FINAL REPORT

Options for Rural Health Care Delivery in Maryland

JANUARY 9, 2020

PRESENTED TO:
Maryland Health Care Commission

PRESENTED BY:
The Walsh Center for Rural Health Analysis at NORC at the University of Chicago

MHCC Meeting DRAFT

NORC at the UNIVERSITY of CHICAGO

The Walsh Center for Rural Health Analysis
NORC AT THE UNIVERSITY OF CHICAGO

Table of Contents

Executive Summary

Introduction

As a national leader in implementing innovative payment and delivery health care models, Maryland is well-positioned to be a leader in implementing rural solutions that meet the evolving health care needs of residents of Kent and upper Queen Anne's Counties and other rural areas.

The Maryland Health Care Commission contracted with the Walsh Center for Rural Health Analysis at NORC at the University of Chicago to identify delivery system options that could meet the health care needs of residents in Kent and upper Queen Anne's Counties. The options identified are applicable and scalable to other rural communities in Maryland and align with the Total Cost of Care Demonstration Agreement that Maryland signed with the Centers for Medicare and Medicaid Services (CMS) in 2018.

Options for rural health care delivery in Kent and upper Queen Anne's Counties were based on:

- Interviews with representatives from the University of Maryland Shore Regional Health, public officials representing Chestertown and Kent County, business leaders, and community members;
- Analysis of aggregate inpatient and outpatient discharge data; and
- Review of literature and national rural health models.

This summary presents a high-level overview of themes, rural health care delivery options, and considerations for future access to health services in Kent and upper Queen Anne's Counties and other rural Maryland communities.

Themes

Many rural communities across the country are exploring ways to address the changing landscape of the health care needs of their residents. Community-driven innovations are emerging as rural hospitals explore more efficient ways of ensuring access to care while improving the health of their residents, particularly for vulnerable populations. When compared to Maryland overall, residents in Kent and upper Queen Anne's Counties have a higher proportion of vulnerable residents who are older and have lower incomes. These population factors were addressed during interviews and contributed to the following themes:

- As a growing retirement destination area, access to care is important to the overall economic vitality of the community;

- Certain health care services are essential, such as emergency services and some inpatient care, particularly for older adults, however, there is a recognition that UM Shore Medical Center at Chestertown will not be able to provide every service for every person; and
- Access to public transportation needs to be considered to ensure that residents are able to access the health care services they need in a timely manner.

Residents frequently commented on the importance of effectively engaging and collaborating with health care leaders and providers to improve the overall health and well-being of their community.

Options

Rural hospitals in Maryland, like rural hospitals across the United States, face financial and operational pressures that reflect the rural environment in which they operate. In order to adapt to the challenges they face, rural hospitals must be resilient, resourceful, and innovative to thrive. To design and implement viable models for rural Maryland hospitals, the following questions should be considered:

- ***What are the essential health services that meet community needs?***
- ***How do the hospital and community partners recruit and retain a talented health care workforce?***
- ***Are new models of care sustainable as health care delivery evolves?***
- ***Is the community informed and committed to the financial and social requirements of the model?***

This report summarizes three potential options for rural health delivery: 1) acute general hospital (the status quo); 2) Maryland Rural Hospital (Pilot); and 3) Aging and Wellness Center of Excellence (a focus area for the acute general hospital or Maryland Rural Hospital). Discussion reflects the NORC Walsh Center team's assessment of each option, taking into account the considerations describe above. All options comply with requirements under the TCOC Model that hospital reimbursement is subject to a global budget.

Option 1: Status Quo—Acute General Hospital

Under this approach, the rural hospital would continue to operate as an acute general hospital, providing inpatient diagnostic and treatment services by or under the supervision of physicians and 24-hour nursing services. Acute general hospitals provide inpatient services, and may also provide a range of outpatient services. An acute general hospital must arrange for

Option 1: Acute General Hospital

- Inpatient diagnostic and treatment services
- Outpatient medical and surgical services
- Enhanced community engagement with community providers and patients
- Leadership is responsive to market changes

transportation should a patient be referred to another level of care. Acute general hospitals must meet the quality goals established in the agreement with CMS under the TCOC Model. There is an expectation that leadership is dynamic and responsive to market changes and will make adjustments as needed to sustain services, if financially viable. This option recognizes that some changes are needed to stabilize rural hospitals in Maryland with declining utilization and that may result in changes in the mix of services currently offered.

Option 2: Maryland Rural Hospital (Pilot)

A proposed Maryland Rural Hospital is a new type of acute general hospital, modeled after the Critical Access Hospital (CAH), a hospital type used nationwide, outside of Maryland. Payment for a Maryland Rural Hospital would remain under a global budget under the TCOC Model.

A Maryland Rural Hospital would have no more than 25 licensed acute care/swing beds,[i] with the number of licensed beds determined by the State. The Maryland Rural Hospital would have an average length of stay of 96 hours or less for inpatient care. It would also operate a 24/7 emergency department and may offer other outpatient services to meet community needs. A CAH must be located at least 35 miles from another hospital; a Maryland Rural Hospital's distance requirement could be determined by the State. All regulatory requirements, including those required by the Maryland Institute for Emergency Medical Services Systems (MIEMSS), would need to be met for this option.

Option 2: Maryland Rural Hospital (Pilot)

- Critical access hospital (CAH) delivery model (not payment)
- Inpatient services with an average length of stay of less than 96 hours
- Timely transfer protocols and transportation
- Outpatient services determined by community needs
- Telehealth to increase access to and quality of care
- Advisory board including patients

A Maryland Rural Hospital determines the appropriate service lines to be provided based on local community needs. For example, like a typical rural hospital in other parts of the U.S., a Maryland Rural Hospital could provide inpatient surgical and swing bed services, yet not include an ICU unit or other specialized units. In addition, typical rural hospitals rely on robust primary care – which may or may not be owned or operated by the hospital. The types of inpatient and outpatient services provided would be determined based on community need and have sufficient volume to ensure quality and efficiency of services.

Telehealth plays a central role in the proposed Maryland Rural Hospital as a tool to increase access to care, quality of care, and efficiency. The Maryland Rural Hospital determines which

[i] Hospitals approved to provide swing bed services may use their beds, as needed, to provide either acute care or post-hospital skilled nursing facility (SNF) care. Additional information is available at https://go.cms.gov/2TbIWKw.

telehealth services to offer and may consider providing telehealth for outpatient specialty services, tele-emergency, tele-pharmacy, and/or provider education.

To support community-focused health planning, the proposed Maryland Rural Hospital will have an advisory board that reports to the governing body of the hospital or health system. The majority (at least 51%) of the advisory board members would be patients served by the Maryland Rural Hospital.

A Maryland Rural Hospital is required to meet CAH standards, including those related to patient transportation. Rural hospitals across the country have identified community-appropriate models to facilitate access to health services, such as taxi vouchers, volunteer drivers, and shuttle services.

Option 3: Aging and Wellness Center of Excellence

The Aging and Wellness Center of Excellence is a set of inpatient and outpatient services that are designed to support healthy aging. The Aging and Wellness Center of Excellence could be a focus of an acute general hospital or a Maryland Rural Hospital. The Aging and Wellness Center of Excellence offers primary care services and outpatient specialty services that are most often used by older adults and are determined by the community health needs assessment (e.g., behavioral health, cardiology, pulmonology, nephrology, neurology, orthopedics, palliative care, or other services). The Aging and Wellness Center of Excellence uses a multidisciplinary care team approach and care coordinators to assist with patient navigation of health and social services (e.g., Meals on Wheels) and facilitate patient health education (e.g., falls prevention classes). The Aging and Wellness Center of Excellence can be developed into a comprehensive, holistic place for older adults to access care. Additional services, such as massage or acupuncture, could be added to the Center or space for these services could be leased to independent providers. The Aging and Wellness Center of Excellence addresses key health concerns for older adults, including social isolation. Telehealth tools, such as remote patient monitoring (RPM), could help support the Aging and Wellness Center of Excellence.

Option 3: Aging and Wellness Center of Excellence

- Inpatient and outpatient set of services for older adults
- Age-friendly health system offering primary care, outpatient specialties, care coordination, patient education, and other services
- Telehealth tools to support aging in place
- Health professions training opportunities
- Advisory board including patients

The Aging and Wellness Center of Excellence could lead the hospital's effort to be recognized as an Age-Friendly Health System by the Institute for Healthcare Improvement (IHI), for which hospitals and outpatient care locations adopt evidence-based approaches to improve care of older adults using the "4Ms" framework—What Matters, Medication, Mentation and Mobility.[1,2]

Enhanced geriatric training for nursing staff would further enhance the quality of care for older adult patients.

To support health planning, the Aging and Wellness Center of Excellence would have an advisory board that reports to the governing body of the hospital or health system. The majority (at least 51%) of the advisory board members would be patients who use Aging and Wellness Center of Excellence services.

Transportation for older adults is essential to the Aging and Wellness Center of Excellence. Care coordinators would be involved with helping patients plan their transportation to appointments. The Aging and Wellness Center of Excellence would identify and maintain a list of community transportation resources to assist patients. Other resources, such RPM, Mobile Integrated Health (MIH) programs, and home health, could be used to supplement medical visits and reduce the burden of travel for patients.

Considerations for Next Steps

Rural hospitals across the nation are leading their communities to identify innovative solutions to address the health needs of their residents. Community-driven innovations emerge as rural hospitals explore more efficient ways of ensuring access to care while improving the health of their residents. Rural hospitals also select the appropriate array services for their communities based on an adequate volume to provide high quality care at a reasonable cost. Maryland rural hospitals and their community partners should consider opportunities to:

- ***Enhance Community Engagement.*** Successful rural hospitals cultivate strong partnerships with their communities and actively seek input from stakeholders representing business, government, schools, and social service agencies as well as community residents who use their services. Hospital leaders build trust by transparently sharing quality and financial information while substantively engaging the community to identify needs and develop solutions to address them.
- ***Create Opportunities to Improve Health Literacy.*** Hospitals and providers serving vulnerable populations, such as older adults and rural residents, should assess the demands for patient health literacy in the community and engage with statewide partners to improve health literacy, such as the Health Literacy Maryland coalition and efforts led by the University of Maryland Extension.[3]
- ***Consider Implementing Mobile Integrated Health (MIH) Programs.*** Mobile Integrated Health (MIH) programs expand the role of Emergency Medical Services (EMS) providers and are intended to reduce EMS call volumes, unnecessary ED visits, and avoidable readmissions.

- ***Address Adequacy of Volunteer EMS.*** Nationally, most rural hospitals provide some support for EMS. Some hospitals provide significant support, such as ownership of the EMS unit or operation of a unit owned by another entity (e.g., county, municipality). Other rural hospitals provide financial support for staff and/or supplies for local EMS.[4]
- ***Establish Non-emergency Transportation.*** Rural communities that lack transportation options are implementing strategies to improve access to transportation and overcome transportation barriers.[5,6] There are opportunities to engage community partners, including health care providers, to develop solutions that best meet the needs of residents.[7]
- ***Optimize Rural Workforce Training.*** There may be opportunities to expand rural training opportunities for physicians and other health professions, including nursing and allied health professions. Creative solutions may create incentives for students to choose a rural training opportunity and ultimately a career in rural health care.
- ***Leverage Technology.*** Rural hospitals can leverage technological solutions, such as telehealth, to expand access to care. Rural hospitals use technology to complement local services by expanding access to care that cannot be sustained at the local level due to difficulties in recruiting providers, lack of sufficient patient volume to develop a full time program, or insufficient local resources.
- ***Engage with Peers Nationwide.*** Rural Maryland health care leadership may consider participation in national rural forums to learn from peers in health care leadership facing similar demographic and economic trends. Rural Maryland health care leaders may also consider opportunities to visit vibrant rural health systems in other parts of the country.
- ***Leverage Additional Funding Sources.*** Innovation often requires investment. Local, regional, state and federal grant funding may support the planning and implementation of new programs that increase access to care and improve quality of care for Maryland's rural residents.

MHCC, HSCRC, OHCQ, and other state agencies will play a key role as rural health delivery in Maryland evolves, and can consider opportunities to:

- ***Provide Analysis.*** MHCC, HSCRC, OHCQ, and other state agencies will continue to analyze the statutory, regulatory, and financial implications of these options and provide that analysis to key decision makers and stakeholders for rural communities in Maryland.
- ***Provide Technical Assistance.*** As rural hospitals consider future options and identify new models, MHCC, HSCRC, OHCQ, and other state agencies are able to assist in navigating the regulatory and payment requirements of proposed options.
- ***Engage with Peers Nationwide.*** State Offices of Rural Health and Flex Program directors in other states may be able to share lessons learned, best practices, and technical assistance resources to support robust rural health care delivery systems.
- ***Disseminate Maryland's Rural Health Innovations.*** National and state rural health leaders look to Maryland for direction in how the TCOC improves rural health outcomes while

reducing costs. Sharing Maryland's experiences will greatly inform and enhance rural health policy development across the country.

Conclusion

A sustainable rural health care delivery system in Maryland requires strong hospital leadership, an actively engaged community that understands the economic and clinical realities of the current health care environment, and a willingness to explore alternative models to meet local needs. It will also require some flexibility in regulatory and reimbursement policies to allow for the development of new models and reduce the administrative burden that adds unnecessarily to the cost of providing care in rural communities.

Introduction and Background

Maryland leads the nation in implementing innovative payment and delivery health care models. These models have been implemented across Maryland's diverse geography and populations. Maryland has demonstrated commitment to ensuring that residents have access to health care, regardless of their county of residence.

