Emergency Department Overcrowding Update

November 2019

Maryland Institute for Emergency Medical Services Systems/
Health Services Cost Review Commission

Table of Contents

EXECUTIVE SUMMARY

The 2019 Joint Chairmen's Report (JCR) directed the Maryland Institute for Emergency Medical Services Systems (MIEMSS) to work with the Health Services Cost Review Commission (HSCRC) to report the status of various initiatives proposed in the response to the 2017 JCR aimed at mitigating emergency department (ED) overcrowding. As discussed herein, the current status of these items is summarized below.

- Adding ED performance measures in the hospital quality reimbursement program - The HSCRC approved an updated (RY2020) Quality-Based Reimbursement (QBR) policy that included two measures of ED Efficiency that are used nationally. Subsequently, the Center for Medicare & Medicaid Services (CMS) signaled that it would remove one of the measures from public reporting. As a result, the HSCRC updated the QBR program to include the only remaining measure for the RY2021 year (base period CY2017, performance period Oct 2018-Sep 2019). Early analysis suggests that some hospitals have been able to improve ED wait times more than others.

- Requesting hospital efficiency improvement action plans from hospitals that have poor ED performance measures coupled with reduced patient days - In order to improve ED efficiency and hospital throughput, the HSCRC requested and received performance improvement plans from 13 hospitals with poor ED performance. The HSCRC will determine the impact of the hospitals' plans once the applicable performance data becomes available for analysis.

- Re-evaluating the use of yellow alerts or determining a standard criteria for going on diversionary status - MIEMSS re-evaluated the use of yellow alerts and determined that the existing computerized monitoring system for identifying ED overcrowding will be replaced with a new system. The new system will preserve the ED's ability to advise emergency medical services (EMS) if patient load exceeds capacity, but will not re-direct ambulances to other EDs except when the ED's physical plant has a problem, e.g., flood, fire, that renders it unsafe and incapable of treating additional patients.

- Identifying a reasonable standard for ambulance off-load time - The average ambulance off-load time is approximately 19 minutes. Off-load times for low acuity patients exceed that for higher acuity patients. Off-load delays for these patients typically occur in concert with ED overcrowding.

- Developing and expanding new models of emergency medical services (EMS) care delivery, especially mobile integrated healthcare - There are currently nine (9) Mobile Integrated Health (MIH) Programs operating in the state. MIEMSS developed an Alternative Destination Protocol to permit any EMS jurisdiction to transport appropriate patients, with patient consent, to an alternative destination, e.g., a stabilization center or urgent care center. MIEMSS also developed guidance on use of telemedicine for EMS to establish audio-visual

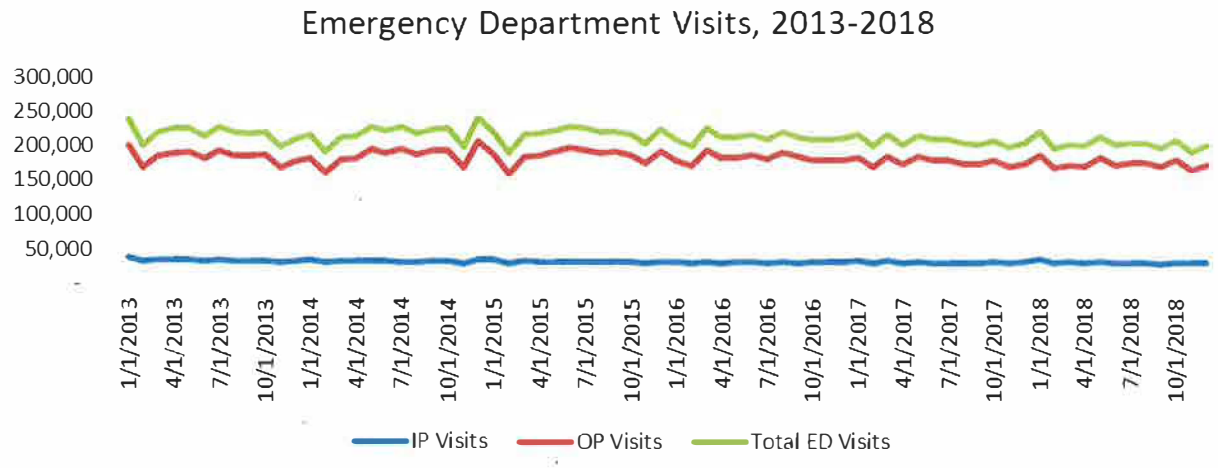
communications with themselves, their patients and certain clinicians capable of managing the condition via such linkages which may obviate the need to transport the patient to an ED or other facility. The Centers for Medicare & Medicaid Innovation (CMMI) has implemented a five-year model program to modify EMS reimbursement for Medicare fee-for-services patients. Five (5) EMS jurisdictions have applied to participate in the pilot program.

- Incorporating EMS in new care delivery programs under the State's Total Cost of Care (TCOC) Model - The HSCRC and MIEMSS continue to collaborate to develop opportunities for EMS within the TCOC Model. The Care Redesign Program (CRP), administered by the HSCRC, is designed to encourage greater provider alignment between hospitals and non-hospital providers and represents a promising opportunity for EMS providers to partner with hospitals to better engage in the Total Cost of Care Model.

