

Maryland Mobile Integrated Health Programs
Involving
Emergency Medical Services (EMS)
Executive Summary

The 2017 Joint Chairmen’s Report directed the Maryland Institute for EMS Systems (MIEMSS) to evaluate the impact of existing Mobile Integrated Health¹ (MIH) Programs, including a cost-benefit analysis, explore the potential for further expansion, and consider potential solutions to the lack of secured funding for EMS participation. As discussed herein, the Study Report includes the following information:

- Maryland MIH programs take different forms, but all are targeted to reducing the number of EMS transports of high utilizers of 9-1-1 services who have chronic or low acuity conditions. In MIH programs, EMS partners with other health care providers to conduct home visits to assess, treat and refer patients to needed services outside the emergency environment. A variant of MIH, an Alternative Destination Program, involves transport of patients with low acuity conditions to an urgent care environment, instead of transporting low-acuity patients to a hospital emergency department.
- There are currently seven (7) programs in Maryland that are either operational or soon to be operational that are providing alternative approaches to treating certain identified patients who call 9-1-1 for EMS transport to hospital emergency departments. Six (6) of the programs are MIH Programs: 1) Queen Anne’s County; 2) Prince George’s County; 3) Charles County; 4) Montgomery County; 5) Salisbury – Wicomico County; and 6) Frederick County. A 7th program, implemented in Baltimore City, is an Alternate Destination Pilot Program. The programs are described in detail herein.
- Measures of effectiveness have been established for all the Maryland programs. Initial program results show MIH Program patient participants have decreased use of EMS, decreased hospital emergency department visits and increased use of other non-emergency sources of needed healthcare and services within the community.
- Maryland MIH programs are funded through a combination of grants, in-kind service donations, and jurisdictional (e.g., county) budgets (usually supported by jurisdictional tax dollars). These funding sources are critical because current EMS reimbursement policies do not provide reimbursement for services provided by EMS when the patient is not transported, as is the case with MIH programs. The Alternative Destination Pilot Program is funded through the jurisdiction and in-kind service donations. Current EMS reimbursement policies also fail to provide reimbursement for patient transport to an urgent care center, as is the case with patients transported under the Alternative Destination Pilot Program.

¹ The term “Mobile Integrated Health (MIH) Program” may be used interchangeably with the term “Mobile Integrated Community Health (MICH) Program.”

- Changes to Maryland’s All Payer System, including the Global Budget Revenue arrangement and the Total Cost of Care Demonstration project, which include providing increased community-based health care services to high users, currently do not include MIH programs or EMS as part of those initiatives – a significant missed opportunity.
- Securing adequate and ongoing support for MIH and similar programs is key to their growth and sustainment and will require changes to existing EMS reimbursement policies and other key actions:
 - Integration of MIH Programs in statewide health care payment initiatives that are being undertaken as part of updates and refinements to the All Payer System
 - Formal inclusion and involvement of EMS in planning for larger health care payment initiatives, such as All Payer System initiatives
 - With the involvement of Health Services Cost Review Commission (HSCRC), development of demonstration projects to permit EMS to bill for non-transport services that occur as part of MIH programs and to assess the effects of providing Medicare reimbursement to EMS for MIH services
 - Better alignment of EMS reimbursement and EMS financial incentives with the financial incentives associated with Maryland’s updated and refined reimbursement programs for hospitals and other health providers
 - Recognition of hospitals that champion MIH programs and creation of incentives for greater numbers of hospitals to participate in MIH programs through financial commitments to the ongoing operation of these programs
 - Revisions to state law to permit EMS to be reimbursed by Medicaid and private insurers for MIH services and for Alternate Destination transports.
 - If modifications to reimbursement policies, as outlined above, are not achievable in the near term, establishment of a fund to provide support to MIH programs and to encourage establishment of new programs until changes to reimbursement policies can be attained.

Introduction

The 2017 Joint Chairmen’s Report contained the following language:

Mobile Integrated Healthcare Programs: The Maryland Institute for Emergency Medical Services Systems (MIEMSS) is part of an initiative to implement Mobile Integrated Healthcare (MIH) programs, in an effort to reduce unnecessary use of 911 and unnecessary transports to hospital emergency departments for minor medical complications. With the significant increase in hospital overcrowding in fiscal 2016, the budget committees direct MIEMSS to evaluate the impact of existing MIH programs and explore the potential for further expansion. The evaluation should include a cost-benefit analysis of the program and potential solutions to the lack of secured funding for emergency medical services’ participation. The report is due to the budget committees no later than November 1, 2017.

In response to this request, MIEMSS convened a MIH Report / Study Workgroup. The group included representatives from MIEMSS, Prince George’s County Fire and Emergency Medical Services (EMS) Department, Montgomery County Fire & Rescue Services, Charles County Department of Emergency Services, Queen Anne’s County Department of Emergency Services, Dorchester County Department of Emergency Services, and Baltimore City Fire Department. This report is a result of the Workgroup’s efforts.

Background & Policy Context for the Study

In response to increasing health care costs, innovations to health care delivery systems are changing the landscape of health care. Use of Emergency Medical Services (EMS) providers functioning in a primary care capacity within the public health arena was envisioned in both the EMS Agenda for the Future² and the Rural and Frontier Emergency Medical Services Agenda for the Future³. Use of EMS providers in Mobile Integrated Health (MIH) programs has been identified as a way to increase patient access to primary and preventative care, provide wellness interventions within the medical home model, decrease utilization of ambulance transports and emergency department visits, decrease hospital readmissions, save healthcare dollars and improve patient outcomes using EMS providers in expanded roles^{4, 5}. Using Paramedics in such expanded roles builds upon an already existing workforce that is already trained to perform patient assessments and recognize and manage life-threatening conditions in out-of-hospital settings. EMS providers are also accustomed to providing care in home and community settings

² Delbridge, T; Emergency Medical Services Agenda for the Future; National Highway Traffic Safety Administration, US DOT, 1996.

³ McGinnis, KK; Rural and Frontier Emergency Medical Services Agenda for the Future, National Rural Health Association Press, 2004.

⁴ Principles for Community Paramedicine Programs; National Rural Health Association Policy Brief; NRHA, September 2012.