In 2016, Senate Bill 707 (SB 707: Freestanding Medical Facilities–Certificate of Need, Rates, and Definition) established the authority for an acute general hospital to convert to a Freestanding Medical Facility (FMF) (a Freestanding Medical Facility has a 24/7 emergency department but does not provide inpatient medical services). SB707 included specific language that prevented the University of Maryland (UM) Shore Medical Center at Chestertown from converting to a FMF before July 1, 2020. SB707 also created a Rural Health Care Delivery Workgroup comprised of rural stakeholders to oversee a study examining challenges to health care delivery in the five Mid-Shore counties (Caroline, Dorchester, Kent, Queen Anne's, Talbot). The Maryland Health Care Commission (MHCC) contracted with the University of Maryland School of Public Health and the Walsh Center for Rural Health Analysis at NORC at the University of Chicago (NORC Walsh Center), based in Bethesda, MD, to conduct the study in collaboration with MHCC and the Workgroup. The study resulted in a report, "HEALTH MATTERS: Navigating an Enhanced Rural Health Model for Maryland," which assessed the health care of the residents of the five-county study area and the capacities of the health system in the region, and proposed options for enhancing health and health care delivery on the Mid-Shore.[8] In December 2017, the Workgroup submitted their report, "Transforming Maryland's rural healthcare system: A regional approach to rural healthcare delivery," to MHCC, in which they provided two key recommendations for future rural health care delivery: 1) rural Maryland communities should have access to defined health care services locally and access to other defined health services regionally; and 2) a rural health collaborative should facilitate the planning, establishment, and operation of health care services in rural communities throughout the Mid-Shore.[9] Informed by the Workgroup's recommendation, Senate Bill 1056 (SB1056: Rural Health Collaborative Pilot) established the Rural Health Collaborative Pilot (RHCP). The RHCP has hired an Executive Director and is in process of implementing the requirements described in SB1056. [10]

Senate Bill 1010 (SB 1010: Maryland Health Care Commission - Assessment of Services at the University of Maryland Shore Medical Center in Chestertown) directs MHCC, in conjunction with the Maryland Office of Health Care Quality, to conduct an "assessment of the types, quality, and level of services provided at the University of Maryland Shore Medical Center in Chestertown." The MHCC contracted with the NORC Walsh Center to leverage the findings

from the assessment of services in the upper Mid-Shore region to identify and develop options for meeting the health needs of residents residing in Maryland's Upper Mid-Shore region and for rural hospitals across Maryland. MHCC required that all options proposed must align with Maryland's Total Cost of Care (TCOC) Model.

Health care in Maryland's Mid-Shore region continues to evolve. UM Shore Regional Health is growing a regional health care network in the Mid-Shore. As of December 2019, UM Shore Regional Health operates three hospitals in the Mid-Shore region, located in Easton (Talbot County), Cambridge (Dorchester County), and Chestertown (Kent County). UM Shore Regional Health also operates one FMF in Queenstown (Queen Anne's County). In April 2019, MHCC approved plans to convert the UM Shore Medical Center at Dorchester to an FMF.

UM Shore Medical Center at Chestertown offers inpatient and outpatient services. UM Shore Medical Center at Chestertown does not qualify to convert to an FMF at its current location. A new health care delivery model may support the viability of UM Shore Medical Center at Chestertown.

Health care delivery models developed for urban health care are not appropriate for rural health systems. Rural hospitals require solutions that are tailored to community needs and built around sustainable services. Nationwide as health care payment shifts from a volume- to a value-based system, a number of new delivery models have emerged. These models focus on improving quality of care and enhancing population health, and may be drawn upon when considering options for UM Shore Medical Center at Chestertown as well as other hospitals and health systems in rural Maryland.

Purpose of the study

This study identifies delivery system options that could meet the health care needs of residents in Kent and upper Queen Anne's Counties. The options identified are applicable and scalable to other rural communities in Maryland and align with the TCOC Demonstration Agreement that Maryland signed with the Centers for Medicare and Medicaid Services (CMS) in 2018.

Methodology

In "HEALTH MATTERS: Navigating an Enhanced Rural Health Model for Maryland," the 2017 study commissioned by MHCC, the NORC Walsh Center and the University of Maryland School of Public Health identified several models for restructuring the delivery of health care services in the five-county Mid-Shore region comprised of Caroline, Dorchester, Kent, Queen Anne's and Talbot counties. The NORC Walsh Center drew directly from this experience to

provide a focused examination of the appropriateness, strengths, and potential challenges of applying alternative care delivery options within Kent and Queen Anne's Counties, and scaling those options to other rural counties throughout Maryland. A requirement of this contract was to include an acute general hospital as it currently exists at UM Shore Medical Center at Chestertown.

The NORC Walsh Center conducted an environmental scan to understand health care needs and access in the upper Mid-Shore region and to identify any new or emerging rural delivery options developed since the 2017 study. The environmental scan included interviews with key stakeholders, including representatives from the University of Maryland Shore Regional Health, public officials representing Kent County, business leaders, and community members. Interviews were completed in November and December 2019.

The NORC Walsh Center analyzed hospital discharge data for Maryland State Fiscal Years (FY) 2014 through 2018 to determine health care utilization at UM Shore Medical Center at Chestertown. LD Consulting provided the NORC Walsh Center with aggregated inpatient and outpatient discharge data for UM Shore Medical Center at Chestertown.

The NORC Walsh Center also conducted both targeted and broad systematic reviews of the resources and literature regarding health care services in the Mid-Shore region and innovative delivery models nationally, including demonstration models and proposed models. The NORC Walsh Center used databases, journals, and grey literature, including local newspapers, to understand health care delivery in the Mid-Shore region and identify published and unpublished models. The NORC team assessed these models for applicability and adaptability for Kent and upper Queen Anne's Counties within the Maryland TCOC Model.

Chapter 1: Assessment of Services at University of Maryland Shore Medical Center at Chestertown

Community health needs affect the health care market in rural communities. Certain services may not have sufficient volume to sustain services locally, forcing rural residents to travel for those services. In this chapter, we assess access to care, community health needs, and utilization of health care services for residents of Kent and Queen Anne's Counties.

Overview of Kent and Queen Anne's Counties

Located on Maryland's Eastern Shore, Kent and Queen Anne's Counties are designated rural counties by the State of Maryland. All of Kent County and several census tracts of Queen Anne's County are designated as rural by the Federal Office of Rural Health Policy (the federal definition differs from the state definition).. Overall, Kent and Queen Anne's Counties have lower population densities than Maryland (72.9 persons per square mile and 128.5 persons per square mile, respectively, vs. 594.8 persons per square mile).[11]

The estimated population of Kent County is under 20,000, while the population of Queen Anne's County is over 50,000. Between 2010 and 2018, it is estimated that Kent County experienced a population decline (-4.0 percent), while Queen Anne's County and the State of Maryland experienced a population increase (5.2 percent). A larger proportion of the population in Kent County is over age 65 years as compared to Queen Anne's County and Maryland (26.7 percent vs. 18.8 percent and 15.4 percent, respectively). The majority of the population in both Kent and Queen Anne's Counties is White. Kent County residents experience higher rates of poverty than those in Queen Anne's County or across Maryland.[12] There are several large employers in Kent and Queen Anne's Counties, including UM Shore Medical Center at Chestertown. Heron Point of Chestertown is a continuing care retirement community with about 350 residents.[13,14] Washington College, a private, liberal arts college with approximately 1,400 students, is also located in Chestertown. Appendix A includes key demographic and socioeconomic information about the population in Chestertown, Kent County, Queen Anne's County, and Maryland.

Access to Health and Social Services in Kent and Queen Anne's Counties

Many types of health care providers are located in the upper Mid-Shore region. Patients may have to travel to other areas for certain types of services. Kent and Queen Anne's Counties are not primary care health professional shortage areas (HPSA), which is a federal designation by the Health Resources and Services Administration (HRSA), Both counties are dental care health professional shortage areas (HPSA). Lower Kent County is a mental health HPSA. The

percentage of Kent and Queen Anne's Counties residents with a usual primary care provider is higher than the state (93 percent and 88.8 percent, respectively vs. 83.2 percent in 2017).[15]

Hospital services in the Mid-Shore region are operated by UM Shore Regional Health. There is one acute care hospital located in Kent County (UM Shore Medical Center at Chestertown) and one FMF located in Queen Anne's County (UM Shore Emergency Center at Queenstown). UM Shore Regional Health also operates two other acute care hospitals in the Mid-Shore, located in Easton and Cambridge. For FY 2020, UM Shore Medical Center at Chestertown operates 12 licensed acute care medical/surgical/gynecological/addictions (MSGA) beds, while UM Shore Medical Center at Easton, the closest hospital, operates 79 licensed MSGA beds, 13 licensed obstetric beds, and 5 licensed pediatric beds. UM Shore Medical Center at Dorchester is the only hospital in the Mid-Shore region with licensed acute psychiatric beds (16), which will be moved when the hospital coverts to an FMF.[16] As an FMF, UM Shore Emergency Center at Queenstown operates a 24/7 freestanding emergency department, which includes diagnostic imaging and laboratory services.[17]

Primary care and urgent care services are available in Kent and Queen Anne's Counties. Many of the primary care providers are independent physician practices. Some primary care providers are affiliated with UM Shore Regional Health and Anne Arundel Medical Group. There are no Federally Qualified Health Centers in Kent or Queen Anne's Counties. There is no urgent care center in Kent County. In Queen Anne's County, the urgent care center operated by Anne Arundel Medical Center on Kent Island closed in 2018, but a CVS MinuteClinic in Chester remains.[18]

UM Shore Regional Health is implementing a community case management program, Shore Wellness Partners, in which an advanced practice nurse or medical social worker conducts an in-home patient assessment and formulates an individualized plan of care for patients at high risk of readmission. Shore Wellness Partners also provides medication management, self-management education, assistance with arranging provider appointments, and coordination of community resources.[19] Queen Anne's County operates a Mobile Integrated Community Health (MICH) program to address limited access to medical care and the high volume of preventable 911 calls for transport services. Frequent EMS system users and those with a high number of ED visits are identified and are visited at their home by a team that assesses home safety and provides care management services. The team also refers participants to community resources to better address some of their needs.[20]

Long-term care services are available in in the upper Mid-Shore region. There are three skilled nursing facilities (SNF) in Kent County and one SNF in Queen Anne's County. In both Kent and Queen Anne's counties, there are four assisted living facilities to support aging adults. There is

also an adult day care facility in Kent County. In addition, a number of home health agencies are licensed to operate in Kent and Queen Anne's Counties. Lastly, one hospice provider serves residents of Kent and Queen Anne's Counties.[21] Compass Regional Hospice operates a residential hospice center on UM Shore Medical Center at Chestertown's campus.[22]

Emergency and non-emergency transportation options are limited in Kent and Queen Anne's Counties. Kent and Queen Anne's County operate EMS services throughout the region that include both paid and volunteer EMTs and paramedics. Chestertown maintains volunteer EMS. Shore Regional Health also contracts with an ambulance service for inter-facility patient transfers. Maryland Upper Shore Transit (MUST) provides Americans with Disabilities Act (ADA)-compliant transportation at low fares. The Medical Assistance Transportation Program, funded by the Maryland Medicaid Program, provides transportation to medically necessary appointments to all residents who have an eligible medical assistance card.

To address workforce shortages in rural communities, the Area Health Education Center (AHEC) Program supports education and training networks within communities, academic institutions, and community-based organizations with funding from the HRSA Bureau of Health Workforce. The Eastern Shore Area Health Education Center (ESAHEC) seeks to "increase the number of health care providers who provide services in rural and underserved areas and eliminate health disparities among diverse populations of the Eastern Shore by providing and coordinating programs that improve the health status of all." ESAHEC offers a comprehensive 160-hour curriculum to train community health workers (CHWs), supports rural rotations sites and preceptors, offers continuing education for health professionals, and engages in health careers educational activities for K-12 students, among other activities.[23] Additional health education and health literacy activities are organized by the University of Maryland Extension.[24]

Findings from Key Informant Interviews

Interviews with key informants in Kent and upper Queen Anne's counties identified common themes across different stakeholder types. Stakeholders interviewed include representatives from UM Shore Regional Health, public officials representing Kent County, business leaders, and community members.

Residents of Kent and upper Queen Anne's counties are bypassing UM Shore Medical Center at Chestertown. All respondents commented that many residents who have the ability to travel are receiving inpatient and outpatient health services outside of the upper Mid-Shore region, including at Anne Arundel Medical Center (Annapolis, MD) and ChristianaCare (Middletown and Newark, DE). Some commented that patients seek care at UM Shore Medical Center at Easton (MD), Johns Hopkins Medicine (Baltimore, MD) and Penn Medicine (PA).

Reasons cited for bypassing UM Shore Medical Center at Chestertown include: patient preference, lack of knowledge of services offered at UM Shore Medical Center at Chestertown, physician referral, patient perception that UM Shore Medical Center at Chestertown is failing (or is on the brink of closure), and provider lack of confidence in UM Shore Medical Center at Chestertown. Some respondents indicated that it was more convenient to access health care near their place of employment outside of the Mid-Shore region or where specialty services are provided, such as Annapolis. Several respondents commented on occasions when they or other community members called UM Shore Regional Health to schedule diagnostic testing at UM Shore Medical Center at Chestertown, but were scheduled for the services in Easton.

Transportation is a challenge. All respondents commented on limited transportation options in the upper Mid-Shore region, including an inadequate public transportation system in the Mid-Shore region. Maryland Upper Shore Transit (MUST Bus) offers some transportation in the upper Mid-Shore region. Several respondents commented on the lack of transportation as a barrier to accessing health care services not offered in the upper Mid-Shore region, such as certain outpatient specialty services. Although Non-Emergency Medical Transportation can be arranged for Maryland Medicaid enrollees, it requires a 48-hour advance notice and can only be used for non-emergency medical appointments. Several respondents commented on the burden of inpatient stays outside of the upper Mid-Shore region on patients' family members and visitors with limited transportation options. Respondents noted that transportation challenges are exacerbated in outlying communities, such as Rock Hall or Galena. Emergency Medical Services (EMS) is also limited, resulting in some long wait times for transport between hospitals.