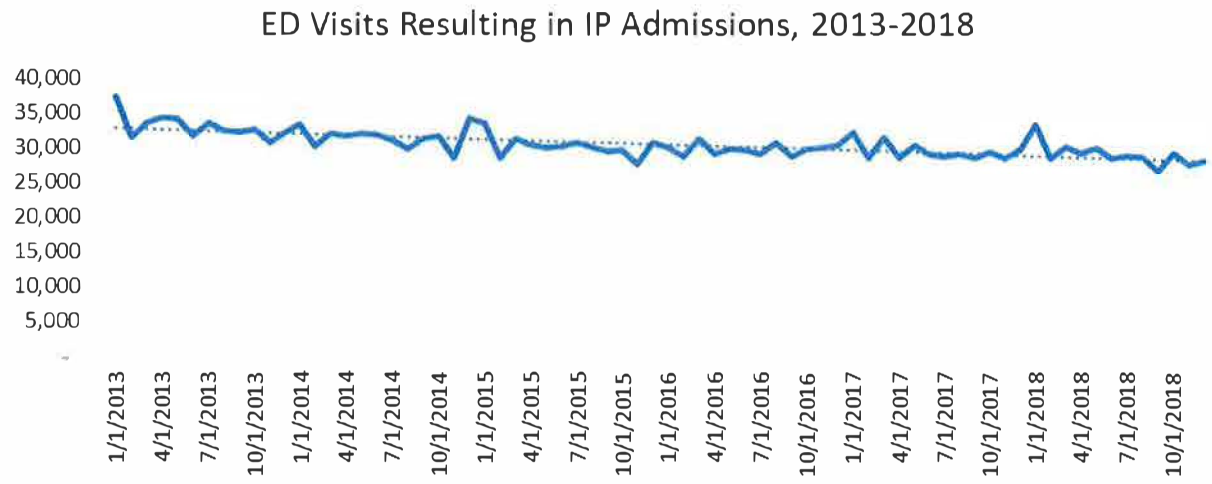
BACKGROUND

Emergency Department Volume and Utilization Metrics

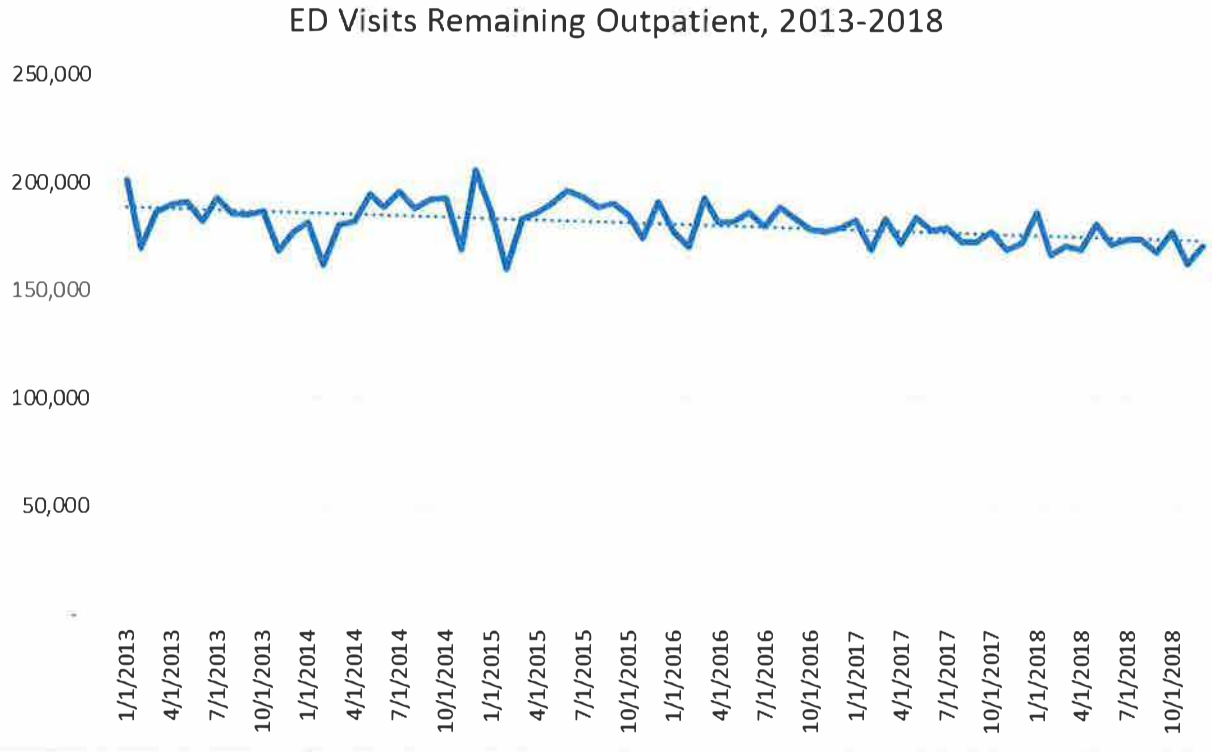
The HSCRC continues to track Emergency Department (ED) utilization and volume over time. The following graphs show ED visits that resulted in Inpatient admissions or Outpatient utilization, from 2013-2018. An Inpatient admission occurs when a physician or provider determines that a patient requires ongoing intensive hospital care and must be admitted to the hospital. For other patients that remain in the Outpatient ED unit, a clinician may determine that the patient can be seen and treated in the ED or in an observation bed and discharged safely without further hospital care. Overall, ED volume is declining slightly but steadily over time.



Source: HSCRC Case-mix Data

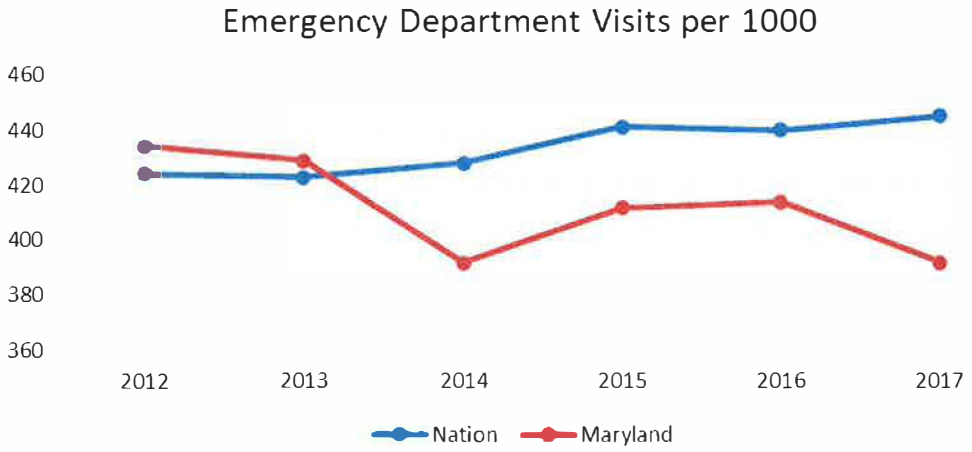


Source: HSCRC Case-mix Data



Source: HSCRC Case-mix Data

Another metric of ED utilization is the measure of ED visits per 1,000 residents. According to data from the Kaiser Family Foundation, utilization has decreased in Maryland since 2012, and currently has lower per capita ED utilization than the Nation.



Source: Graph adapted from Kaiser Family Foundation, https://www.kff.org/other/state-indicator/emergency-room-visits-by-ownership/.

For additional context, below is a table with the top diagnosis categories treated in Maryland emergency departments in 2018 for inpatient and outpatient ED visits, totaling approximately 23 percent and 16 percent of total ED visits, respectively:

Table 1. Top 10 Diagnoses for ED Visits Resulting in IP Admission, 2018

ICD-10 Diagnosis Code	ICD-10 Code Description	Total Discharges	% of Total ED Discharges
A419	Sepsis, unspecified organism	24,010	7.08%
J441	Chronic obstructive pulmonary disease w (acute) exacerbation	7,556	2.23%
I130	Hyp hrt & chr kdny dis w hrt fail and stg 1-4/unsp chr kdny	7,410	2.19%
I110	Hypertensive heart disease with heart failure	7,220	2.13%
J189	Pneumonia, unspecified organism	7,184	2.12%
N179	Acute kidney failure, unspecified	6,843	2.02%
I214	Non-ST elevation (NSTEMI) myocardial infarction	4,858	1.43%
N390	Urinary tract infection, site not specified	4,750	1.40%

J9601	Acute respiratory failure with hypoxia	4,658	1.37%
I639	Cerebral infarction, unspecified	4,023	1.19%

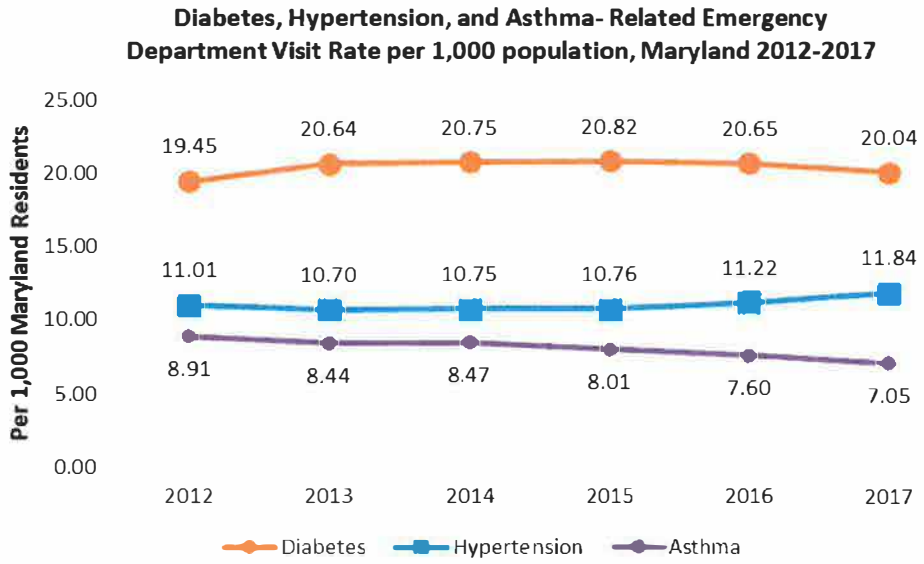
Source: HSCRC Case-mix Data, 2018.