⁵ The Wall Street Journal. The Revolution in EMS Care. September 25, 2016.

under relatively austere medical care conditions, are widely trusted by the public, and have interactions with a variety of healthcare providers in a variety of medical settings.⁶

Throughout the US, many jurisdictions have expanded the role of EMS through innovative MIH programs that have demonstrated the capability of linking patients to preventative health services, reducing 9-1-1 EMS call volumes, and improving the continuity of care from the hospital to the home in order to reduce complications for patients and avoid unnecessary hospital readmissions. Approximately 114 MIH programs exist across 100 cities and 33 states and the District of Columbia. These programs take a variety of forms based on the specific needs and resources of the jurisdiction, including targeting high utilizers of EMS, conducting in home visits to assess, treat and refer residents to appropriate city services outside of the emergency context, as well as staffing 9-1-1 call centers to provide medical advice and triage non-emergency patients to appropriate health care providers and community services. The key components of any MIH program is integration of existing health care services in the community, breaking down existing barriers to information sharing, and coordination of care that otherwise can result in less effective patient management across the health care system.

In Maryland, the need for alternative approaches to providing services in response to 9-1-1 calls for EMS has become apparent as EMS jurisdictions grapple with an ever-increasing volume of 9-1-1 calls for EMS services. For example, between FY2015 and FY2016, EMS transports in Baltimore City increased by nearly 5,918 patients, and the City saw an additional 2,972 patient transports between FY2016 and FY2017. Total EMS transports for Baltimore City were at an all-time high in FY 2017 of 100,984. Because of the strictures of reimbursement policies, nearly all of these patients are transported to hospital emergency departments. Further, in addition to the high and growing number of EMS transports, there are tens of thousands of additional 9-1-1 calls that EMS responds to where the patient is treated, but not transported (see, e.g., “EMS Incidents” below). The rate of growth in EMS calls, particularly in certain areas of the state, e.g., Baltimore City, Montgomery County, and Prince George’s County, has placed increasing financial burdens on EMS jurisdictions, as additional resources are needed to meet the increasing demand.

Baltimore City Fire Department EMS Incident and Transport Totals by Fiscal Year

Fiscal Year	EMS Incidents⁷	EMS Transports
FY 2010	127,831	85,749
FY 2011	127,758	86,450
FY 2012	131,146	90,155
FY 2013	134,147	93,964
FY 2014	130,127	92,801
FY 2015	133,739	92,094
FY 2016	146,406	98,012
FY 2017	154,621	100,894

Source: Baltimore City Fire Department

⁶ Kizer K, Shore K, Moulin A; Community Paramedicine: A Promising Model for Integrating Emergency and Primary Care, July 2013.

⁷ “EMS Incidents” includes “EMS Transports.”

At the same time, there are many patients who call 9-1-1 and are transported by EMS to hospital emergency departments whose conditions could be treated in a health care environment other than a hospital emergency department. Statewide EMS data indicates that a significant number of EMS patients are classified as “Priority 3.” Priority 3 patients are those whom EMS has determined have “non-emergent conditions, requiring medical attention, but not on an emergency basis”⁸.

FY 2017	Priority 1	Priority 2	Priority 3	Priority 4
Medical	21,822	170,723	306,959	14,189
Injury	3,285	26,516	89,519	2,318

Source: eMEDS Data

Priority 3 Medical patients, as well as Priority 4 Medical and Injury patients, appear to be potential candidates for treatment in non-emergency environments.

EMS Program Alternatives to Traditional 9-1-1 EMS Response:

Mobile Integrated Health Programs

Maryland MIH programs are targeted to reducing the number of EMS transports of high utilizers of 9-1-1 EMS services who have chronic or low acuity conditions by partnering with other health care providers to conduct home visits to assess, treat and refer patients to needed services outside the emergency environment. MIH programs have been implemented and are operational in Queen Anne’s County, Montgomery County, Prince George’s County, and Charles County. Additional MIH programs are starting in Salisbury-Wicomico County and in Frederick County. A key feature of each of these programs is connecting frequent users of the 9-1-1 EMS system who have non-emergency conditions with medical and/or social programs within their communities that can address the conditions that resulted in the patient’s call to 9-1-1 for EMS. A brief summary of each of the MIH programs follows.

Queen Anne’s County. The Queen Anne’s County Mobile Integrated Health Program, implemented in 2014, was first program of its kind in Maryland. The goal of the program is to focus on population health by ultimately linking patients to existing underutilized resources in order to decrease excessive patient use of the 911 system, frequent emergency department visits, frequent hospital admissions and improve the patient’s overall quality of life. The program

⁸ Priority 1 — Critically ill or injured person requiring immediate attention; unstable patients with life-threatening injury or illness. Priority 2 — Less serious condition yet potentially life-threatening injury or illness, requiring emergency medical attention but not immediately endangering the patient’s life. Priority 3 — Non-emergent condition, requiring medical attention but not on an emergency basis. Priority 4 — Does not require medical attention. Source: Maryland Medical protocols for EMS providers, page 31 II. GENERAL PATIENT CARE (GPC) -> D. INITIAL ASSESSMENT -> 7. Assign Clinical Priority -> (a) through (d). See https://www.miemss.org/home/Portals/0/Docs/Guidelines_Protocols/2017-MD-Medical-Protocols-WEB.pdf?ver=2017-04-04-143321-600

offers free services to county residents, over the age of 18, who are identified as high risk patients prone to overutilization of 911 services, emergency department visits, and frequent hospital admissions. Program participants are offered a home visit by a team consisting of a public health nurse, a paramedic from the Department of Emergency Services, and, if the patient's individual situation requires it, a visit from a behavioral health and substance abuse counselor. During the home visit, each patient is connected to the Shore Regional Health System's Shore Post-Acute Care Clinic's (SPACC) PharmD via telemedicine, who then performs a complete medication reconciliation and a focused medication review with the patient. All medication inventory issues are then communicated to the patient's Primary Care Physician. Home visits are meant to assess the patient's current quality of life and focus on overall physical and mental health, substance abuse risk, home safety checks, fall risk assessments, nutrition, social support evaluation, medication reconciliation, and condition-specific education. From this comprehensive assessment, barriers to medical and mental healthcare are identified and existing social, medical, mental health, transportation, and nutrition resources, among others, are considered for utilization. With the goal of improving the patient's quality of life and overall health, the MIH team works together to break down the identified barriers to care by linking the patient with the appropriate public health, community, or medical/mental health resource.