One respondent commented on the Kent County Transportation Task Force. The Task Force is conducting a survey about the need for public transportation options. The survey is being conducted to inform the next update of the Transit Development Plan for the upper Mid-Shore region.

The older adult population is large and growing in the upper Mid-Shore region. Many respondents commented on the high percentage of older adults that live in the upper Mid-Shore region. They noted that the region is a retirement destination. Heron Point of Chestertown, a Continuing Care Retirement Community (CCRC) with about 350 residents, is purposefully located in close proximity to UM Shore Medical Center at Chestertown. Several respondents commented that future health care plans should include services that will continue to support the older adult population and the community's potential growth as a retirement destination.

A robust, local health care system is an economic driver. UM Shore Medical Center at Chestertown is one of the largest employers in Kent County. Several respondents commented that Heron Point (another large employer) and other assisted living services would not be located

in Chestertown if there were no hospital. Several stakeholders commented that local health services are a recruiting tool for potential employees who are moving their families to the region, suggesting that a weakening health care system may make recruitment more difficult. Some respondents noted that recruiting young families to the region was difficult due to the lack of a labor and delivery unit and limited pediatric services at the hospital.

Poor communication contributes to community mistrust. All respondents commented on the importance of communication and community trust. Numerous respondents commented on UM Shore Regional Health's lack of transparency in previous years. One respondent commented that information presented on the current and future state of health care in the region is not easy to understand; another commented that it is often not accurate. Some respondents commented that rumors about the potential closure of UM Shore Medical Center at Chestertown, and public efforts to prevent the closure of UM Shore Medical Center at Chestertown, affected community perceptions about the quality of services. Several respondents commented on minimal marketing efforts to build trust in the quality and longevity of UM Shore Medical Center at Chestertown services.

Respondents commented that the relationship between UM Shore Regional Health and upper Mid-Shore community members is frayed. Recently, representatives of UM Shore Regional Health have engaged the Save Our Hospital group, physicians in Kent and upper Queen Anne's counties, and the Chester River Health Foundation to listen to their concerns.

Stakeholders are aligned in their visions for the future of UM Shore Medical Center at Chestertown. Although there appears to be contention about the future of the UM Shore Medical Center at Chestertown, diverse respondents shared similar ideas for hospital services in the future. Respondents commented on the need to maintain some essential services that would serve the vulnerable older adult population. Specifically, respondents commented on the following:

- ***Certain essential health services are needed in Chestertown.*** Many respondents commented on the importance of the emergency department for all residents, but particularly for the older adult population, employers/employees, and students. Many respondents commented on the need for inpatient medical care, particularly for older adults. Certain outpatient specialties were also noted as a need, including cardiology, pulmonology, endocrinology, nephrology, neurology, oncology, and orthopedics. One respondent commented that additional behavioral health services, including a provider who is able to prescribe medications, are needed. Due to the large older adult population, palliative care and hospice are important health services for the community. While some respondents commented on the need for obstetric services to support young families moving to the region, other respondents commented that demand for labor and delivery is not sufficient to necessitate the service at UM Shore Medical Center at Chestertown.

- ***UM Shore Medical Center at Chestertown cannot provide every service.*** Several respondents noted that the future of UM Shore Medical Center at Chestertown will not be able to provide every service for every patient. For example, there was no expectation that UM Shore Medical Center at Chestertown would provide cardiothoracic surgery. Respondents commented that there is not sufficient volume to sustain certain services at UM Shore Medical Center at Chestertown. Some respondents commented that it is appropriate for more complex care to be delivered at other hospitals. There was consensus that any service that UM Shore Medical Center at Chestertown provides should be of high-quality. The comments suggest that resources used to produce certain service lines might be shifted to other service lines in the future to accommodate changing needs (e.g., growth in the older adult population).

Maintaining efficiency and quality is difficult at the current volume of services. Respondents indicated that staffing was reduced to meet the current volume of services, while maintaining standards for accreditation. In addition to 24/7 physician coverage in the ED and inpatient/ICU unit, UM Shore Medical Center at Chestertown also pays for on-call providers, including general surgery, cardiology, pulmonology, and anesthesia. Low volumes contribute to concerns about the costs of maintaining staff competencies and ensuring high-quality care is provided. It was also noted that Chestertown received Magnet® designation from the American Nurses Credentialing Center (ANCC) in 2019.

Community financial support could bolster UM Shore Medical Center at Chestertown. Respondents commented on community support for UM Shore Medical Center at Chestertown. Several respondents commented that the Chester River Health Foundation is active in fundraising for new equipment and renovations for UM Shore Medical Center at Chestertown. Respondents had mixed responses to the idea of using a mill levy or taxes to support UM Shore Medical Center at Chestertown. Some felt that the community, particularly low-income residents, would not be willing or able to pay additional taxes, while others believed the community would support a tax if the community received increased access to services.

EMS capacity is limited in Kent County. Several respondents commented that the Chestertown EMS is a volunteer service, while Kent County EMS supports full and part-time EMTs and paramedics (both volunteer and paid staff). The limited number of ambulance services occasionally results in long wait times for transfers from UM Shore Medical Center at Chestertown to other hospitals. Kent County does not have a Mobile Integrated Health (MIH) program. Queen Anne's County EMS operates a MIH program in partnership with UM Shore Regional Health and others that conducts home visits intended to improve population health and reduce unnecessary utilization of health care resources.

There are opportunities to expand the use of telehealth. Several respondents commented that telehealth would be accepted by patients; a few noted that it is important that a nurse or other health care professional is present with the patient during a telehealth visit. One respondent noted that telehealth can be used to reach patients outside the walls of the hospital at home, making care more convenient. Some respondents indicated that broadband capacity in Chestertown would likely need to be improved to support telehealth visits in the home.

Stakeholders have mixed perceptions of primary care capacity in Kent and Upper Queen Anne's counties. Stakeholders commented that primary care capacity has changed recently with the transition of two community primary care physicians to concierge practices. Some also commented that several current primary care providers are nearing retirement, suggesting the need to recruit additional primary care providers to the region.

Health care utilization is not fully represented in claims data. Several respondents commented on health care services that are provided, but claims are not submitted to payers, and not captured in the MHCC Medical Care Data Base. For example, some employers in the region offer worksite wellness programs that provide access to physicians, nurses, and/or physical therapists onsite during the workday for services that are not captured in claims. Likewise, Washington College does not submit claims to students' payers for services provided by the college's Student Health Services.

Future services should support aging in place. Several respondents commented on the need to build a health care delivery system that supports the older adult population and ensure that Chestertown remains a retirement destination. One respondent commented on the need for a health system that allows for seasonal flexibility when treating older adults (e.g., inpatient care during flu season). A few respondents commented on the importance of transportation in future health care delivery models.

Assessment of Health Care Utilization Data

In January 2020, MHCC submitted a comprehensive report, entitled "Assessment of Service Changes at the University of Maryland Shore Medical Center at Chestertown," to the Maryland General Assembly as required by SB1010. The report provides a thorough assessment of the types, quality, and level of services provided at the UM Shore Medical Center in Chestertown, and whether any services were reduced or transferred to UM Shore Medical Center at Easton. In addition to the findings from this report, the NORC Walsh Center reviewed aggregate discharge data for UM Shore Medical Center at Chestertown. Findings presented below may differ from the findings submitted by MHCC: MHCC's report reviewed discharges for patients within the UM Shore Medical Center at Chestertown hospital service area, the NORC Walsh Center

analyzed only the services provided at UM Shore Medical Center at Chestertown. Appendix B includes information on inpatient utilization by diagnostic group, primary payer, discharge disposition, and patient zip code as well as outpatient utilization by payer and service line.

Exhibit 1. Inpatient Discharges and Outpatient Visits at UM Shore Medical Center at Chestertown, FY 2014 to FY 2018

Unique Count	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Inpatient Discharges	1,866	1,829	1,581	1,712	1,262
Outpatient Visits	35,839	37,200	37,374	36,824	37,238
Emergency Department Visits*	12,552	13,213	12,637	12,502	12,898

* Emergency department visits are a sub-set of all outpatient visits.

Inpatient utilization at UM Shore Medical Center at Chestertown reflect the demographics of the counties served. On average 46 percent of all inpatient discharges from FY 2014 to FY 2018 were for residents of Chestertown. Eleven percent of discharges were from Rock Hall residents. Inpatient discharges for Worton and Millington residents were similar (around 8 percent). Other residential areas of note include Sudlersville, Galena, and Centreville. During FY 2014 through FY 2018, Medicare was the primary payer for nearly 75% of inpatient discharges. Both commercial payers and Medicaid were the primary payer for about 10 percent of discharges.

Overall, the type of utilization reflects conditions common among an aging population. Across FY 2014 through FY 2018, there are similarities for the top All Patients Refined Diagnosis Related Groups (APR-DRG) associated with each inpatient discharges. Septicemia, pneumonia, and heart failure were identified in the top 10 APR-DRGs present during each FY. Other APR-DRGs of note include respiratory failure, knee joint replacement, and chronic obstructive pulmonary disease.

Over 50 percent of inpatient discharges were to home or self-care. One quarter of discharges went to a nursing home facility. Around 10 percent of discharges were under the care of a home health agency. The data did not provide information as to the percent of those discharged to home having a caregiver not associated with a home health agency.

Outpatient utilization at UM Shore Medical Center at Chestertown has remained consistent from FY 2014 to FY 2018. Since one outpatient visits may be associated with more than one service (e.g. emergency room, CAT scan, EKG, or laboratory work), analysis of both visits and services is essential to understanding the overall outpatient utilization at UM Shore Medical Center at Chestertown. Unique outpatient visits from UM Shore Medical Center at Chestertown increased from nearly 36,000 unique visits in FY 2014 to 37,238 unique visits in FY 2018.

However, data presented in MHCC's assessment, including emergency department admission information, shows a decrease in overall services provided. MHCC found that roughly 78,000 outpatient services were provided in FY 2015, but around 74,000 outpatient services were provided in FY 2018.

Since outpatient visits have remained fairly consistent over the entire study period, analysis of data for the most recent years – FY 2017 and FY 2018 – at UM Shore Medical Center at Chestertown are used to describe several evident themes. First, around 34 percent of unique outpatient visits occurred in the ED. Second, about 40 percent involved radiology for diagnostic purposes and approximately 43 percent required laboratory work. Finally, CAT scan was used in 10 percent of outpatient visits in FY 2017 and 11 percent in FY 2018.

Medicare was the primary payer for almost half of the outpatient visits (46 percent in FY 2017 and 47 percent in FY 2018). Commercial insurance was the primary payer for 29 percent of visits in FY 2017 and 27 percent in FY 2018. Medicaid was the primary payer for roughly 20 percent of outpatient visits in both FY 2017 and FY 2018. Thus, roughly two-thirds of outpatient visits are for vulnerable populations – older adults and people with low-incomes.

Chapter 2: Options for Rural Health Service Delivery in Maryland

Rural hospitals across the country are meeting the challenges of geographic isolation, low patient volumes, and workforce shortages by pioneering solutions to ensure that patients are able to access care locally. Through locally-driven and community-focused planning, rural hospitals leverage resources and partnerships to create a system of health that best meets the needs of the patients they serve. For some hospitals, community benefit requirements and value-based purchasing have motivated them to re-think their business strategy. In order to adapt to the challenges they face, rural hospitals must be resilient, resourceful, and innovative to thrive.

This chapter summarizes three potential options for rural health delivery: 1) acute general hospital (the status quo); 2) Maryland Rural Hospital (Pilot); and 3) Aging and Wellness Center of Excellence (a focus area for the acute general hospital or Maryland Rural Hospital. Discussion reflects the NORC Walsh Center team's assessment of each option, taking into account the considerations described above, and the following factors: scope of services, transportation; TCOC alignment; quality measurement; potential barriers; special considerations applicable to UM Shore Medical Center at Chestertown; and role of the Mid-Shore Rural Health Collaborative.

Considerations for Rural Health Service Delivery Models

Rural hospitals in Maryland, like rural hospitals across the United States, face financial and operational pressures that reflect the rural environment in which they operate. In addition to geographic isolation and low patient volumes, rural hospitals often offer services that have relatively lower margins (e.g., outpatient services and long-term care) than the surgical procedures more often provided in more densely populated areas.[25]

To design and implement viable options for rural Maryland hospitals, the following questions should be considered:

What are the essential health services that meet community needs? Every rural community is different, with different needs, challenges, strengths, and assets. Rural stakeholders often comment on the need to "right-size" health care services to fit the needs of the community. Understanding community need, particularly within the hospital's immediate service area, supports strategic health planning.[26] The ability of rural hospitals and health systems to engage in meaningful community engagement efforts will support efforts to transform their inpatient and outpatient systems of care and/or develop alternative models of care that better meet local needs

and will be used by local community members. This level of engagement requires transparency regarding financial and operational issues faced by the hospital and a willingness to engage a wide range of stakeholders impacted by hospital decisions. This willingness to openly and honestly engage community stakeholders and members provide important benefits to the hospital including the development of trust, an appreciation of the benefits and value provided by the hospital, and enhanced "ownership" and support for the hospital by community. To "right-size" a hospital, regulatory flexibility may be required.