Table 2. Top 10 Diagnoses for ED Visits treated in Outpatient, 2018

ICD-10 Diagnosis Code	ICD-10 Code Description	Total Discharges	% of Total ED Discharges
R079	Chest pain, unspecified	54,459	2.63%
R0789	Other chest pain	50,210	2.43%
J069	Acute upper respiratory infection, unspecified	38,258	1.85%
R51	Headache	31,438	1.52%
N390	Urinary tract infection, site not specified	29,970	1.45%
R109	Unspecified abdominal pain	29,827	1.44%
R55	Syncope and collapse	24,608	1.19%
M545	Low back pain	23,483	1.13%
B349	Viral infection, unspecified	23,444	1.13%
R42	Dizziness and giddiness	21,664	1.05%

Source: HSCRC Case-mix Data, 2018.

Finally, the HSCRC tracks and reports condition-specific ED visit rates for the following chronic conditions: diabetes, hypertension, and asthma. Condition-specific ED visit rates for asthma has declined over the years, while diabetes-related ED visits have stayed relatively flat and hypertension-related ED visits have increased since 2012.



Source: HSCRC Case-mix data, adapted from CCS Category definitions of chronic conditions, and population data from MD Department of Planning.

Impact of Behavioral Health on ED Overcrowding

Increasing burden and acuity of behavioral health needs in the community play a role in Emergency Department (ED) volume as well. While behavioral health diagnoses are not included in the top 10 primary diagnoses resulting in ED visits, the number of patients presenting to the ED with a behavioral health need has steadily increased over the last few years.

The Maryland Hospital Association's (MHA) analysis of available data indicates that the number of ED visits by individuals with behavior health diagnoses rose by 18% between 2013 and 2015[1]. Additional data that is not yet finalized indicates that these trends continue. These patients can present major challenges and may require isolated space and ongoing supervision for protracted periods while ED personnel pursue placement and appropriate outpatient services. Patients who are violent present the potential of disrupting ED operations or harming staff or other patients. Behavioral health patients seen in the ED who require admission often wait in EDs for an available inpatient bed, either at the treating ED facility or another facility which negatively impacts ED throughput. Several state facilities have closed while others primarily serve patients in the court system, and available acute care hospital inpatient psychiatric bed capacity has declined. The current opioid crisis, with increasing numbers of patients being transported to the ED has further complicated the situation, as EDs must provide immediate

[1] Maryland Hospital Association. Emergency Department Diversions, Wait Times: Understanding the Causes. 2016-2017.

treatment, as well as necessary screenings, and arrange for referrals and follow-up treatment post ED discharge. Patients with dual diagnoses of substance dependency and psychiatric disease present further challenges to placement and treatment.

To better understand the impact and underlying reasons behind ED crowding due to unmet behavioral health needs, the HSCRC is in the process of gathering information from hospitals and community providers, including additional inpatient (IP) psychiatric bed needs, appropriate substance disorder placement and treatment options, as well as community-based behavioral health solutions. Furthermore, based on initial reports from the industry, the HSCRC believes that the carve-out of behavioral health services from the Medicaid Managed Care Organizations (MCOs) further exacerbates the problem of crowding and boarding in the ED as those patients lack a managed care resource to assist with discharge planning and ongoing services. HSCRC will continue to gather information from industry stakeholders to identify the challenges and barriers facing patient access at both the inpatient and outpatient level for behavioral health, as well as the potential solutions that will improve delivery of services to all Marylanders needing behavioral health services. Finally, HSCRC, MIEMSS, and other stakeholders are participating in an interim work group, chaired by Delegate Joseline Pena-Melnyk, to explore solutions to behavioral health access challenges.

Current Status of ED Overcrowding & Yellow Alerts

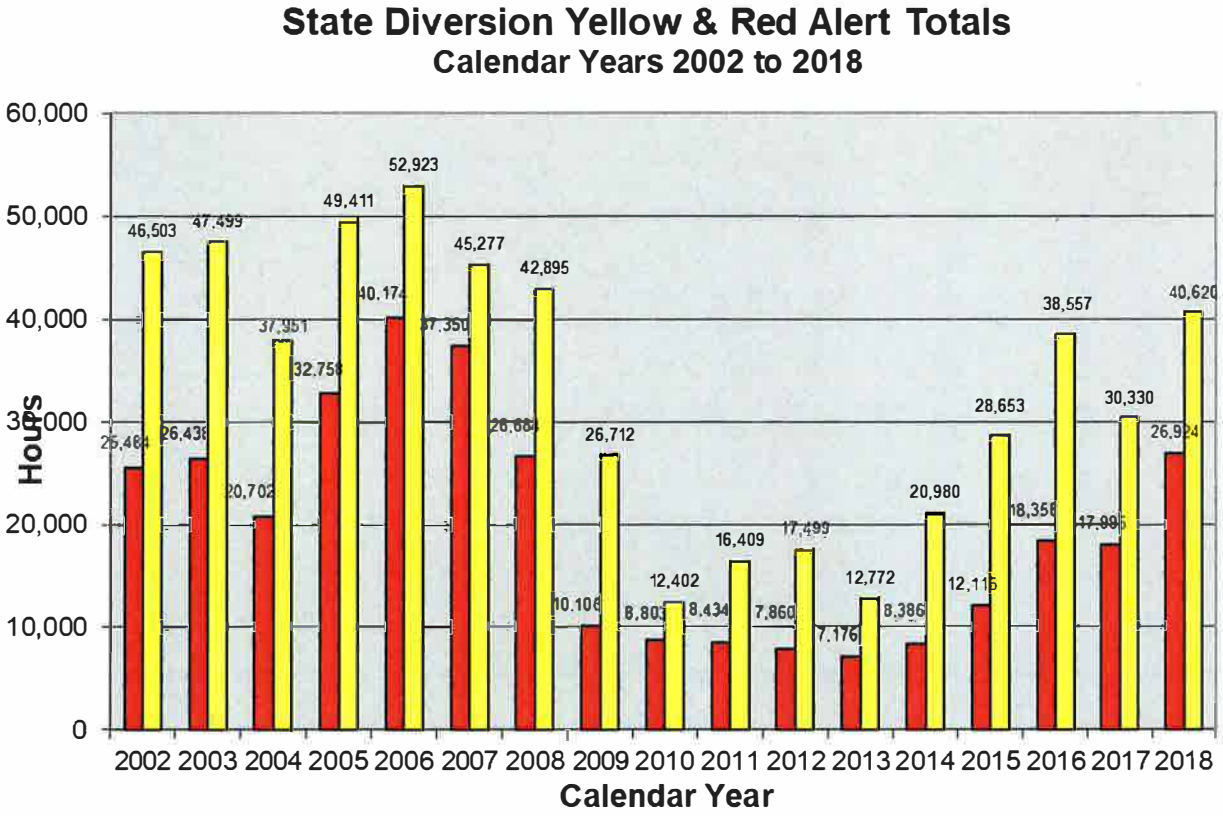
ED overcrowding occurs when the identified need for emergency services outstrips available hospital resources such that there are more ED patients than there are staffed beds available in either the ED or on an inpatient unit. ED overcrowding can result in excessive ED wait times, which can slow EMS responses to 9-1-1 calls, and patient diversion from one hospital ED to another. Maryland typically has the longest ED wait times in the nation. ED overcrowding is a long-standing, multi-faceted problem in Maryland and a significant challenge for the healthcare system.