So far, this program has helped to identify members of the community who lack access to primary care, struggle with the complexities of their chronic illness, suffer from geographic or social isolation, and experience a fragmented access to care for mental health and substance abuse. Through comprehensive home visits, the MIH program has been able to give patients the opportunity to overcome the barriers preventing them from living the life they want to live and gives them the chance to take back control of their physical and mental health, increasing their overall quality of life and wellbeing. The program is not a replacement for traditional home health care or visiting nurse agencies.

In 2016, the Queen Anne's County Mobile Integrated Health Program expanded its program to begin using telehealth technology to link high risk patients with SPACC. The patient is linked to the SPACC PharmD, and medication reconciliation and focused medical review with the patient is performed.

Program Participants. Participants in the Queen Anne's County Mobile Integrated Health Program are UMD Shore Regional Health, Anne Arundel Medical Center, Maryland Department of Health, MIEMSS, QAC Department of Health, and QAC Department of Emergency Services.

Funding. \$50,000 grant from Shore Regional Health; \$50,000 grant from Anne Arundel Medical Center; \$400,000 grant over three years from CareFirst BlueCross BlueShield (2016) to expand access to health care to underserved communities through the use of telemedicine. The intent is to use telemedicine programs to remove common barriers to health care services and address existing health outcome disparities. This grant was part of a \$3 million CareFirst initiative in MD, Northern Virginia, and Washington, DC.

Measures of Effectiveness.

- **Demographic and Assessment Data Collected:**

- Patient age, gender, and geographic location based on zip code
- Insurance status
- Highest level of education obtained
- Household income
- Number of referrals by source (EMS, AAMC, SPACC, or local EDs)
- Total number of referred patients and total number of accepted visits by referral source
- Primary diagnosis of MICH patients (based on ICD-10 codes)
- All Diagnoses of MICH patients (based on ICD-10 codes)
- Avg. number of diagnoses per patient
- Number of medication inventories performed
- Avg. number of medications per patient
- Number of referrals made on behalf of the patient by category (home delivered meals, transportation, home health, etc.)
- Number of referrals made on behalf of the patient to specific groups/organizations (County Ride, DSS, Meals on Wheels, etc.)
- Avg. number of linked services per patient
- Results from Physical Environment Assessment Tool
- Results from the Hendrich II Fall Risk Model
- Results from the Drug Abuse Screening Tool (DAST-10)
- Results from the Alcohol Use Disorder Identification Test (AUDIT)
- Results from Brief Interview for Mental Status
- Health Status Questionnaire Results (EuroQol EQ-5D-3L)
- Total and average direct time (time spent with patient)
- Total and average indirect time (time spent on travel and with scheduling)
- Total and average mileage travelled
- Number of patients enrolled in Everbridge who were not previously enrolled prior to a MICH visit
- Number of medication inventories performed with issues identified
- Number of issues identified in medication inventory by type (non-compliant, incompatibility, incorrect dose, etc.)

- **Quality of Care and Patient Safety Measures:**

- Increase the number and percent of patients utilizing a Primary Care Provider (PCP) (if none upon enrollment) by 75%.
- Increase the number and percent of medication inventories conducted with issues identified by the MICH and SPACC team and communicated to the PCP by 5%.
- 70% of MICH patients served will have a documented plan of care with goals established by the MICH and SPACC teams and communicated to the PCP.
- Increase the portion of patients referred to community or healthcare resources for reconciliation of medical, behavioral, social, transportation and/or environmental hazards and risks by 25%.
- 50% of MICH patients reported improved health and quality of life (as determined from survey responses sent to patients 3-6 months after enrollment).

- **Utilization Measures comparing all utilization rates post MICH enrollment compared to pre MICH enrollment):**
 - Lower utilization of the emergency room by 10%
 - Decrease unplanned hospital admissions by 10%
 - Decrease the overall number of 30 day readmissions
 - Decrease the overall number of 60 day readmissions
 - Decrease the overall number of 90 day readmissions
 - Lower utilization of 911 services (transport and non-transport service calls) by 10%

- **Experience of Care Measures (as reported by satisfaction survey responses):**
 - 50% of MICH patients will rate MICH services as satisfactory or higher
 - 50% of MICH patients will report that MICH services increased their understanding of their disease and medication management.

- **Cost of Care Measures:**
 - Reduce expenditures for ED visits post MICH enrollment.
 - Reduce expenditures for hospital admissions post MICH enrollment.

Prince George’s Mobile Integrated Healthcare. The Prince George’s County Fire/EMS Department implemented its MIH program in the summer of 2016. In partnership with the county’s health department, local hospitals, and various managed care organizations, the MIH team’s goal is to improve the health of the county’s population by increasing access to available healthcare. To do this, the MIH program focused on reducing utilization of the 9-1-1 system by addressing the medical and social needs of frequent utilizers. This partnership has allowed the team to find innovative healthcare solutions for patients, which has, in turn, kept them out of overcrowded emergency departments.

The specific patient population targeted includes: 1) patients who called 911 for any medically-related reason five times in any six-month interval; or 2) patients who are referred to the MIH team by other allied health providers or by EMS providers. In both cases, patients must consent to participate in the program and be at least 18 years of age.

Once identified, the MIH team, which consists of a community based paramedic and a nurse and/or nurse practitioner, schedule an in-home visit. During this home visit, the MIH team conducts a full home safety assessment, vital sign assessment, patient history, and medication review and reconciliation. Other services that may be provided include a nutrition evaluation, social support evaluation, mental health assessment, and linkages to community health workers and community based services. Once completed, this information is taken back to the coordinating team who develops a care plan for the patient.

Not only has this program benefited patients, but it also has shown a reduction in use of the 9-1-1 system. Within the pilot period of 180 days, the Prince Georges County Fire / EMS Department saw a 56% reduction in 9-1-1 calls for those patients enrolled in the MIH program. This not only benefitted those patients, but it also allowed 9-1-1 EMS resources to remain available for other 9-1-1 EMS calls.

