Mobile Integrated Health: Community Paramedicine Programs

Second Quarterly Report

September 2018 - November 2018

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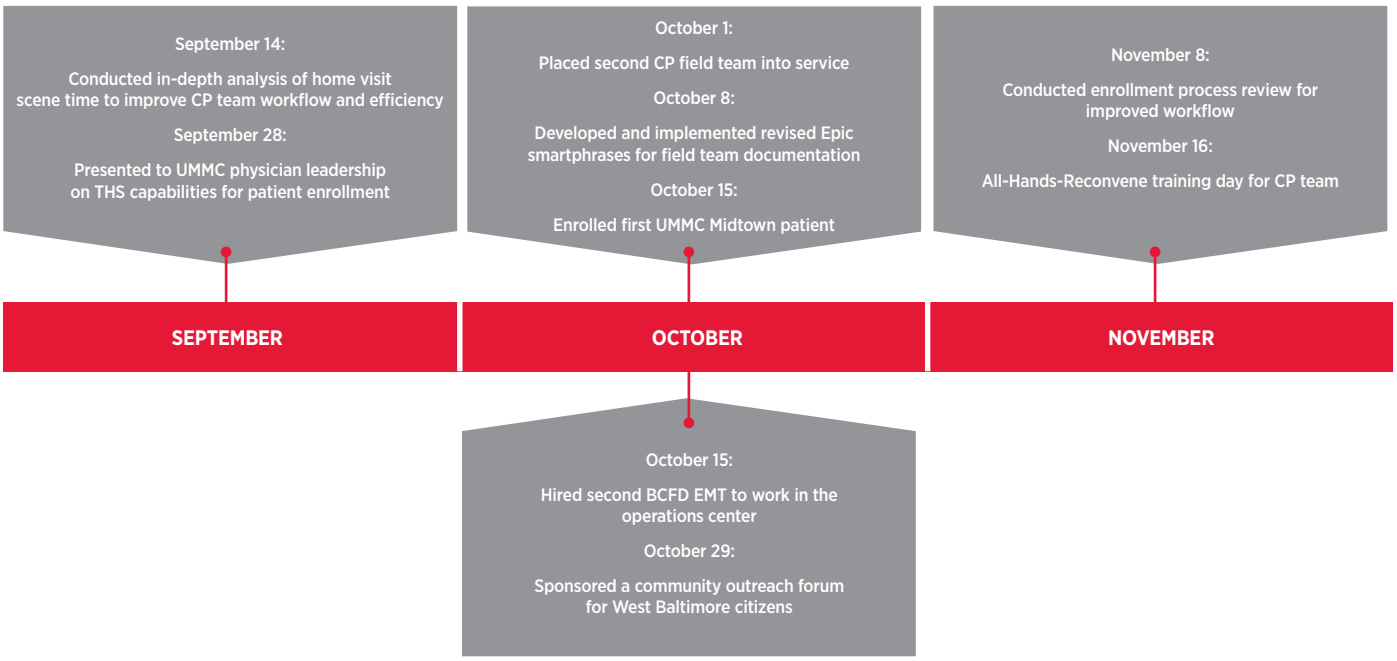
SECTION 1: **Overview**

The University of Maryland Medical Center (UMMC) and the Baltimore City Fire Department (BCFD) partnered to implement two Mobile Integrated Health (MIH) Community Paramedicine (CP) pilot programs in West Baltimore. The purpose of these MIH program is to comprehensively embrace the health of Baltimore citizens; address gaps in the delivery of health care services to patients; and reduce the need for emergency medical services (EMS) transport, emergency department evaluations, and hospital readmissions.

The Transitional Health Support (THS) Program utilizes a multi-disciplinary team to provide robust, patient-centered support to individuals at home, linking medical, pharmacological, social, and community resources. The field team, consisting of a BCFD community paramedic, a BCFD registered nurse (RN), a UMMC nurse practitioner (NP), and a UMMC nurse practitioner (NP) or a UMMC physician (MD), delivers in-home follow-up care and assists with chronic disease management for 30 days after hospital discharge. Through the support of an interdisciplinary Operations Center, staffed by pharmacists, social workers, community health workers (CHW), and emergency medical technicians (EMT)s, the program comprehensively addresses barriers to achieve improved health for enrolled patients.

