MARYLAND RURAL HEALTH PLAN

THE MARYLAND DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Family Health Administration | Office of Health Policy and Planning | State Office of Rural Health

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MARTIN O'MALLEY
GOVERNOR

ANTHONY G. BROWN
LT. GOVERNOR

JOHN M. COLMERS
SECRETARY

RUSSELL W. MOY, MD, MPH
DIRECTOR OF FHA

JOAN H. SALIM
DEPUTY DIRECTOR OF FHA

The Maryland Rural Health Plan is a publication of the Maryland Department of Health and Mental Hygiene

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John M. Colmers, Secretary, DHMH
Russell W. Moy, MD, MPH, Director, Family Health Administration

Produced by the Office of Health Policy and Planning

Jeanette Jenkins, MHS, Director
Rebecca Love, MPH, CHES, Health Policy Analyst
Lauren Kramberg, MPH, CHES, Health Policy Analyst II
Elizabeth Vaidya, Primary Care Organization Coordinator
TEL: 410.767.5301
FAX: 410.333.7501
EMAIL: ohpp@dhmh.state.md.us
WEB: *www.fha.state.md.us/ohpp*

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EXECUTIVE SUMMARY

Overview of Rural Health in Maryland

Rural Maryland represents nearly 30 percent of Maryland's population and almost 80 percent of Maryland's land area. Rural communities throughout Maryland are varied—differing in population density, remoteness from urban areas, and economic and social characteristics. Many traditionally rural communities in Maryland adjacent to urban or "resort" areas are growing in population, as they become popular destinations for retirees and those willing to commute to work.

The challenges to providing quality health care services and delivery to rural Maryland largely result from their geographic isolation and lack of the critical population mass necessary to sustain a variety of primary and specialty services. Efforts to address health care disparities in rural areas are often made difficult by struggling economies and limited financial and human resources.

Compared with the State overall, Maryland's rural communities tend to have fewer health care organizations and professionals, higher rates of chronic disease and mortality, and larger Medicare and Medicaid populations. Evidence indicates that rural populations fare worse in many health and economic indicators, and do not receive the same quality, effective, and equitable care as their suburban counterparts. Rural populations tend to be older and exhibit poorer health behaviors such as higher rates of smoking and obesity, relative to the State, although there is variability in health behaviors among rural communities.

A growing portion of the rural population suffers from chronic diseases. The costs for the State to care for this population will increase over the next few decades unless attention and funding are directed toward improvements in preventive health. The rural health system could improve residents' quality of life more effectively if access to health care providers, prescription medications, and health education improved. Unless action is taken now, the future burden of chronic disease in many rural communities could become enormous.

The need for improvement in rural health has also been documented in the Institute of Medicine's, "Quality through Collaboration: The Future of Rural Health Care." According to this publication, "rural communities have been on the periphery of discussions of national health care quality. A roadmap for applying the quality agenda now evolving at the national level to sparsely populated areas is needed."[1] Maryland's Rural Health Plan focuses on setting such an agenda for rural Maryland.

Plan Development

In response to the pressing health needs in Maryland's rural areas, the Maryland State

[1] Quality through Collaboration: The Future of Rural Health. Committee on the Future of Rural Health Care, Board on Health Care Services. Institute of Medicine of the National Academies. Washington, D.C.: The National Academies Press. 2005. Available at *books.nap.edu/books/0309094399/html*. Accessed December 15, 2006.

Office of Rural Health convened a Steering Committee to create the Maryland Rural Health Plan. The Plan provides information on existing resources, identifies gaps in services, identifies barriers that limit access to care, and provides recommendations for improving the delivery of health care to rural residents. The strategies and activities in this Plan are expected to reduce chronic disease and empower individuals to take responsibility for their health.

The Steering Committee assumed the tasks of:

- Assessing health status in Maryland's rural areas;
- Examining the accessibility and affordability of health care in rural areas; and
- Identifying the most pressing health issues, and developing strategies and activities to address those health issues.

The Steering Committee identified the following priority areas for health in rural Maryland:

- Access to primary and specialty care and to pharmacy services;
- Access to oral health;
- Behavioral health (mental health and substance abuse); and
- Improvement in behaviors leading to a healthier lifestyle.

Recommendations

The Steering Committee developed three strategies to address the health challenges in Maryland's rural communities:

- Recruit and retain health care providers—including primary care, behavioral, and oral health professionals—in rural areas;
- Support increased access to pharmaceuticals for the low-income, rural population; and
- Establish comprehensive, preventive health clinics in underserved, rural areas.

This Plan has a long-term perspective, and its success will be measured by improved health care services and outcomes in rural areas. Evaluating progress in achieving the Plan's recommendations, especially over the long-term, will be important for making any needed adjustments and for learning from achievements and failures. The State Office of Rural Health and its partners will design and implement an evaluation of the Plan. Both process measures and outcomes will be evaluated. The indicators set forth in Sections II and III will be used to evaluate the components of the Plan.

In order to ensure the success of the Plan, local health departments in rural jurisdictions, rural health groups, academic institutions, professional organizations, and foundations will all have to be involved. By identifying areas where additional attention is needed, the Plan serves as a guide to all organizations in the State. No single organization can carry out these activities alone. Rather, these goals and strategies are listed as a call to action to encourage any organization involved in rural health to address one or more of the identified priorities.

I. INTRODUCTION

BACKGROUND AND PURPOSE

This Rural Health Plan was developed in response to requests from rural health advocates for a comprehensive plan to outline a vision, goals, and strategies that could be helpful in improving rural health in Maryland.

State Office of Rural Health

The mission of Maryland's State Office of Rural Health (SORH) is to improve the health of rural Marylanders through collaboration, networking, outreach, education, research, advocacy, and development of special programs. Maryland's SORH is located within the Maryland Department of Health and Mental Hygiene in the Family Health Administration's Office of Health Policy and Planning, and has been the focal point for the development and administration of Maryland's rural health policy since 1993. The SORH works with other state and federal programs as Maryland's rural health representative, serves as an information clearinghouse on Maryland's rural health services, and acquires and distributes state and federal funds to assist in maintaining a coordinated and sustainable system of rural health services.

The SORH is funded through a matching federal-state, grant program established to help states' rural communities build and improve their health care delivery systems. The federal Office of Rural Health Policy, Health Resources and Services Administration, U.S. Department of Health and Human Services, awards and administers grants to each of the 50 states through the State Offices of Rural Health grant program, which is authorized by Section 338J of the Public Health Service Act, 42 U.S.C. 254r.

The SORH constituency is comprised of local health departments, consumers, and stakeholders, including lay-people and professionals who influence health care delivery and health-related services in rural Maryland. The constituent base includes: local, state, and national governments; health care providers; educators; cooperative extension offices; the economic development and business sectors; community and advocacy groups; non-profit and private organizations; and colleges and universities.

The SORH's activities include collecting and disseminating information within the State; coordinating rural health interests and activities across the State; providing technical assistance to attract more federal, state, and private funding for rural health; and recruitment and retention of health care providers in rural areas. The SORH issues periodic newsletters and funding alerts and also supports an annual rural health conference.

Plan Development

This comprehensive Maryland Rural Health Plan builds on previous Maryland rural health plans and initiatives. The first of these documents was developed in 1997 and entitled, "Rural Health in Maryland: Setting an Agenda in a Time of Change." In 2002, the Maryland Rural Hospital Flexibility Program, which no longer operates in Maryland, developed a Maryland State Rural Health Care Plan as part of its grant activities. Maryland has undergone considerable population and economic changes in its rural areas since these documents were prepared. This Plan recognizes the pressures facing rural jurisdictions, and can be used as a planning document for the State's rural health care system.

To ensure statewide representation and collaboration with rural health constituents, the SORH established a Steering Committee to guide development of this Plan. The Committee's membership includes representatives from local health departments, hospitals, academia, Federally Qualified Health Centers, and Area Health Education Centers.

In April 2006, the Steering Committee convened to identify the main issues affecting rural health in the State. Plan development continued during five Steering Committee meetings held between May and December 2006. The Steering Committee is expected to work on outreach and consensus building among regional counterparts to move the Plan forward.

The first step in developing this Plan was a needs assessment of the areas identified by the Steering Committee. Demographics, provider supply, various health status indicators, and other community data were collected and analyzed. Findings and recommendations were identified and are summarized later in this report. The analysis, findings, and recommendations form the Plan.

The Maryland Rural Health Plan does not include all the health issues encountered in the State; rather, it focuses on those of pressing importance and where action can be taken. The Steering Committee reviewed and considered a broad range of health indicators and issue areas beyond those included in the Plan.

Plan Organization

Section I: Introduction includes background on Plan development and the purpose of the Plan. **Section II: Overview of Rural Maryland** includes the definition of rural jurisdictions in Maryland and a description of population characteristics. Health status indicators and provider supply are presented in **Section III: Rural Health in Maryland**. The four primary rural health issue areas (Accessibility, Availability, Affordability, and Preventive Services) are presented in **Section IV: Rural Health Issue Areas and Resources**. From these four primary rural health areas, the Steering Committee identified four priority areas, detailed in **Section V: Rural Health Priority Areas** and three priority strategies to address them. These areas were selected based on health issues that have the greatest impact on rural Maryland.

All the strategies have expected outcomes based on what might be reasonably accomplished within a set time-frame. The Maryland Rural Health Plan can be used in planning and developing rural health programs. Several members of the Steering Committee have indicated how the agencies they represent will use the Plan. These suggestions and recommendations can be found in **Section VI: Priority Recommendations/Strategies for the Future** and in **Section VII: Additional Recommendations/Strategies**. The implementation of the Plan will strengthen the rural health infrastructure as well as the entire health care system in the State.

Plan Vision and Goals

This Plan provides a direction for improving health care and status in rural Maryland. Implementation of the Plan should lead to health and economic improvements among persons living in rural Maryland. As Maryland's first effort to produce a plan that comprehensively addresses issues specific to rural health, this document is intended to serve a variety of functions.

The Plan's vision is for all rural residents to be able to:

- Afford primary and specialty health care;
- Access primary health care facilities and providers within 30 minutes and specialty health care facilities and providers within 40 minutes of their residence; and
- Receive effective, safe, timely, patient-centered, preventive health care.

The goals of the Plan are to:

- Assess the health status of Maryland's rural residents;
- Assess the status of rural health services and rural health care providers;
- Provide a historical perspective on health care and services in rural areas;
- Identify impediments to maintaining or improving health for rural residents;
- Raise awareness of rural health issues and strategies to address these issues;
- Propose strategies to develop and maintain a sustainable system for rural health care delivery;
- Identify the target audience to carry out the Plan's implementation; and
- Set forth an agenda to build State consensus on the Plan that is most likely to gain funding and resource support.

II. OVERVIEW OF RURAL MARYLAND

How Do We Define Rural in Maryland?