MIEMSS conducts real-time computerized monitoring of ED status throughout Maryland. See https://www.miemssalert.com/chats/. This system identifies EDs that are overcrowded and request to receive no EMS-transported patient who are in need of urgent care[2] ("Yellow Alert") or who need inpatient electrocardiogram-monitored beds ("Red Alert"). Other ED statuses are also monitored through this system.

As shown below, the number of yellow and red alert hours fluctuated between CY 2002 and CY 2016; however, with the exception of Yellow Alerts in CY 2017, there has been an increasing

[2] These patients are considered to be either Priority II patients who have conditions that are potentially life-threatening and require treatment, but are not immediately endangering the patient's life; or Priority III patients who have non-urgent conditions that require medical attention, but not on an immediate basis.

trend in both alerts since 2013. The number of Yellow Alerts occurring in CY 2018 ranked as the 7th highest over the past seventeen years.



When a hospital requests to go on Yellow Alert, EMS may determine to transport the patient to another hospital instead of its originally-planned destination, i.e., the hospital that is on Yellow Alert. Regardless of hospital ED alert status, however, EMS is authorized to transport a 9-1-1 patient to the closest appropriate hospital, regardless of the hospital ED's alert status.

STATUS UPDATE ON INITIATIVES

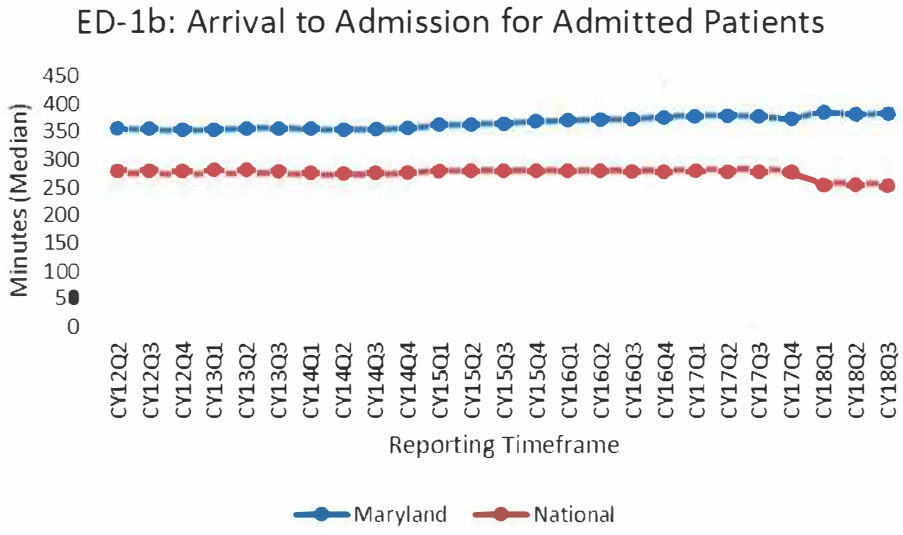
ED Measures in HSCRC Quality Programs

In 2016, the Commission initiated a review and analysis of Maryland hospitals' ED efficiency, which historically compares unfavorably to the Nation, in order to identify a better way to incentivize improved ED wait times and hospital throughput. As a result, the HSCRC Quality Team convened a stakeholder work group of interested parties and subject matter experts to incorporate ED efficiency into a pay-for-performance incentive quality program. Following extensive review and discussion, the Commission approved an updated (RY2 020) Quality-Based Reimbursement (QBR) policy. This policy included two measures of ED Efficiency - ED-

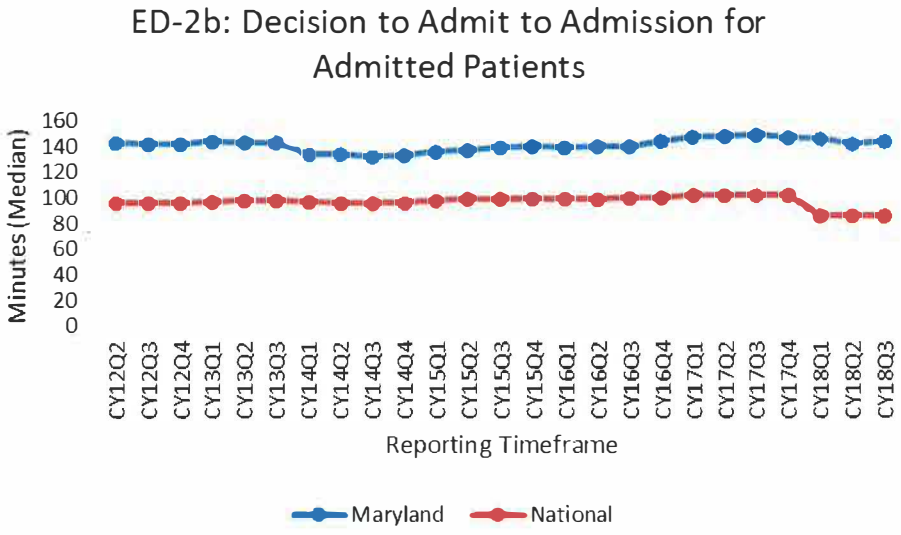
1b and ED-2b, for patients ultimately admitted from the Emergency Department to an inpatient bed. As a point of reference, ED-1b and ED-2b are collected nationally through the CMS Hospital Compare program. ED-1b measures the amount of time between arrival and admission for admitted patients. ED-2b measures the amount of time between the decision to admit and the patient's admission. An outpatient measure, OP-18b, was also considered for inclusion in the QBR program. However, this measure was ultimately excluded because it was seen as a potential counter-incentive to the screening, referral, care coordination, and discharge planning activities that hospitals currently perform to improve patient care. Using a base period of CY2016, hospitals were incentivized to improve upon ED wait times that exceeded the national median for their respective volume categories, and were evaluated for their improvement under the ED-1b and ED-2b measures for FFY 2018 (Oct 2017-Sep 2018).

Despite the National Quality forum endorsing the risk-adjustment of these measures, stakeholders argued that the volume stratification was insufficient to build a benchmark standard for comparison. Stakeholders also expressed concern that evaluation of ED throughput would occur during a particularly difficult flu season. Since that time, CMS has signaled its intention to remove ED-1b from public reporting, and the HSCRC updated the QBR program to include only ED-2b for the RY 2021 year (base period CY 2017, performance period Oct 2018-Sep 2019). Early analysis suggests that some hospitals were able to improve ED wait times more than others. The HSCRC intends to continue considering whether an ED wait-time measure should be included in the QBR program, or whether another pay-for-performance measure is appropriate instead. This will depend, in part, on the continued measure availability from CMS.