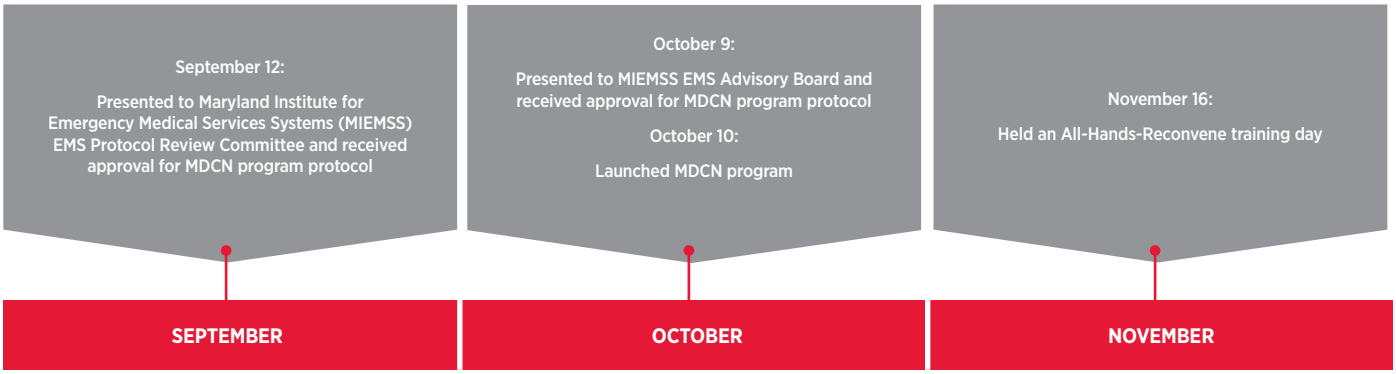
Transitional Health Support Timeline of Activities and Deliverables:



The Minor Definitive Care Now (MDCN) program provides low-acuity 911 callers with the option to receive immediate, on-scene care from an advanced-level provider (NP or MD) and a BCFD community paramedic. The patients are connected to appropriate follow-up care, either in or outside the University of Maryland Medical System (UMMS).

MIH Nurse Practitioner treating MDCN patient on Baltimore City bus

MDCN Timeline of Activities and Deliverables:



Second-Quarter THS Program Accomplishments:

- Expanded scope of MIH Operations Center to include home visits by a community health worker (CHW) and social worker.
- Improved documentation with the use of smartphrases that streamline and standardize electronic medical record entries by and for field teams.
- Arranged for a BCFD EMT to attend interdisciplinary rounds (IDR) at the University of Maryland Medical Center Midtown Campus.
- Employed a second field team (a BCFD community paramedic and BCFD RN) to accommodate increased patient enrollments and operational demand.
- Held an All-Hands-Reconvene training day for updates and continuing education with UMMC CHW, BCFD community paramedics, BCFD RNs, quality assurance personnel, and program leaders (see photo).

Second-Quarter MDCN Program Accomplishments:

- Initiated program on October 10, 2018.
- Conducted provider clinical education program.
- Trained community health workers in on-site patient registration.
- Implemented Firstwatch (a computer-based Geofence that is integrated with the 911 dispatch system to deliver real-time notification of calls from within the program's catchment area).

MIH team at All-Hands-Reconvene training day November 16, 2018

SECTION 2: Transitional Health Support (THS) Program

Through its community paramedicine team, the THS pilot program provides comprehensive multidisciplinary support to effectively transition patients to their home after discharge from the hospital.

THS Patient Story

Ms. Barbara had a complex medical history contributing to multiple hospitalizations. She was identified as someone who could benefit from comprehensive home health support and was enrolled in the THS Program while in the hospital. During the initial home visit, the CP THS team performed an assessment to evaluate her medical, social, pharmacologic, and environmental issues and identified the following needs:

- Lack of certain critical medications and duplicate medications for other conditions.
- Difficulty understanding which specialists to see for follow-up and which ones accept her insurance.
- Care coordination between multiple medical providers.
- Assistance in obtaining essential medical equipment.
- Transportation to and from doctors' offices and follow-up diagnostic testing.