There is no universally accepted definition of rural; rather, there are many classification systems in use by a variety of federal and state programs. Although there is no single definition, rural jurisdictions share common characteristics that set them apart from their suburban and urban counterparts, such as geographic isolation, transportation barriers, and limited access to and availability of health care. Maryland uses two definitions to classify its jurisdictions: the State definition in the Annotated Code of Maryland and the federal Office of Rural Health Policy definition (details in Appendix). Those jurisdictions that are mandated by Maryland's Annotated Code to have representatives on the Rural Maryland Council are considered rural in the State. These include 18 of the 24 jurisdictions in Maryland, and are referred to as the "state-designated rural" jurisdictions in this Plan:

- Allegany
- Calvert
- Caroline
- Carroll
- Cecil
- Charles
- Dorchester
- Frederick
- Garrett
- Harford
- Kent
- Queen Anne's
- Somerset
- St. Mary's
- Talbot
- Washington
- Wicomico
- Worcester

For the purposes of data analysis and comparison, all the jurisdictions where at least two-thirds of the census tracts are classified as rural by the federal Office of Rural Health Policy (ORHP) are included in the "federally-designated rural" group. These jurisdictions tend to fare worse in health and economic status because they are generally more isolated and have smaller and older populations than the other jurisdictions. The ORHP classifies the following Maryland jurisdictions as rural:

- Allegany
- Caroline
- Dorchester
- Garrett
- Kent
- Somerset (5 out of 7 census tracts)
- St. Mary's
- Talbot
- Worcester

The remaining six jurisdictions in Maryland are classified as either urban or suburban. Baltimore City is the only urban jurisdiction in Maryland. The five suburban jurisdictions in Maryland are:

- Anne Arundel
- Baltimore County
- Howard
- Montgomery
- Prince George's

Rural areas can also be differentiated by their common health and economic challenges. Rural Healthy People 2010 identified the top ten rural health priorities in order to identify focus areas of particular significance to rural America. In rank order, with one being the top priority, these are:

1. Access to quality health services
2. Heart disease and stroke
3. Diabetes mellitus
4. Mental health and mental disorders
5. Oral health
6. Tobacco use
7. Substance abuse
8. Maternal, infant, and child health

9. Nutrition and overweight
10. Cancer

Rural Maryland shares many of these same challenges and priorities. The rural population in Maryland experiences a lower rate of health insurance, higher death rates for cancer and heart disease, higher tobacco use rates among adolescents and adults, and greater total tooth loss. Rural areas also have larger percentages of poor and elderly compared to the State overall.

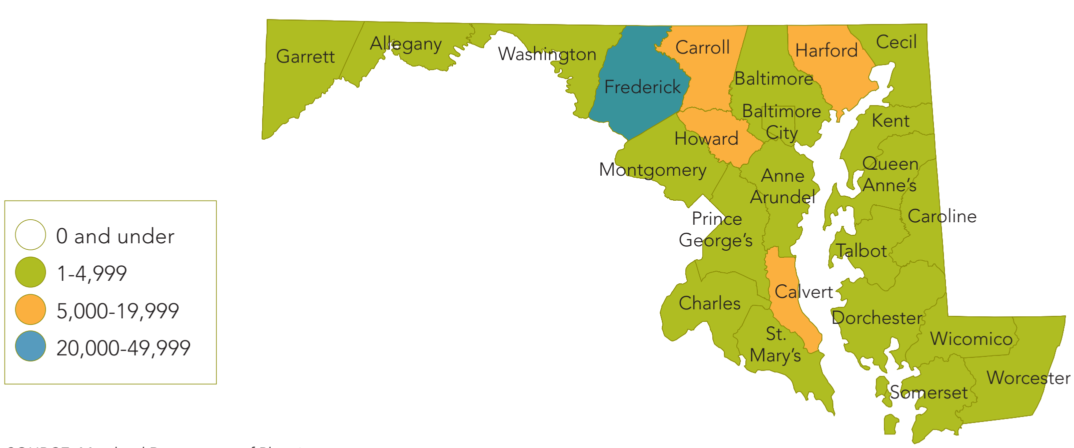
Population and Economic Indicators

Rural Maryland's population is aging, and many rural areas in Maryland are experiencing tremendous growth, placing additional pressures on already inadequate health care infrastructures. While many counties on Maryland's Eastern Shore and in Southern Maryland have experienced high population growth, counties in Western Maryland have experienced population and job losses. According to Maryland's 2004 Vital Statistics estimates, the State has more than 5.5 million residents, an increase of 4.9 percent from 2000, and more than a 16 percent increase from 1990. Of these residents, 28.8 percent (1,601,019) lived in state-designated rural jurisdictions and 7 percent (390,322) lived in federally-designated rural jurisdictions. This was a slight increase from 27.9 percent of the population residing in state-designated rural jurisdictions and 6.8 percent residing in federally-designated rural jurisdictions in 2000.

Between 2000 and 2004, population growth in Maryland increased in every jurisdiction except Baltimore City and Allegany County. Growth rates in many rural areas were greater than the State average. Nine counties experienced annual population growth higher than the State's 4.9 percent rate from 2000-2004: Calvert, Carroll, Cecil, Charles, Frederick, Harford, Queen Anne's, St. Mary's, and Washington. Of these, all but Harford and Washington counties are projected by the Maryland State Department of Planning to experience growth rates of 20 percent or more from 2000-2010.

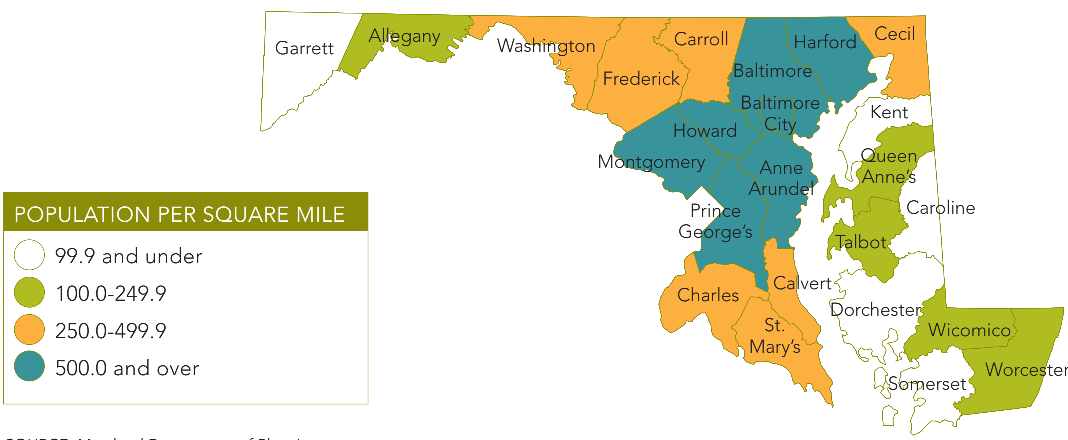
Maryland is 9,774 square miles with a population density in 2000 of 541.9 persons per square mile. As of 2004, according to Maryland

POPULATION CHANGE, MARYLAND, 2000-2004



SOURCE: Maryland Department of Planning

POPULATION DENSITY, MARYLAND, 2004



SOURCE: Maryland Department of Planning

Vital Statistics, the majority of Maryland's rural population, 619,406 (38.7 percent), resided in the rural counties of Carroll, Frederick, and Harford in the central area of the State. Cecil, Caroline, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester counties, located on the Eastern Shore, had a combined population of 420,642 (26.3 percent of the rural population). Calvert, Charles, and St. Mary's counties in the southern area of the State had a population of 316,945 (19.8 percent) and Allegany, Garrett, and Washington in the west had a combined population of 243,235 (15.2 percent).

Geography

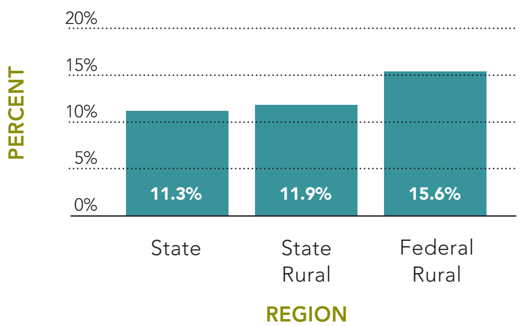
Maryland is bordered by Pennsylvania to the north, the Atlantic Ocean to the east, West Virginia to the west, and Virginia and Washington, D.C. to the south. The Chesapeake Bay, the largest estuary in the United States, is about 200 miles long and divides the Eastern Shore from the rest of the State. The Chesapeake Bay Bridge crosses the bay from Anne Arundel County to Queen Anne's County on the Eastern Shore. The Appalachian mountain chain runs through the Western part of the State. These geographic features have all played a role in shaping economics, transportation, and growth in the State.

Age

In Maryland, the federally-designated rural jurisdictions have the highest percent of population 65 years of age and over at 15.6 percent, which is 38 percent higher than the State average. The median age is also higher, on average, in Maryland's rural areas. The elderly population is projected to grow to 25.4 percent of the population by 2030 in Maryland's federally-designated rural jurisdictions, and to 20.2 percent in Maryland's state-designated rural jurisdictions. The population aged 65 and older statewide is projected to be 19.5 percent of the population in 2030. The health systems in many rural areas are already inadequate to meet the needs of the rural population and this will probably grow worse as the elderly population increases substantially over the next several years.

Elderly who live in rural areas face more challenges than those living in non-rural regions. The elderly population generally suffers from

POPULATION 65 YEARS OF AGE AND OVER, MARYLAND, 2000



SOURCE: U.S. Census Bureau

chronic diseases, injuries, and disabilities at a disproportionate rate, and these factors contribute to diminished quality of life and increased health care and caregiver costs. These challenges are often present in isolated areas and include limited transportation for medical appointments, limited access to medical care and social services, and limitations in adequate housing.

Race and Ethnicity

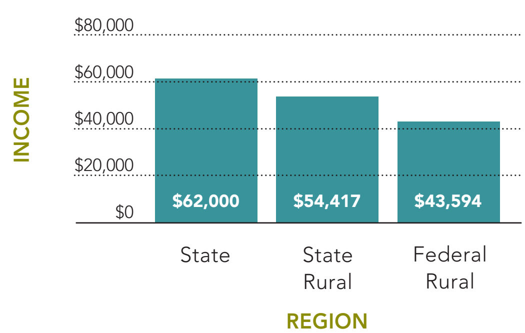
Maryland has a diverse population with a variety of racial and ethnic backgrounds. The African American population is 29.6 percent and the Hispanic population is 5.4 percent statewide. Suburban and urban jurisdictions are generally more racially and ethnically diverse than rural areas of the State. However, there are growing Hispanic immigrants and farm-workers in parts of the Eastern Shore, in need of culturally and linguistically accessible health care. According to United States Census estimates, the growth of the Hispanic population in eight of the Eastern Shore counties—Caroline, Dorchester Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester—was greater than 100 percent from 1990 to 2000.[2]

Employment and Workforce

Rural areas have a lower median household income and higher unemployment than the State average. This may be due to lower rural educational attainment, less competition for workers, and limited availability of highly skilled jobs.[3] As of 2004, Maryland had a median household income of $62,000. The average median household income in federally-designated rural jurisdictions was 30 percent less than the statewide average and 14 percent less in state-designated rural jurisdictions.