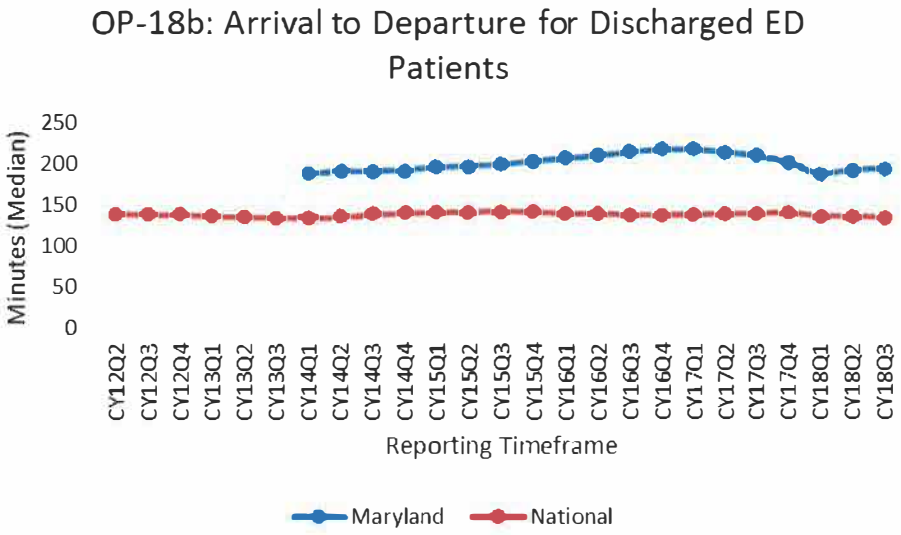
Despite efforts to incentivize improvement in ED wait times, Maryland hospitals remain less efficient than the Nation on the three publicly reported ED wait time measures:



Source: CMS Hospital Compare, https://data.medicare.gov/data/hospital-compare.



Source: CMS Hospital Compare, https://data.medicare.gov/data/hospital-compare.



Source: CMS Hospital Compare, https://data.medicare.gov/data/hospital-compare.

Hospital Performance Improvement Plans

In 2017, as part of the strategy to incentivize hospitals to improve ED efficiency and throughput, the HSCRC requested performance improvement plans from hospitals with poor ED

performance. Hospitals were expected to detail their efforts to improve ED efficiency and hospital throughput, both within the ED and throughout the hospital. The criteria for selecting outlier hospitals is detailed below.

Methodology for Determining Outlier Hospitals

The HSCRC determined that a hospital counted as an outlier hospital if it met the following criteria:

- The hospital performed at least 10% worse than national median on ED-1b measure and at least 10% worse than own base performance on ED-1b OR
- The hospital performed at least 50% worse than national median on ED-1b in volume category

In reviewing this analysis, the HSCRC identified 15 hospitals that met the criteria, but ultimately removed two of the 15 hospitals from consideration, given their valid capacity concerns and high ED visit counts. In January 2018, the HSCRC received efficiency action plans from 13 hospitals detailing the hospitals' ongoing efforts to improve ED efficiency and plans for future efficiency improvement. The following hospitals submitted performance improvement plans:

- Anne Arundel Medical Center
- Greater Baltimore Medical Center
- Johns Hopkins – Bayview Medical Center
- MedStar Harbor Hospital
- MedStar Saint Mary's Hospital
- Sinai Hospital
- University of Maryland Medical Center
- University of Maryland – Midtown Campus
- University of Maryland – St. Joseph Medical Center
- University of Maryland – Prince George's Hospital
- University of Maryland - Laurel Regional Medical Center
- University of Maryland - Chestertown
- Union Hospital of Cecil County

Synopses of Hospital Performance Plans

Of the 13 hospitals that submitted performance improvement plans, several common themes appeared. Many hospitals developed Throughput or Efficiency Committees, aligned staffing levels to match peak patient volume times, streamlined IP discharge processes and timing to ensure availability of beds for ED patients after admission determinations, developed hospital protocols for staff to implement when the hospital neared capacity, and increased case management in the ED. Some hospitals also focused on directing low-acuity patients to more appropriate settings of care, such as urgent care centers. Highlights of each hospital's efforts to

improve ED performance are below, but are not an exhaustive reflection of the various interventions detailed in each hospital plan.

Anne Arundel Medical Center (AAMC)

AAMC focused on improving patient flow through reducing inefficiencies and improving staffing alignment with patient volume, decreasing delays related to imaging and labs, and providing 24/7 case management support to the ED. They have also focused on improving access to beds in IP and observation units to ensure timely placement of ED patients.

Greater Baltimore Medical Center (GMBC)

A key intervention employed by GBMC to address ED wait times has been implementing physician rounds for patients held in the waiting room. This has helped ensure patients receive care in the most appropriate setting. This allows patients to receive care prior to being placed in an ED bed and also reduces unnecessary ED visits for lower-priority patients, thus opening up beds for higher-acuity patients. GBMC also discussed improving processes related to transportation, transfer times from ED to other hospital units, and transition orders.

Johns Hopkins – Bayview Medical Center (JHBMC)

New interventions planned by JHBMC include improving ICU and Cardiology patient throughput and planning, shortening IP consult turnaround, and expanding data capabilities to show real time data. Examples of ongoing interventions include employing hospitalists during peak times to expedite admissions from the ED, reviewing and reconfiguring staffing models as needed, and developing and implementing standardized action plans to implement during high-demand and high-capacity scenarios.

MedStar – Harbor Hospital

MedStar Harbor has focused on improving overall throughput for ED patients who are discharged and minimizing ED diversions to ensure access for high acuity patients. The hospital has focused on navigating patients to primary care sites when appropriate, implementing a comprehensive behavioral health program, developing a full-capacity protocol for moving patients from ED beds to hospital units, and increasing efficiency of inpatient discharges to ensure bed availability.

MedStar – Saint Mary's Hospital (MSMH)

Main focus areas for MSMH included increasing RN onboarding to address a higher in-patient population and improving patient handoffs between ED and hospital units. Other planned interventions included increasing efficiency in the bed assignment and discharge planning process, and implementing a "treat and release" process for ED discharge patients.

Sinai Hospital

Sinai Hospital contracted with a new provider and established contractual goals to improve ED throughput metrics, and hired a consulting firm to develop new ED processes based on industry best practices. Other ongoing interventions include the use of a dedicated observation unit to reduce the number of patients staying in observation status, remodeling the behavioral health unit to improve safety and efficiency, and increasing the numbers of case managers. The hospital also uses the Rothman Index, which is used to ensure patients are receiving the appropriate level of care in the right patient setting.

University of Maryland Medical Center (UMMC)

UMMC addressed their ED wait times by developing an urgent care strategy with the University of Maryland School Of Nursing, opening beds at Midtown campus to provide additional bed capacity when UMMC is close to maximum capacity, and investing in psychiatric services to better treat patients with behavioral health needs who present in the ED. They have also partnered with the Baltimore City Fire Department to evaluate patients requesting emergency care and developed a program that follows high-risk discharged patients.

University of Maryland – Midtown Campus (UMMTC)

UMMTC focused on process improvement to drive down ED wait times. For example, UMMTC has created care alerts to address needs of high ED utilizers, used internal staging rooms to begin care even if an ED bed was not available, and initiated SBIRT and the use of peer recovery specialists to link patients with substance abuse disorders to treatment. Midtown plans to make additional investments in telemetry beds, observation beds, and additional nursing unit to ensure appropriate discharge planning.

University of Maryland – St. Joseph Medical Center (SJMC)

SJMC focused on improving patient flow throughout the hospital. Some of their planned ED patient flow interventions include implementing industry best practices to improve efficiency, increasing use of data to track availability of beds and staffing needs, increasing staffing coverage, and addressing behavioral health needs throughout the hospital to more appropriately treat patients with behavioral health challenges who present in the ED.