The team addressed these health challenges, and hospital readmission was avoided while Ms. Barbara was enrolled in the THS Program.

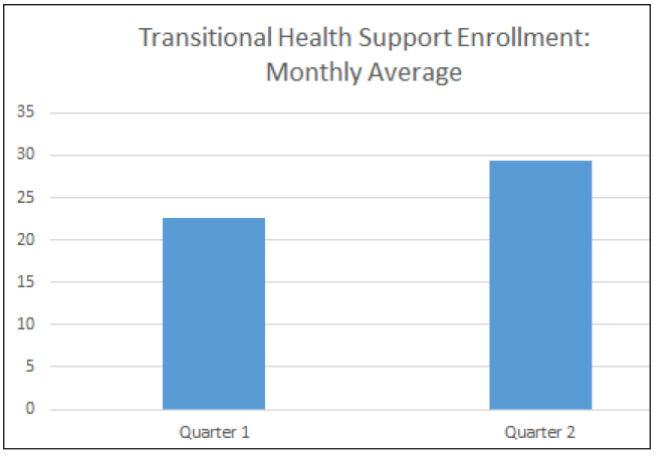
Days since inception: 199

Days operational: 143

The THS Program identifies patients with medical or social needs through UMMC's interdisciplinary rounds. Seventy percent of the patients who have been offered the services of the THS Program have accepted them.

UMMC interdisciplinary rounds include physicians, nurses, social workers, physical therapists, case managers, and a team member from the MIH pilot program. This group assists with discharge planning and refers complex West Baltimore patients to the THS program.

During the second quarter, the THS team members were further integrated into UMMC's interdisciplinary rounds, enhancing their understanding of the hospital's discharge process increasing patient enrollment into the program.



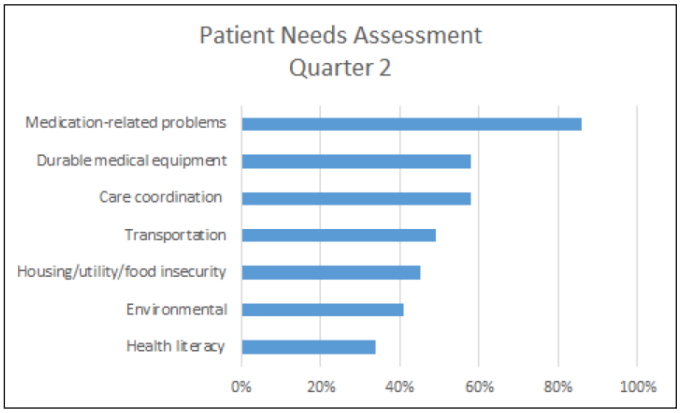
Demographics

In this current pilot phase, the UMMC/BCFD MIH CP program is available to residents of West Baltimore communities. The demographics of the 88 patients who were enrolled in the THS program between September and November 2018 are described below:

Characteristics	N=88
Age in years, average (range)	**62 (29-96)**
Female	**53 (60%)**
Race	
African American	75 (86%)
White	13 (14%)
Inpatient (vs observation)	**58 (66%)**
Mode of transport to hospital	
Ambulance	44 (50%)
Car	39 (44%)
Walking	5 (6%)
Primary diagnosis	
Diseases and Disorders of the Circulatory System	15 (17%)
Diseases and Disorders of the Digestive System	14 (16%)
Diseases and Disorders of the Respiratory System	11 (13%)
Diseases and Disorders of the Kidney and Urinary Tract	9 (10%)
Other	39 (44%)
Payor	
Medicaid	24 (28%)
Medicare	55 (63%)
Commercial	8 (9%)