In 2004, the annual average unemployment rate in Maryland was 4.3 percent, less than the national average of 5.5 percent.[4] Rural areas,

MEDIAN HOUSEHOLD INCOME, MARYLAND, 2004



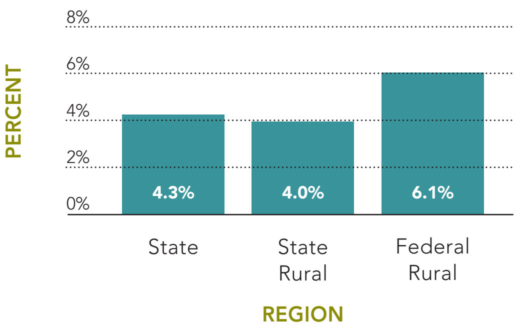
SOURCE: Maryland Department of Planning

[2] 2004 Needs Assessment Report to Maryland Governor's Task Force to Study Driver Licensing. Bienvenidos a Delmarva. Available at *beacon.salisbury.edu/*. Accessed December 28, 2006.

[3] United States Department of Agriculture Economic Research Service. Rural Income, Poverty, and Welfare Overview. Available at *www.ers.usda.gov/Briefing/IncomePovertyWelfare/Overview.htm*. Accessed September 30, 2006.

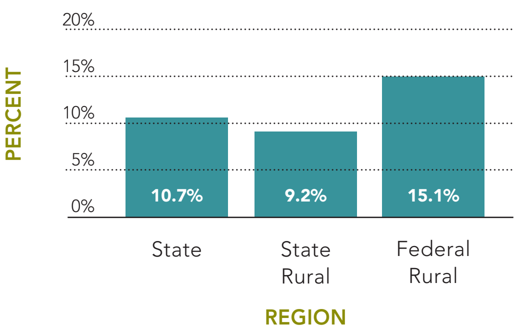
[4] U.S. Department of Labor. Bureau of Labor Statistics. Employment status of the civilian noninstitutional population, 1940 to date. Available at *www.bls.gov/cps/cpsaat1.pdf*. Accessed September 19, 2006.

UNEMPLOYMENT RATE, MARYLAND, 2004



SOURCE: *Maryland Department of Labor, Licensing, and Regulation*

POPULATION 18 YEARS OF AGE & YOUNGER LIVING IN POVERTY, MARYLAND, 2000



SOURCE: *U.S. Census Bureau*

especially in the western part of the State and the lower Eastern Shore, experienced higher rates of unemployment than the rest of the State. The unemployment rate in the federally-designated rural jurisdictions was 42 percent higher than the State rate.

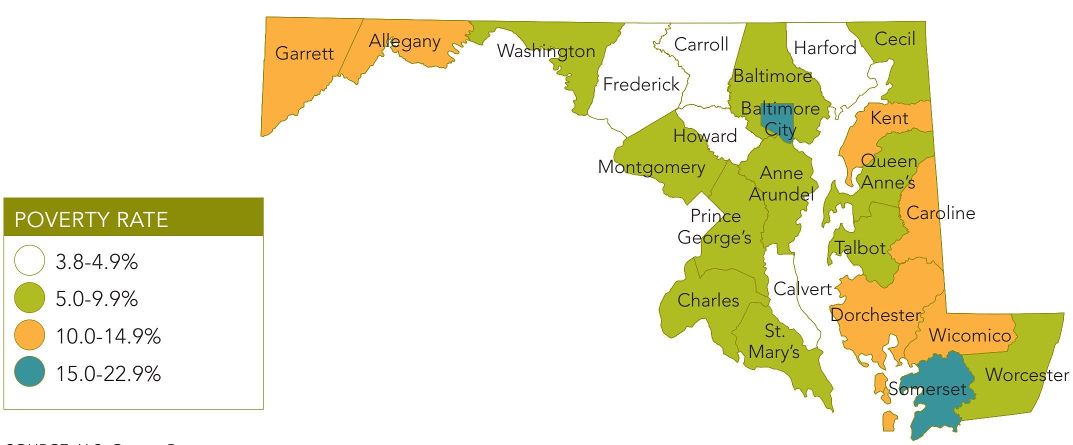
Poverty

In 2000, 8.5 percent of Maryland's population lived below the poverty level, compared to 12.4 percent nationally. The poverty level of the federally-designated rural population was 31.8 percent higher than statewide (11.2 compared to 8.5 percent). The poverty rate for the population under 18 years old was 41.2 percent higher in federally-designated rural jurisdictions than in the State overall.

Educational Attainment

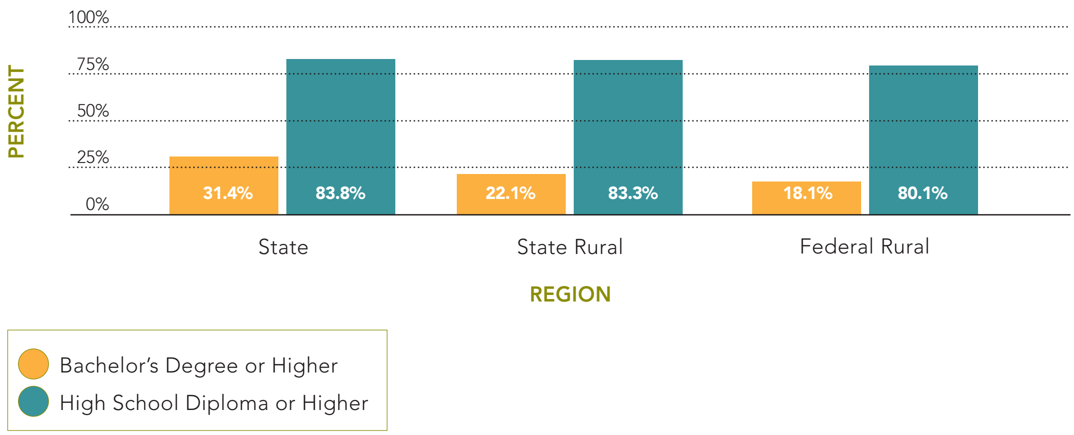
The educational attainment of the labor force is key to attracting, creating, and retaining high-quality jobs and increasing economic growth. Improving educational status is especially important in rural areas that have experienced the loss of manufacturing and

POVERTY RATE, MARYLAND, 2000



SOURCE: *U.S. Census Bureau*

HIGH SCHOOL & BACHELOR'S DEGREE ATTAINMENT, MARYLAND, 2000



SOURCE: U.S. Census Bureau

agriculture jobs.[5] Residents of rural jurisdictions are less likely to have completed high school or attained a Bachelor's degree than State residents overall. The percent of population 25 years and older with a high school diploma is lower than 80 percent in Allegany, Caroline, Cecil, Dorchester, Garrett, Kent, Somerset, and Washington counties.

The rate of Bachelor's degree attainment is 42 percent lower in the federally-designated rural jurisdictions. Several rural counties have rates of Bachelor's degree attainment less than 20 percent, including Allegany, Caroline, Cecil, Dorchester, Garrett, Somerset, and Washington counties.

[5] Rural Sociological Society. Improving Rural Educational Attainment. Issue Brief 5, January 2006. Available at *www.ruralsociology.org/briefs/brief5.pdf.* Accessed September 27, 2006.

III. RURAL HEALTH IN MARYLAND

Overall Health

As with demographic characteristics, rural jurisdictions, especially the federally-designated rural jurisdictions, fare worse on many measures of health compared to the State average. In addition to lower health insurance rates, rural residents experience higher rates of chronic disease and mortality, and lower rates of physician availability.

There are several federally-designated Medically Underserved Areas (MUAs) in rural areas of the State. MUA designation is based on:

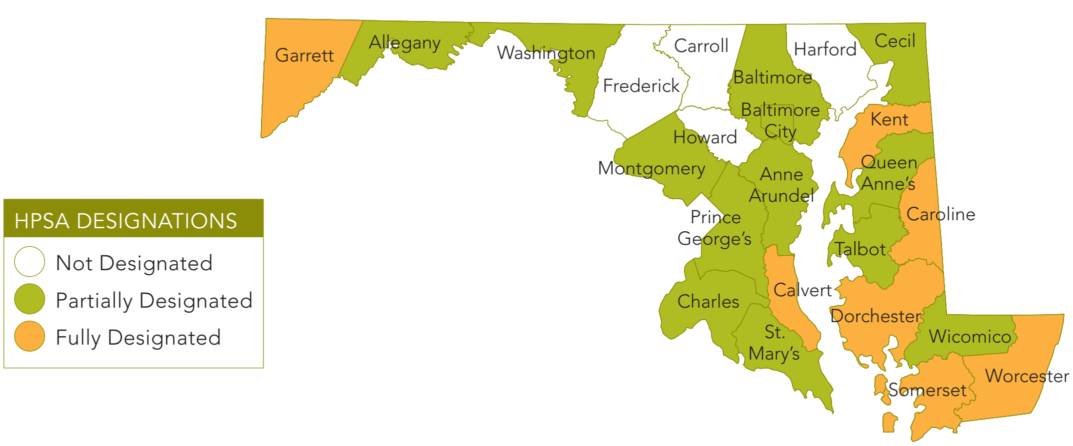
- Percent of the service area's population with incomes below the poverty level,
- Percent of the service area's population age 65 and over,
- Infant mortality rate for the service area, and
- Current number of full-time-equivalent primary care physicians providing patient care in the MUA service area, and their locations of practice.

All the jurisdictions that are fully designated as an MUA are federally-designated rural jurisdictions. Of the jurisdictions that are partially designated as MUAs in Maryland, eight out of thirteen are rural.

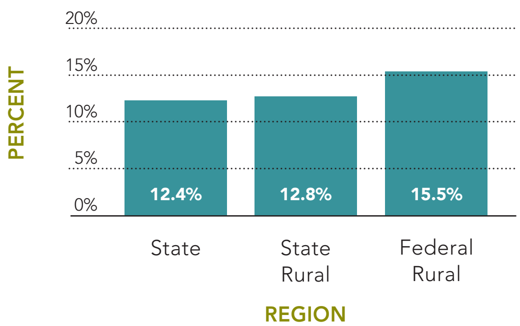
The large number of MUAs in rural areas indicates poorer health outcomes and greater health care needs than in other areas of the State.

In addition to MUA designations, 25 percent more of the federally-designated rural population reported fair or poor health than the State population overall.

MEDICALLY UNDERSERVED AREAS, MARYLAND, 2004



POPULATION REPORTING FAIR OR POOR HEALTH, MARYLAND, 2004



SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

Financial Access to Health Care Services

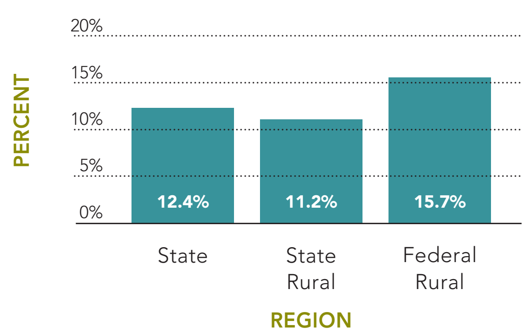
The U.S. Census Current Population Survey (CPS) reported that 85.4 percent of Maryland residents (based on total population estimates) had some type of health care coverage in 2004.[6] This is a decrease from 87.6 percent in 2000. The most recent jurisdiction-level health insurance rates are from 2000 and indicate that people in rural areas have lower rates of health insurance than those living in suburban areas in Maryland.