Program Participants. Prince George's County Fire / EMS Department, the Prince George's Health Department, Department of Social Services, Doctor's Community Hospital, Anne Arundel Medical Center, Prince George's Hospital Center and/or Washington Adventist Hospital

Funding. EMS participation in the program is funded through the Fire/EMS Department's budget. This funding includes two (2) full-time equivalent positions and logistical resources. Future expansion is projected to include eight (8) community based paramedics, one (1) nurse coordinator and one (1) administrative assistant. These positions will be funded through the Fire/EMS Department's budget.

Measures of Effectiveness. To ensure the goal of reducing 9-1-1 calls, transports, ED visits and inpatient care is being met, the MIH established the following program performance measures:

- 9-1-1 use since first MIH home visit
- Hospital visits after first MIH home visit
- Hospital admissions after first MIH home visit
- Aggregate summary of patient satisfaction survey (completed upon conclusion of each visit)
- Number of patients that qualified and the number that have consented to enroll in the MIHPP
- Number of patients that qualified and refused to enroll in the MIHPP
- Patient Quality of Life survey scores for both pre- and post- enrollment of the patient into the MIHPP
- Any problems identified in complying with or applying the pilot program by the RN or paramedic

- Any increase of the number and percent of patients utilizing a Primary Care Provider (PCP) (if none upon enrollment)
- Any untoward events or formal patient complaints with detailed explanation
- Number of referrals to additional allied health, social services, or programs that the MIHPP determines as beneficial per patient and recruited patient compliance
- Number and percent of medication inventories conducted with issues identified and communicated to PCP
- Monthly run chart reporting and/or pre-post Emergency Department comparison
- Where possible, cost expenditures and cost savings (as part of quarterly and annual reporting)

- Number and percent of safety-related interventions
- Physical environment assessment tool
- Hendrick fall risk assessment tool

Charles County. The Charles County MIH Program is a public health-EMS-hospital partnership that seeks to address utilization of EMS and Emergency Department services in Charles County by assisting frequent ED / EMS users to manage their chronic conditions in a primary care setting or at home. The Charles County MIH Program is modeled after the Queen Anne’s County MIH Program.

A mix of grant funding, funding from the county’s operating budget and contributions from the University of Maryland Charles Regional Medical Center supports the MIH team which is comprised of a paramedic, a nurse practitioner and one community health worker. During the initial visit, the MIH team assesses the patient’s vital signs, reviews discharge paperwork, evaluates compliance with discharge instructions, completes a medication evaluation / reconciliation, conducts an environmental scan of the home for safety issues, and provides health education and chronic disease self-management information, when appropriate. After the initial visit, the community health worker provides the contact to help keep patients engaged in the program and out of the emergency department. Enrollment into the program is free to all participants who qualify.

Program Participants. The Charles County MIH program is a collaborative effort among the Charles County Health Department, Charles Department of Emergency Services, and the University of Maryland Charles Regional Medical Center.

Funding. The Charles County MIH Program received a \$400,000 three-year grant from the Maryland Community Health Resource Commission and an additional \$150,000 over the three year period from the UM Charles Regional Medical Center.

Project monies are used to fund MIH personnel:

- One (1) FTE Nurse Practitioner / Program Manager
- One (1) FTE Community Health Worker position
- Contractual: \$73,000 to Charles County Department of Emergency Services to employ one (1) FTE paramedic

In kind contributions include the following:

- Part-time Nurse Case Worker provided by UMMS CRMS
- Part-time Nurse Client Coordinator provided by the UMMS CRMS
- Part-time Epidemiologist provided by the Health Department
- Office space provided by the Health Department
- Part-time Marketing Specialist provided by the County
- Medical supplies/equipment, office supplies/equipment and vehicle provided the County

Expected population to be served. Sixty (60) individuals, who do not qualify for home health assistance, yet require some transitional oversight between discharge from a healthcare facility and resuming independent self-maintenance. Most participants are anticipated to be either

Medicaid or Medicare beneficiaries. Phase I implementation includes direct patient referral from CRMC through a high utilizer database. Phase II implementation provides the means for direct EMS referral to the MIH team from the field, as well as a search of a shared high system utilizer database. Phase III, the final phase, allows external social relation agencies to refer patients into the program if they feel their client would benefit from the program.

Measures of Effectiveness. Data is reviewed every six months.

Goal #1: A reduction in hospital readmission rate to the Medicare all cause / all payer readmission rate of 10.39%

Objective: Decrease the % of ED visits among participants by 25%
Decrease the average number of ED visits among high utilizers from 32 to 24 visits per patient

Goal #2: A 10% reduction in the EMS transport rate due to less usage among high utilizers for non-emergent transport

Objective: Decrease the percentage of 911 calls & EMS transports among participants by 25%
Increase health literacy by educating participants on prevention / management of their disease processes
Increase the number of participants who visit their primary care providers twice a year for routine care

Montgomery County. The Montgomery County Fire & Rescue Services (MCFRS) is implementing an MIH initiative (the Montgomery County Non-Emergency Intervention and Community Care Coordination or MCNIC³ program) that will target frequent users of the 911 system and connect them to medical / social programs within their communities that can meet their needs. MCFRS is faced with an EMS call load increase of about 3,000 calls a year and is trying new and innovative ways to level off the rate of increase in demand for service.

The MCNIC³ program has several facets. First, EMS and firefighters can electronically refer any patient to the program that they encounter while on a 9-1-1 call. Follow-up occurs mainly through phone calls and follow-up with public / private resources that are participating in the program. Second, patients with chronic health needs and high ED / hospital usage are visited by a team of a hospital nurse and a paramedic. Third, for the top 100 high utilizing patients (“super users”) who account for about 2,500 calls annually, MCFRS is working with the Montgomery Health and Human Services Department and its divisions (Behavioral Health, Adult Protective Services, Social Services to Adults, and Aging & Disability) to identify ways to meet the needs of these individuals.

In FY18, MCFRS plans to add a full-time Social Worker to the program to assist in coordinating efforts among the program participants and oversee patient outreach. This latter aspect of the program is modeled after programs in Tuscaloosa, AL, and Las Vegas, NV.

Program Participants. Montgomery County Fire & Rescue Services, Montgomery County Department of Health and Human Services, Shady Grove Adventist Hospital, Suburban Hospital,

Washington Adventist Hospital and other public and private medical and social services providers. MCFRS plans to expand the program to all county hospitals.