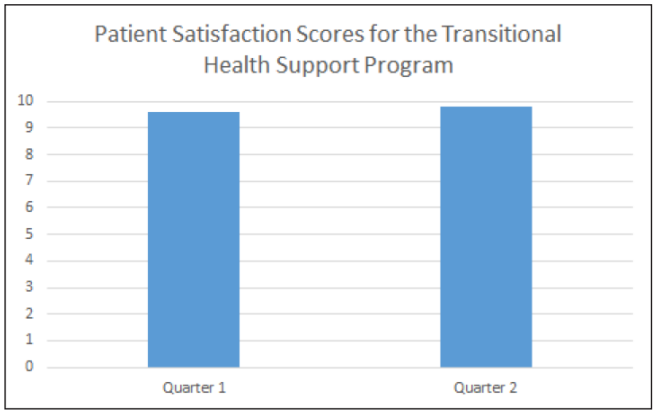
Patient Needs Assessment

Through chart review, the MIH CP team identifies social determinants of health requiring assistance and facilitates interventions to meet patients needs.



Patient Satisfaction

The THS program constantly receives valuable feedback from patients and carefully considers recommendations from the people it is designed to help. High patient satisfaction scores were achieved in the first and second quarters.



**Range is scored 0-10, with 10 representing the highest level of satisfaction.*

THS PATIENT FEEDBACK

"Amazing program that I wish everyone had."

"Excellent program. Very helpful. Thank you. I will miss you."

"I would like to enroll again if I ever had to come to hospital."

"Thank you. Such great people and excellent care. Thank you."

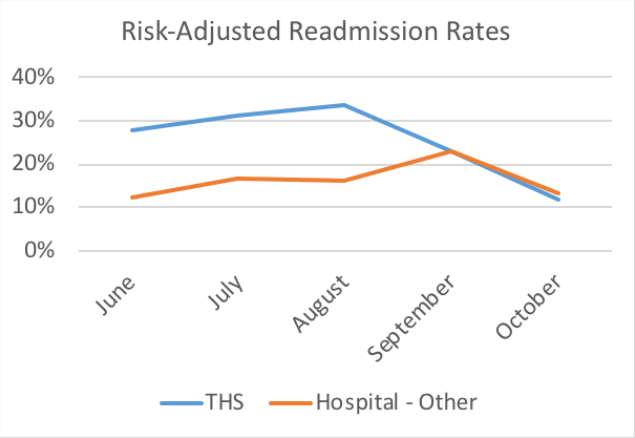
Evaluation and Outcomes

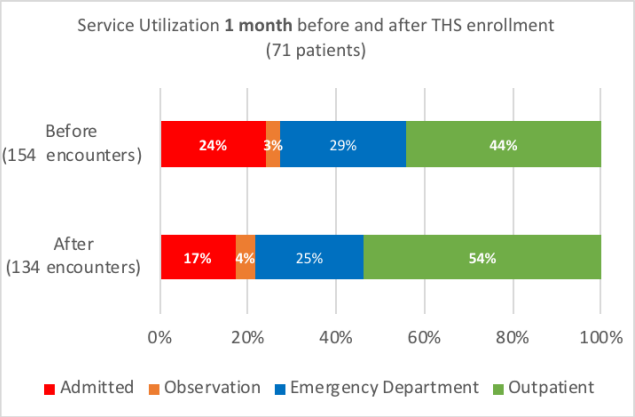
We compared the official Health Services Cost Review Commission hospital risk-adjusted readmission rates to any hospital in Maryland between patients enrolled in the THS Program and other hospital patients with similar characteristics not enrolled in the program.

The hospital risk-adjusted readmission rate decreased by 10% from August to September 2018 and by 11% from September to October 2018 for patients enrolled in the THS Program. In comparison, the risk-adjusted readmission rate for similar patients not enrolled in the program increased by 7% and decreased by 10% for the same respective time periods.

We excluding the initial inpatient utilization associated with patients when enrolled at bed-side in the program and compared the distribution of service utilization 1 month and 3 months before and after enrollment.

Inpatient (admitted and observation status) together with Emergency Department utilization were proportionally less utilized (-10%) whereas outpatient services were more utilized (+10%) 1 month before to 1 month after enrollment.