Most Marylanders receive health insurance through employers. However, those employed in rural areas are more likely to work seasonally or for smaller employers who do not provide health insurance as a benefit. State Medicaid does provide health insurance options for low-income families who cannot afford coverage privately. Even with this coverage, thousands of Marylanders do not have health insurance.

Health insurance is critical to health and financial well-being. The uninsured and under-insured are more likely not to seek treatment until a health problem becomes a serious medical issue. This subset of the population experiences poorer health outcomes and higher mortality rates, and must pay for their care out-of-pocket, placing strain on their finances. Nationally, low-income rural adults with private coverage fare worse in measures of health care access than urban low-income adults with private insurance.[7]

Medicaid and Medicare enrollments are higher in the federally-designated rural jurisdictions compared to the State. Medicaid enrollment is 27 percent higher in federally-designated rural jurisdictions than the State overall. After Baltimore City, the counties with the highest Medicaid enrollment include the federally-designated rural counties of Caroline (19.4 percent), Dorchester (21.8 percent), and Garrett (20.2 percent); six out of nine of the federally-designated jurisdictions have Medicaid rates above the State average.

POPULATION ENROLLED IN MEDICAID, MARYLAND, 2004

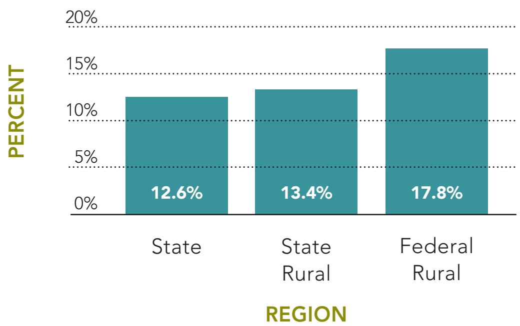


SOURCE: Maryland Department of Human Resources

[6] U.S. Census Bureau (2004). Health Insurance Historical Table 4. U.S. Census Bureau. Available at *www.census.gov/hhes/hlthins/historic/hihistt4.html*. Accessed July 18, 2006.

[7] Long SK, King J, Coughlin TA. "The Health Care Experiences of Rural Medicaid Beneficiaries." *Journal of Health Care for the Poor and Underserved,* 17(3), 575-591.

MEDICARE BENEFICIARY POPULATION, MARYLAND, 2004



SOURCE: Centers for Medicare and Medicaid Services

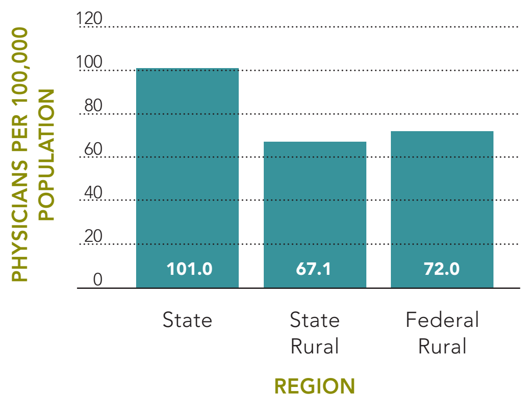
Medicare beneficiaries make up 12.6 percent of the population statewide and 13.4 percent in the state-designated rural jurisdictions. The Medicare beneficiary population is 41 percent higher in federally-designated rural jurisdictions compared to the State.

Health Care Resource Availability

Limited availability of primary care providers, specialists, and health care services is a barrier to accessing and obtaining necessary medical care, even for those with insurance. Citing low reimbursement rates, many providers do not accept Medicaid nor offer a sliding-fee scale, further limiting the number of accessible providers in rural areas. The rural population often must drive greater distances to receive specialty care, such as dialysis.

There are 34 percent fewer primary care providers per 100,000 population in the state-designated rural jurisdictions than the State overall and 28.7 percent fewer primary care providers in federally-designated rural jurisdictions. The total number of physicians, including specialists and primary care physicians per 100,000 population, is 24.8 percent lower in the state-designated rural jurisdictions than the State.

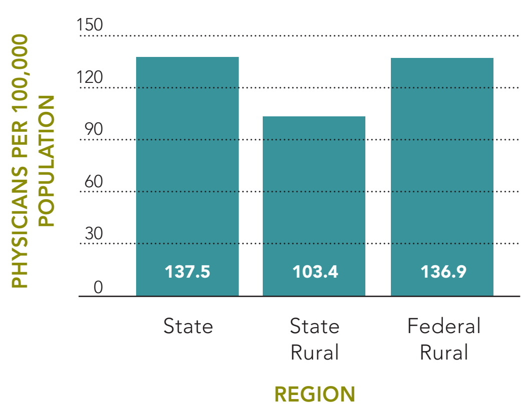
PRIMARY CARE PHYSICIAN SUPPLY, MARYLAND, 2004



SOURCE: Maryland physician licensure file

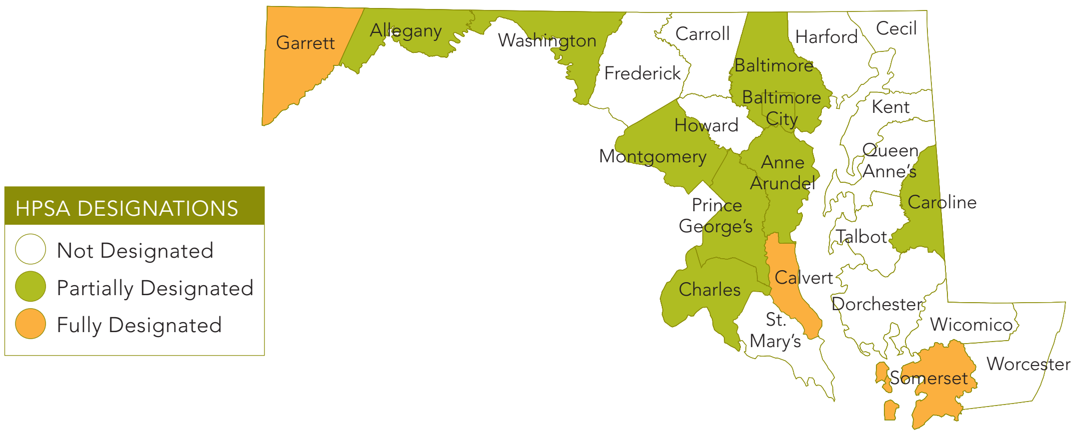
Seven rural jurisdictions have partial or full designation as primary care health professional shortage areas (HPSAs), which qualifies them for federal programs to increase the number of providers in the community. These areas have a provider-to-patient ratio greater than 1:3000, and their

PHYSICIAN SUPPLY (ALL PHYSICIANS), MARYLAND, 2004



SOURCE: Maryland physician licensure file

PRIMARY CARE, HEALTH PROFESSIONAL SHORTAGE AREAS, MARYLAND, 2004



surrounding jurisdictions also have too few providers for the resident population.

Another indicator commonly used to gauge access to primary care is hospitalizations for ambulatory-care sensitive conditions, when good outpatient care can prevent hospitalization, or when early intervention can prevent complications or more severe disease. Hospitalizations for these conditions may indicate a lack of accessible and quality primary care in a community. Diabetes is an example of an ambulatory-care sensitive condition for which Maryland data is available by jurisdiction. In Maryland, seven state-designated rural jurisdictions had age-adjusted hospital discharge rates per 100,000 population for diabetes higher than the State average in 2004: Allegany, Caroline, Cecil, Dorchester, Somerset, Talbot, and Wicomico. More than half of these counties (five) are federally-designated rural counties.[8]

Behavioral Health

Behavioral health encompasses mental health and substance abuse. Persons with mental health problems have a higher risk of having a substance abuse problem and those with a substance abuse problem have an increased chance of having a mental health problem. The rural population experiences higher rates of substance abuse but generally has greater difficulty accessing mental health care and substance abuse treatment services, due in part to workforce shortages and lack of funding. Mental illnesses such as depression are also risk factors for heart disease and other serious medical conditions. Mental illness accounts for over 15 percent of the burden of disease in established market economies and is a co-morbidity of many diseases.[9] Mental health and mental disorders are recognized by state and federal rural health leaders as top rural health concerns in Maryland. Rural populations are more likely to encounter

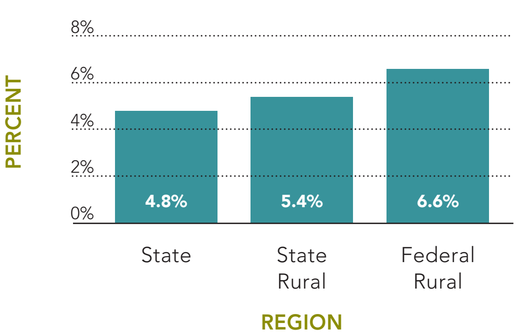
[8] Center for Preventive Health Services, Family Health Administration, Maryland Department of Health and Mental Hygiene. Chronic Diseases and their Risk Factors A Statewide Perspective 2004 Data. Available at *www.fha.state.md.us/cphs/cdp/pdf/Chronic_Diseases-2004.pdf.* Accessed December 17, 2006.

[9] National Institute of Mental Health. Statistics. Available at *www.nimh.nih.gov/healthinformation/statisticsmenu.cfm*. Accessed September 27, 2006.

barriers that prevent diagnosis or treatment of mental health issues such as shortages of mental health providers, difficulty accessing providers due to transportation limitations, and concerns about being seen seeking care in a small community. Rural areas also have a higher proportion of populations at higher risk for poor mental health, such as the elderly and those with chronic diseases. Maryland's rural population is also more likely to see a primary care provider about a mental illness and receive treatment for depression from a primary care provider rather than a psychiatrist or other mental health provider, according to the Behavioral Risk Factor Surveillance Survey.

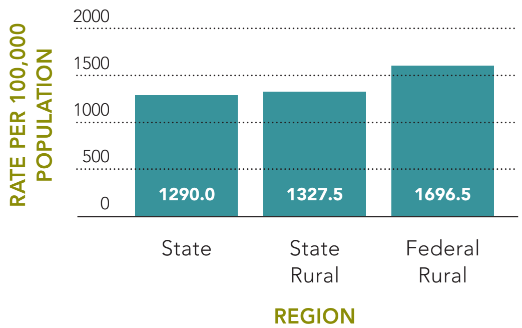
Substance abuse, including drinking and smoking, among adults and adolescents is generally higher in Maryland's rural jurisdictions. Nationally, higher rates of substance abuse in rural areas have been attributed to the higher unemployment, poverty, and isolation of rural areas. Substance abuse can lead to criminal behavior, driving while intoxicated, poor school performance, unemployment, and homelessness.[10]

ADULT CHRONIC DRINKING, MARYLAND, 2001-2004



SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

SUBSTANCE ABUSE TREATMENT RATES, MARYLAND, 2004



SOURCE: Maryland Alcohol and Drug Abuse Administration

Adult chronic drinking, which is defined as men having more than two drinks and females more than one drink per day, is 37 percent higher in federally-designated rural jurisdictions than the State population. Binge drinking is 12.5 percent higher in federally-designated rural jurisdictions and 11 percent higher in state-designated rural jurisdictions than the State average.

Substance abuse treatment rates are also higher in Maryland's rural areas, especially the federally-designated rural jurisdictions. The substance abuse treatment rate is 32 percent higher in federally-designated rural jurisdictions than the State average.