Union Hospital of Cecil County (UHCC)

UHCC has created the Care Efficiency Committee and implemented Safety FIRST interventions, which support process flow improvement and promote staff education. UHCC has also closely monitored utilization trends to ensure appropriate actions are taken to address identified challenges, and has encouraged patient use of a nearby urgent care center when it is a more appropriate setting of care. Moving forward, UHCC will implement changes that are suggested

by a workgroup that the hospital convened to address delays due to diagnostic imaging. Additionally, the hospital will review hospital policies related to bed capacity and plans to improve room turnover after patient discharge.

University of Maryland – Prince George's Hospital (UMPGH)

UMPGH has undertaken efforts to reduce delays related to lab results, increase staffing numbers, including nurses and registration staff, and hire more staff to facilitate hospital-wide patient flow. Planned interventions include hiring additional ED staff, implementing measures to create awareness of hospital capacity and promote proactive steps by staff to address full-capacity challenges when they arise. UMPGH and Laurel Regional Medical Center (LRMC) have also both collaborated with physicians to develop the Inter-professional Transition Care Center. When appropriate, the ED can refer patients to this center to receive timely care in the most appropriate care setting.

University of Maryland - Laurel Regional Medical Center (LRMC)

While noting that their transition to a freestanding medical facility (FMF) has impacted ED wait times in various ways, LRMC identified several ways that it has attempted to address long ED wait times. LRMC has aligned staffing levels to match peak patient volumes, improved communications between nursing departments to decrease turnaround times for admissions, and set timing goals for patient discharge. Additional planned interventions include standardizing and streamlining the bed registration process and upgrading the laboratory information system. As mentioned previously, both UMPGH and LRMC have collaborated with physicians to develop the Inter-professional Transition Care Center to help guarantee patients are seen in the most appropriate care setting,

University of Maryland Shore Medical Center at Chestertown (SMCC)

Shore Regional Health has taken a number of steps to address ED wait times at SMCC, including using performance metrics for ED hospitalists to improve accountability, standardizing ED protocols for patients with certain diagnoses, providing telehealth consults for behavioral health patients, and increasing staffing for care coordination to assist with ED throughput issues.

Re-Evaluation of Yellow Alerts

Despite being used for more at least two decades, the utility of Yellow Alerts remains limited.

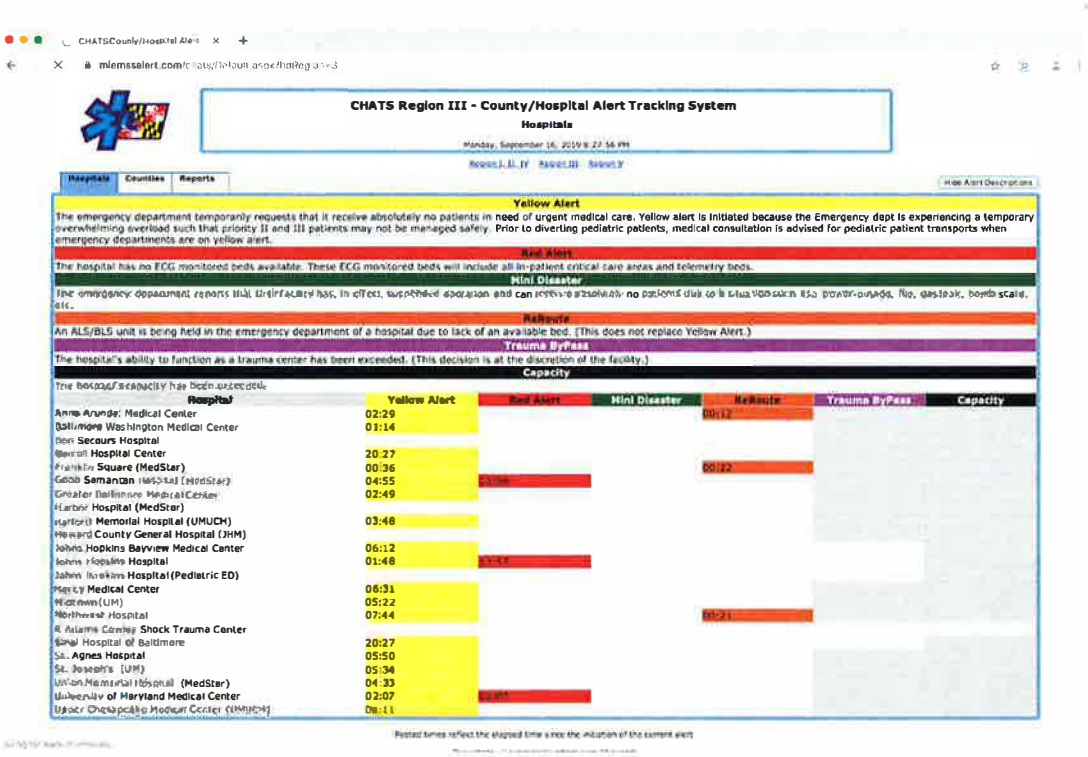
- Current activation guidelines are subjective - There is no universally accepted indicator of when a hospital should go on diversionary status; as a result, hospitals make their own determinations about whether and when to go on diversion.

- Activations are variable - Some hospitals never go on diversionary status at all, even when their EDs are overcrowded and unable to receive and treat patients in a timely manner. Others believe the use of Yellow Alerts provides temporary relief from ED overcrowding by diverting patients to other hospitals and are supportive of continued use of the Alert system. The inconsistent application among hospitals of Alert status is particularly problematic for EMS ambulances with service areas that typically encompass more than one or two hospitals.

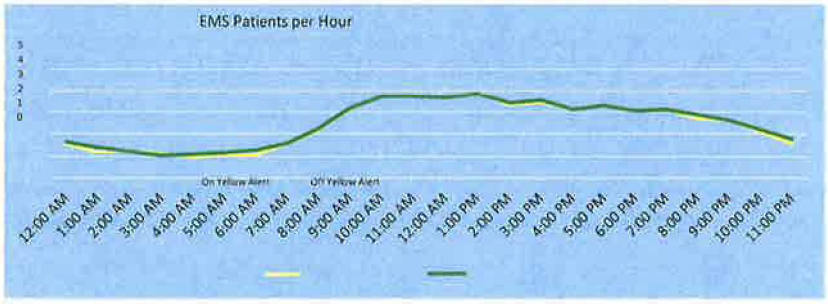
- Meaning / significance is unclear – Some ED staffs believe that going on diversion will result in EMS temporarily ceasing delivery of all 9-1-1 patients to that ED. In fact, Yellow Alerts do not apply to Priority 1 patients – those who require immediate attention or are unstable with life-threatening illness or injuries. Additionally, EMS is authorized to transport an emergency patient to the closest appropriate hospital ED, regardless of the ED's alert status.

- Regional operational guidance for EMS is not identical – Each of the State's five (5) EMS regions have developed operational guidance for their EMS jurisdictions to reflect local capabilities.

Further, as illustrated below, any utility of Yellow Alerts can be diminished by the "Domino Effect" that occurs when one or two EDs in a geographic area go on Alert and others in close proximity quickly follow suit. As a result, EMS providers have limited choice of which hospital to transport to and must transport to an ED regardless of its alert status.



Finally, the chart below compares the number of EMS patients transported to hospitals by hour when EDs are on Yellow Alert against when the hospitals are not on Yellow Alert. The actual impact of the alert status on the delivery of ambulance-transported patients appears to be minimal.



