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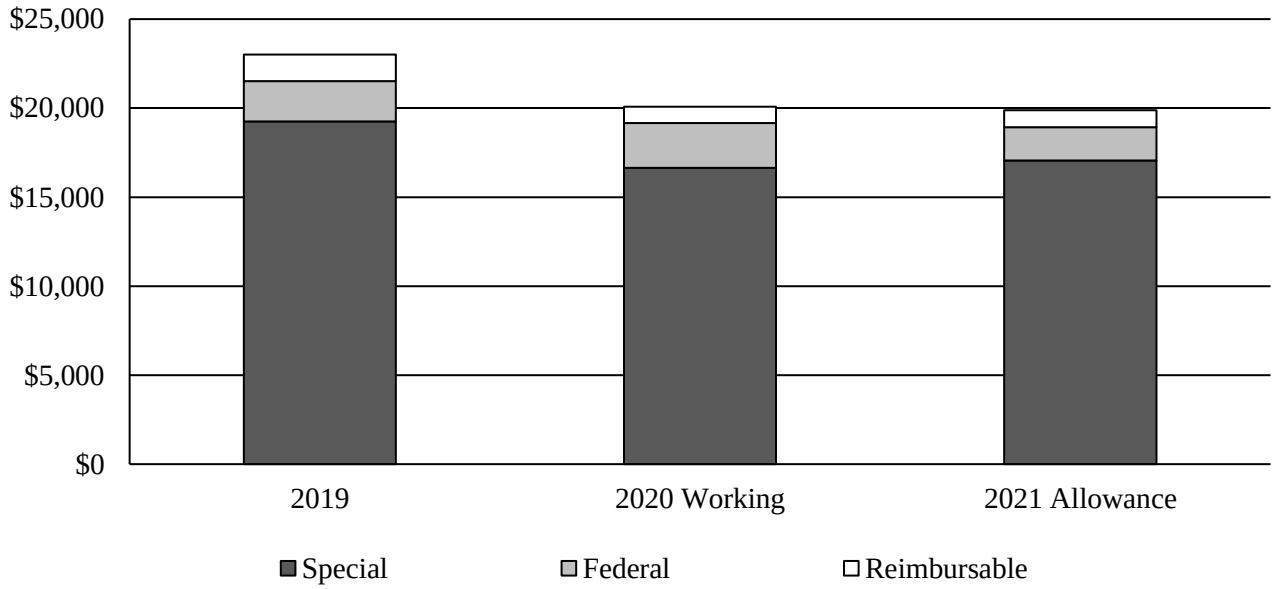
Maryland Institute for Emergency Medical Services Systems

Program Description

The Maryland Institute for Emergency Medical Service Systems (MIEMSS) is an independent agency that oversees and coordinates all components of the statewide emergency medical services (EMS) system.

Operating Budget Summary

Fiscal 2021 Budget Decreases by $240,000 or 1.2% to $19.9 Million
($ in Thousands)



Note: Numbers may not sum due to rounding. The fiscal 2020 appropriation includes deficiencies, planned reversions, and general salary increases. The fiscal 2021 allowance includes contingent reductions and general salary increases estimated proportionally.