How do the hospital and community partners recruit and retain a talented health care workforce? Workforce shortages are a significant challenge for rural hospitals to ensure access to care for their patients. Rural health care provider shortages are, in part, a symptom of a national health care labor shortage. Rural practice characteristics, such as workload and call schedule, as well as lifestyle characteristics, such as career opportunities for spouses, contribute to recruitment and retention challenges.[27] Federal and Maryland state loan repayment programs, such as the National Health Service Corps, State Loan Repayment Program (SLRP), and Maryland Loan Assistance Repayment Program for Physicians (MLARP), support the recruitment of health professionals to rural areas, but are limited to HPSAs and Medically Underserved Areas (MUAs).[28,29]

Rural residency and training opportunities expose health care professionals to rural practice and life. These training opportunities have also been shown to bolster recruitment of health care professionals to rural communities.[30] In 2019, the University of Maryland School of Medicine received a grant from HRSA to develop an accredited rural training track on the Eastern Shore. Residents in the program will complete their first year of training in Baltimore, and the subsequent two years in clinical settings in Caroline, Dorchester, Kent, Queen Anne's, or Talbot counties.[31]

Are new models of care sustainable as health care delivery evolves? Advances in technology, patient preferences, financial incentives, and other drivers have shifted the use of health care services. The volume of outpatient services, including outpatient surgical procedures, continues to grow, while inpatient care needs are declining. Value-based payment systems, such as Maryland's TCOC Model, incentivize hospitals and health systems to deliver high-quality care in the lowest cost setting.[32]

Is the community informed and committed to the financial and social requirements of the model? Successful rural hospitals and health systems require community support and collaboration with hospital leadership. Use of local hospital services for the services offered is essential for the financial viability of the local hospital.[33] Some communities provide additional financial support for local health care services through sales taxes and mill levies[34], while other

communities receive financial support through local and regional foundations. In addition, robust rural hospitals and health systems collaborate with community partners, such as public health, local business, and education, to identify and address the needs of the community to improve the overall health and well-being of the residents served.[35]

Option 1: Status Quo—Acute General Hospital

Under this approach, the rural hospital would continue to operate as an acute general hospital, providing inpatient diagnostic and treatment services by or under the supervision of physicians and 24-hour nursing services.[36] Acute general hospitals provide inpatient hospital services. Maryland licenses inpatient beds in four categories: medical/surgical/gynecological/addictions (MSGA), obstetric, pediatric, and acute psychiatric. An acute general hospital is usually licensed for MSGA beds and may provide other categories of beds.[37] Acute general hospitals often also provide a range of outpatient services, such as emergency care, physical/occupational therapy, mental health, laboratory, imaging, hospice, and other services.[38] As defined in the Code of Maryland Regulations, Title 10 (Maryland Department of Health), Subtitle 10 (HOSPITALS), an accredited hospital is a hospital accredited by The Joint Commission or other accreditation organization approved by MDH.

Transportation. Under this option, an acute general hospital must arrange for transportation should a patient be referred to another level of care. A hospital may contract with or own ambulance services to facilitate patient transfers. They may also use the receiving hospital's ambulance service. Some hospitals work with local EMS providers to ensure transportation of patients for transfers to other hospitals.[39]

TCOC Alignment. An acute general hospital's services comply with requirements for the TCOC Model. Under this option, regulated hospital services will continue to be reimbursed through the global budget.

Quality Considerations. Acute general hospitals must meet the quality goals established in agreement with CMS under the TCOC Model. Specifically, hospitals are required to report the same hospital quality measures reported by hospitals nationally under the Hospital Inpatient Quality Reporting (IQR) Program.[40] HSCRC may consider exceptions for rural hospitals with low volume in the complications and quality based reimbursement program under the TCOC Model. This does not impact the hospital's overall participation in global budgets under the option.

Potential Barriers. Rural acute general hospitals nationally face similar challenges and barriers. Challenges that have historically affected rural hospitals and continue include: low patient

volumes, workforce shortages, aging infrastructure, geographic isolation, and patient mix. Recent challenges, such as the shift from inpatient to outpatient care and the opioid epidemic, also affect the delivery of hospital services.[41]

UM Shore Medical Center at Chestertown Considerations. As an acute general hospital, UM Shore Medical Center at Chestertown continues to provide the following inpatient and outpatient services as of December 2019:[42]

- Cardiac and pulmonary
- Emergency and urgent care
- Diagnostic services
- Lab testing
- Radiology
- Oncology
- Same day services:
  - Colon-rectal
  - Gynecological
  - Oral
  - Orthopedic
  - Otolaryngology
  - Plastic and reconstructive surgery

UM Shore Medical Center at Chestertown also provides 24/7 physician coverage in the ED and inpatient/ICU unit, as well as on-call coverage in general surgery, cardiology, pulmonology, and anesthesia.

Patient transfers are facilitated by local public EMS and an Easton-based private ambulance service. EMS has limited capacity to support transfers, particularly those to Annapolis due to William Preston Lane Jr. Memorial (Bay) Bridge (US 50/301) construction project that will not be completed until August 2021.[43].

There is an expectation that current leadership is dynamic and responsive to market changes and will make adjustments as needed to sustain services, if financially viable. Findings from MHCC's "Assessment of Service Changes at the University of Maryland Shore Medical Center at Chestertown" report and data used to support this report suggest that UM Shore Regional Health's current operations may not be financially sustainable over time, given expected demographic and market trends. This option recognizes that some changes may be needed, such as enhanced efforts by hospital leadership to reach out to the community concerning its needs, and subsequent changes in the mix of services currently offered. If the hospital remains an acute general hospital, inpatient services would continue; the leadership of UM Shore Medical Center at Chestertown might, for example, attempt to attract patients who currently bypass the facility

and discontinue selected outpatient services or specialty care services more efficiently provided elsewhere.

UM Shore Medical Center at Chestertown must meet the required quality targets established under the TCOC Model. Currently, several reported quality measures have too few cases to report publicly through CMS's Hospital Compare website, including two measures of timely heart attack care, one measure of timely emergency department care, one measure of blood clot prevention, two measures of medical imaging use, and one measure of surgical complications.[44] If patient volumes continue to decline, there may be additional measures with too few cases to report. While this low volume impacts the hospital's participation in HSCRC's complications and quality based reimbursement program, it does not impact the hospital's overall participation in a global budget under the TCOC Model.

Mid-Shore Rural Health Collaborative Role. The Mid-Shore Rural Health Collaborative is actively engaged in improving access to health care services for Mid-Shore residents. Their work includes efforts to support integration of clinical and social services and improve public transportation.[45] As the Rural Health Complex concept continues to develop, the Mid-Shore Rural Health Collaborative could consider recommending UM Shore Medical Center at Chestertown to serve as one of the pilots to test innovative solutions that could be scaled to other rural Maryland hospitals should funding be available.

Option 2: Maryland Rural Hospital (Pilot)

A Maryland Rural Hospital is a proposed new type of acute general hospital, modeled after the Critical Access Hospital (CAH), a federally-recognized hospital type used outside of Maryland.[46] As a type of acute general hospital, the Maryland Rural Hospital provides inpatient diagnostic and treatment services. Consistent with CAH rules, the Maryland Rural Hospital would have no more than 25 licensed acute care/swing beds. It is important to note that the number of licensed beds for an individual hospital in Maryland would continue to be determined based on average daily census, so that the number of beds is proportional to the volume of patients seen by the hospital.. The Maryland Rural Hospital would have an average length of stay of 96 hours or less for inpatient care. It would also operate a 24/7 emergency department and may offer other outpatient services, such as same day surgery, therapy, mental health, laboratory, imaging, hospice, and other services, to meet community needs. A CAH must be located at least 35 miles from another hospital; however, the State of Maryland could consider a different distance requirement. All regulatory requirements, including those required by MIEMSS, would need to be met for this option.

Congress established the CAH designation through the Balanced Budget Act (BBA) of 1997, and has modified the program several times since then. The CAH delivery model is intended to ensure access to care for essential health care services.[47] As of October 2019, there were over 1,300 CAHs nationwide.[48] CAHs provide services that are appropriate for the community size and needs, including inpatient care. For example, the majority of CAHs do not have ICU services.[49] CAHs often treat conditions such as pneumonia, congestive heart failure, AMI, and other community needs, for which volumes are sufficient to ensure high-quality care is provided.[50]

The Maryland Rural Hospital would continue to support local hospitals to focus on providing service lines that are aligned with local community needs and quality care. For example, like a typical rural hospital in other parts of the U.S., a Maryland Rural Hospital could provide inpatient surgical and swing bed services; yet not include an ICU unit or other specialized units.[51] In addition, typical rural hospitals rely on robust primary care – which may or may not be owned or operated by the hospital.[52] The types of inpatient and outpatient services provided would be determined based on community need and sufficient volume to ensure quality and efficiency of services. Consistent with the Code of Maryland Regulations, Title 10 (Maryland Department of Health), Subtitle 10 (HOSPITALS), the Joint Commission maintains CAH accreditation standards that could be applied to a Maryland Rural Hospital.

Telehealth would play a central role in the proposed Maryland Rural Hospital as a tool to increase access to care, quality of care, and efficiency.[ii] The hospital would determine which telehealth services to offer based on community needs. Opportunities for telehealth service use in the Maryland Rural Hospital Model, based on those currently provided by CAHs, include:

- ***Outpatient specialty services.*** Specialty providers are likely to be located in urban areas, where there is sufficient population need to maintain a financially sustainable practice. Recruiting specialty providers to rural areas can be difficult. Telehealth allows specialty providers to connect with rural patients virtually for services that might not otherwise be available in a rural community.[53] Services that may be provided using telehealth include: radiology, psychiatry, ophthalmology, dermatology, dentistry, audiology, cardiology, oncology, and obstetrics.[54]
- ***Tele-pharmacy.*** Telepharmacy allows a pharmacist to provide services remotely. Telepharmacy services include medication selection, order review and dispensing, and patient counseling and monitoring.[55]
- ***Tele-emergency.*** Tele-emergency allows for immediate, synchronous communication between rural low-volume hospitals and urban emergency departments. Tele-emergency expands the care team, allowing rural ED providers to consult with remote specialists during

[ii] Telehealth services can also be offered under current statutory regulations at an acute general hospital.

critical events. Tele-emergency has also been shown to reduce unnecessary transfers. Lastly, the additional support and expertise provided through tele-emergency can facilitate physician recruitment and retention.[56]

- ***Provider Education.*** Project ECHO (Extension for Community Healthcare Outcomes) is a nationally-recognized model that uses interactive learning to provide rural primary care providers with skills and education for treating patients with chronic conditions. Project ECHO includes programs for a variety of topics, such as substance use disorders, cancer, Hepatitis C, rheumatology, and palliative care.[57]

The Maryland Rural Hospital, like CAHs in other states, engages community members around health improvement planning to ensure that the hospital offers community-based services meeting community needs. To support community-focused health planning, the Maryland Rural Hospital would have an advisory board that reports to the governing body of the hospital or health system. The majority (at least 51%) of the advisory board members would be patients served by the Maryland Rural Hospital. The membership of the Maryland Rural Hospital patient advisory board must , as a group, represent the individuals who are served by the Maryland Rural Hospital in terms of demographic factors, such as race, ethnicity, and gender.[58]

Transportation. A Maryland Rural Hospital would be required to meet CAH standards, including those related to patient transportation. As is required of CAHs (42 CFR§ 485.616), a Maryland Rural Hospital must maintain agreements with at least one acute care hospital regarding patient referral and transfer, communication of patient data, and provision of emergency and nonemergency transportation between the Maryland Rural Hospital and the acute care hospital.[59] Rural hospitals across the country have identified other community-appropriate models to facilitate access to health services, such as taxi vouchers, volunteer drivers, and shuttle services.[60]

TCOC Alignment. Federally designated CAHs receive cost-based reimbursement from Medicare. Cost-based reimbursement would not be provided for a Maryland Rural Hospital. The Maryland Rural Hospital would be treated as an acute general hospital for purposes of payment under the TCOC Model. Regulated hospital services would be reimbursed through a negotiated global budget.

Quality Considerations. Acute general hospitals must meet the quality goals established in agreement with CMS under the TCOC Model. Specifically, hospitals are required to report the same hospital quality measures reported by hospitals nationally under the Hospital Inpatient Quality Reporting (IQR) Program.[61] HSCRC may consider exceptions for rural hospitals with low volume in the complications and quality based reimbursement program under the TCOC

Model. This does not impact the hospital's overall participation in global budgets under the Model.

Low volumes affect the reliability, validity, and utility of performance measures. Low volumes result in quality measures that are susceptible to large swings due to single outliers, as well as suppressed data on public reporting sites. Suppressed data can create the perception that rural hospitals provide poorer quality care than urban or suburban hospitals, although they may perform better in some areas. Rural-specific reporting programs are intended to address the challenges rural health care providers face when participating in quality reporting programs.[62] The Medicare Rural Hospital Flexibility (Flex) grant program administered by the HRSA Federal Office of Rural Health Policy supports CAH quality improvement through the Medicare Beneficiary Quality Improvement Project (MBQIP). MBQIP is intended to increase the reporting of quality measures by CAHs and the use of data for hospital quality improvement activities. MBQIP is voluntary and CAHs can opt to have the data reported through MBQIP publicly available through the Hospital Compare website.[63] The measures identified for MBQIP and other rural-relevant quality measure initiatives, such as the National Quality Forum (NQF) Measure Application Process (MAP) Rural Health Workgroup, may be appropriate for a Maryland Rural Hospital.[64] In developing a Maryland Rural Hospital, HSCRC may need to consider how quality-based payment adjustments would apply; this does not impact the hospital's overall participation in global budgets under the TCOC Model.

Potential Barriers. Rural hospitals nationwide, including rural hospitals in Maryland face challenges, such as low patient volumes and workforce shortages. The Maryland Rural Hospital is intended to "right-size" the scope of services for rural hospitals to address these barriers. Other barriers to the Maryland Rural Hospital's sustainability are more difficult. Rural hospitals that have experienced declining patient volume may also face financial burdens related to maintaining aging and unused physical plant that requires ongoing maintenance. Communities may perceive Maryland Rural Hospital services to be of lower quality; marketing the available set of services to build trust in the quality of local services and ensure use of those services may be necessary. The Maryland Rural Hospital leverages technology to bring services to patients. Although new telehealth technologies will generate revenue over time, an initial financial investment may be required if new equipment must be purchased. Grant funding could support investments in technology equipment.

