in a recent news article and highlights paramedics' role in providing home visits to keep members out of the ER. Read the article here: www.newsworks.org/index.php/local/the-pulse/87801-paramedics-slow-down-to-make-house-calls

Case: Member with Quadriplegia Admitted for Social Frailty

A CCA member with quadriplegia was admitted to the hospital for concern of altered mental status and social frailty after being brought to the ED by paramedics for seemingly unknown reasons. The member's PCP was notified of the admission, and after speaking with the member, learned that the Life Line was pressed because the member needed to be turned in bed and a personal care attendant would not arrive for several hours. The Life Line prompted the dispatch of paramedics through the local 911 service rather than ACCPs. When the paramedics arrived, unfamiliar with this individual, they thought the member to be confused and completed an ED transport. Vital signs were within normal limits. The member had no acute complaints. The physical exam was notable for stable chronic findings with no acute changes. A head CT scan was normal, labs were normal, and the remainder of the workup was negative. When the ED clinical team was incapable of determining a source of this perceived altered mental status, the member was admitted for "social frailty." This case demonstrates the challenges of a fragmented healthcare system and provides a vital example of the importance for continuity, enhanced communication, and a patient-centered approach to care: aspects of care made possible through the ACC model.

This case also demonstrates the opportunity to better integrate existing communication mechanisms between members and CCA. The member's Life Line is now connected into our urgent care line so that ACCPs can be involved when necessary. At its core, the ACC program is about optimizing transitions of care by minimizing transitions when unnecessary and ensuring warm handoffs, good communication, and continuity when they are necessary. Although ACCPs are particularly effective in avoiding unnecessary hospitalizations, they also play a vital role in normalizing necessary hospitalizations.

I was shocked to see exactly how much the paramedic could actually do in my home, from the EKG and vital signs to the amazing blood testing machine. Thank you! Definitely saved me a trip to the ER.

– CCA Member

End of Life Care

ACC paramedics have been especially effective in responding to the urgent call for medical attention for members who are nearing the end of their life; an often-overlooked aspect of urgent care when emotional intensity and medical fragility are at their peak. People prefer to die in their homes (though nearly three in four patients die in facility-based settings in Massachusetts), and ACC is a key adjunct to CCA's home-based and person-centered approach to end-of-life care. CCA's *LifeChoices* end-of-life program is a customized primary care-based palliative care program that caters to member's wishes about how they wish to die.

The following cases highlight the invaluable role ACC paramedics can play in facilitating member comfort at the end of life. Their scope of practice and equipment enables them to provide services that would otherwise be unavailable. As an extension of the primary care team, they are also able to provide counseling and mediate difficult conversations with members and their families in moments when they need it most.

Case: Congestive Heart Failure at the End of Life

The relative of a CCA member with congestive heart failure on hospice with active Medical Orders for Life-Sustaining Treatment (MOLST) requested an ACC dispatch due to the member's increasing lethargy. Upon the ACC paramedic's arrival, they found the member in bed with incoherent speech, refusing to eat, drink, or take medications. After examining the member, the ACCP discussed the situation with the on-call nurse practitioner and physician. They counseled the relative about the member's terminal condition, the temporizing measures that could be achieved in the emergency department, and the member's wishes. Collectively, they all determined that having the member stay home was more in line with the family's wishes and took measures to support physical comfort.

Case: Status Epilepticus at the End of Life

The ACC team was dispatched at the request of a group home to examine a CCA member on hospice who had been having repeated seizures. Upon the ACCP's arrival, they were met by the member's primary care provider. The medical team examined the member, who was unresponsive, tachycardic, and not actively seizing. However, the member soon began to seize again. Paramedics were able to prepare medications on the ambulance for intramuscular administration. After multiple doses of diazepam and midazolam, they gained control of the seizures. The member passed a short time later. Without the expanded resources on board the ACC ambulance, this member likely would have been transported to the closest hospital, passing away en route or in the hospital rather than at home.

Lessons Learned and the Future of Acute Community Care

While the value of treating elderly, disabled, and socioeconomically disadvantaged individuals with urgent but non-emergent conditions in their own homes and potentially mitigating contributions to the overcrowding of EDs may seem readily apparent, implementation of the ACC program carried significant challenges and produced valuable lessons for the future expansion of community paramedicine programs.

Health systems and healthcare delivery organizations across the country looking toward the Acute Community Care model must consider their state's regulatory climate. ACC began as a pilot program operating under a special project waiver from the Commonwealth of Massachusetts. Other states, such as Tennessee, required passage of legislation before allowing paramedics to provide non-emergent care. Beyond authorization, regulatory bodies must also address workforce issues such as training, certification, assessment, and competency maintenance.

How healthcare systems integrate paramedics into their delivery models also presents challenges. Information exchange, records access, and communication must be addressed for such models to be successful. Culture change is a more persistent challenge; buy-in from healthcare providers across the care continuum is essential for ACC to be successful. Not only is buy-in necessary in the host organization, but also in partnering providers such as EDs that commonly receive volume by EMS. Oversight and supervision require close monitoring. But more importantly, maintaining job satisfaction in a new environment is vital to long-term success.

Finally, aligning incentives, including payment models, will be essential for sustainability. The current payment structures employed by CMS, state Medicaid programs, and commercial insurers are centered on patient transport to the ED. Payments must be realigned to incentivize the delivery of optimal care to make the development of these delivery models possible and sustainable.

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