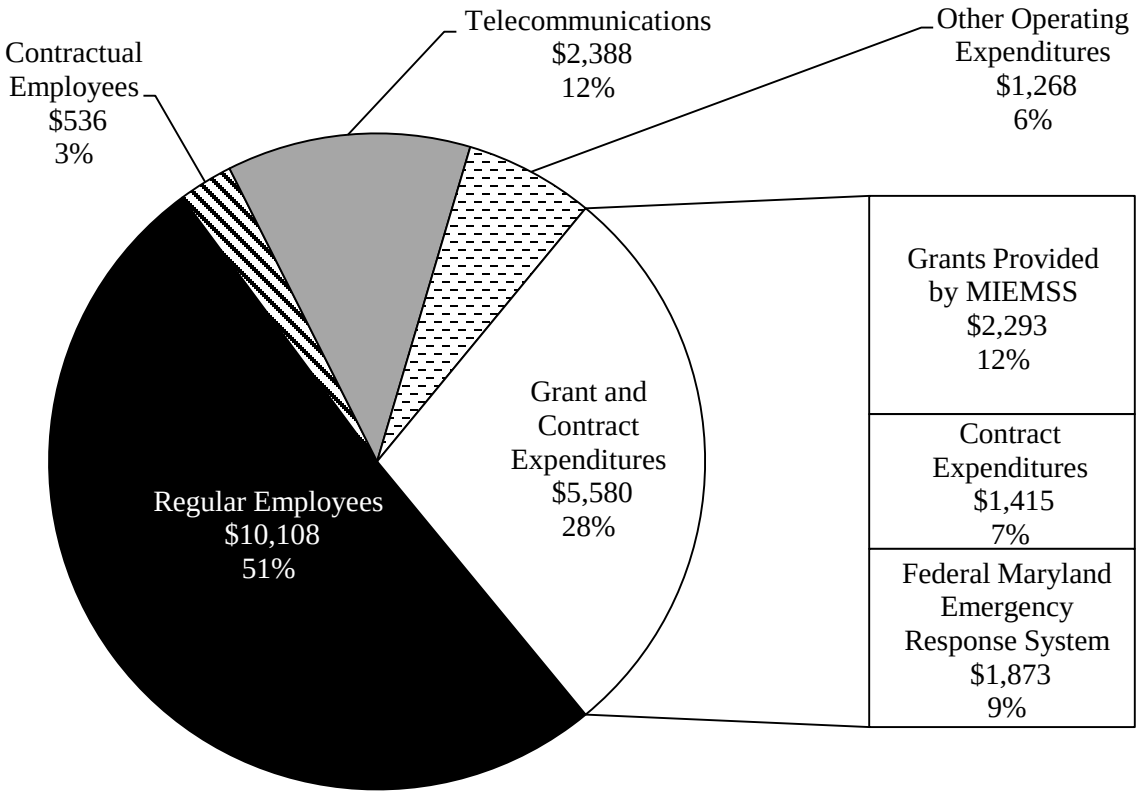
- MIEMSS' budget is predominately comprised of special funds from the Maryland Emergency Medical System Operations Fund ($16.3 million, or 82.8%). The next largest share of funding for MIEMSS is $1.4 million in federal funds from the U.S. Department of Homeland Security (DHS) for the Maryland Emergency Response System (MDERS) that, along with local jurisdictions, provides the national capital region with mass casualty incident response and preparedness capabilities. Reimbursable funds come from the Military Department, the State Highway Administration, and the Maryland Department of Health (MDH).

For further information contact: Andrew C. Garrison Phone: (410) 946-5530

Fiscal 2021 Overview of Agency Spending

As shown in **Exhibit 1** below, the largest share of MIEMSS' budget is regular employees, making up over half of the fiscal 2021 allowance. Another significant portion is telecommunications expenditures needed to coordinate the statewide EMS system of over 30,000 licensed EMS providers. MIEMSS also administers and provides grants to local jurisdictions and EMS providers, including $380,000 in funds from the Opioid Operational Command Center (OOCC) in fiscal 2021 to further expand Naloxone availability for EMS providers.

Exhibit 1
Overview of Agency Spending
Fiscal 2021 Allowance
($ in Thousands)



MIEMSS: Maryland Institute for Emergency Medical Service Systems

Note: Annualization of fiscal 2020 and proposed fiscal 2021 general salary increases included in data.

Source: Governor's Fiscal 2021 Budget Books

Proposed Budget Change

MIEMSS' budget experiences a slight decrease in fiscal 2021, as shown in **Exhibit 2**. The largest decrease, and what drives the overall budget change, is a decline in the amount of federal funds received by MIEMSS for the MDERS program. However, MIEMSS notes that this change is not a decrease in the overall grant amount that is provided by DHS for this purpose. Rather, a greater share of the funding for this purpose is being provided directly to the local governments and other providers that also assist with the federal government's response for emergency preparedness. MIEMSS advised that the steering committee that is tasked with the allocation of the federal funding was able to make decisions for the other local partners earlier, reducing the need for MIEMSS to act as an administrator of these funds for local jurisdictions.

MIEMSS also notes that the funding for the Communications Systems upgrade project (discussed further in Update 1 and **Appendix 2**) is funded through operating expenditures. Communications project expenditures total $1.8 million in fiscal 2021, $924,700 for the upgrade itself, and $870,344 for maintenance of the existing system.

Exhibit 2
Proposed Budget
Maryland Institute Emergency Medical Services Systems
($ in Thousands)

How Much It Grows:	Special Fund	Federal Fund	Reimb. Fund	Total
Fiscal 2019 Actual	$19,253	$2,260	$1,503	$23,016
Fiscal 2020 Working Appropriation	16,676	2,533	912	20,121
Fiscal 2021 Allowance	17,062	1,873	947	19,881
Fiscal 2020-2021 Amount Change	$385	-$660	$35	-$240
Fiscal 2020-2021 Percent Change	2.3%	-26.1%	3.8%	-1.2%

Where It Goes:	Change
Personnel Expenses	
Fiscal 2021 general salary increase, 2% effective January 1, 2021	$82
Employee and retiree health insurance	75
Retirement contributions	65
January 1, 2020 general salary increase annualization	39
Other fringe benefit adjustments	3
Turnover adjustments	-4