UM Shore Medical Center at Chestertown Considerations. UM Shore Medical Center at Chestertown currently provides a range of services consistent with most CAHs nationwide. For example, the average length of stay at UM Shore Medical Center at Chestertown in 2018 was 3.9 days (or approximately 94 hours), less than the required 96 hour average length of stay required at CAHs. In addition, the top inpatient DRGs at UM Shore Medical Center at Chestertown

include pneumonia and heart failure. Nationally, the most common inpatient DRGs at critical access hospitals include pneumonia, congestive heart failure, and acute myocardial infarction (AMI).[65]

UM Shore Medical Center at Chestertown should consider whether current arrangements for timely transfer meet the CAH requirements set forth in the Medicare Conditions of Participation (CoP) and are sufficient to meet the potentially increased need to transfer patients to higher levels of care. UM Shore Medical Center at Chestertown may take advantage of opportunities to support non-emergency transportation to facilitate the delivery of the right care in the right place at the right time when those opportunities arise.

Hospitals in Maryland operating under the TCOC Model for payment must meet the required quality targets established under the TCOC Model. Similar to many other rural hospitals, there are several measures with too few cases for UM Shore Medical Center at Chestertown to report publicly on Hospital Compare. UM Shore Medical Center at Chestertown may consider alternate quality measures that are more appropriate for a low-volume rural hospital, such as those used in MBQIP or identified by the NQF MAP Rural Health Workgroup. HSCRC may consider exceptions for rural hospitals with low volume in the complications and quality based reimbursement program under the TCOC Model. This does not impact the hospital's overall participation in global budgets under the Model.

Mid-Shore Rural Health Collaborative Role. The Mid-Shore Rural Health Collaborative and a Maryland Rural Hospital pilot in Chestertown could collaborate to achieve the goals of improving access to and delivery of health care services. The Maryland Rural Hospital would coordinate clinical and social services for patients discharged from inpatient care.
As the Rural Health Complex concept continues to develop, the Mid-Shore Rural Health Collaborative could consider recommending UM Shore Medical Center at Chestertown to serve as one of the pilots to test innovative solutions that could be scaled to other rural Maryland hospitals should funding be available.

Option 3: Aging and Wellness Center of Excellence

The Aging and Wellness Center of Excellence is a set of inpatient and outpatient services that are designed to support healthy aging. The Aging and Wellness Center of Excellence could be a focus of an acute general hospital or a Maryland Rural Hospital. The Aging and Wellness Center of Excellence offers primary care services and outpatient specialty services most often used by older adults, such as behavioral health, cardiology, pulmonology, nephrology, neurology, orthopedics, palliative care, or others as determined by the community health needs assessment and available resources. The Aging and Wellness Center of Excellence uses a

multidisciplinary care team approach and care coordinators to assist with patient navigation of health and social services (e.g., Meals on Wheels) and facilitate patient health education (e.g., falls prevention classes). The Aging and Wellness Center of Excellence can be a comprehensive, holistic place for older adults to access care. Additional services that appeal to older adults, such as massage or acupuncture, could be added to the Center or space for these services could be leased to independent providers. The Aging and Wellness Center of Excellence addresses key health concerns for older adults, including social isolation by providing opportunities for older adults to participate in group activities that improve health and well-being.

Telehealth tools could help support the Aging and Wellness Center of Excellence. In addition to offering the appropriate array of outpatient specialty visits using audio/video connections, the Aging and Wellness Center of Excellence could provide remote patient monitoring (RPM) and/or telephone check-ins. RPM uses technology to collect and transmit health data from individuals in one location (e.g., their home) to health care providers in different locations. Health data that may be captured for RPM include weight, blood pressure, blood sugar, blood oxygen levels, and heart rate. The Aging and Wellness Center of Excellence staff could use this information to monitor patients and address concerns early.[66] The Center on Technology and Aging and The Oregon Center for Aging and Technology provide resources for the use of RPM to support the aging population.[67,68]

Telehealth has been used to connect rural patients with geriatric specialists. The Department of Veterans Affairs (VA) Office of Geriatrics and Extended Care (GEC) and Office of Rural Health (ORH) established the Geriatric Research Education and Clinical Centers (GRECC) Connect project in 2014. GRECCs are VA centers of excellence focused on aging. They include a large network of interdisciplinary geriatrics experts. GRECCs are based at urban sites and connect to rural outpatient clinics using telehealth.[69] GRECCs could be a useful model for use of telehealth in the Aging and Wellness Center of Excellence.

The Aging and Wellness Center of Excellence could lead the hospital's effort to be recognized as an Age-Friendly Health System by the Institute for Healthcare Improvement (IHI). The John A. Hartford Foundation and IHI, in partnership with the American Hospital Association and the Catholic Health Association, is engaging hospitals and outpatient care locations to adopt evidence-based approaches to improve care of older adults using the "4Ms" framework—What Matters, Medication, Mentation and Mobility.[70,71] This initiative focuses on addressing patients' goals and care preferences, reviewing medication appropriateness, screening for dementia and cognitive impairment, and addressing safe mobility. The Age-Friendly Health Systems Initiative has a thorough process for implementation and includes a set of evidence-based practices, such as validated screening tools for delirium and mobility limitations.[72,73,74]

The Aging and Wellness Center of Excellence would engage older adults living in the community to understand population needs and perceptions. To support health planning, the Aging and Wellness Center of Excellence would have an advisory board that reports to the governing body of the hospital or health system. The majority (at least 51%) of the advisory board members would be patients who use Aging and Wellness Center of Excellence services.[75]

Evidence-based models for aging services have been implemented in rural settings. For example, the Arkansas Aging Initiative's (AAI) used a comprehensive needs assessment to identify the community's top health needs and developed health care programs to address the identified needs.[76] AAI, in partnership with local hospitals, established senior health clinics to increase access to geriatric primary and specialty care across rural Arkansas. Senior health clinic sites have at least one physician who holds a Certificate of Added Qualifications in geriatrics and one advanced practice nurse. Other team members include geriatric medical social workers, pharmacists, nutritionists, and neuropsychologists. AAI also engages community partners to maximize the use of community resources.[77]

There are opportunities for the health care workforce to obtain additional education specific to geriatrics. Several health professions may seek accreditations related to geriatric care, including medicine, advance practice nursing, pharmacy, and social work.[78] There are also trainings available for the nursing workforce. The Improving Rural Geriatric Care through Education (iRuGCE), is a model that can be adapted for rural hospitals. The option involves identifying and mentoring an RN geriatric site champion to complete a national certification in gerontological nursing, and to design a continuing education program with at least three continuing education sessions per year.[79] Nurses Improving Care for Healthsystem Elders (NICHE) is an international nursing education and consultation program designed to improve geriatric care in healthcare organizations. The NICHE program provides resources for nursing and interdisciplinary teams to improve care for older adult clients. NICHE offers an online Leadership Training Program for nurse leaders.[80] The Hartford Institute for Geriatric Nursing (HIGN) disseminates best practices to practicing nurses and interdisciplinary teams, faculty, and students.[81] Lastly, the National Hartford Center of Gerontological Nursing Excellence provides resources for academic institutions to develop gerontological nursing curriculums.[82] An Aging and Wellness Center of Excellence should support staff to pursue education and credentials that support excellence in geriatric care.

Transportation. Transportation for older adults is essential to the Aging and Wellness Center of Excellence. Care coordinators would help patients plan transportation to appointments, including connecting patient with accurate information on community transportation resources.[83] Other resources, such RPM, MIH programs, and home health, could be used to supplement medical visits and reduce the burden of travel for patients.[84]

TCOC Alignment. The Aging and Wellness Center of Excellence provides inpatient and outpatient services, and would operate under the TCOC Model. Regulated hospital services would be reimbursed through a negotiated global budget.

Quality Considerations. The Aging and Wellness Center of Excellence would develop and implement a quality assurance plan. The plan would include measures specific to the Aging and Wellness Center of Excellence services, such as those endorsed by NQF. IHI provides resources and examples of performance improvement projects to support the implementation of an Age-Friendly Health System.[85]

Potential Barriers. The Aging and Wellness Center of Excellence would be a pilot and would require leadership resources to implement and sustain. The pilot would require a planning period before beginning operations. Services may need to be scaled up over time. In addition, workforce recruitment and retention could be challenging. Once in operation, the Aging and Wellness Center of Excellence would require targeted marketing efforts to the members of the community who would use its services. The Aging and Wellness Center of Excellence would leverage technology to bring services to patients. Although new telehealth technologies will generate revenue over time, an initial financial investment may be required to acquire new equipment. Grant funding could support investments in technology.

UM Shore Medical Center at Chestertown Considerations. A large proportion of residents of Kent and Upper Queen Anne's Counties are age 65 years and older. UM Shore Medical Center at Chestertown serves this older adult population, particularly those who are unable to travel for care. Adding the Aging and Wellness Center of Excellence to the acute general hospital or Maryland Rural Hospital pilot would provide an opportunity to focus on providing high-quality, coordinated care to older adults in the service area and support aging in place. Further, the Aging and Wellness Center of Excellence would support community and economic development efforts to further establish Chestertown as a retirement destination.

UM Shore Medical Center at Chestertown could consider partnerships with the University of Maryland Medical Center and University of Maryland School of Medicine to establish the Aging and Wellness Center of Excellence. There may also be learning opportunities to explore with the Geriatric Medicine Fellowship Program at the University of Maryland. Telehealth could enable ongoing collaboration between UM Shore Medical Center at Chestertown and other UMMS providers.

Mid-Shore Rural Health Collaborative Role. The Mid-Shore Rural Health Collaborative could consider recommending the Aging and Wellness Center of Excellence as a pilot initiative to

improve access to and delivery of health care services to older adults. The Aging and Wellness Center of Excellence's care coordination services would serve the older adult population in the service area. Transportation initiatives recommended by the Mid-Shore Rural Health Collaborative could support Aging and Wellness Center of Excellence patients.

Considerations for Next Steps

Rural hospitals are the anchor for health care delivery in most rural communities and provide access to essential health care services for rural residents. Consumers and providers value rural hospitals as a bridge to care for upstream tertiary care hospitals and downstream to community-based primary care. Rural hospitals also select the appropriate array services for their communities based on an adequate volume to provide high quality care at a reasonable cost. In addition, rural hospitals contribute to their local economies, often serving as significant economic engines and major employers.[86] Rural hospitals are central to the health and economic viability of the communities they serve.

Health care delivery in rural Maryland requires different types of delivery models than in urban areas to ensure that patients have access to high-quality, coordinated care. To ensure the sustainability of rural health care, hospitals, health systems, other health care providers, MHCC, HSCRC, OHCQ, and other State agencies can collaborate on solutions that ensure access to high-quality care with the goal of improving the health of rural Maryland residents.

Considerations for UM Shore Regional Health, Other Rural Providers, and Rural Community Partners

Rural hospitals are leading their communities to identify innovative solutions to address the health needs of their residents. Community-driven innovations are emerging as rural hospitals explore more efficient ways of ensuring access to care while improving the health of their residents. Certain elements are needed to build a robust, rural health system of care that is responsive to community needs and can remain viable. Regardless of the path forward, Maryland rural hospitals and their community partners should consider opportunities to:

Enhance Community Engagement. Successful rural hospitals cultivate strong partnerships with their communities and actively seek input from stakeholders representing business, government, schools, and social service agencies as well as community residents who use their services. Hospital leaders build trust by transparently sharing quality and financial information while substantively engaging the community to set programs to address those needs. Successful rural hospitals communicate openly and regularly with their communities regarding hospital policies, services, programs, and decision-making. At the same time, they actively engage a diverse array of stakeholders, consumers, and vulnerable populations in the assessment of local needs, hospital strategic planning, the identification of strategies to address local needs, and using local resources. A community health needs assessment that is specific to the hospital service area, rather than the health system service area, can assist in developing and communicating health planning efforts that are specific to the community.

Create Opportunities to Improve Health Literacy. Health literacy is "the degree to which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions."[87] Hospitals and providers serving vulnerable populations, such as older adults, should assess the demands for patient health literacy and ensure that processes are patient-centered.[88] Rural hospitals and providers can engage with statewide partners to improve health literacy, such as the Health Literacy Maryland coalition and efforts led by the University of Maryland Extension.[89]

Consider Implementing Mobile Integrated Health (MIH) Programs. Mobile Integrated Health (MIH) programs partner EMS providers with other health care providers to conduct home visits to assess, treat and refer high-need patients to needed services.[90] MIH programs are intended to reduce EMS call volumes, unnecessary ED visits, and avoidable readmissions. The Queen Anne's County Department of Health and Queen Anne's County Department of Emergency Services operates an MIH program that serves as a model for other rural communities in Maryland.[91]

Address Adequacy of Volunteer EMS. Interview respondents expressed concerns about the adequacy of volunteer EMS to support patient transports to higher levels of care.[92] Nationally, most rural hospitals provide some support for EMS. Some provide significant support, such as ownership of the EMS unit or operation of a unit owned by another entity (e.g., county, municipality). Other rural hospitals provide financial support for staff and/or supplies for local EMS.[93] The hospital should collaborate with the community to assess gaps in EMS and identify solutions to fill those gaps.

Establish Non-emergency Transportation. Rural communities that lack transportation options are implementing strategies to improve access to transportation and overcome transportation barriers, such as taxi vouchers, volunteer drivers, and shuttle services.[94,95] The United Way of Kent County partnered with Chesapeake Charities to conduct a comprehensive needs assessment to inform the Kent County Transportation Task Force and the Upper Shore Region Transit Development Plan update in 2020.[96] Hospitals and health systems should be engaged in transportation planning efforts to help facilitate access to health services.

Optimize Rural Workforce Training. The hospital, health system, local community, and State, should seek out opportunities to expand rural training for physicians and other health professions, including nursing and allied health professions. Creative solutions, such as repurposing unused hospital space to create housing for students completing clinical rotations, may create incentives for students to choose a rural training opportunity.