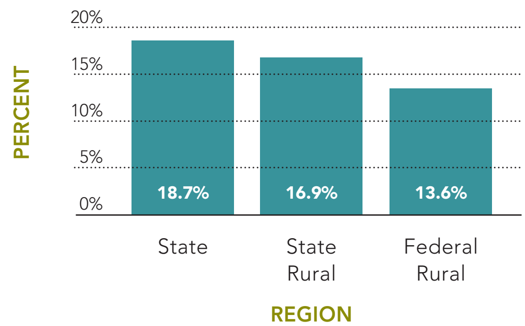
Adolescent alcohol, tobacco, smokeless tobacco, and other drug use are highest in rural jurisdictions. The overall or total percent of Maryland 12th graders reporting cigarette use in the past 30 days during the school year 2002-2003 was 19.8 percent. Every state-designated rural jurisdiction had rates higher than 19.8 percent, ranging from 20.1 to 33.2 percent. The federally-designated rural jurisdictions had rates ranging from 22.5

[10] The United States Conference of Mayors. No Place to Hide: Substance Abuse in Mid-Size Cities and Rural America. January 2000. Available at *www.casacolumbia.org/Absolutenm/articlefiles/No_Place_to_Hide_1_28_00.pdf.* Accessed October 2, 2006.

percent to 33.2 percent, whereas Maryland's non-rural areas had rates ranging from 8.6 percent to 23.0 percent.[11]

The percent of Maryland 12th graders reporting alcohol use in the past 30 days during the 2002-2003 school year was 44.3 percent. Sixteen out of Maryland's eighteen state-designated rural jurisdictions had use higher than 44.3 percent. The six jurisdictions with the highest use are rural and the range of use for the federally-designated rural jurisdictions is 44.2 to 58.5 percent. The non-rural areas of the State had ranges of use from 30.6 to 49.7 percent.

POPULATION SEEN FOR MENTAL HEALTH PROBLEM, MARYLAND, 2001-2002

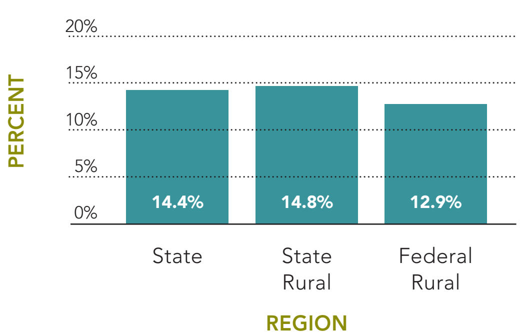


SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

Although rates of substance abuse are higher in state- and federally-designated rural jurisdictions, the population diagnosed with depression is lower than the State average. The limited mental health workforce in these areas may explain the slightly lower prevalence of those diagnosed with depression, as there may not be enough providers to complete mental health screenings and assessments.

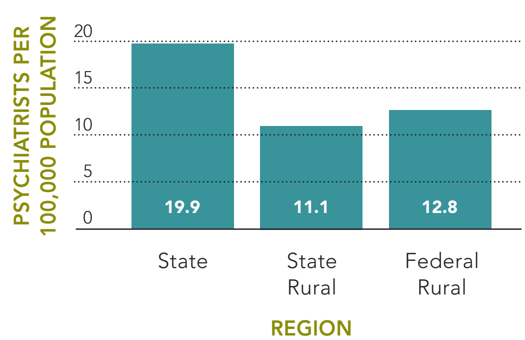
Rural areas have 44 percent fewer psychiatrists when compared to the State supply. Rural jurisdictions also struggle with recruiting and retaining social workers, psychologists, therapists, and counselors, due in part to lower compensation than in suburban and urban areas. Many rural jurisdictions are not designated mental health professional shortage areas but may be eligible for such designations. Many communities are in the process of working with the Maryland Primary Care Organization to apply for such designations. The four counties in Maryland fully

POPULATION DIAGNOSED WITH DEPRESSION, MARYLAND, 2001-2002



SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

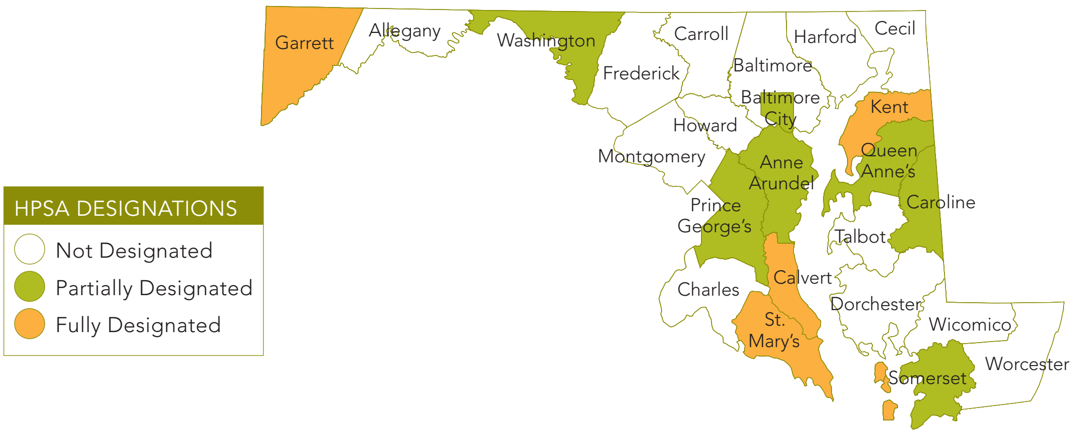
PSYCHIATRIST SUPPLY, MARYLAND, 2004



SOURCE: Maryland physician licensure file

[11] Source: Maryland state Department of Education. 2004 Maryland Adolescent Survey. October 2005. Available at *www.marylandpublicschools.org/MSDE/newsroom/special_reports/adolescent_survey.htm*. Accessed January 2, 2007.

MENTAL HEALTH, HEALTH PROFESSIONAL SHORTAGE AREAS, MARYLAND, 2004



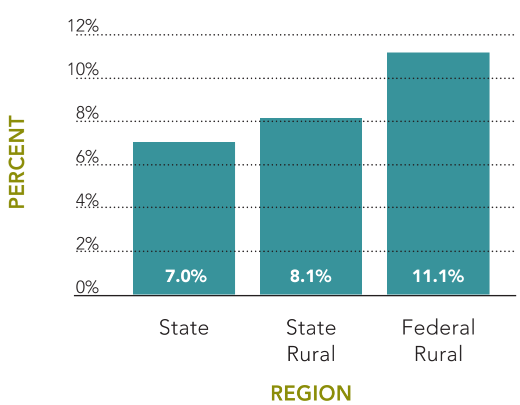
designated as Mental Health Professional Shortage Areas are: Calvert, Garrett, Kent, and St. Mary's. Although it is difficult to obtain numbers on the shortage of social workers, therapists, psychologists, and other mental health professionals, the Steering Committee has reported anecdotally shortages and difficulty in recruiting such providers.

The rate of admissions (60.9 per 100,000 statewide and in the federally-designated rural jurisdictions) to State psychiatric facilities and the rate of individuals with mental illness in State psychiatric facilities in Fiscal Year 2004 (75.3 statewide vs. 72.5 in federally-designated rural jurisdictions per 100,000 population) were similar in federally-designated rural jurisdictions and the State. However, public mental health system expenditures per capita are 24.2 percent less in federally-designated rural jurisdictions than the State overall ($55.5/capita vs. $73.2/capita).

Oral Health

Many rural areas in Maryland face a shortage of dentists and, especially, a lack of dentists who will see Medicaid patients. According to a 2006 study, access to dental care for those on Medicaid is nationally much lower in rural areas than urban areas.[12]

POPULATION THAT HAS NOT SEEN A DENTIST IN FIVE YEARS OR MORE, MARYLAND, 2000-2004



SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

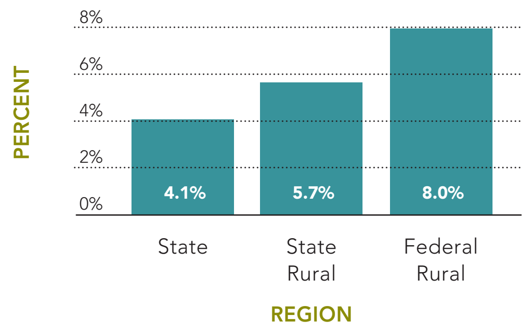
[12] Long SK, King J, Coughlin TA. "The Health Care Experiences of Rural Medicaid Beneficiaries." *Journal of Health Care for the Poor and Underserved*, August 2006.17(3), 575-591.

Total tooth loss and the amount of time since the last dental cleaning can be used as proxy measures of access to dental care. The percent of the population in federally-designated rural jurisdictions that has not seen a dentist in more than five years is 59 percent higher than the State. The amount of time since last teeth cleaning is slightly higher in federally-designated rural jurisdictions (8.5 percent of the population) and state-designated rural jurisdictions (7.0 percent) than statewide (6.6 percent). Children on the Eastern Shore, which includes the rural counties of Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester, have the highest rate of untreated dental decay, at 54 percent, in the State.[13]

Total tooth loss in rural jurisdictions is also higher compared to the State, with the population in federally-designated rural jurisdictions experiencing total tooth loss of almost twice the rate statewide. The rate of dental insurance in 2000, the most recent year in which data were collected, was 21 percent higher in the State (69.3 percent) than in the federally-designated rural jurisdictions (57.2 percent) and slightly higher than in state-designated rural jurisdictions (64.7 percent).

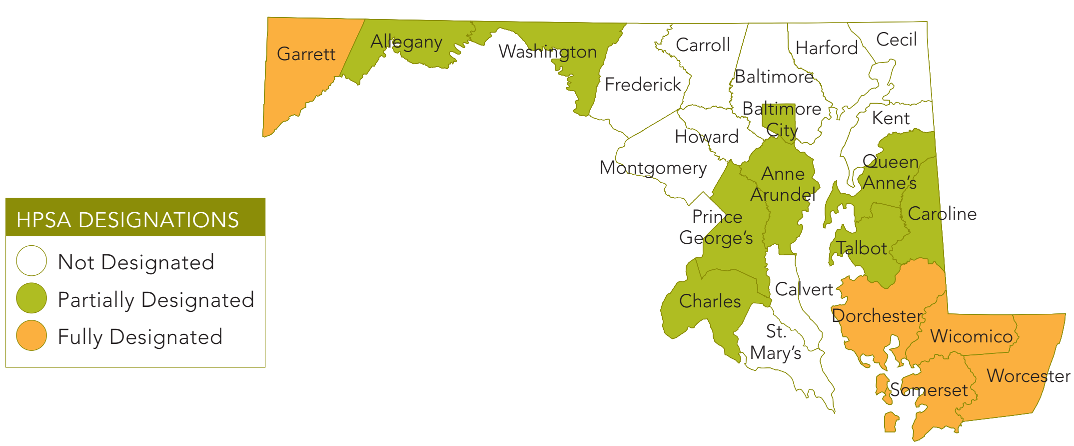
Medicaid does not provide dental coverage for adults. Lack of dental insurance among

POPULATION WITH TOTAL TOOTH LOSS, MARYLAND, 2002-2004



SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

DENTAL, HEALTH PROFESSIONAL SHORTAGE AREAS, MARYLAND, 2004



[13] Office of Oral Health, Family Health Administration, Department of Health and Mental Hygiene. "Survey of the Oral Health Status of Maryland School Children, 2000-2001." Available at *www.fha.state.m.us/oralhealth/pdf/2000-2001_school_survey_updated.pdf.* Accessed December 8, 2006.