Where It Goes:	**Change**
Other Changes	
Increase in grant funding from OOCC to MIEMSS in order to expand EMS response to the Opioid Crisis	180
Increase in telecommunications expenditures	64
Increase in statewide cost allocations	58
Changes in existing contractual employee compliment, driven by increasing hourly commitment of an EMS nurse for children by 0.25 FTE, offset by a collective 0.21 FTE decrease in a test evaluator and EMS protocol administrator	10
Other operating expenditures	10
Increase rent expenditures	7
End of five-year MDH grant for highly infectious disease preparedness, including the decrease of 1 contractual program administrator for the grant	-168
Decrease in federally funded MDERS budgeted directly toward MIEMSS from the U.S, Department of Homeland Security, including 3 fewer hourly workers for the federal emergency response system	-660
Total	**-$240**

EMS: emergency medical services
FTE: full-time equivalent
MDERS: Maryland Emergency Response System
MDH: Maryland Department of Health
MIEMSS: Maryland Institute for Emergency Medical Service Systems
OOCC: Opioid Operational Command Center

Note: Numbers may not sum due to rounding. The fiscal 2020 appropriation includes deficiencies, planned reversions, and general salary increases. The fiscal 2021 allowance includes contingent reductions and general salary increases.

Grants from OOCC

EMS providers are reporting increased costs associated with cases in which EMS personnel treat a patient at the scene, and the patient ultimately refuses ambulance transport to an emergency department (ED). Many of these cases occur when patients suffer from an opioid overdose. In response to unconscious overdoses, EMS personnel treat the patient with ventilation support and intravenous Naloxone costing approximately $95 total ($50 for the Naloxone). Because EMS is considered a transportation benefit, EMS providers do not receive reimbursement if the patient refuses transport, and EMS jurisdictions have pursued grant funding sources to help pay for these expenses. MIEMSS receives a $380,000 grant from OOCC in fiscal 2021, $200,000 for continued support of Naloxone grants and $180,000 for identifying best practices for EMS response to the Opioid Crisis.

Personnel Data

	FY 19 Actual	FY 20 Working	FY 21 Allowance	FY 20-21 Change
Regular Positions	94.00	94.00	94.00	0.00
Contractual FTEs	15.72	22.62	18.66	-3.96
Total Personnel	**109.72**	**116.62**	**112.66**	**-3.96**

Vacancy Data: Regular Positions

Turnover and Necessary Vacancies, Excluding New Positions	5.42	5.77%
Positions and Percentage Vacant as of 12/31/19	12.00	12.77%
Vacancies Above Turnover	6.58	

- Most of the decrease in contractual employees experienced by MIEMSS in fiscal 2021 is related to the changes in the MDERS program and the end of a grant from MDH.

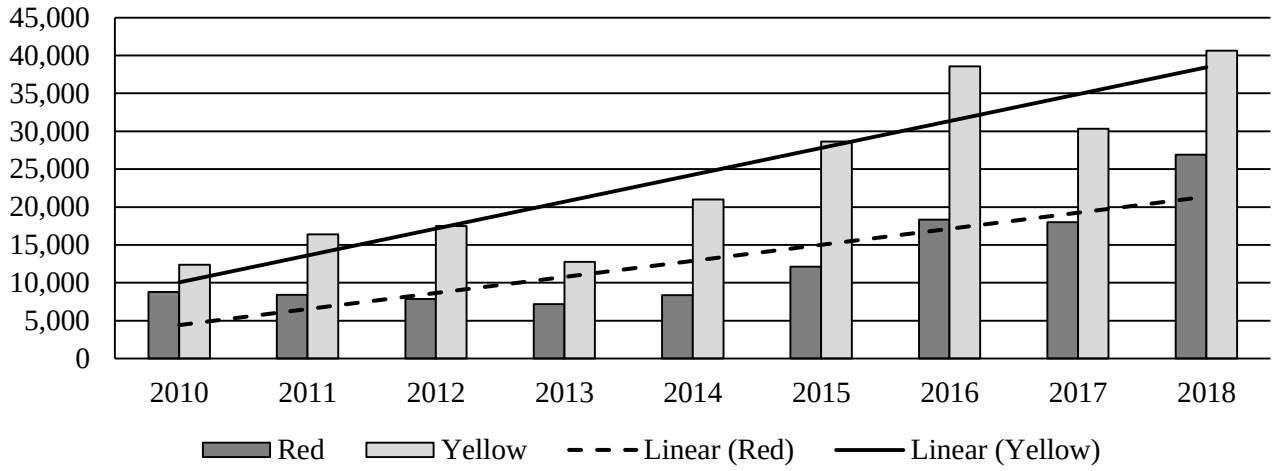
- MIEMSS was the recipient of a five-year MDH grant for Ebola and other highly infectious disease preparedness. Fiscal 2020 was the last year of the grant, and accordingly, the contractual program administrator that MIEMSS had for this purpose in prior years is not budgeted in fiscal 2021.