Funding. The program is currently being funded by MCFRS out of its operating budget. In FY17, MCFRS spent approximately \$200,000 on this initiative. This funding supported 1.5 FTE firefighter/paramedics who were re-allocated from other duties, and a few other paramedics on an occasional overtime basis who assisted with home visits. The nurses for the program are being contributed by the various hospitals. If the program is built out to include the planned three (3) FTEs (Program Manager, Data Analyst, and Social Worker) and other part-time personnel, the annual budget will be approximately \$550,000.

Measures of Effectiveness. MCFRS is currently tracking 9-1-1 usage for six months before and after intervention for all patients who are enrolled in the program. In CY16, MCFRS worked with 33 patients. These patients had called for service 441 times in the six months preceding the intervention, but called only 228 times in the six months thereafter: the average reduction in 911 usage was 55%. In CY17, MCFRS is targeting working with 150 patients and hopes to achieve similar results. MCFRS will continue to track 9-1-1 usage, as well as ED and hospital utilization data (similar to Prince George's County) to obtain a complete picture of costs to the health care system, and what cost avoidance may be obtained by various health care system stakeholders. MCFRS is working towards using the set of MIH Program Measures as recommended by the NAEMT MIH-CP Measures workgroup (found at <http://www.naemt.org/MIH-CP/mih-cp-toolkit>); however, collecting such detailed data will require a large investment of resources.

Salisbury – Wicomico Integrated FirstCare Team (“SWIFT”). FirstCare, a collaboration between the Salisbury Fire Department (SFD) and Peninsula Regional Medical Center (PRMC), will team a paramedic with a registered nurse from PRMC to conduct vital sign checks, examine for signs of abuse or neglect, conduct home safety assessments and refer patients to primary care physicians, medical specialists and, if needed, in-home care providers. The program will be offered to individuals calling 9-1-1 for medical reasons at least five (5) times over a six-month period. Other allied health care providers may also refer patients to the program. A key assumption of the project is that its target population will likely be disproportionately low-income and elderly and those health disparities, if present, will likely be due to socio-economic status and lack of healthcare resources. The SWIFT team projects that it will serve about 100 patients during its first year of operation and about 250 patients during the three-year course of its anticipated operation. The program is anticipated to operate approximately 12 hours per week during the start-up phase; the need for additional hours will be determined based on program need.

The SWIFT's program objectives are as follows:

1. By the end of the first fiscal year (FY18), reduce by 20% the total number of annual, non-emergency SFD EMS transportation calls.
2. By the end of the second fiscal year (FY19), reduce by 15% the previous fiscal year's number of such calls.
3. By the end of the third fiscal year (FY20), reduce such calls by a further 10%.

4. By the end of the third fiscal year (FY20), have avoided about 600 unnecessary ED admissions over the course of the three-year program.
5. Over the course of the three years of the pilot program, enroll a total of 210 patients in the SWIFT.
6. By the end of the third fiscal year (FY20), work with Maryland Department of Health and the Centers for Medicare & Medicaid Services in order to permit Medicare / Medicaid reimbursement of MIH programs.

Participants. Salisbury Fire Department, Peninsula Regional Medical Center, the City of Salisbury, and the Wicomico County Health Department.

Funding. The program will be funded by a combination of grant funding and in-kind support. Financial support for the program is being provided by CareFirst in the amount of \$95,000 for a one-year period that will be used to support assignment of an EMS provider to the program, as well as vehicle equipped with basic life support equipment. PRMC is providing a part-time registered nurse; if the nurse is not available, the Wicomico County Health Department will provide a part-time nurse practitioner for the program. The Health Department is also responsible to provide data analysis to the program. At this juncture, funding for years 2 and 3 of the program has not yet been identified.

Measures of Effectiveness. The Program metrics include the following:

1. The number of patients who qualified, the number who consented and enrolled in the program, as well as the number who refused (ideally with the reason for refusal).
2. The number and frequency of EMS transports and encounters for the recruited MIH patients both pre- and post-program enrollment.
3. Aggregate summary of patient satisfaction survey (completion at the conclusion of each visit).
4. Patient Quality of Life survey scores for both pre- and post-enrollment of the patient into the program.
5. Any problems identified in complying with or applying the program by the registered nurse, nurse practitioner or paramedic.
6. Any untoward event(s) or formal patient complaints with detailed explanation.
7. Any increase of the number and percent of patients using a Primary Care Provider (if none upon enrollment).
8. Number of referrals to additional allied health, social services or programs that the SWIFT determines as beneficial per patient and recruited patient compliance.
9. Number of percent of medication inventories conducted with issues identified and communicated to the Primary Care Provider.
10. Monthly run chart reporting and/or pre-post ED intervention comparison.
11. Where possible, cost expenditures and cost savings (part of quarterly and annual reporting).
12. Number and percent of safety-related interventions (physical environment assessment tool and Hendrich fall risk assessment tool).

Frederick County Mobile Integrated Healthcare Program. Frederick Memorial Hospital (FMH) identified approximately 600 individual who visited the emergency department six (6) or more times within a 12-month period. These visits totaled over 5,600, approximately 50% of which were transported by EMS. Many of these patients had at least one (1) chronic condition, e.g., diabetes, heart failure, COPD, while others were in need of non-medical interventions, e.g., medication refills, transportation, in-home assistance. The hospital implemented a multi-disciplinary community care transitions / management team to engage high-risk individuals and connect them with needed services and resources. FMH partnered with Frederick County Fire & Rescue Services to help ensure earlier and appropriate interventions.

Patients who are referred to the Program through EMS or other allied health care providers are contacted and educated on MIH program capabilities. Frederick County Fire & Rescue Services has identified 105 patients who are “high users” of EMS services; initial focus will be on the top 25 users. Patients who consent to the program may receive a home visit from a paramedic and a Nurse / Nurse Practitioner, may be referred to a community program or may receive both. Additional home visits or patient follow-up are determined on a case-by-case basis.

Program Participants. Frederick County Fire & Rescue Services, Frederick County Health Department, and Frederick Memorial Hospital.

Funding. The project will be funded by a combination of in-kind services and support from Frederick Memorial Hospital for some personnel costs.