Leverage Technology. Rural hospitals can leverage technological solutions to expand access to care. Telehealth can be used to address gaps in services for patients and support local providers through access to consultative services. Through technology, rural hospitals are able to care for a more complex mix of patients closer to home. Rural hospitals use technology to complement local services by expanding access to care that cannot be sustained at the local level due to difficulties in recruiting providers, lack of sufficient patient volume, or insufficient local resources.

Engage with Peers Nationwide. Many rural health care delivery systems across the country are thriving. These systems remain flexible to meet the challenges of changing health care policy and reimbursement and meet community health needs. While Maryland's rural environment is often considered unique from those in other states due, in part, to Maryland's hospital payment system, there are ample similarities that allow Maryland rural hospitals to offer meaningful contributions to national discussions about rural health care delivery. Leaders of hospitals and health systems serving rural Maryland residents should consider participation in national rural health forums, such as the National Rural Health Association or American Hospital Association's Small or Rural Hospitals group. These forums provide an opportunity to learn from peers facing similar demographic and economic trends. Leaders of hospitals and health systems serving rural Maryland should also consider opportunities to visit vibrant rural health systems in other parts of the country. Examples include the following rural health systems: North Country Health Consortium, New Hampshire (rural health network); Chautauqua County Health Network, New York (rural county collaborative led by four hospitals); Avera Health, South Dakota (telehealth); Grande Ronde Hospital and Clinics, Oregon (telehealth); Margaret Mary Health, Indiana (CAH); and Copper Queen Community Hospital, Arizona (CAH).

Leverage Additional Funding Sources. Innovation often requires investment. Kent County is designated as rural by the HRSA Federal Office of Rural Health Policy (FORHP), and is therefore eligible to apply for FORHP funding. FORHP grant programs support the planning and implementation of programs that increase access to care and improve quality of care for rural residents.[97] Foundations may also support new projects, such as the John A. Hartford Foundation that invests in innovation to support older adults and aging.[98] The Maryland Hospital Association's Hospital Bond Program may also provide access to funding for capital projects.[99]

Considerations for MHCC, HSCRC, OHCQ, and Other State Agencies

MHCC, HSCRC, OHCQ, and other state agencies will play a key role as rural health delivery in Maryland evolves. These agencies provide oversight to ensure regulatory and payment requirements are met while considering and adjusting policy as rural health care delivery in

Maryland evolves. Specifically, MHCC, HSCRC, OHCQ, and other state agencies should consider opportunities to:

Provide Analysis. MHCC, HSCRC, OHCQ, and other state agencies will continue to analyze the statutory, regulatory, and financial implications of these options and provide that analysis to key decision makers and stakeholders for rural communities in Maryland.

Provide Technical Assistance. As rural hospitals consider future options and identify new models, state agencies could assist rural hospitals in navigating the regulatory and payment requirements of proposed models. For example, if leaders of hospitals and health systems serving rural Maryland are interested in pursuing a Maryland Rural Hospital and/or Aging and Wellness Center of Excellence, technical assistance from state agencies can facilitate a comprehensive planning process.

Engage with Peers Nationwide. While Maryland's rural communities and health care delivery systems are unique, some states have experienced similar challenges. State agencies in Maryland should pursue opportunities to learn from states who have successfully supported changes in rural health care delivery. State Offices of Rural Health and Flex Program directors in other states may be able to share lessons learned, best practices, and technical assistance resources to support robust rural health care delivery systems.

Disseminate Maryland's Rural Health Innovations. As Maryland's rural health system continues to evolve under the TCOC, national and state rural health leaders look to Maryland for direction in how the TCOC improve rural health outcomes while reducing costs. Sharing Maryland's experiences will greatly inform and enhance rural health policy development across the country.

Conclusion

A sustainable rural health care delivery system in Maryland requires strong hospital leadership, an actively engaged community that understands the economic and clinical realities of the new health care environment, and a willingness to explore alternative models to meet local needs. It will also require some flexibility in regulatory and reimbursement policies to allow for the development of new models and reduce the administrative burden that adds unnecessarily to the cost of providing care in rural communities.

Rural hospital leadership must be creative and innovative to meet the demands of a changing health care environment. Hospitals that have embraced change, such as addressing population health, have been successful in focusing on services that best serve the community. Leadership at all levels—administrative, clinical, and governance—are engaged in developing solutions to address immediate and long-term challenges. Successful leaders build strong partnerships with their communities and include community stakeholders to chart the hospital's strategic course. Transparency with their partners and patients about quality, operational, financial, and community benefit performance is essential.

Appendix A: Demographic and Economic Information

The tables presented below highlight key demographic and economic indicators for Chestertown, Kent County, and Queen Anne's County.

Table A.1. Key Demographic Characteristics of Chestertown (town), Kent County, Queen Anne's County, Maryland, and the United States

	Chestertown	Kent County	Queen Anne's County	Maryland	United States
Population					
Population estimates, July 1, 2018	5,054	19,383	50,251	6,042,718	327,167,434
Population, percent change - April 1, 2010 to July 1, 2018	-4.1%	-4.0%	5.2%	4.7%	6.0%
Age					
Under 5 years	2.6%	4.1%	5.1%	6.0%	6.1%
Under 18 years	10.9%	15.8%	21.5%	22.2%	22.4%
18-64 years	61.3%	57.5%	59.7%	62.4%	61.6%
65+ years	27.8%	26.7%	18.8%	15.4%	16.0%
Sex					
Female	54.0%	52.3%	50.4%	51.5%	50.8%
Race/Ethnicity					
White	76.3%	81.4%	89.7%	58.8%	76.5%
Black or African American	19.6%	15.0%	6.4%	30.9%	13.4%
American Indian and Alaska Native	0.0%	0.3%	0.5%	0.6%	1.3%
Asian	3.4%	1.4%	1.2%	6.7%	5.9%
Native Hawaiian and Other Pacific Islander	0.0%	0.1%	0.1%	0.1%	0.2%
Two or More Races	0.7%	1.9%	2.1%	2.9%	2.7%
Hispanic or Latino^	2.7%	4.3%	4.1%	10.4%	18.3%
White, not Hispanic or Latino	73.6%	78.0%	86.3%	50.5%	60.4%
Other					
Veterans	369	1,525	3,671	380,555	18,939,219
Foreign born persons	3.3%	4.4%	4.0%	14.9%	13.4%
Persons per household	1.89	2.37	2.7	2.68	2.63
Population per square mile	2,023.9	72.9	128.5	594.8	87.4

Source: United States Census Bureau. QuickFacts. Accessed November 12, 2019.
^Hispanics may be of any race, so also are included in applicable race categories

Table A.2. Key Socioeconomic Characteristics of Chestertown (town), Kent County, Queen Anne's County, Maryland, and the United States

Indicator	Chestertown	Kent County	Queen Anne's County	Maryland	United States
Persons without health insurance, under age 65 years	5.8%	8.4%	5.4%	6.9%	10.0%
High school graduate, age 25+ years	85.5%	87.3%	91.9%	89.8%	87.3%
Bachelor's degree or higher, age 25+ years	41.0%	33.2%	35.3%	39.0%	30.9%
In civilian labor force, total, age 16+ years	48.7%	57.1%	67.1%	67.5%	63.0%
Median household income^	$46,356	$56,638	$89,241	$78,916	$57,652
Per capita income in past 12 months^	$26,399	$32,217	$40,553	$39,070	$31,177
Persons in poverty	24.5%	12.8%	7.7%	9.0%	11.8%

Source: United States Census Bureau. QuickFacts. Accessed November 12, 2019.
^ 2013-2017, in 2017 dollars

Table A.3. Top 10 Employers in Kent and Queen Anne's Counties

Company	Industry	Size Category
Kent County		
Angelica Nurseries Inc	Retail Trade	250 - 499
David A Bramble Inc	Construction	250 - 499
Dixon Valve & Coupling Co	Manufacturing	250 - 499
UM Shore Medical Center at Chestertown	Health Care and Social Assistance	250 - 499
Washington College	Educational Services	250 - 499
Giant Food	Retail Trade	100 - 249
Heron Point of Chestertown	Health Care and Social Assistance	100 - 249
La Motte Co	Manufacturing	100 - 249
Tockwogh Camp & Conference Center	Health Care and Social Assistance	100 - 249
Waterman's Crab House	Accommodation and Food Services	100 - 249
Queen Anne's County		
Friel Lumber Co	Retail Trade	250 - 499
Safeway	Retail Trade	250 - 499
Corsica Hills Center	Health Care and Social Assistance	100 - 249
Cracker Barrel Old Country Store	Accommodation and Food Services	100 - 249
Fisherman's Inn Restaurant	Accommodation and Food Services	100 - 249
Food Lion	Retail Trade	100 - 249
McDonald's	Accommodation and Food Services	100 - 249
Paul Reed Smith Guitars	Retail Trade	100 - 249
Reeb Millwork Corp	Manufacturing	100 - 249
Southern Maryland Oil Inc	Wholesale Trade	100 - 249

Source: Maryland Department of Labor

Appendix B: Inpatient and Outpatient Utilization

The tables presented below highlight key inpatient and outpatient utilization for UM Shore Medical Center at Chestertown.

Table B.1. Inpatient Discharges and Outpatient Visits, FY 2014 to FY 2018

Unique Count	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Inpatient Discharges	1,866	1,829	1,581	1,712	1,262
Outpatient Visits	35,839	37,200	37,374	36,824	37,238
Emergency Department Visits*	12,552	13,213	12,637	12,502	12,898

* Emergency department visits are a sub-set of all outpatient visits.

Table B.2. Top 10 APR-DRG for Inpatient Discharges, FY 2014 to FY 2018

APR DRG	Total Inpatient Discharges in FY 2014	Total Inpatient Discharges in FY 2015	Total Inpatient Discharges in FY 2016	Total Inpatient Discharges in FY 2017	Total Inpatient Discharges in FY 2018
Respiratory Failure	66	*	37	110	193
Septicemia & Disseminated Infections	67	78	91	75	60
Other Pneumonia	68	88	110	98	35
Heart Failure	103	99	83	72	32
Chronic Obstructive Pulmonary Disease	110	126	86	59	*
Kidney & Urinary Tract Infections	62	100	74	88	*
Cellulitis & Other Skin Infections	42	60	48	57	27
Cardiac Arrhythmia & Conduction Disorders	49	50	*	54	55
Knee Joint Replacement	41	42	38	50	41
Acute Kidney Injury	*	*	36	63	29
Diabetes	*	39	39	*	34
Peripheral & Other Vascular Disorders	39	*	*	*	*
Syncope & Collapse	*	32	*	*	*
Malfunction, Reaction, Complication Of Genitourinary Device Or Proc	*	*	*	*	28

* APR DRG was not present in the top 10 DRGs for the FY.

Table B.3. Primary Payer for Inpatient Discharges, FY 2014 to FY 2018

Primary Payer	Percentage of All Discharges in FY 2014	Percentage of All Discharges in FY 2015	Percentage of All Discharges in FY 2016	Percentage of All Discharges in FY 2017	Percentage of All Discharges in FY 2018
Medicare	73%	74%	75%	74%	74%
Commercial	11%	12%	10%	13%	11%
Medicaid	8%	11%	10%	9%	10%
Other	5%	3%	3%	3%	3%
Self-Pay	2%	1%	1%	0%	0%
Charity or no-charge	0%	0%	0%	0%	0%

Table B.4. Discharge Disposition by Percentage of Inpatient Discharges, FY 2014 to FY 2018

Discharge Disposition	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
To home or self-care	48%	54%	51%	52%	52%
Discharge to skilled nursing home facility (07/2014+)	0%	10%	26%	27%	24%
To a long term care facility	27%	14%	3%	0%	0%
To home under the care of a home health agency	13%	10%	7%	9%	8%
To another acute care hospital	7%	5%	6%	7%	8%
Left against medical advice	1%	1%	1%	2%	2%
Expired	2%	2%	2%	2%	2%
Discharge to Hospice facility	1%	1%	1%	0%	2%
Unknown	0%	1%	0%	0%	2%
To nursing home	1%	0%	1%	1%	1%
To a psychiatric facility or an off-site psychiatric unit of another acute care hospital	1%	1%	0%	0%	0%
To other health care facility	0%	0%	0%	0%	0%
Discharge to Supervised/Congregate House	0%	0%	1%	1%	0%
To distinct on-site rehabilitation unit from acute care	0%	0%	0%	0%	0%
To a rehabilitation hospital or an off-site rehab unit of another acute care hospital	0%	0%	0%	0%	0%
Discharge to Juvenile/Adult Detention or Police Custody	0%	0%	0%	0%	0%
Discharge to Substance Abuse Rehabilitation Facility	0%	0%	0%	0%	0%
Discharge to State Psychiatric Hospital	0%	0%	0%	0%	0%
To acute care from on-site rehabilitation unit	0%	0%	0%	0%	0%
Discharge to Department of Social Services	0%	0%	0%	0%	0%
To a chronic hospital	0%	0%	0%	0%	0%

Table B.5. Patient Residence Zip Code for Inpatient Discharges, FY 2014 to FY 2018

City	Percentage of Discharges in FY 2014	Percentage of Discharges in FY 2015	Percentage of Discharges in FY 2016	Percentage of Discharges in FY 2017	Percentage of Discharges in FY 2018
Chestertown	47%	47%	47%	43%	47%
Rock Hall	11%	12%	11%	12%	11%
Worton	7%	8%	7%	9%	7%
Millington	7%	7%	7%	7%	5%
Sudlersville	3%	3%	3%	4%	4%
Galena	2%	2%	2%	2%	4%
Centreville	5%	4%	4%	4%	3%
Church Hill	3%	4%	3%	4%	3%
Crumpton	2%	2%	1%	1%	2%
Kennedyville	2%	1%	1%	1%	2%
Other Surrounding Areas	11%	10%	12%	12%	12%