Key Observations

1. Emergency Department Overcrowding and Possible Solutions

In a recent *Joint Chairmen's Report* (JCR) report submitted by MIEMSS, a discussion was included of the current ED alert system used in the State. MIEMSS tracks yellow alerts when an ED requests to receive absolutely no patients in need of urgent medical care by ambulance with the exception of certain priority cases and red alerts when a hospital has no inpatient electrocardiogram-monitored beds available. As shown by **Exhibit 3**, below, the time that EDs have spent on yellow alert has been steadily increasing over the last several years, and more quickly than the red alert growth.

Exhibit 3
Emergency Departments: Increasing Time Spent on Yellow Alerts
Calendar 2010-2018



Source: Maryland Institute of Emergency Medical Service Systems

However, MIEMSS notes that the impact that the yellow alert status has on whether a patient is ultimately transported to the hospital is minimal. Under the current system, regardless of hospital alert status, EMS providers have been authorized to transport a patient to the closest appropriate hospital. Further, when a hospital elects to go on either red or yellow alert varies by hospital and EMS jurisdiction. Given that, MIEMSS reevaluated the alert system and is replacing the existing system with one that focuses on the hospital's ED status. The new system will allow EDs to alert EMS providers if the patient load exceeds the ED's current capacity, similar to the current red and yellow alert guidelines, but it will not redirect ambulances unless there is a physical problem with the ED itself (*e.g.*, flooding in the ED). MIEMSS anticipates implementing this new system toward the end of fiscal 2020. **MIEMSS should comment on the implementation status of the new ED alert system.**

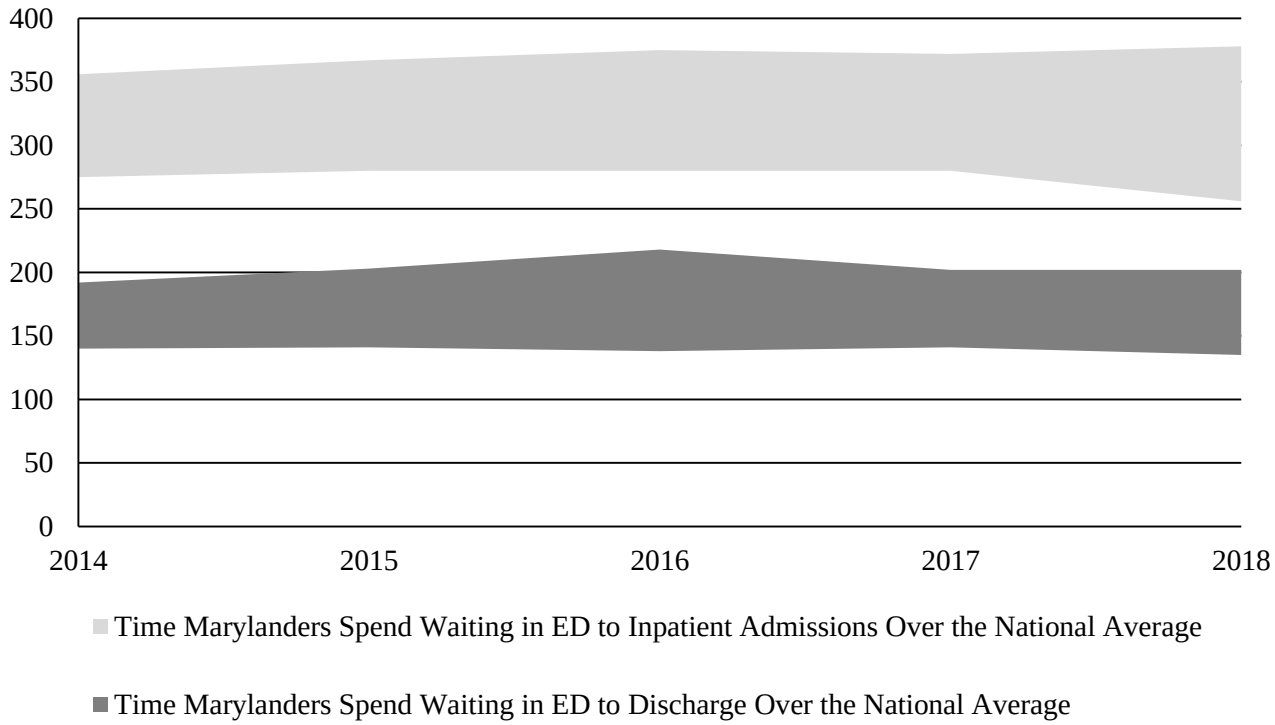
Another indicator of Maryland's ED overcrowding is reflected in Centers for Medicare and Medicaid Services' (CMS) measures pertaining to the amount of time that it takes for individuals to either be admitted as an inpatient or to be discharged from the ED. Maryland has consistently been higher than the national average, with the gap widening in 2018. In 2018, Maryland patients could expect to spend nearly 70 more minutes before being discharged and over 2 hours more before being admitted as an inpatient than the national average. **Exhibit 4** shows that, after some slight improvement in 2017, this gap has only widened between Maryland and the national average in both of these CMS measures. The shaded areas represent how much longer Maryland residents wait in EDs over the national average, with the lower and upper bound of each shaded area representing the national and Maryland average wait time, respectively.