Next Steps

- Initiate an improvement process that adjusts enrollment scheduling to optimize program resources to patient needs.
- Consult with external community paramedicine experts to conduct an objective assessment of our West Baltimore Mobile Integrated Health Program.
- Propose an increase in the use of telemedicine during home visits to the MIEMSS, which would modify the THS protocol to increase telemedicine capabilities, specifically during initial home visits.
- Enhance THS Program's ability to ascertain patients' prescription needs and to intervene when substance abuse is suspected.
- Build into Epic documentation the ability for improved data retrieval, analysis, and interpretation.

SECTION 3: Minor Definitive Care Now (MDCN) Program

The UMMC/BCFD MDCN Program augments routine Baltimore City 911 service, giving patients with low-acuity conditions the option of on-scene treatment of their illness or injury, avoiding ambulance transport and ED waiting time. By treating patients at the scene of illness or injury, the MDCN Program reduces ED crowding and the use of medical resources, with the potential to control healthcare costs.

Patient Story

Ms. Vondirea was on a bus, when it stopped short, causing her to lose her balance. 911 was called to transport her to the hospital for ED evaluation. The MDCN team, consisting of a advance level provider (ALP) and paramedic arrived and offered her on-scene treatment. She agreed and was evaluated. Ms. Vondirea, a diabetic, had minor injuries and was given a prescription and information to help her manage her care. During her evaluation, an elevated blood sugar was identified. The MDCN team notified her doctor from the scene and a plan was made to follow up that day for a potential medication adjustment.

MDCN PROGRAM STATISTICS

Days since inception: 51 **Days operational:** 35

Responses:

The MDCN team screened and responded to 59 calls.

Total number of patients screened: 59

38 ineligible patients:

- Patients were not medically able to be treated on scene by the ALP.
- Patient met inclusion criteria but required additional supplies or equipment that was not available for on-scene management.
- Patient's complaints were not appropriate for a 911 designated "Alpha" call determination.

14 eligible patients:

- 7 eligible patients refused (and following reasons?)

7 eligible patients were treated and discharged:

- 3 patients requested transport to an ED
- 2 patients refused
- 1 patient asked to be transported to a UMMC ED
- 1 patient refused all of 911 assistance

7 outliers:

- 4 calls resulted in no patient contact (false call, patient was transported before NP's arrival).
- 3 calls with incomplete data (process has since been corrected).

Types of complaints evaluated and treated to date:

- Digestive system issues
- Rashes
- Musculoskeletal pains
- Ear, nose, mouth, and throat concerns

Time Savings

The MDCN team successfully treated seven patients during the initial phase of the MDCN program. An average call time for Baltimore City EMS patient transports is 77 minutes. On-scene treatment of patients by the MDCN team decreased decreased EMS unit utilization time to 51 minutes per incident. BCFD has calculated an average saving of 26 minutes of utilization time for EMS transport units per NP-1 case.

BCFD anticipates continued reduction in EMS utilization time on incidents when the MDCN manages patients at the scene.

Patient Satisfaction

The MDCN team asks patients to complete a survey after they receive treatment. At the conclusion of this quarter, the patient satisfaction score is favorable at a score of 10/10.

Quality Assurance

- No safety issues related to patient encounters and treatment have been identified.
- No patients who received definitive MDCN treatment presented for unscheduled emergency department evaluation within 72 hours.

Next Steps

- Propose to MIEMSS, for approval, a protocol modification for MDCN providers to allow evaluation of Bravo-level calls.
- Expand the patient catchment area.
- Propose to MIEMSS, for approval, the concept of having EMS providers refer patients to the MDCN team for evaluation.
- Employ Lyft services to transport patients to urgent care centers.
- Distribute a job satisfaction and employee engagement survey to MIH CP staff to guide program development.
- Implement a 24-hour follow-up phone call to patients who receive MDCN.

PATIENT SATISFACTION

"This is great;

I do not want to go to the ED."

"I can't get an appointment with my doctor until next week; thank you so much."

Program Leadership

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Mobile Integrated Health Community Paramedicine Team