Table B.6. Outpatient Visits, FY 2017

Visit Service Line	Type of Payer						Number Visits with Service	Percentage of Visits with Service
	Charity or No Charge	Commercial	Medicaid	Medicare	Other	Self-Pay		
Anesthesia	1	661	300	800	89	5	***1,856***	**5.04%**
CAT Scan	2	1,108	629	1,856	122	95	***3,812***	**10.35%**
Pharmacy	4	3,209	3,710	4,016	663	390	***11,992***	**32.57%**
EEG	-	11	7	13	-	-	***31***	**0.08%**
EKG	2	852	679	1,583	100	55	***3,271***	**8.88%**
Emergency Department	3	3,418	4,446	3,289	807	539	***12,502***	**33.95%**
IRC	-	97	41	188	4	1	***331***	**0.90%**
Laboratory	24	3,726	2,634	8,723	425	281	***15,813***	**42.94%**
MRI	-	296	147	380	12	3	***838***	**2.28%**
Nuclear Medicine	-	99	52	143	-	1	***295***	**0.80%**
Occupational Therapy	-	-	-	2	-	-	***2***	**0.01%**
Operating Room	1	869	586	1,320	94	6	***2,876***	**7.81%**
Outpatient Clinic	-	302	180	1,026	4	2	***1,514***	**4.11%**
Physical Therapy	-	12	1	83	2	-	***98***	**0.27%**
Psychiatric	-	1	7	-	-	-	***8***	**0.02%**
Pulmonary	1	103	60	215	4	2	***385***	**1.05%**
Radiology Diagnostic	2	5,290	3,133	6,276	508	260	***15,469***	**42.01%**
Respiratory	1	254	329	484	38	21	***1,127***	**3.06%**
Speech Audiology	-	2	1	5	-	-	***8***	**0.02%**
Supplies	1	870	782	1,418	180	54	***3,305***	**8.98%**
Total Unique Visits by Payer	***25*** ***0%***	***10,799*** ***29%***	***7,422*** ***20%***	***16,756*** ***46%***	***1,147*** ***3%***	***675*** ***2%***	***36,824***	***100%***

NOTE: Rows indicate the number of unique visits which included services from that line of business. The final row – Total Unique Visits by Payer – is the total number of outpatient visits for each payer, not the sum of each payer column.

Table B.7. Outpatient Visits, FY 2018

Visit Service Line	Primary Payer						Number of Visits with Service	Percentage of Visits with Service
	Charity or No Charge	Commercial	Medicaid	Medicare	Other	Self-Pay		
Anesthesia	1	595	278	721	82	5	***1,682***	***4.52%***
CAT Scan	4	1,099	761	2,027	120	111	***4,122***	***11.07%***
Drug	14	2,928	3,687	4,217	592	382	***11,820***	***31.74%***
EEG	-	6	10	7	-	-	***23***	***0.06%***
EKG	1	410	320	799	39	23	***1,592***	***4.28%***
Emergency Department	16	3,316	4,673	3,677	748	559	***12,989***	***34.88%***
IRC	-	92	38	163	6	2	***301***	***0.81%***
Laboratory	11	3,527	2,858	9,191	404	282	***16,273***	***43.70%***
MRI	1	232	122	378	12	5	***750***	***2.01%***
Nuclear Medicine	1	65	31	145	2	1	***245***	***0.66%***
Occupational Therapy	-	-	-	10	1	-	***11***	***0.03%***
Operating Room	1	753	528	1,288	96	5	***2,671***	***7.17%***
Outpatient Clinic	1	322	206	1,092	15	8	***1,644***	***4.41%***
Physical Therapy	-	9	2	82	4	-	***97***	***0.26%***
Psychiatric	-	3	1	-	-	-	***4***	***0.01%***
Pulmonary	-	93	37	236	10	4	***380***	***1.02%***
Radiology Diagnostic	9	4,919	3,224	6,332	468	286	***15,238***	***40.92%***
Respiratory	2	227	289	606	45	17	***1,186***	***3.18%***
Speech Audiology	-	4	1	22	-	-	***27***	***0.07%***
Supplies	2	782	724	1,449	164	68	***3,189***	***8.56%***
Total Unique Visits by Payer	***29*** ***0%***	***10,145*** ***27%***	***7,806*** ***21%***	***17,432*** ***47%***	***1,116*** ***3%***	***710*** ***2%***	***37,238***	***100%***

NOTE: Rows indicate the number of unique visits which included services from that line of business. The final row – Total Unique Visits by Payer – is the total number of outpatient visits for each payer, not the sum of each payer column.

References

1 Institute for Healthcare Improvement. 2019. "What Is an Age-Friendly Health System?" Age-Friendly Health Systems. http://www.ihi.org/Engage/Initiatives/Age-Friendly-Health-Systems/Pages/default.aspx.

2 The John A. Hartford Foundation. 2019. "Age-Friendly Health Systems Initiative, Phase II." 2019. https://www.johnahartford.org/grants-strategy/age-friendly-health-systems-initiative-phase-ii.

3 Horowitz Center for Health Literacy. 2019. "Health Literacy Maryland." University of Maryland School of Public Health. https://sph.umd.edu/center/hchl/health-literacy-maryland-0.

4 Freeman, Victoria A., Hilda A. Howard, and Ruth Lavergne. 2010. "Rural Hospital Support for Emergency Medical Services." Final Report No. 100. NC Rural Health Research & Policy Analysis Center. https://www.shepscenter.unc.edu/rural/pubs/report/FR100.pdf.

5 Rural Health Information Hub. 2019. "Rural Transportation Toolkit." https://www.ruralhealthinfo.org/toolkits/transportation.

6 Broderick, Andrew. 2018. "The Future of Rural Transportation and Mobility for Older Adults: Current Trends and Future Directions in Technology-Enabled Solutions." Grantmakers in Aging. https://www.giaging.org/documents/180424_CITRIS_rural_mobility_paper_F.pdf.

7 United Way of Kent County. 2019. "Kent County Transportation Survey Underway." https://unitedwayofkentcounty.org/news/9-27-19-transportation-press-release/.

8 University of Maryland School of Public Health. 2017. "Rural health report will inform strategies to improve health in five Md. Counties." https://sph.umd.edu/news-item/rural-health-report-will-inform-strategies-improve-health-five-md-counties.

9 Workgroup on Rural Health Delivery. 2017. "Transforming Maryland's rural healthcare system: A regional approach to rural healthcare delivery." Maryland Health Care Commission. https://mhcc.maryland.gov/mhcc/pages/home/workgroups/documents/rural_health/Final%20Report/LGSRPT_FinalReport_rpt_23102017.pdf.

10 Maryland.gov. 2019. Mid-Shore Rural Health Collaborative. https://health.maryland.gov/mcrhc/Pages/home.aspx.

11 United States Census Bureau. 2019. "QuickFacts." https://www.census.gov/quickfacts/fact/table/chestertowntownmaryland,kentcountymaryland,queenannescountymaryland,MD,US/PST045219. .

12 *Ibid.*

13 Maryland Department of Labor. 2019. "Kent County - Major Employer Lists (Listed Alphabetically) - Workforce Information & Performance." https://www.dllr.state.md.us/lmi/emplists/kent.shtml.

14 Maryland Department of Labor. 2019. "Queen Anne's County - Major Employer Lists (Listed Alphabetically) - Workforce Information & Performance." https://www.dllr.state.md.us/lmi/emplists/queenanne.shtml.

15 Maryland.gov. 2019. "SHIP Persons With A Usual Primary Care Provider 2011-2017." https://opendata.maryland.gov/Health-and-Human-Services/SHIP-Persons-With-A-Usual-Primary-Care-Provider-20/9and-3sqp/data.

16 Maryland Health Care Commission. 2019. "Table 1. Licensed Acute Care Beds by Hospital and Service: Maryland, FY 2020 (Effective July 1, 2019)." https://mhcc.maryland.gov/mhcc/pages/hcfs/hcfs_hospital/documents/acute_care/chcf_Licensed_Acute_Care_Beds_by_Hospital_and_Service_%20Maryland_FY2020.pdf.

17 Barath, Deanna and Aita Amaize. 2017. "Mid-Shore Region Characteristics: Population Sociodemographics; Health Status; and Health and Health Care Facilities and Resources." University of Maryland School of Public

Health. https://sph.umd.edu/sites/default/files/images/Rural%20Health%20Report%20-%20Technical%20Report%206%20-%20Mid-Shore%20Region%20Characteristics.pdf.

[18] *Ibid.*

[19] Maryland Department of Health. 2019. "Title: Shore Wellness Partners." Integrated Programs. https://health.maryland.gov/innovations/Pages/shorewellness-partners.aspx.

[20] Barath, Deanna and Aita Amaize. 2017. "Mid-Shore Region Characteristics: Population Sociodemographics; Health Status; and Health and Health Care Facilities and Resources." University of Maryland School of Public Health. https://sph.umd.edu/sites/default/files/images/Rural%20Health%20Report%20-%20Technical%20Report%206%20-%20Mid-Shore%20Region%20Characteristics.pdf.

[21] *Ibid.*

[22] Compass Regional Hospice. 2019. "Hospice Centers." http://compassregionalhospice.org/hospicecenter/index.html.

[23] Eastern Shore Area Health Education Center. 2018. "Eastern Shore Area Health Education Center At A Glance." https://www.esahec.org/esahec-at-a-glance.

[24] University of Maryland. 2020. "University of Maryland Extension." https://extension.umd.edu/.

[25] Kaufman, Brystana, George Pink, and Mark Holmes. 2016. "Prediction of Financial Distress among Rural Hospitals." Findings Brief. NC Rural Health Research Program. https://www.shepscenter.unc.edu/wp-content/uploads/2016/01/2015Prediction-of-Distress.pdf.

[26] Hoagland, G. William, Anand Parekh, Caitlin Krutsick, Lauren Broffman, Natalie Kenton, Claire Devine, and Rubin Neleen. 2018. "Reinventing Rural Health Care: A Case Study of Seven Upper Midwest States." Bipartisan Policy Center. https://bipartisanpolicy.org/wp-content/uploads/2018/01/BPC-Health-Reinventing-Rural-Health-Care-1.pdf.

[27] Burrows, Elizabeth, Ryung Suh, and Hamann Danielle. 2012. "Health Care Workforce Distribution and Shortage Issues in Rural America." Policy Brief. National Rural Health Association. https://www.ruralhealthweb.org/getattachment/Advocate/Policy-Documents/HealthCareWorkforceDistributionandShortageJanuary2012.pdf.aspx?lang=en-US.

[28] Health Resources and Services Administration. 2019. "HRSA National Health Service Corps." https://nhsc.hrsa.gov/.

[29] Maryland Higher Education Commission. 2019. "State Loan Repayment Program (SLRP) and Maryland Loan Assistance Repayment Program for Physicians (MLARP)." https://mhec.maryland.gov/preparing/Pages/FinancialAid/ProgramDescriptions/prog_mlarp.aspx.

[30] Lee, Marshala, Helen Newton, Tracey Smith, Malena Crawford, Hayden Kepley, Marsha Regenstein, and Candice Chen. 2016. "The Benefits of Physician Training Programs for Rural Communities: Lessons Learned from the Teaching Health Center Graduate Medical Education Program." *Journal of Health Care for the Poor and Underserved* 27 (4): 83–90. https://doi.org/10.1353/hpu.2016.0184.

[31] Phelan, Mary T. 2019. "Rural Residency Program Will Aid Eastern Shore." *UMB News.* July 29, 2019. https://www.umaryland.edu/news/archived-news/july-2019/newspressreleaseshottopics/rural-residency-program-will-aid-eastern-shore.php.

[32] Deloitte. 2018. "Growth in Outpatient Care: The Role of Quality and Value Incentives." *Modern Healthcare*, August 29, 2018. https://www.modernhealthcare.com/article/20180829/SPONSORED/180829895/growth-in-outpatient-care.

[33] NC Rural Health Research Program. 2019. "Rural Hospital Closures: More Information." https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/rural-hospital-closures/.

[34] Newman, Katelyn. 2019. "Rural Hospitals Find Ways to Survive, Expand." *U.S. News & World Report*, July 17, 2019. https://www.usnews.com/news/healthiest-communities/articles/2019-07-17/rural-hospitals-find-ways-to-survive-expand.

[35] Health Resources and Services Administration. 2019. "A Guide for Rural Health Care Collaboration and Coordination." https://www.hrsa.gov/sites/default/files/hrsa/ruralhealth/resources/hrsa-rural-collaboration-guide.pdf.

[36] Centers for Medicare & Medicaid Services. 2018. "State Operations Manual Appendix A - Survey Protocol, Regulations and Interpretive Guidelines for Hospitals." U.S. Department of Health and Human Services. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_a_hospitals.pdf.

[37] Maryland Health Care Commission. 2016. "Interim Update: Licensed Acute Care Hospital Beds Fiscal Year 2017." https://mhcc.maryland.gov/mhcc/pages/hcfs/hcfs_hospital/documents/acute_care/chcf_AcuteCare_Interim_Update_Hospital_Beds_FY17.pdf.

[38] Centers for Medicare & Medicaid Services. 2018. "State Operations Manual Appendix A - Survey Protocol, Regulations and Interpretive Guidelines for Hospitals." U.S. Department of Health and Human Services. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_a_hospitals.pdf.

[39] *Ibid.*

[40] Maryland Health Services Cost Review Commission. 2018. "Maryland Medicare Total Cost of Care Model Terms." https://hscrc.state.md.us/Documents/Modernization/7-30-18%20Announced%20Terms_FINAL.pdf.

[41] American Hospital Association. 2019. "Rural Report: Challenges Facing Rural Communities and the Roadmap to Ensure Local Access to High-Quality, Affordable Health Care." https://www.aha.org/system/files/2019-02/rural-report-2019.pdf.

[42] University of Maryland Shore Regional Health. 2020. "University of Maryland Shore Medical Center at Chestertown." https://www.umms.org/shore/locations/medical-center-chestertown.