Exhibit 4

Emergency Departments Experiencing Increasing Wait Times for Admissions and Discharges in Maryland

Calendar 2014-2018

(Average Minutes)

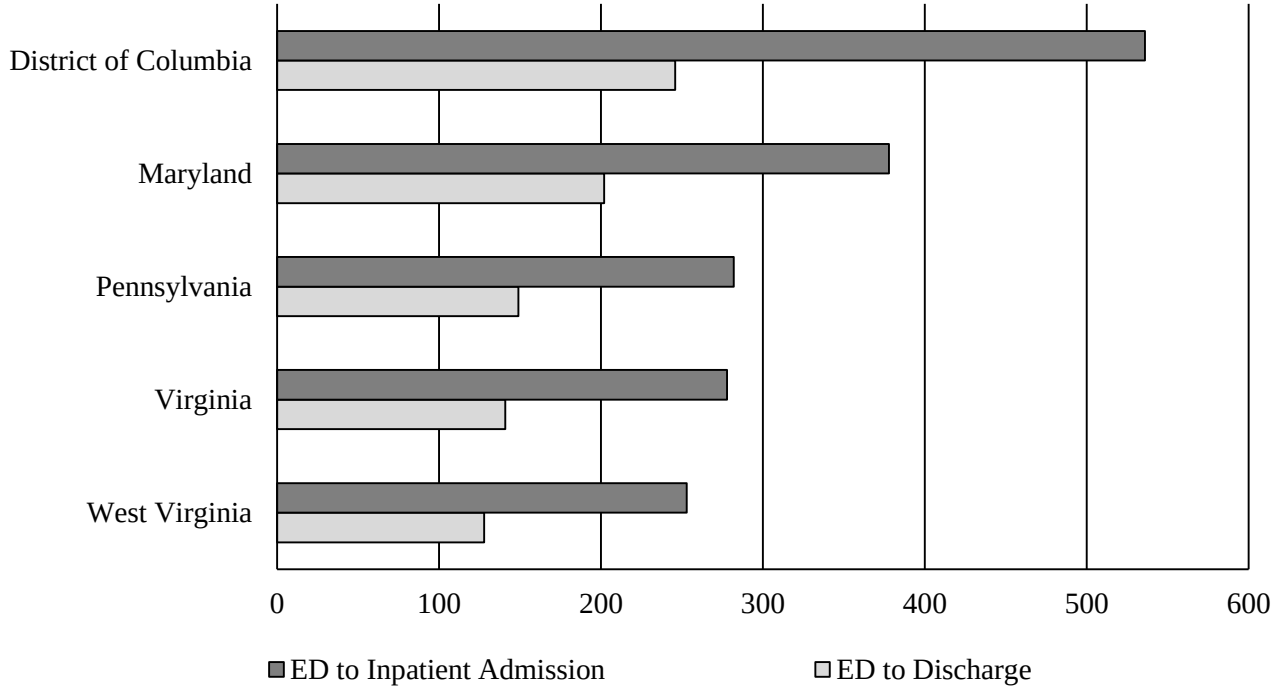


ED: emergency department

Source: Centers for Medicare and Medicaid Services

In fact, Maryland is the state with the longest wait times in 2018 in both of these measures, with only the District of Columbia and Puerto Rico having patients spend longer in their ED. **Exhibit 5** shows Maryland performance in both measures compared to the neighboring jurisdictions, with only the District of Columbia showing longer wait times in either measure. MIEMSS advised the Department of Legislative Services that these two wait time measures are being phased out of CMS's hospital compare measures.

Exhibit 5
Maryland Emergency Department Wait Time Comparison
Calendar 2018
(Average Minutes)



ED: emergency department

Source: Centers for Medicare and Medicaid Services

One item cited in the JCR report contributing to the wait times is the ambulance off-loading times experienced by patients, *i.e.*, time taken to move from the ambulance to the ED. MIEMSS notes that for the most severe patients (Priority 1), the off-load times are within the national average. Additionally, the average off-load time for Marylanders of 19.71 minutes is also within the national expectations. However, the more frequent and less severe conditions, Priorities 2 and 3, which make up nearly 90% of all EMS transports, often take much longer. The report highlights that, from

November 2018 to April 2019, over 10,000 Priority 2 and 3 patients waited at least an hour in an EMS stretcher before care was transferred to an ED.