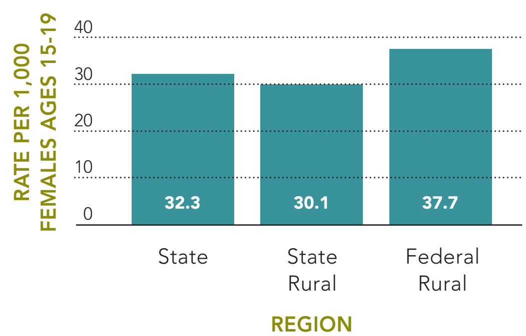
low-income patients in rural jurisdictions makes it difficult to obtain an appointment and there are few providers who will see low-income patients on a sliding-fee scale. In some jurisdictions, there are no dentists who accept Medicaid patients. The rural counties of Allegany, Caroline, Charles, Dorchester, Garrett, Queen Anne's, Somerset, Talbot, Washington, Wicomico, and Worcester each contain a dental Health Professional Shortage Area (HPSA), specifically for the low-income population. The greatest shortages are seen in Somerset, Wicomico, and Worcester counties; each is short 11.8 full time equivalent dentists for their low-income populations.

Births

Infants born to teenage mothers are more likely to be born at a low birth weight, experience health problems and developmental delays, suffer abuse or neglect, and perform poorly in school.[14] The proportion of births to teen-aged mothers was 36 percent higher in federally-designated rural jurisdictions than the State, but 23.5 percent lower in state-designated rural jurisdictions than the State overall. Allegany, Baltimore City, Caroline, Dorchester, and Wicomico had the highest percentage of births born to mothers under 20 years of age. The adolescent birth rate is also 16.7 percent higher in federally-designated rural jurisdictions.

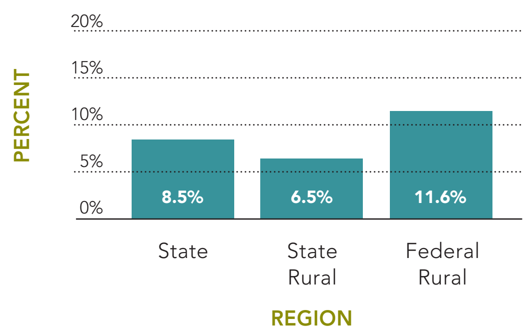
Racial disparities for late or no prenatal care, low birth weight, and infant mortality rates exist across the State in all jurisdictions, but are most pronounced in the federally-designated rural jurisdictions. Each of these indicators shows that there is a disparity in outcome between the Black and White populations.

ADOLESCENT BIRTH RATES, MARYLAND, 2004



SOURCE: Maryland Vital Statistics

BIRTHS TO TEEN MOTHERS, MARYLAND, 2004

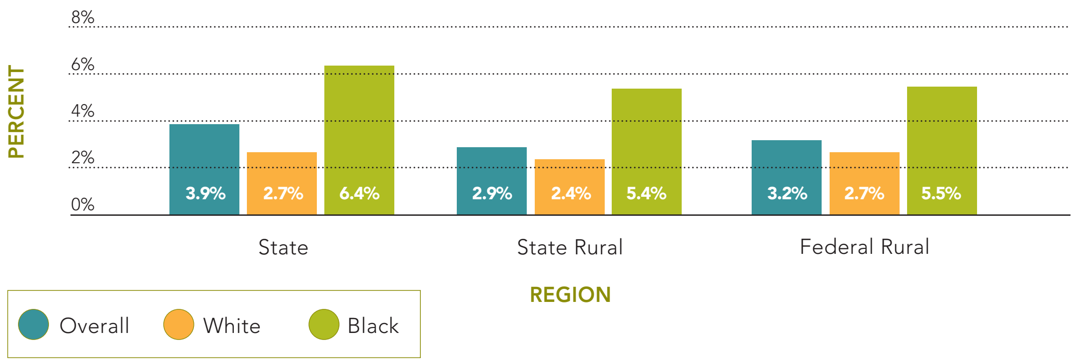


SOURCE: Maryland Vital Statistics

In federally-designated rural jurisdictions, the Black infant mortality rate is 115 percent higher than the rate overall, percentage of low birth weight infants for the Black population is 45.6 percent higher than overall, and percentage of those receiving late or no prenatal care is 41.8 percent higher for the Black population than overall.

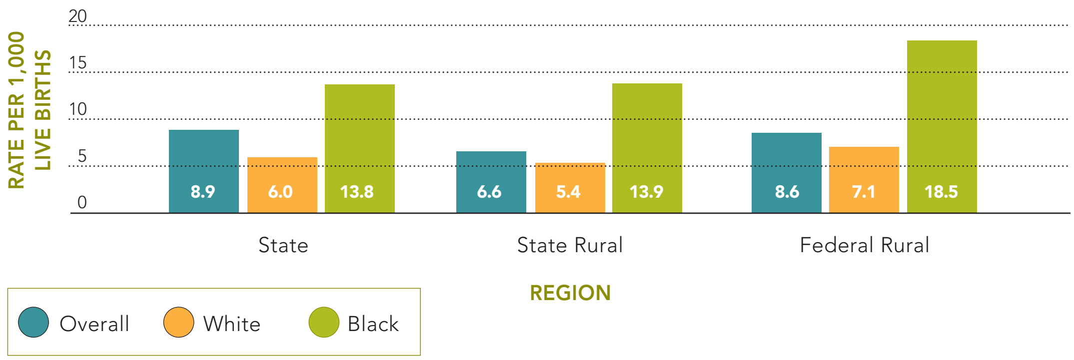
[14] Annie E. Casey Foundation. Kids Count Indicator Brief Reducing the Teen Birth Rate. July 2005. Available at *www.aecf.org/kidscount/sld/auxiliary/briefs/teenbirthrateupdated.pdf#search=%22teen%20birth%20rate%20poor%20outcome%22.* Accessed October 5, 2006.

PERCENTAGE OF BIRTHS TO WOMEN RECEIVING LATE OR NO PRENATAL CARE BY RACE, MARYLAND, 2004



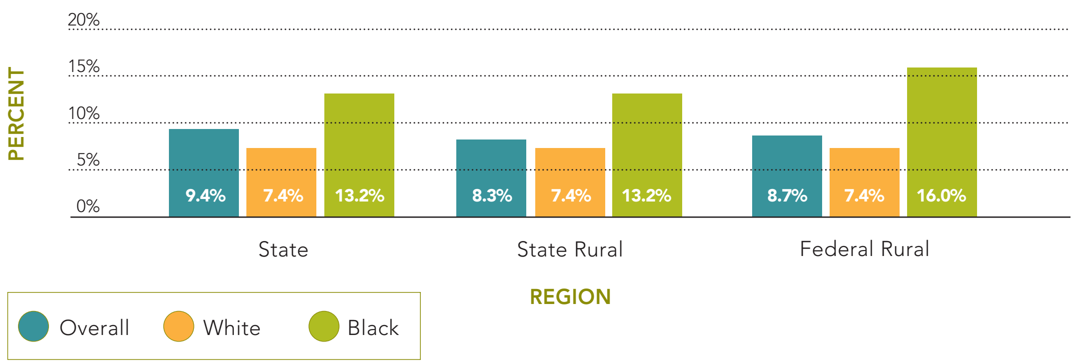
SOURCE: Maryland Vital Statistics

INFANT MORTALITY RATES BY RACE, MARYLAND, 2000-2004



SOURCE: Maryland Vital Statistics

PERCENTAGE OF LOW BIRTH WEIGHT INFANTS BY RACE, MARYLAND, 2004

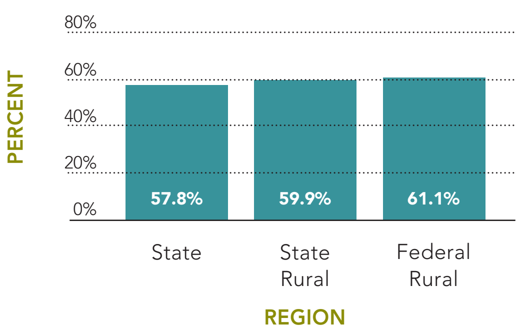


SOURCE: Maryland Vital Statistics

Lifestyle Wellness: Risk Factors and Chronic Disease

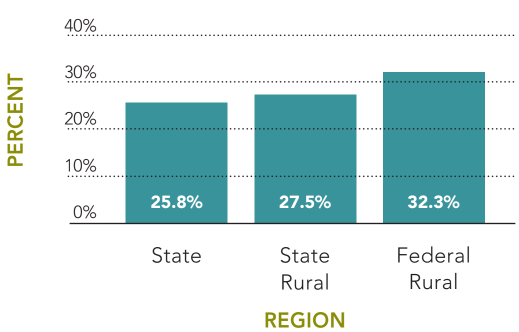
The rural population experiences a higher rate of health risk factors than the statewide average. Rates of high blood pressure, overweight/obesity, and cigarette smoking are higher in the state- and federally-designated rural jurisdictions compared to the State overall. The percentage of the population with high blood pressure is 25 percent higher in federally-designated rural jurisdictions compared to the State.

OVERWEIGHT AND OBESITY, MARYLAND, 2000-2004



SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

POPULATION WITH HIGH BLOOD PRESSURE, MARYLAND, 2003-2004

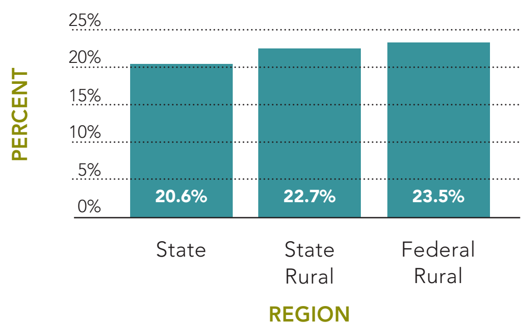


SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

The percent of the adult population who are current smokers is 15 percent higher in federally-designated rural jurisdictions compared to the State average.

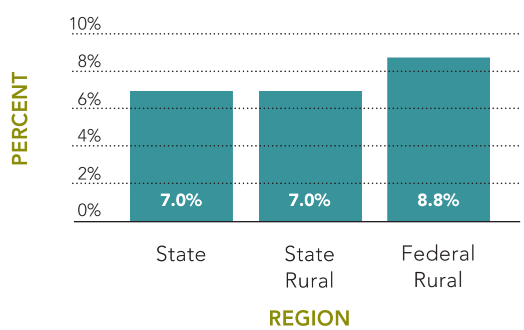
Two risk factors for diabetes, overweight/obesity and high blood pressure are higher in state-designated and federally-designated rural jurisdictions compared to the State. The rate of diabetes is 26 percent higher in federally-designated rural jurisdictions compared to the State average.