Measures of Effectiveness. The Program metrics include the following:

- (1) The number of qualifying patients who have consented and enrolled in the MIH program and the number of refusals and reasons for refusal
- (2) The number and frequency of ems transports and encounters for the consenting MIH program patients (trending the access of health care services) for both pre- and post-enrollments of the patients into the program
- (3) Aggregate report of patient satisfaction survey completed at the conclusion of the visits or referrals
- (4) Patient Quality of life survey scores for both pre- and post-enrollments into the MIH program
- (5) Any identified issues in complying with or applying the program by the Paramedic, RN or NP
- (6) Any formal patient complaints with descriptions
- (7) Any increase in the number and percentage of consenting patients utilizing a primary care provider
- (8) Number of referrals to additional allied resources, social services or programs that the MIH program determines beneficial for patient compliance
- (9) Number and percentage of medication inventories conducted with issues identified and communicated to primary care physician
- (10) Monthly run chart reporting and/or pre-post emergency department intervention comparison

- (11) Possible cost expenditures and cost savings (part of quarterly and annual reporting)
- (12) Number of safety related interventions (physician environment assessment tool and Hendrich fall risk assessment tool)

EMS Program Alternatives to Traditional 9-1-1 EMS Response:

Alternative Destination Pilot Program

Alternative Destination Programs transport 9-1-1- patients with low acuity conditions to an urgent care or similar care environment, instead of transporting low-acuity patients to a hospital emergency department.

Baltimore City. The Baltimore City Fire Department (BCFD) is implementing an Alternative Destination Program (ADP) as a pilot program that provides services to patients in an urgent care environment instead of a hospital emergency department. The program is based on an internal Baltimore City analysis that showed that about one-third of the City's 9-1-1 calls were low-acuity incidents. As a result, BCFD developed its ADP program to encourage appropriate 9-1-1 use, optimize EMS resource utilization, and maintain appropriate patient care.

The ADP program will assess the accuracy and safety of triaging patients identified by a nationally-recognized protocol that tailors EMS response to the potential severity of injury or illness based on the information provided to dispatch by the 9-1-1 caller.⁹ Patients eligible for inclusion in the ADP program are those whose have been determined to be stable low-acuity patients.

Under the pilot program, in response to a 9-1-1 call for an apparent low-acuity patient located within identified geographic boundaries and available hours of the pilot, BCFD will dispatch the normal EMS resources to the patient, along with an Emergency Nurse Practitioner who will determine if the patient is, in fact, low-acuity and otherwise meets the pilot criteria. Such patients will be offered transportation to the University of Maryland Medical Center Urgent Care Center which is located across the street. Patients who do not consent will be transported to the closest hospital emergency department.

Program Participants. Baltimore City Fire Department and the University of Maryland Medical Center.

Funding. The program will be supported by in-kind services contributed by both the Baltimore City Fire Department and the University of Maryland Medical Center.

Measures of Effectiveness. The following metrics will be compared before and after the implementation of the pilot:

⁹ The protocol was developed by the International Academies of Emergency Dispatch, a nonprofit standard-setting organization promoting safe and effective emergency dispatch services worldwide.

- (1) Each patient transported to and treated at the alternative destination must have discharge diagnosis and capture any patients who are secondarily transported to another facility.
 - a. Number and type of upgrades from alternative destination (specific signs/symptoms on presentation, where slipped through Inclusion/ Exclusion criteria, and final diagnosis)
- (2) Number of patients who qualified, and the number that accepted transport to an alternative destination, the number who refused (with reason for refusal, if possible).
- (3) Number of patients who were screened, but failed one or more items of the Provider Quick Form checklist of criteria for pilot program inclusion
- (4) Any failures of patients to be accepted at the alternative destination and reason for refusal
- (5) Any identified problems by the Emergency Nurse Practitioner to comply with or apply the pilot protocol
- (6) EMS average “arrival destination to back in service” time (“turnaround time”) for UMMC Urgent Care Center
- (7) Time from when unit is first notified until unit is back in service (total call duration time) for these calls
- (8) Patient standardized satisfaction survey results

Measures of Effectiveness

Each of Maryland’s alternative programs has identified specific measures of effectiveness. The measures center around five general areas: 1) quality of care; 2) patient safety; 3) EMS and hospital utilization; 4) patient satisfaction; and 5) costs. These measurements will be monitored over the next two (2) years and will help gauge effectiveness as these programs become more firmly established and have the opportunity to mature. Several of the measures mirror the “MIH Outcome Measures,” developed by the National Association of EMTs to encourage uniform measurement and reporting of specific, defined measures so as to determine effectiveness of MIH programs throughout the US.

In addition to establishing the utility of these measures, developing standard definitions for each measure, identifying processes for tracking, and securing sources of reliable data will need to occur. Obtaining relevant data will be complicated by the fact that data must be obtained from multiple sources, e.g., MIH patients, EMS services, hospital emergency department outpatient data, hospital inpatient data, and health department data. EMS participation in Maryland’s Health Information Exchange will be key to securing necessary data, conducting in-depth analyses and drawing conclusions regarding overall program effectiveness.

Initial indications of MIH program effectiveness are very promising, however. Analyses of CRISP¹⁰ data specific to the Queen Anne’s MIH Program demonstrate the impact of a well-structured and operated MIH program and the potential of these programs to reduce emergency department utilization. CRISP Reporting services matched patients in the Queen Anne’s MIH Program with hospital case mix data through June 2017 to identify hospital Emergency Department (ED) utilization for 6 and 12 months pre-and post-enrollment. The analysis of ED

¹⁰ Chesapeake Regional Information System for our Patients (CRISP) is a regional health information exchange serving Maryland and the District of Columbia.

data showed in the six months before the program, program participants had 217 ED visits with associated ED charges of \$183,860, as compared with 91 ED visits and associated ED charges of \$90,962 during the six month period after program enrollment. Twelve-month pre- and post-enrollment data showed similar results: during the pre-enrollment period, program participants had 264 ED visits with associated ED charges of \$219,213, as compared with the post-enrollment experience of 124 ED visits and associated ED charges of \$112,878. The ability to reduce unnecessary ED visits and hospitalizations is fundamental to success of Maryland's All Payer initiatives. See results of the Pre/Post Analysis of the Queen Anne's County's MIH Program at Appendix A.