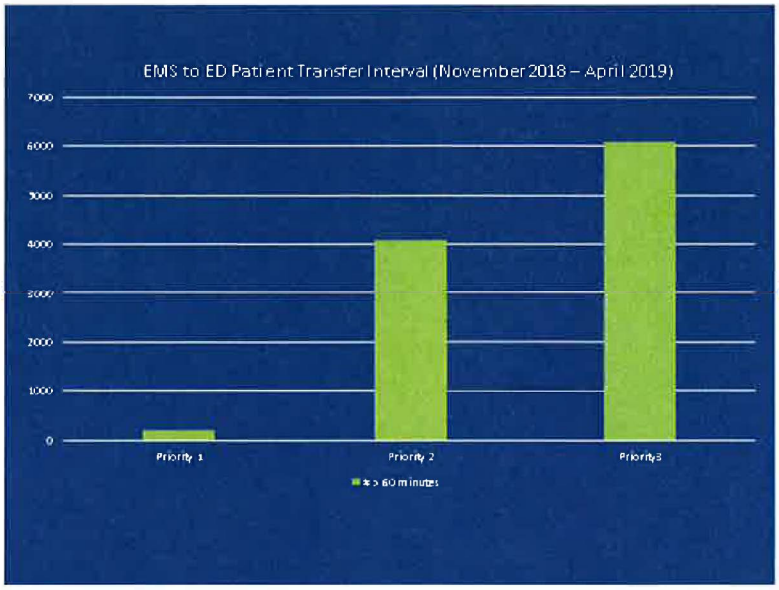
Given these factors, MIEMSS re-evaluated the use of Yellow Alerts and determined that the existing computerized monitoring system for identifying ED overcrowding will be replaced with a new system that provides information to EMS about the hospital's ED status. The new system

will preserve the ED's ability to advise EMS if patient load exceeds capacity, but will not re-direct ambulances to other EDs except when the ED's physical plant has a problem, e.g., flood, fire, that renders it unsafe and incapable of treating additional patients. A feature of the new system will also include public advisories of hospital ED status. MIEMSS is currently working with hospitals, EMS jurisdictions, and the Maryland Department of Health (MDH) on the specifics of the replacement. The new system will move from an installed software platform to a web-based platform and will provide a color coded advisory indicating the level of surge being experienced at each hospital. Prior to release of this system, hospitals, EMS agencies, and other healthcare partners, will be provided with training on the new program. It is anticipated that the new program will be rolled out in the latter half of FY2020.

Ambulance Off-Loading

Ambulance off-load is the time between the arrival of an ambulance-transported patient and the time that the patient is moved off the EMS stretcher with transfer of care to ED staff. Delays in ambulance off-load occur when the ED staff is unable or unwilling to accept the timely transfer of patient care from an arriving EMS ambulance. Ambulance off-load delays typically occur in concert with ED overcrowding when EMS is held in the hospital ED waiting to off-load their patient from a stretcher to a hospital ED bed. This effectively keeps the ambulance out-of-service which can delay EMS responses to other emergency calls in their jurisdictions, decreasing advanced life support coverage that responds to cardiac arrests, trauma, and other critical cases. High ambulance off-load times also decrease EMS productivity as ambulance crews wait to hand-over patient care to hospital personnel and the financial and personnel costs of such delays are a burden to EMS programs. Delays in ambulance off-load also raise potential EMTALA concerns. EMTALA requires that a patient receive a medical screening examination upon arrival to determine if an emergency medical condition exists. The practice of EMS as authorized by Maryland law does not include rendering care within a hospital setting.

The average ambulance off-load time in Maryland is 19.71 minutes, with the average off-load time for Priority 1 (most serious) patients being 12.48 minutes, both of which are within national expectations. What is problematic for Maryland, however, are the outlier off-load times that can occur for Priority 2 and Priority 3 patients, those with less serious conditions. Priority 2 and 3 patients, in particular, represent nearly 90% of all EMS transports and because their conditions are not immediately life-threatening, can experience far longer off-load times. The chart below, displaying the EMS-to-ED patient transfer times of greater than one hour, shows that in a six-month period, over 10,000 Priority 2 and 3 patients waited in the ED on an EMS stretcher for over an hour before the ED accepted the transfer of care. Some patients wait far longer than an hour. Efforts to implement new models of EMS care throughout Maryland are targeted at these low acuity patients whose conditions may be treated in a timelier manner in more appropriate health care settings, e.g., urgent care centers.



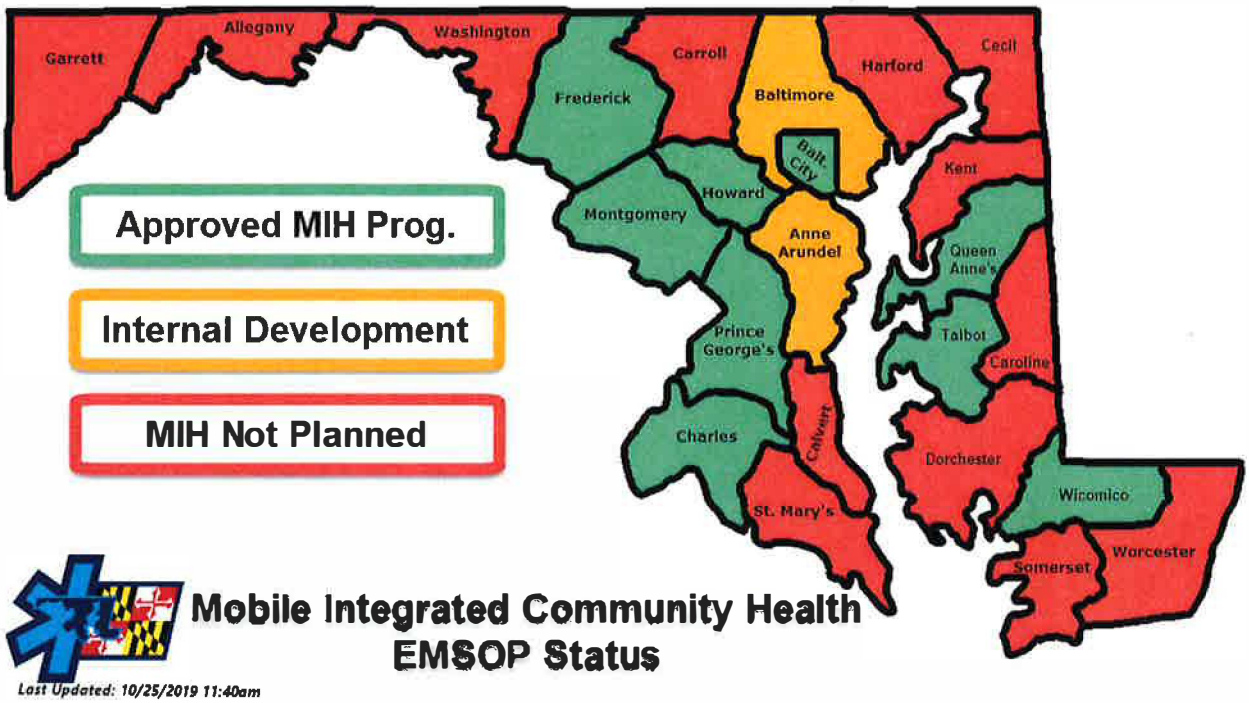
DEVELOPMENT AND EXPANSION OF NEW MODELS OF EMS

Mobile Integrated Health (MIH)

MIH continues to grow in Maryland, with nine (9) MIH programs currently operating in the state. These programs link patients who are high utilizers of 9-1-1 (e.g., 5 or more calls to 9-1-1 in a six-month period) or who are referred by allied health professionals or EMS so that these patients can better connect with community resources or medical / social programs that are able to meet their needs. The target populations of the program are as follows:

- Baltimore City Fire Department – Complex patients referred to the program are followed for 30-days post-hospital discharge.
- Charles County – Patients at high risk for hospital readmission, high utilizers of EMS, or who are referred by their primary physicians.
- Frederick – Patients who are high utilizers of EMS.
- Howard County – Patients who are high utilizers of EMS.
- Talbot County – Patients who are high utilizers of EMS.
- Prince George's County – Patients who are high utilizers of EMS
- Queen Anne's County – Patients who are high utilizers of EMS or patients who are referred to the MIH Program.