One of the contributing factors to ED wait times highlighted by MIEMSS in their report is an increase in behavioral health patients presenting in EDs. MIEMSS asserts that it is continuing to work with the Health Services Cost Review Commission (HSCRC) to understand ED crowding as it relates to patients with behavioral health diagnoses.

Avenues for Improving Emergency Department Wait Times in Maryland

Improving Outlier Hospitals

MIEMSS also noted that ED outcome measures other than CMS's hospital compare measures, will continue to be considered in HSCRC's quality-based reimbursement policies. These are the same measures that are shown in Exhibits 4 and 5. With this in mind, HSCRC has identified outlier hospitals that are performing well below the State's already poor performance regarding ED wait times. HSCRC identified 15 hospitals meeting the outlier criteria, 2 of which were removed from consideration. The remaining 13 hospitals submitted performance improvement plans to MIEMSS that are summarized in the JCR report.

Over half of the outlier hospitals are in the greater Baltimore region, with five in Baltimore City and two more in Baltimore County. A full list of outlier hospitals can be found in **Appendix 4**. Some reoccurring concepts throughout the performance plans include aligning staffing levels to match peak volume, streamlining inpatient discharges to ensure bed availability for ED patients, and increased care management in the ED.

New Models of EMS Care Delivery

A second JCR report submitted by MIEMSS discussed new models for EMS care delivery that would help reduce ED overcrowding. The three models discussed that have been implemented in at least some parts of the State are:

- ***EMS Treat and Release/Refer without Transport:*** EMS treating low acuity patients at the scene and the patient ultimately refuses ambulance transport to an ED. A variation of this model is EMS clinicians assessing and identifying low acuity patients and offering on-scene treatment provided by a physician or nurse practitioner either in person or via telehealth, again without transportation to an ED.

- ***EMS Transport to an Alternative Destination:*** EMS transporting patients with low acuity to an urgent care clinic, or similar facility, rather than an ED. MIEMSS notes that these nonhospital providers are not subject to the federal Emergency Medical Treatment and Labor Act requiring hospitals to treat and stabilize patients without regard to insurance status. Patients also face individual financial risk if they are transported to facilities outside of their insurance network. As a result, patients must consent to transportation to any non-ED destination, and

MIEMSS provides clear guidelines to EMS for making decisions about the appropriate destination for a patient

- ***EMS Mobile Integrated Health (MIH):*** Allowing EMS to partner with health care providers such as nurse practitioners, community health workers, social workers, and physicians to conduct home visits to assess, treat, and refer certain 9-1-1 patients to needed services in the community. MIH programs focus on frequent 9-1-1 callers, frequent users of EMS transport, and patients identified by hospitals as being at high risk for hospital readmission. Currently, nine programs in the State are operating MIH programs with two more in the planning stages.

MIEMSS continues to expand opportunities for EMS providers to expand on new models of care, including a guidance on telemedicine that allows EMS to establish a connection between a patient and clinicians capable of managing the patient's condition, allowing EMS to treat-in-place. Further, MIEMSS has approved an Alternative Destination Protocol in 2019. This protocol also set basic requirements for the alternative destinations, such as staffing requirements and technical resources onsite. Any EMS jurisdiction can use either of these protocols to expand their care delivery models.

Opportunities for Sustainable Reimbursement

Currently, these new models of care are not reimbursed by Medicare, Medicaid, or private insurance. However, a new model from CMS and a potential new approach under Maryland's Total Cost of Care (TCOC) model provide opportunities for EMS providers to obtain reimbursement for embracing new care delivery methods that may reduce ED utilization for low-acuity patients.

In February 2019, CMS announced a new five-year program to provide funding to some of these alternative care models, the "Emergency Triage, Treat & Transport Program" (ET3), will reimburse Medicare fee-for-service patients who are treated in place or transported to an alternative destination. In order to participate, an EMS jurisdiction must have plans for both treating in place and alternative destinations. For those selected to participate, the ET3 program is scheduled to start in spring 2020 and end December 31, 2024, with CMS possibly making performance-based payment adjustments after program year 3. CMS is encouraging all-payer participation in ET3, and Maryland Medicaid has expressed interest in doing so for the five Maryland jurisdictions that have applied to participate in ET3. MIH is the most common new EMS model for Maryland jurisdictions, as shown by **Exhibit 6**. However, MIH is not eligible for reimbursement under the ET3 model, and traditional Medicare reimbursements for ambulance transports will not be impacted by the ET3 program.