CURRENT ADULT SMOKERS, MARYLAND, 2000-2004



SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

ADULTS WITH DIAGNOSED DIABETES, MARYLAND, 2000-2004

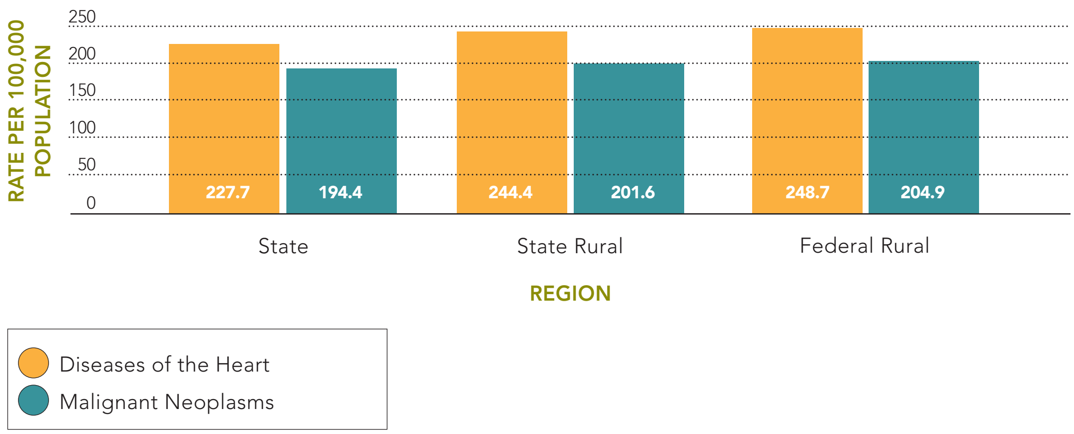


SOURCE: Maryland Behavioral Risk Factor Surveillance Survey

Mortality

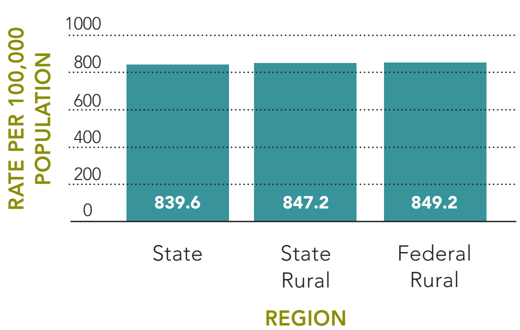
Mortality rates for all causes of death, diseases of the heart, and malignant neoplasms are higher in state- and federally-designated rural jurisdictions than the State. Mortality due to diseases of the heart is especially high in Dorchester, Garrett, and Somerset counties, while deaths from malignant neoplasms, or cancer, are highest in Kent and Worcester counties.

AGE-ADJUSTED MORTALITY RATES FOR DISEASES OF THE HEART & MALIGNANT NEOPLASMS, MARYLAND, 2004



SOURCE: Maryland Vital Statistics

AGE-ADJUSTED DEATH RATES FOR ALL CAUSES, MARYLAND, 2002-2004



SOURCE: Maryland Vital Statistics

IV. RURAL HEALTH ISSUE AREAS & RESOURCES

The following issue areas encompass concerns articulated by the Steering Committee. While availability, access, and affordability are strongly interconnected, the Steering committee specifically identified these issue areas separately because each can be distinctly addressed and individually play a large role in impacting the health of rural residents.

IMPROVING AVAILABILITY OF CARE

Improving availability of care means ensuring there are enough providers and facilities available to provide sufficient care. The poorer health outcomes and rates of chronic disease in Maryland's rural areas suggest there may not be enough providers or health delivery sites available. Some of the existing programs to increase the health care workforce include loan-assistance repayment programs, J-1 visa waivers, the National Health Service Corps program, and the National Interest Waiver Program. Although there are Federally Qualified Health Centers (FQHCs) and other facilities throughout the State that provide health care to anyone regardless of income, there are rural areas in Maryland without health centers and where existing health centers do not have the capacity to meet the need. For details on programs to improve the health care workforce and health care facilities in rural Maryland, see the Appendix.

PROMOTING ACCESS TO CARE

The Agency for Healthcare Research and Quality describes access to health care as "the timely use of personal health services to achieve the best health outcomes."[15] The 2004 National Healthcare Disparities Report identified two major barriers to accessing care among rural populations: access to health insurance and the longer distances rural residents face to reach health care delivery sites.[16] The AHRQ identifies three steps to attaining access to care:

- Gaining entry into the health care system.
- Getting access to sites of care where patients can receive needed services.
- Finding providers who meet the needs of individual patients and with whom patients can develop a relationship based on mutual communication and trust.

[15] Agency for Healthcare Research and Quality. National Health Disparities Report. 2005. Available at *www.qualitytools.ahrq.gov/disparitiesreport/2005/browse/browse.aspx?id=5611*. Accessed August 14, 2006.

[16] Agency for Healthcare Research and Quality. National Health Disparities Report. 2004. Available at *www.ahcpr.gov/research/ruraldisp/ruraldispar.htm#access*. Accessed August 14, 2006.

There are several ways to measure health care access, including health insurance coverage, assessments by patients of how easy it is to gain access to health care, having a usual source of care, and the receipt of care. For most of these measures, according to the Behavioral Risk Factor Surveillance Survey, Maryland's rural population experiences greater barriers to accessing care. Although Maryland's rural population often has a usual source of care to the same extent as the State population overall, they often experience lower rates of health insurance and poorer health outcomes, suggesting they are not receiving the services they need in a timely manner. The traveling distance required to reach providers and limited transportation in rural areas are commonly cited barriers. Each jurisdiction in Maryland, except Garrett, offers fixed-route public transportation, usually by bus; however, these routes often do not cover the entire rural jurisdiction and run infrequently.

MAKING CARE AFFORDABLE

Affordability is closely linked with access, as lack of health insurance bars many from needed health care. Limited health insurance and out-of-pocket expenses make it especially difficult for the rural population to afford the preventive and primary care they need. Prohibitively expensive co-pays and high deductibles may prevent residents with health insurance from being able to afford health care visits. Problems of higher unemployment and lower income in rural areas of Maryland exacerbate the affordability problem.

PROVIDING PREVENTIVE HEALTH RESOURCES

The Agency for Healthcare Research and Quality defines preventive care and health promotion "as those situations in which consumers may consider themselves healthy or physically at risk but have not yet been labeled with a diagnosis."[17] The Center for Preventive Health Services in Maryland's Department of Health and Mental Hygiene has the mission "to promote health and the quality of life by preventing and controlling chronic diseases, injury, and disability." The Center administers the Preventive Health and Health Services Block Grant funds. These funds are provided to local health departments in each of Maryland's jurisdictions to develop and implement interventions that are best suited for their communities. Funds are being used for services and education on a range of health issues, including heart disease, stroke, osteoporosis, hypertension, and diabetes. A full listing and details of each jurisdiction's programs can be found at *www.fha.state.md.us/cphs/phhs/hd_phhsGrid.pdf*. The higher rates of chronic disease in rural areas make adequate preventive health resources a particular issue of concern.

[17] Evidence Report/Technology Assessment: Number 101 Economic Incentives for Preventive Care. August 2004. Available at *www.ahrq.gov/clinic/epcsums/ecincsum.htm*. Accessed September 5, 2006.

V. RURAL HEALTH PRIORITY AREAS

The Rural Health Plan Steering Committee identified the rural health priority areas for Maryland based on analysis of rural health data and anecdotal evidence of health needs from rural areas of the State. The priority areas identified by the Committee are: access to primary and specialty care and pharmacy services, lifestyle wellness, oral health, and behavioral health.

Access to Primary and Specialty Care and Pharmacy Services

Maryland's rural areas generally have more limited access to primary care, mental health and substance abuse services, and oral health care, leading to shortcomings in the receipt of needed health care. For some services, most notably mental health and substance abuse services and oral health care, access is severely constrained in many rural communities because of long-standing shortages of qualified health professionals. Many rural communities have difficulty attracting and retaining clinicians due to concerns about isolation, limited health facilities, or limited employment and education opportunities for their families. In addition, rural providers are reimbursed at lower rates than providers in non-rural areas.

Rural areas, especially the federally-designated rural jurisdictions, have fewer primary care, specialist, and mental health care providers per 100,000 population and often lack secondary and tertiary services within a reasonable driving distance. Workforce shortages negatively impact health care quality and place stress on the few providers in the community. Each of the mental health, primary care, and dental health professional shortage area designations for an entire jurisdiction in Maryland are for rural jurisdictions. Maryland's federally-designated rural jurisdictions have higher rates of Medicaid enrollment, yet many providers, especially dentists, do not accept new Medicaid patients or are not willing to see Medicaid patients at all. Workforce shortages in rural areas can be due to high turnover, lack of spousal opportunities, an aging workforce, lower pay and benefits, and high work load demand due to a limited supply of other providers in the community.

There is a shortage of pharmacists in Maryland, especially in rural areas. Rural independent pharmacists face financial pressures because they cannot negotiate the same rates as larger suppliers, and are more reliant on reimbursement for prescriptions, rather than sales of other products in their typically smaller stores. Pharmacists are especially important in rural areas with an older and more chronically ill population because pharmacists play a role in providing advice on managing medications. In order to increase the pharmacy workforce, programs similar to the workforce recruitment and retention programs for physicians and nurses could be instituted for pharmacists, and issues of reimbursement should be addressed.

The Steering Committee believes that vigorous efforts must be made to enhance the health professional workforce in rural areas. This effort should focus on enhancing the knowledge and skills of practicing professionals and increasing the supply and preparedness of future professionals working in rural areas. Maryland's Area Health Education Centers play a large role in providing continuing education to practicing health care providers. However, optional training and certification programs such as certified diabetes or asthma educator programs are prohibitively expensive for many rural practitioners.

Lifestyle Wellness

Rural populations in Maryland experience higher rates of risk factors, such as obesity, high blood pressure, tobacco use, and chronic disease which indicate less healthy lifestyles. Obesity is also associated with lower education attainment, higher poverty, and greater age—all characteristics of Maryland's rural communities. As a result, Maryland's rural populations generally experience poorer health outcomes. It can be more challenging to empower individuals to address these concerns in rural areas because of limited access to health educators, dieticians, nutritionists, and consumer health information. Furthermore, in many rural communities there is limited environmental support for healthy lifestyles—such as few fitness facilities or healthy food outlets, and limited physical education in schools.[18] There are also a large number of health professional shortage areas in rural areas, demonstrating a lack of primary care providers that could provide nutrition education. Disease management programs, education on lifestyle habits that promote wellness, access to pharmaceuticals and preventive care, and patient education are important in addressing chronic disease and improving the health of those with chronic diseases.

Oral Health

Rural populations in Maryland experience a higher rate of total tooth loss, and a higher percentage of the rural population has not seen a dentist in five years or more. More than half of Maryland's rural counties (eleven) have a dental health professional shortage area designation, and only four rural counties have public dental clinics that see both children and adults. Rural residents are also less likely to have fluoridated water. Oral health affects a person's overall health status but is not commonly perceived as a priority. Oral health needs in a community can be addressed through community education and outreach about the importance of oral health, and through dental health infrastructure enhancements to increase availability of dental health delivery sites and workforce.