Additionally, anecdotal information illustrates how an MIH Program can secure needed care for patient outside the environment of the hospital emergency department. Below is a case summary of a patient enrolled in the Queen Anne's County MICH Program.¹¹

A patient was referred to the MICH program for back-to-back high-risk hospital admissions. The first hospital admission occurred after EMS transported the patient to the hospital for extremely high blood sugar. The patient was found to be in Diabetic Ketoacidosis. The patient was treated and then discharged, only to be transported by EMS a week later. In this latter incident, the patient was found to have extremely low blood sugar (hypoglycemia). The patient was transported to the hospital where it was discovered that, most likely due to her hypoglycemia, she had also suffered a myocardial infarction.

Subsequently, the MICH team arrived for the home visit and utilized a televisit with the SPACC PharmD. It was discovered that the patient had Medicare but because she had already reached her \$3,310 limit due to her recent hospitalizations and the cost of her insulin, she had gone into the "donut hole" and would have to pay \$1,540 out of pocket for covered drugs until she reached \$4,850, which would then end her coverage gap. For this patient, this meant that she had to decide whether or not she would buy her insulin (costs range from \$200 - \$700 for 3-5 insulin pens depending on the brand) or pay her electric bill and buy groceries.

During the televisit, the SPACC PharmD was able to determine that not only did the patient have a scarce supply of insulin because of the coverage gap, but she also did not understand how and when to use insulin. The PharmD contacted the company that manufactures the insulin that the patient uses and was able to secure enough free samples of insulin for the patient to hold her over until she is out of the coverage gap or until the new coverage period begins. The PharmD was also able to thoroughly explain to the patient how and when to use the insulin. In addition to the televisit, the MICH team referred the patient to a diabetic educator, so that she may learn more about her condition."

In addition to its successes, MIH programs face daunting challenges in caring for and treating high utilizers of the health care system. Below is a case summary of a patient enrolled in the

¹¹ Correspondence from Jared Smith, Program Administrator, MICH Program, Queen Anne's County Department of Health to Patricia Gainer, MIEMSS.

Charles County MIH Program, followed by comments from the Chief of EMS in Charles County.¹²

Patient A is a high utilizer in the system. The MIH team makes contact with Patient A at the request of the hospital. Patient A is found naked at her residence living in the basement with no access to clothes, food and sleeps on the floor (no bed). Her only access to the outside world is a "Trac Phone" which she can use only 5 minutes a month. She uses those minutes to call 9-1-1 when she is hungry and wants to escape her hell. She seeks the comfort of the ED for solace and reprieve from hunger and humiliation. Once discharged from the ED, she goes back to the basement. On their second visit, the MIH team found the same and contacted law enforcement who reached out to the Department of Social Services. The Department of Social Services never responded. At the request of Law Enforcement, the patient is taken to the ED where she is given a bath, clothed in a hospital gown and fed. She is later released back to the basement. Repeat steps 1 through 4.

Outside of the clean and sterile environments of the hospitals lies the darkness and evil side of healthcare which nobody wants to acknowledge and see. This is where our MIH teams venture and do their best. This is the front line for these patients and the trenches of battle that need to be acknowledged. This is where the funding and resources need to be focused and enforced. If those that are tasked to protect and care for the weak and sick fail, this is where MIH teams rise to the occasion and concur. Where no one else dares to tread, our MIH teams make that connection to a healthier Maryland. These are truths that I am confident the collective data will prove. And it is our mission to show the light and prove that this concept works.

Funding for MIH and Alternative Destination Programs

Securing funding for EMS participation in non-traditional service delivery programs – MIH and alternative destinations – is problematic. Traditional sources of reimbursement are not available to support EMS participation in these programs. Because EMS is viewed as a transportation benefit, EMS is not reimbursed unless a transport actually occurs. Medicare limits EMS reimbursement to patient **transports** to and from: 1) hospitals; 2) patient homes; 3) critical access hospitals; 4) dialysis facilities for End-Stage Renal Disease patients; 4) skilled nursing facilities; and 5) physician's offices, but even then only when the ambulance is en-route to a Medicare-covered destination, the patient is in dire need of professional attention, and the ambulance continues to the covered destination immediately thereafter. As a practical matter, public safety EMS jurisdictions, which respond to 9-1-1 calls, generally are limited in terms of transport destination to hospital emergency departments, while commercial services, which do not respond to 9-1-1 calls, transport patients to destinations that include patient homes, dialysis facilities and skilled nursing facilities. Other payers, e.g., Medicaid and private insurers, similarly tie reimbursement to the requirement that the patient must be transported to the identified destinations. This reimbursement model provides a financial incentive for EMS to

¹² Correspondence from Chief John Filer, Charles County EMS, to Patricia Gainer, MIEMSS.

transport all patients to hospital emergency departments which is a high cost environment, instead of either providing services for low-acuity patients at the patient's home and arranging for the patient to obtain other, needed services in a non-emergency (lower cost) setting.

Tying EMS reimbursement to patient transports in this manner severely limits the ability of EMS to implement, or even participate in, MIH programs and similar innovative approaches to health care. At the same time, these reimbursement policies also limit the transport destination options by requiring public safety EMS services to transport 9-1-1 patients to hospital emergency departments which discourage the development of Alternative Destination Programs. A further complicating factor is that potential alternative destinations, and in particular, urgent care centers, are not regulated in Maryland in a manner that ensures that health care personnel staffing, equipment and services are standardized and uniformly available at urgent care centers throughout the state.

As Maryland hospitals continue to adjust to new payment models based on global budgets and quality targets, they must reduce re-admissions and hospital costs. In 2019, Maryland will become accountable for the total cost of care for Medicare fee-for-service beneficiaries. In preparation for this, the delivery of primary care is now being redesigned to integrate it with hospital providers in a coordinated system of care.¹³ A fundamental goal of this latest initiative is to reduce the pool of super-users, foster multidisciplinary integration of services, and align community providers with hospitals and specialists to foster collaboration in the care of shared patients to reduce potentially avoidable utilization. These goals are completely in alignment with the goals of Maryland's MIH Programs, as discussed above. Despite this, there has been no concerted effort to wrap-in EMS to these larger, statewide health care initiatives.