Maryland's TCOC model also provides opportunities to align EMS new models of care with the hospital and statewide Medicare savings goals. These avenues include the ability for individual, EMS-specific interventions to be submitted and approved through the Maryland Hospital Association's Stakeholder Innovation Group (SIG), or TCOC's Care Redesign Programs (CRP). SIG was formed at the request of the Secretary of Health and is in part charged with developing proposals for potential new payment models aligned with TCOC. Under this charge, SIG is currently exploring an opportunity to extend the federal ET3 model to all payers in Maryland but, unlike the federal ET3 program, to include MIH. SIG decided to create an EMS innovation subgroup to develop a hospital-based payment model for EMS jurisdictions that implements the new models of care. Recommendations made by SIG

will need to be approved by HSCRC in order to be included in the TCOC model. An additional tool is the CRPs, which are agreements between hospitals and nonhospital providers that are led by hospitals and administered by CMS. HSCRC may create additional, voluntary CRPs on an annual basis, pending approval from CMS. MIEMSS reports that, currently, HSCRC has received proposals from two hospitals, Anne Arundel Medical Center and the University of Maryland Medical Center, for CRPs pertaining to EMS providers. Exhibit 6 also highlights which EMS jurisdictions are currently participating or planning on participating in one of the several ways in which they can implement these new care delivery programs.

Exhibit 6
Jurisdictions Participating in New EMS Care Delivery Models

Jurisdiction	MIH	Treat and Release Programs	Other Alternative Destination Programs	ET3*
Annapolis			+	+
Anne Arundel County	+		+	
Baltimore City	X	X	X	+
Baltimore County	+			
Charles County	X			+
Frederick County	X			
Howard County	X			+
Montgomery County	X		X	+
Prince George's County	X			
Queen Anne's County	X			
Talbot County	X			
Wicomico County	X			
Worcester County	+			

EMS: emergency medical services
ET3: Emergency Triage, Treat & Transport Program
MIH: Mobile Integrated Health

*Jurisdictions denoted have applied for ET3; the Centers for Medicare and Medicaid Services will make ultimate selections on participating programs, which would start spring 2020.

Note: A "X" denotes an active program. A "+" denotes a planning phase.

Source: Maryland Institute of Emergency Medical Service Systems

Cost Estimate Report Conducted by the Maryland Health Care Commission

In addition to the JCR reports submitted on new models of care delivery to the budget committees, the health committees requested an actuarial study from the Maryland Health Care Commission (MHCC) to assess the "social, medical and financial impact of establishing a mandate for covering treat and release programs, alternative destination treatment, and mobile integrated health programs," in the fully insured private health insurance market.

The study conducted by MHCC found that the alternative treatment models would be expected to provide effective care that could relieve ED overcrowding and enhance the overall efficiency of the State's EMS system. The report further looked at participation and enrollment in the existing alternative EMS models in the State (Exhibit 6) and found that MIH pilot programs, in particular, lead to a reduction in ED use, inpatient hospital use, 9-1-1 calls, and hospital readmissions. The authors suggest that their findings point toward MIH programs having a substitution effect with unnecessary utilization of health care services. Ultimately, the authors concluded that these models would provide cost savings to insurers and payors, due to the use of low-cost facilities and the reduction of unnecessary medical treatment in higher cost settings, such as EDs.

Exhibit 7, below, highlights the savings estimates if these three models were mandated in Maryland for the private health insurance market, both on aggregate and a per member, per month basis.

Exhibit 7
Cost Study Savings Estimates – New Models of EMS Care Delivery

	Medical Savings Per Year		Per Member Per Month	
	Low Estimate	High Estimate	Low Estimate	High Estimate
Alternative Destination	$252,000	$453,000	$0.02	$0.04
Treat and Release	34,000	152,000	-	0.01
Mobile Integrated Health	95,000	1,419,000	0.01	0.12

EMS: emergency medical services

Source: Maryland Health Care Commission

The report provided high, medium, and low estimates based on different eligibility and utilization assumptions, all of which would lead to cost savings in the private insurance markets. MIEMSS reports that reimbursement from private payors for these new EMS care delivery models is essential to the ongoing sustainability of these alternative care models.

Operating Budget Recommended Actions

1. Concur with Governor's allowance.

Updates

- ***MIEMSS Communications System Upgrade:*** At the May 2018 meeting of the Board of Public Works (BPW), BPW approved the contract for a four-year, $15.75 million upgrade to the statewide communications system from a legacy analog system to an Internet Protocol-based system. MIEMSS reports that the project has entered the implementation stage, which has five phases based on EMS regions, the first being Region V – Southern Maryland. This first implementation phase is expected to be completed mid-year 2020. The project is on schedule and on budget and expected to be completed by May 2022. This project is discussed in greater length in Appendix 2.