- Salisbury – Wicomico County – Patients who are high utilizers of EMS
- Talbot County – Patients who are high utilizers of EMS >age 65.



MIH Program services include medical assessment, care coordination, referrals to community services, home safety checks, medication reconciliation, patient education, peer recovery linkage (substance abuse), transportation, and social services linkage.

Alternative Destinations

Prior to 2019, two (2) pilot programs in Maryland (in Baltimore City and Montgomery County) had been approved where EMS would transport low acuity patients to urgent care centers instead of hospital EDs. In 2019, this initiative was expanded with the approval of an Alternative Destination Protocol for statewide application to permit any EMS jurisdiction to transport appropriate patients, with patient consent, to an alternative destination, e.g., a stabilization center or urgent care center. The protocol anticipates varying levels of alternative destination resources within communities and permits EMS to adapt to local needs. Under the protocol, EMS is able to transport to urgent care centers, behavioral health / mental health facilities, and other types of clinical facilities or offices. Before implementing the Alternative Destination protocol, EMS jurisdictions must develop an Alternative Destination Plan that identifies and describes the receiving facilities to which EMS will be transporting. Plans must also include quality monitoring and reporting on standard metrics.

Treat-in-Place

MIEMSS developed guidance on use of telemedicine for EMS to establish audio-visual communications with themselves, their patients and certain clinicians capable of managing the condition via such linkages which may obviate the need to transport the patient to an ED or other facility.

Medicare Model Program

Finally, the Centers for Medicare & Medicaid Innovation (CMMI) has implemented a five-year model program to modify EMS reimbursement for Medicare fee-for-services patients and evaluate the effects – the Emergency Triage, Treat & Transport ("ET3"). ET3 will reimburse selected EMS programs for transport of these patients to alternative destinations and/or for treatment in place by a qualified health care practitioner. Four (4) EMS jurisdictions have applied to participate in the pilot program: Baltimore City, Montgomery County, Charles County, and Annapolis. Maryland Medicaid has agreed to participate in the model program with those jurisdictions who are selected by CMMI. The five-year program will go into effect in January 2020.

EMS in New Care Delivery Programs

Under the Total Cost of Care Model, there are various tools available to providers to design and participate in new models of care delivery. In addition to the available federal programs and new Maryland-specific MIEMSS protocols, EMS providers have two options to:

- Design and submit ideas for new EMS-specific interventions and payment programs through the Stakeholder Innovation Group (SIG)
- Partner with hospitals on the Care Redesign Program (CRP)

Both the SIG and CRP give EMS providers the opportunity to propose and participate in new programs. Ideas proposed from EMS providers would be subject to the same vetting and review process as all other providers in the State. Additionally, CMS must approve new models and CRP proposals that require federal waivers. Identifying the target population and savings opportunities offered by new models or CRP proposals provides a stronger justification to CMS that the proposal under consideration is valuable to Maryland and aligns with TCOC Model objectives.

Through both options, EMS providers have the ability to actively engage in the transformation of Maryland's healthcare system to ultimately improve patient quality of care, advance population health goals, and achieve total cost of care savings.

Proposals through the Stakeholder Innovation Group

In 2018, the Secretary of the Maryland Department of Health requested that stakeholders convene a Stakeholder Innovation Group (SIG) to accept and vet innovative ideas to transform healthcare in Maryland. This multi-stakeholder led group is composed of healthcare industry leaders representing physicians, hospitals, post-acute and behavioral health providers, payers, and consumers. While the State does not lead this group, meetings are open to the public.

The SIG vetting process aims to evaluate innovative proposals submitted from stakeholders across the care continuum. These proposals are then discussed by members of the SIG and must achieve provider consensus before being recommended for further action. If a proposal is not recommended for further action, the SIG may request additional information on the proposal or formally reject it.

If a proposal receives SIG approval, it is then reviewed by State agencies that would be responsible for formal design and implementation. State agency staff may ask clarifying questions during the review process, determine if any federal waivers are necessary, and compare the effort of implementation against the value of the proposal. After confirming the value, feasibility, and implementation requirements of proposals, the State agencies may forward the proposal to the Secretary's Vision Group (SVG) for final review. The SVG, which is made up of healthcare leaders from around the State, and is led by the Secretary of Health, would then review the recommendations, suggests revisions, or rejects the proposal. Ultimately, the Secretary of Health makes a formal determination to pursue federal waivers as needed and to assign resources required to implement approved ideas.

Care Redesign Program (CRP)

The Care Redesign Program (CRP), administered by the HSCRC, is a promising opportunity for EMS providers to partner with hospitals to better engage in the Total Cost of Care Model. New CRP tracks are subject to SIG review and approval which is described earlier in this report.

The CRP began in 2017 and is designed to encourage greater provider alignment between hospitals and non-hospital providers. CRP functions as an additional tool for care transformation efforts that require a waiver from the federal government. Under CRP, the HSCRC may create voluntary, hospital-led care redesign tracks on an annual basis. Additionally, the HSCRC may modify or remove tracks based on stakeholder, State, or federal input. Hospitals sign one Participation Agreement with the State and federal government which allows them to participate in multiple CRP tracks. Hospitals participating in the CRP identify care partners to collaborate with on patient care improvements that lead to improved health outcomes and opportunities to reduce total costs. The program structure allows for hospitals to share resources with care partners, such as EMS providers, and provide incentives based on performance within the track.

The State has the ability to add or amend an existing track during an annual review period with the Centers for Medicare & Medicaid Innovation (CMMI). To the extent a proposed CRP track may change Medicare reimbursement, federal waivers will be required. A potential new track could allow a hospital to share financial resources with EMS providers for care and transport that does not result in hospital utilization, unlike current Medicare Part B reimbursement which requires transport to a hospital. A number of programs and EMS interventions that link with hospitals could be considered for CRP track development. If no federal waiver is needed, hospitals and EMS can work together to implement these programs without developing a CRP track.

New CRP track proposals are subject to review by the Stakeholder Innovation Group which is described earlier in this report. Developing a successful CRP track requires strong interest from stakeholders and must have a clear link to the TCOC Model goals of enhancing quality of care, improving population health and controlling the growth of total costs. Ultimately, CMS must approve a new CRP track. Without complete and thorough development the proposal may be rejected.

Additionally, in order for a CRP track to be feasible, hospitals must have a clear picture of the opportunities available to them through participation in a given track and a must indicate a willingness to invest resources necessary for participation. In existing CRP tracks, hospitals reported initial slow or delayed implementation activities in the first six to twelve months as they worked to engage care partners and operationalize the program. However, some hospital activities increased at a faster pace if they were tied to previously existing initiatives that the CRP track could leverage.

Between the SIG and CRP, EMS providers have multiple opportunities to engage in care transformation. These initiatives present opportunities for EMS providers to be more closely aligned with hospitals, as well as a process for them to design and submit new models of care delivery that can be considered under the Total Cost of Care Model.