As a result, to date, Maryland MIH programs and Alternative Destination efforts have had to rely on their own resourcefulness to develop and establish their programs and obtain support funding. Currently, these programs are supported by grant funding, in-kind contributions, tax-supported public safety operational budgets, or a combination of all of these sources. These funding sources, while valuable and essential to program establishment, do not provide the long-term funding mechanism that is needed to secure the ongoing operations of these programs.

The value of MIH Programs was identified and underscored by the Workgroup on Rural Health Care Delivery. In its final report, the Workgroup recommended enhancing or expanding MIH:

“...Sending paid emergency medical technicians (EMTs), paramedics, mid-level healthcare professionals, or community health workers into the homes of patients can help with chronic disease management and education, as well as post-hospital discharge follow-up, to prevent hospital admissions or readmissions, and to improve patients' experience of care. These healthcare workers can help patients navigate to destinations such as primary care, urgent care, dental care, mental health care services, or substance abuse treatment centers, instead of emergency departments, thus avoiding costly, unnecessary hospital visits. While the workgroup members are very supportive of these

¹³ Maryland secured a Care Redesign Amendment with CMS that provides authority under the existing Model Agreement for hospitals to pursue care redesign incentive programs with non-hospital providers of care. These programs will be designed and implemented incrementally.

programs, sustainable funding is a concern. At its last meeting, the Workgroup briefly discussed the need for EMS providers to be recognized as healthcare providers. Currently, EMS providers are reimbursed for the transportation, but not the healthcare services provided. If EMS providers could bill for health care services the sustainability concerns for MICH programs could be resolved...”¹⁴

The potential impact of reimbursing EMS for managing certain identified 9-1-1 EMS calls in a manner other than by transporting the patient to a hospital could be significant. A 2013 study projected that if Medicare had the flexibility to reimburse EMS throughout the United States for certain 9-1-1 EMS calls in a manner other than requiring transport to a hospital emergency department, patient continuity of care could be improved and annual Medicare savings could range from \$283 to \$560 million.¹⁵

Changing Medicare and Medicaid reimbursement policies for EMS could have a transformational on the growth of MIH and other non-traditional EMS service delivery models. MIH programs report that the majority of their program participants are Medicare or Medicaid recipients¹⁶.

Growing & Sustaining EMS Participation in MIH

Securing adequate and ongoing support for MIH programs and Alternative Destination Programs is the key to their growth and sustainment and will require fundamental changes in the way EMS is reimbursed. Changes in reimbursement are needed and are possible in several areas.

First, MIH programs in Maryland should be incorporated into and dovetailed with the changes to health care delivery that are occurring statewide under the All Payer system and its upcoming modifications. Currently, MIH programs are developing on a separate, but parallel track. Requiring collaboration and integration from all facets of the health care industry, where possible, would increase the focus and strength of these initiatives and ensure coordination of community-centered services provided to patients that receive services from EMS, hospitals and other health care providers. Among all the states, Maryland is uniquely positioned to create the opportunities for such integration.

Greater collaboration and integration will require that EMS be incorporated in a meaningful way into the development of All Payer initiatives. EMS needs to have “a seat at the table” as these initiatives are being planned and implemented. Involvement of EMS at this level will help

¹⁴ Report of the Workgroup on Rural Health Delivery to the Maryland Health Care Commission. “Transforming Maryland’s Rural Healthcare System: A Regional Approach to Rural Healthcare Delivery.” p. 17, 2017.

¹⁵ Alpert A, Morganti KG, Margolis GS, Wasserman J, and Kellerman AL. Giving EMS Flexibility in Transporting Low-Acuity Patients Could Generate Substantial Medicare Savings. *Health Affairs* 32:12. December 2013.

¹⁶ For example: (1) Queen Anne’s County MICH Program reports 82% of its participants are Medicare beneficiaries and 5.6% are Medicaid beneficiaries; and (2) Prince George’s County MIH Program reports 56% are Medicare patients and 19% are Medicaid patients. Baltimore City Fire Department’s payer mix (for all transports) is 43% Medicaid and 32% Medicare (FY15 data).

Maryland realize the full benefit of the changes made under the All Payer system; conversely, lack of EMS involvement risks achievement of less-than-optimal results from these changes.

Second, Maryland hospitals will benefit from successful MIH programs that result in fewer EMS transports to their emergency departments, particularly for transports that would involve “super user” patients. Hospitals should be recognized for their important role in the establishment and operation of MIH programs and incentivized to encourage the establishment of MIH programs through financial commitments to the ongoing operation of these programs. Hospitals that operate urgent care centers are well-positioned to work with EMS to develop Alternative Destination Programs where the hospitals are able to ensure the availability of needed level of health care staffing, equipment and services for low-acuity patients transported by EMS.

Third, the Health Services Cost Review Commission should work with MIEMSS and EMS Operational Programs to establish a demonstration project to permit Medicare reimbursement to EMS for services provided under MIH Programs and Alternate Destination Programs. Maryland’s unique status as an All Payer state, combined with its ground-breaking changes in health care reimbursement, has created fertile ground for such a demonstration project.

Fourth, Maryland should use the results from a demonstration project to align financial incentives for EMS with those of the rest of the healthcare system. Existing reimbursement policies for EMS that require patient transport to hospitals are diametrically opposed to the direction that Maryland healthcare reimbursement has taken. Aligning financial incentives among all participants in the healthcare continuum is a foundational requirement.

Fifth, revising Maryland state law to permit EMS Operational Programs to bill Medicaid as well as private insurers for MIH services would be an important first step. Some states, e.g., Arizona, Nevada, and Minnesota, have changed state laws to allow EMS programs to bill insurers and/or the state Medicaid programs for MIH services.

Finally, unless and until the changes noted above are achieved, Maryland should establish a fund to provide support to MIH Programs to ensure and safeguard their growth and continuation. Although the existing Programs have been able to identify and secure funding for the initial establishment of their programs, their future is uncertain without an identified funding source. Further, the development and growth of new MIH programs could be stunted without funds to support start-up and ongoing operations.

Appendix A

Pre / Post Analysis of Queen Anne's County
Mobile Integrated Community Health Program
August 2017