Appendix 1
2019 *Joint Chairmen's Report* Responses from Agency

The 2019 *Joint Chairmen's Report* (JCR) requested that the Maryland Institute for Emergency Medical Service Systems (MIEMSS) prepare two reports. Electronic copies of the full JCR responses can be found on the Department of Legislative Services Library website.

- ***Emergency Department (ED) Overcrowding:*** The JCR's findings and evaluation of ED performance and wait times in the State is discussed further in Key Observation 1.

- ***Reimbursement for New Models of Emergency Medical Services (EMS) Care Delivery:*** MIEMSS detailed three different care delivery models for EMS providers that would avoid transporting to an ED, and therefore help with overcrowding: (1) treating without transport; (2) transporting to an alternative destination; and (3) mobile integrated health services. These EMS care delivery models and potential reimbursements are discussed in greater length as a potential solution to ED overcrowding in Key Observation 1.

Appendix 2
Major Information Technology Project
Maryland Institute for Emergency Medical Services
Communications System Upgrade

(Also discussed in Updates)

New/Ongoing: Ongoing								
Start Date: 3/27/2018				**Est. Completion Date:** 11/21/2021				
Implementation Strategy: Waterfall								
($ in millions)	**Prior year**	**2020**	**2021**	**2022**	**2023**	**2024**	**Remainder**	**Total**
GF								
SF	$12.98	$0.925	$0.925	$0.925				**$15.75**
FF								
Total	**$12.98**	**$0.925**	**$0.925**	**$0.925**				**$15.75**

- ***Project Summary:*** Upgrade statewide communications system from a circuit-switched, analog system operating with nonsupported legacy equipment to a modern, Internet Protocol-based communications system.

- ***Need:*** The existing Systems Communication is over 20 years old and is based on technologies from the 1980s, which has resulted in the Maryland Institute for Emergency Medical Services (MIEMSS) being advised that only limited aspects of the system will be supported due to age. Other aspects of the current system are based on copper wires that have also been retired, making those aspects unavailable.

- ***Observations and Milestones:*** The project has entered the implementation phase with the first emergency medical services jurisdiction, Region V – Southern Maryland, to be upgraded, estimated to be completed by mid-year 2020.

- ***Funding:*** Amounts above include funds budgeted by MIEMSS through the operating budget to cover project costs. The project is fully funded, and expenditures are based on contractual milestones.

Appendix 3
Object/Fund Difference Report
Maryland Institute Emergency Medical Services Systems

Object/Fund	FY 19 Actual	FY 20 Working Appropriation	FY 21 Allowance	FY 20 - FY 21 Amount Change	Percent Change
Positions					
01 Regular	94.00	94.00	94.00	0.00	0%
02 Contractual	15.72	22.62	18.66	-3.96	-17.5%
Total Positions	**109.72**	**116.62**	**112.66**	**-3.96**	**-3.4%**
Objects					
01 Salaries and Wages	$ 9,122,589	$ 9,808,731	$ 9,947,054	$ 138,323	1.4%
02 Technical and Special Fees	1,709,529	2,153,115	1,761,141	-391,974	-18.2%
03 Communication	6,170,040	2,787,598	2,797,723	10,125	0.4%
04 Travel	659,990	745,028	683,945	-61,083	-8.2%
06 Fuel and Utilities	133,825	128,888	138,072	9,184	7.1%
07 Motor Vehicles	311,085	238,790	250,016	11,226	4.7%
08 Contractual Services	2,525,610	2,412,282	2,344,252	-68,030	-2.8%
09 Supplies and Materials	456,538	149,288	107,828	-41,460	-27.8%
10 Equipment – Replacement	282,596	97,000	70,500	-26,500	-27.3%
11 Equipment – Additional	27,962	84,715	20,350	-64,365	-76.0%
12 Grants, Subsidies, and Contributions	1,409,795	1,311,050	1,415,000	103,950	7.9%
13 Fixed Charges	174,070	165,428	184,085	18,657	11.3%
14 Land and Structures	32,100	0	0	0	0.0%
Total Objects	**$ 23,015,729**	**$ 20,081,913**	**$ 19,719,966**	**-$ 361,947**	**-1.8%**
Funds					
03 Special Fund	$ 19,252,514	$ 16,637,080	$ 16,900,803	$ 263,723	1.6%
05 Federal Fund	2,259,871	2,532,800	1,872,569	-660,231	-26.1%
09 Reimbursable Fund	1,503,344	912,033	946,594	34,561	3.8%
Total Funds	**$ 23,015,729**	**$ 20,081,913**	**$ 19,719,966**	**-$ 361,947**	**-1.8%**

Note: The fiscal 2020 appropriation does not include deficiencies, planned reversions, or general salary increases. The fiscal 2021 allowance does not include contingent reductions or general salary increases.

Appendix 4
Hospitals with Outlier Emergency Department Wait Times

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