[43] MDTA News Release. "Bay Bridge Two-Way Operations to be Suspended September 24 to Prepare for Long-term Deck Rehab Project." https://mdta.maryland.gov/blog-category/mdta-news-releases/bay-bridge-two-way-operations-be-suspended-september-24-prepar.

[44] Medicare.gov. 2019. "Hospital Profile: UMD SHORE MEDICAL CTR AT CHESTERTOWN." Hospital Compare. https://www.medicare.gov/hospitalcompare/profile.html#profTab=0&ID=210030&cmprID=210030&dist=50&loc=CHESTERTOWN%2C%20MD&lat=39.2089986&lng=-76.0666126&cmprDist=0.8&Distn=0.8.

[45] Mid-Shore Rural Health Collaborative. 2019. "Mid-Shore Rural Health Collaborative Interim Report." https://health.maryland.gov/mcrhc/Documents/Interim%20Report%20-%20Rural%20Health%20Collaborative%20-%20August%202019-Final.pdf.

[46] Centers for Medicare & Medicaid Services. 2019. "Critical Access Hospital." MLN Booklet. U.S. Department of Health and Human Services. https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/CritAccessHospfctsht.pdf.

[47] *Ibid.*

[48] Flex Monitoring Team. 2019. "Critical Access Hospital Locations." https://www.flexmonitoring.org/data/critical-access-hospital-locations/.

[49] Freeman, Victoria A., Kristie A. Thompson, H. Ann Howard, Randy Randolph, and G. Mark Holmes. 2015. "The 21st Century Rural Hospital: A Chart Book." North Carolina Rural Health Research Program. https://www.shepscenter.unc.edu/wp-content/uploads/2015/02/21stCenturyRuralHospitalsChartBook.pdf.

[50] Joynt, Karen E., Yael Harris, E. John Orav, and Ashish K. Jha. 2011. "Quality of Care and Patient Outcomes in Critical Access Hospitals." *JAMA* 306 (1): 45–52. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3337777/.

[51] Freeman, Victoria A., Kristie A. Thompson, H. Ann Howard, Randy Randolph, and G. Mark Holmes. 2015. "The 21st Century Rural Hospital: A Chart Book." North Carolina Rural Health Research Program. https://www.shepscenter.unc.edu/wp-content/uploads/2015/02/21stCenturyRuralHospitalsChartBook.pdf.

[52] Mueller, Keith J., Charlie Alfero, Andrew F. Coburn, Jennifer P. Lundblad, A. Clinton MacKinney, Timothy D. McBride, and Erin M. Mobley. 2018. "Primary Care: The Foundation for a High Performance Rural Health Care System." RUPRI Health Panel. http://www.rupri.org/wp-content/uploads/Primary-Care-The-Foundation-for-a-High-Performance-Rural-Health-Care-System.pdf.

[53] Rural Health Information Hub. 2019. "Telehealth Models for Increasing Access to Specialty Care." Rural Telehealth Toolkit. https://www.ruralhealthinfo.org/toolkits/telehealth/2/care-delivery/specialty-care.

[54] Rural Health Information Hub. 2019. "Telehealth Use in Rural Healthcare." 2019. https://www.ruralhealthinfo.org/topics/telehealth.

[55] Alexander, Emily, C. David Butler, Andrea Darr, Matthew T. Jenkins, Robert D. Long, Colleen J. Shipman, and Timothy P. Stratton. 2017. "ASHP Statement on Telepharmacy." *American Journal of Health-System Pharmacy* 74 (9): e236–41.

[56] Mueller, Keith J., Andrew J. Potter, A. Clinton MacKinney, and Marcia M. Ward. n.d. "Lessons From Tele-Emergency: Improving Care Quality And Health Outcomes By Expanding Support For Rural Care Systems." *Health Affairs* 33 (2): 228–34. https://doi.org/10.1377/hlthaff.2013.1016.

[57] University of New Mexico School of Medicine. 2019. "Project ECHO." https://echo.unm.edu/.

[58] Health Resources and Services Administration. 2018. "Chapter 20: Board Composition." Health Center Program Compliance Manual. https://bphc.hrsa.gov/programrequirements/compliancemanual/chapter-20.html.

[59] Centers for Medicare & Medicaid Services. 2018. "State Operations Manual Appendix W - Survey Protocol, Regulations and Interpretive Guidelines for Critical Access Hospitals (CAHs) and Swing-Beds in CAHs." U.S. Department of Health and Human Services. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_w_cah.pdf.

[60] Health Research & Educational Trust. 2017. "Social Determinants of Health Series: Transportation and the Role of Hospitals." Chicago, IL. http://www.hpoe.org/Reports-HPOE/2017/sdoh-transportation-role-of-hospitals.pdf.

[61] Maryland Health Services Cost Review Commission. 2018. "Maryland Medicare Total Cost of Care Model Terms." https://hscrc.state.md.us/Documents/Modernization/7-30-18%20Announced%20Terms_FINAL.pdf.

[62] National Quality Forum. 2015. "Performance Measurement for Rural Low-Volume Providers." Final Report. https://www.qualityforum.org/Publications/2015/09/Rural_Health_Final_Report.aspx.

[63] National Rural Health Resource Center. 2019. "Medicare Beneficiary Quality Improvement Project (MBQIP)." 2019. https://www.ruralcenter.org/tasc/mbqip.

[64] National Quality Forum. 2018. "A Core Set of Rural-Relevant Measures and Measuring and Improving Access to Care: 2018 Recommendations from the MAP Rural Health Workgroup." MAP Rural Health Final Report - 2018. http://www.qualityforum.org/Publications/2018/08/MAP_Rural_Health_Final_Report_-_2018.aspx.

[65] Joynt, Karen E., Yael Harris, E. John Orav, and Ashish K. Jha. 2011. "Quality of Care and Patient Outcomes in Critical Access Hospitals." *JAMA* 306 (1): 45–52. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3337777/.

[66] Center for Connected Health Policy. 2019. "Remote Patient Monitoring (RPM)." About Telehealth. 2019. https://www.cchpca.org/about/about-telehealth/remote-patient-monitoring-rpm.

[67] Public Health Institute. 2019. "Center for Technology and Aging." http://www.phi.org/focus-areas/?program=center-for-technology-and-aging.

[68] Oregon Health & Science University. 2019. "The Oregon Center for Aging and Technology." https://www.ohsu.edu/oregon-center-for-aging-and-technology.

[69] Pimentel, Camilla B., Megan Gately, Steven R. Barczi, Kenneth S. Boockvar, Ella H. Bowman, Thomas V. Caprio, Cathleen S. Colón-Emeric, et al. 2019. "GRECC Connect: Geriatrics Telehealth to Empower Health Care Providers and Improve Management of Older Veterans in Rural Communities." *Federal Practitioner* 36 (10): 464–70. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6837335/.

[70] Institute for Healthcare Improvement. 2019. "What Is an Age-Friendly Health System?" Age-Friendly Health Systems. http://www.ihi.org/Engage/Initiatives/Age-Friendly-Health-Systems/Pages/default.aspx.

[71] The John A. Hartford Foundation. 2019. "Age-Friendly Health Systems Initiative, Phase II." 2019. https://www.johnahartford.org/grants-strategy/age-friendly-health-systems-initiative-phase-ii.

[72] Institute for Healthcare Improvement. 2019. "Age-Friendly Health Systems: Guide to Using the 4Ms in the Care of Older Adults." http://www.ihi.org/Engage/Initiatives/Age-Friendly-Health-Systems/Documents/IHIAgeFriendlyHealthSystems_GuidetoUsing4MsCare.pdf.

[73] Fulmer, Terry, Kedar S. Mate, and Amy Berman. 2018. "The Age-Friendly Health System Imperative." *Journal of the American Geriatrics Society* 66 (1): 22–24. https://doi.org/10.1111/jgs.15076.

[74] Mate, Kedar S., Amy Berman, Mara Laderman, Andrea Kabcenell, and Terry Fulmer. 2018. "Creating Age-Friendly Health Systems – A Vision for Better Care of Older." *Healthcare* 6 (1): 4–6. https://doi.org/10.1016/j.hjdsi.2017.05.005.

[75] Health Resources and Services Administration. 2018. "Chapter 20: Board Composition." Health Center Program Compliance Manual. https://bphc.hrsa.gov/programrequirements/compliancemanual/chapter-20.html.

[76] Beverly, Claudia J., Robin Mcatee, Jane Costello, Ronni Chernoff, and Jana Casteel. 2005. "Needs Assessment of Rural Communities: A Focus on Older Adults." *Journal of Community Health* 30 (3): 197–212. https://doi.org/10.1007/s10900-004-1958-y.

[77] Beverly, Claudia J., Robin E. McAtee, Ronni Chernoff, Gwynn V. Davis, Susan K. Jones, and David A. Lipschitz. 2007. "The Arkansas Aging Initiative: An Innovative Approach for Addressing the Health of Older Rural Arkansans." *The Gerontologist* 47 (2): 235–43. https://doi.org/10.1093/geront/47.2.235.

[78] Mezey, Mathy, Ethel Mitty, Sarah G. Burger, and Philip McCallion. 2008. "Healthcare Professional Training: A Comparison of Geriatric Competencies." *Journal of the American Geriatrics Society* 56 (9): 1724–29. https://doi.org/10.1111/j.1532-5415.2008.01857.x.

[79] Buck, Harleah G., Ann Kolanowski, Donna Fick, and Lawrence Baronner. 2016. "Improving Rural Geriatric Care Through Education: A Scalable, Collaborative Project." *The Journal of Continuing Education in Nursing* 47 (7): 306–13. https://doi.org/10.3928/00220124-20160616-06.

[80] Nurses Improving Care for Healthsystem Elders (NICHE). 2019. "Mission." https://nicheprogram.org/about/mission.

[81] Hartford Institute for Geriatric Nursing. 2019. "Programs." https://hign.org/what-we-do/programs.

[82] National Hartford Center of Gerontological Nursing Excellence. 2019. "About." https://www.nhcgne.org/about.

[83] Rural Health Information Hub. 2019. "Older Adults and People with Disabilities." Rural Transportation Toolkit. https://www.ruralhealthinfo.org/toolkits/transportation/4/population-considerations/older-adults-people-with-disabilities.

[84] Anarde, Suzanne. 2019. "Providing Options to Rural Older Adults." Bipartisan Policy Center. 2019. https://bipartisanpolicy.org/providing-options-to-rural-older-adults/.

[85] Institute for Healthcare Improvement. 2019. "Age-Friendly Health Systems: Guide to Using the 4Ms in the Care of Older Adults." http://www.ihi.org/Engage/Initiatives/Age-Friendly-Health-Systems/Documents/IHIAgeFriendlyHealthSystems_GuidetoUsing4MsCare.pdf.

[86] Doeksen, Gerald A., Cheryl F. St. Clair, and Fred C. Eilrich. 2016. "Economic Impact of a Critical Access Hospital on a Rural Community." National Center for Rural Health Works. http://ruralhealthworks.org/wp-content/uploads/2018/04/CAH-Study-FINAL-101116.pdf.

[87] Health Resources and Services Administration. 2019. "Health Literacy." https://www.hrsa.gov/about/organization/bureaus/ohe/health-literacy/index.html.

[88] Miller Temple, Kay. 2017. "Rural Health Literacy: Understanding Skills and Demands Is Key to Improvement." *The Rural Monitor*, April 19, 2017. https://www.ruralhealthinfo.org/rural-monitor/rural-health-literacy/.

[89] Horowitz Center for Health Literacy. 2019. "Health Literacy Maryland." University of Maryland School of Public Health. https://sph.umd.edu/center/hchl/health-literacy-maryland-0.

[90] Maryland Institute for Emergency Medical Services Systems. 2017. "Maryland Mobile Integrated Health Programs Involving Emergency Medical Services (EMS) Executive Summary." http://www.miemss.org/home/Portals/0/Docs/LegislativeReports/MIH-Study-MIEMSS-Final-Oct-2017.pdf?ver=2018-01-11-145527-320.

[91] Queen Anne's County Department of Health. 2019. "Mobile Integrated Community Health (MICH)." https://health.maryland.gov/qahealth/community-health/Pages/mich.aspx.

[92] Broadwater, Luke, and Doug Donovan. 2019. "On Maryland's Eastern Shore, Local Hospital Is Downsized — and Residents Are Outraged at UMMS." *The Baltimore Sun*, May 23, 2019. https://www.baltimoresun.com/politics/bs-md-umms-eastern-shore-20190423-story.html.

[93] Freeman, Victoria A., Hilda A. Howard, and Ruth Lavergne. 2010. "Rural Hospital Support for Emergency Medical Services." Final Report No. 100. NC Rural Health Research & Policy Analysis Center. https://www.shepscenter.unc.edu/rural/pubs/report/FR100.pdf.

[94] Rural Health Information Hub. 2019. "Rural Transportation Toolkit." https://www.ruralhealthinfo.org/toolkits/transportation.

[95] Broderick, Andrew. 2018. "The Future of Rural Transportation and Mobility for Older Adults: Current Trends and Future Directions in Technology-Enabled Solutions." Grantmakers in Aging. https://www.giaging.org/documents/180424_CITRIS_rural_mobility_paper_F.pdf.

[96] United Way of Kent County. 2019. "Kent County Transportation Survey Underway." https://unitedwayofkentcounty.org/news/9-27-19-transportation-press-release/.

[97] Health Resources and Services Administration. 2019. "Federal Office of Rural Health Policy." https://www.hrsa.gov/rural-health/index.html.

[98] The John A. Hartford Foundation. 2019. "Dedicated to Improving the Care of Older Adults." https://www.johnahartford.org/about.

[99] Maryland Hospital Association. 2019. "2019 Hospital Bond Program." https://www.mhaonline.org/advocacy/legislative/hospital-bond-project-review-program.