Behavioral Health (Mental Health and Addiction/ Substance Abuse)

Although the prevalence of mental illness would be expected to be similar between rural areas and the remainder of the State, and the rates of substance abuse are higher in rural areas, a lower percentage of the rural population has been diagnosed with depression or has seen a mental health provider. This may be due to stigma, difficulty in accessing mental health professionals, and hesitancy to seek treatment because of myths and social taboos around mental disorders. Furthermore, rural residents are more likely to see their primary care provider for mental health issues rather than a mental health professional, even though primary care providers have variable knowledge of mental

[18] Gamm LD, Hutchison LL, Dabney BJ, Dorsey AM, eds. (2003). *Rural Healthy People 2010: A Companion Document to Healthy People 2010. Volume 1.* College Station, Texas: The Texas A&M University System Health Science Center, School of Rural Public Health, Southwest Rural Health Research Center.

health and may not be able to identify clients' needs and arrange for appropriate mental health services.[19] Strategies to address mental health include integrating delivery of primary care and mental health services, and increasing the mental health care workforce.

[19] The Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services. Mental Health Providers in Rural and Isolated Areas Final Report of the Ad Hoc Rural Mental Health Provider Work Group. October 1997. Available at *mentalhealth.samhsa.gov/publications/allpubs/SMA98-3166/default.asp*. Accessed October 2, 2006.

VI. PRIORITY RECOMMENDATIONS/ STRATEGIES FOR THE FUTURE

The Steering Committee identified a number of recommendations and strategies to address the health challenges in rural areas. This section discusses the top three strategies identified by the Committee, followed in the next section by additional strategies that are also important and could be pursued as time and funding allow. Overall, increasing awareness, advocating for, and developing policies to address rural health care availability and quality will be a necessary undertaking by rural health stakeholders throughout the State to effect long-term and sustainable change. Residents of rural communities also have a key role in improving population health by pursuing healthy behaviors and complying with treatment regimens. These activities, however, must be supported by an increased health workforce, infrastructure, and education and outreach efforts.

The Committee emphasized the importance of addressing issues of Medicaid and Medicare reimbursement at the federal level. Because low reimbursement dissuades many health professionals from practicing in rural areas, achieving parity between rural and non-rural reimbursement is a critical step to increasing recruitment and retention of providers in rural areas. While changes in reimbursement may be outside the control of most rural health entities in the State, it is important to focus on and support changes in reimbursement wherever possible.

PRIORITY STRATEGY ONE:
Increase efforts to improve recruitment and retention of rural health providers.

ENTITIES RESPONSIBLE: State Office of Rural Health, Office of Health Policy and Planning; Area Health Education Centers.

IMPLEMENTATION DIRECTION: Workforce recruitment activities would target primary care providers; dieticians; mental health providers, including social workers, licensed clinical professional counselors, therapists, psychologists, and psychiatrists; and oral health providers, including dentists, dental hygienists, and dental assistants. In order to strengthen rural recruitment and retention, an assessment of health care provider needs by community would be conducted, and projects to further publicize openings and match providers with practice sites would be instituted. Software, such as Practice Sights, and the on-line Rural Recruitment and Retention (3R Net) website would be used to match health professionals with practice sites. Additional activities would include increasing financial stability of providers to improve retention by providing technical assistance and training in practice management, reimbursement, fee schedules, marketing, and building partnerships. Marketing and promotional materials would be developed to promote the advantages of rural living. Educational and other outreach would be provided to increase awareness of J-1 Visa Waiver and loan repayment programs; and efforts would be undertaken to increase loan repayment for those who choose to practice in a rural area. Activities would also include tracking commissions, coalitions, and other groups pertaining to workforce issues to ensure rural representation on these bodies and in their deliberations.

Expected Outcomes: Increase in recruitment and retention of health providers in rural areas; increased postings on 3R Net; increased interest among health care providers to practice in rural areas; and decreased shortage of health care providers.

PRIORITY STRATEGY TWO:
Establish preventive health centers in rural areas, especially in those areas lacking or underserved by Federally Qualified Health Centers.

Entities Responsible: Maryland Department of Health and Mental Hygiene, Maryland local health departments.

Implementation Direction: Preventive health centers have been identified as a priority because even with insurance and the existing Federally Qualified Health Centers, there are insufficient capacity and workforce to provide care for the rural population. Preventive health centers incorporating primary, mental health, and dental care would encourage a disease management approach, addressing concerns about fragmented care that discourages patients from following-up on medical and behavioral concerns. These health centers would be established in areas with the greatest need and would not compete with or take the place of existing health centers or their expansion plans. Prevention clinics led by nurses in the United Kingdom have shown an improvement in secondary prevention, leading to improved quality of life and reduction in mortality.[20]

Expected Outcome: Increased availability of preventive health service sites in rural jurisdictions.

PRIORITY STRATEGY THREE:
Increase accessibility to pharmaceuticals for low-income rural residents.

Entities Responsible: Rural health advocacy groups and Maryland Department of Health and Mental Hygiene.

Implementation Direction: Identify and support programs that provide pharmaceuticals to low-income residents; increase marketing and outreach of these programs to target population; and recruit enrollees for such programs through provider and community sites. In addition, rural health groups and organizations can support pharmacist recruitment and retention activities to ensure access to pharmacists in rural areas. These activities could include providing financial incentives such as loan-repayment or scholarships; supporting programs that encourage rural K-12 students to pursue a pharmacy career and return to work in their home communities; and support location of a portion of pharmacist students' educational training in rural communities.

Expected Outcome: Increase in population receiving timely and appropriate medications and increase in management of chronic disease.

[20] Campbell NC. "Secondary Prevention Clinics: Improving Quality of Life and Outcome." *Heart*. 2004;90:iv29-32.

SUCCESS STORY: Recruiting Health Care Providers

The Eastern Shore Area Health Education Center (AHEC) provided health information services to the 1,276 Black and Decker workers whose employment was terminated by the year 2003 closing of the Easton manufacturing plant. Working as a part of a service delivery team under the direction of the Upper Shore Workforce Investment Board, the AHEC coordinated activities with other team members—Maryland Job Service, Chesapeake College, Department of Social Services and the Talbot County Chamber of Commerce.

In serving the workers, the AHEC provided information on primary health care resources and offered health information and wellness sessions throughout the Eastern Shore. Whenever contact was made with Black and Decker employees, special emphasis was placed on presenting career opportunities in the health care field. The AHEC, in undertaking its services, was substantially assisted by the region's health care facilities and organizations, health and social services departments, community hospitals, community health centers, education institutions, and health related organizations and businesses—a remarkable demonstration of service and cooperation.

The AHEC also provided mentoring for those Black and Decker employees who were struggling with their health education classes. Of the 1,276 employees terminated by the plant closing, almost 170 were subsequently trained and employed in health careers.

VII. ADDITIONAL RECOMMENDATIONS/STRATEGIES

This section details additional recommendations that can play an important role in improving rural health. They are grouped by Priority Area.

PRIORITY AREA: Increase Access to Preventive and Specialty Care and Pharmaceutical Services

STRATEGY:
Increase the rural healthcare workforce by enhancing rural elementary and high school students' preparation to pursue health careers.

ENTITIES RESPONSIBLE: Area Health Education Centers.

IMPLEMENTATION DIRECTION: It has been shown that health professions students from rural areas are more likely to return to rural areas to practice after graduation.[21,22] Key to building the future rural healthcare workforce is the establishment of programs to prepare and encourage rural students, especially from underrepresented groups, to enter the health professions. Such programs would build on and sustain the successful Western Maryland Area Health Education Center (AHEC) middle and high school health career opportunities programs and could be expanded to the Eastern Shore AHEC. The program would provide summer enrichment programs and camps to middle and high school students interested in health careers, health curricula for teachers, in-school presentations, shadowing opportunities, and clubs. Curricula on health professions might be incorporated into K-12 classrooms to expose rural students to potential careers in health care.

This program can also be enhanced by developing a website and additional activities modeled after South Dakota's Health Occupations for Today and Tomorrow (HOTT) website. HOTT offers students opportunities to learn and experience healthcare career pathways such as medicine, nursing, and allied health (*www.state.sd.us/doh/rural/*).

EXPECTED OUTCOMES: Health careers development opportunities incorporated into rural schools curricula and increase in rural area students participating in health career experiences.

STRATEGY:
Locate a portion of health professional students' educational training in rural communities, such as by requiring participation in a rural rotation at one of the Maryland AHECs, to increase the number of Maryland health professional students more likely to choose to practice in a rural area after graduation.

[21] Hughes S, Zweifler J, Schafer S, Smith MA, Athwal S, Blossom HJ. High school census tract information predicts practice in rural and minority communities. J Rural Health. 2005 Summer;21(3):228-32.

[22] Rabinowitz HK, Diamond JJ, Hojat M, Hazelwood CE. Demographic, educational and economic factors related to recruitment and retention of physicians in rural Pennsylvania. J Rural Health. 1999 Spring; 15(2):212-8.

Entities Responsible: Maryland health professional schools, Area Health Education Centers.

Implementation Direction: Participation in a Maryland-based rural health rotation will be available to all students at all health professional schools, including nursing, medical, pharmacy, dental, dental hygiene, allied health, and mental health in Maryland.

Expected Outcomes: Increase numbers of students participating in rural rotations and Maryland health professional graduates practicing in rural areas.

STRATEGY:
Increase Health Professional Shortage Area and Medically Underserved Area designations to increase resources to attract health professionals to rural areas.

Entities Responsible: Maryland Office of Health Policy and Planning.

Implementation Direction: Work with Maryland's Primary Care Organization to support identification of rural areas that qualify for HPSA and/or MUA designations.

Expected Outcomes: Continuation of and increase in HPSA and MUA designations for rural areas.

STRATEGY:
Increase user-friendly transportation options.

Implementation Direction:
Transportation in rural communities is generally more limited than in urban areas, presenting barriers to accessing health services, especially for those without a car or the ability to drive. To address these barriers, efforts to develop and strengthen user-friendly transportation programs can be undertaken. This would include efforts to assess the current gaps in transportation and coordinate with existing transportation services to develop strategies and programs to improve transportation in rural areas, such as incentives like tax credits for companies who donate transportation services.

Expected Outcomes: Reduction in transportation barriers and increased transportation options for the rural population.

STRATEGY:
Expand and enhance telehealth to bring primary care and specialty care to rural areas through technology, offer training for rural health care providers in the use and value of telemedicine, and encourage its use when available.

Entities Responsible: Health centers, local health departments, health professional schools.

Implementation Direction: Provide rural communities with access to high-speed internet, support elimination of regulatory barriers to the use of telemedicine, provide ongoing educational and technical assistance to rural communities in the use of telemedicine, and encourage libraries to play a role in improving the health literacy of rural residents by providing access to and training in internet health resources.

Expected Outcomes: Increase in availability of specialty and psychiatric care in rural areas and increase in consumer access to web-based health information.

STRATEGY:
Establish outreach programs to rural areas at Maryland health professional schools (schools of medicine, dentistry, nursing, allied health, public health, and programs in mental and behavioral health) to attract qualified rural students.

Implementation Direction: Pennsylvania's Jefferson Medical College has an admissions and education physician shortage area program to increase the rural family physician workforce. The College recruits students from rural areas who intend to practice family medicine in a rural area or small town. These graduates have been much more likely to practice in a rural area and have a high retention rate.[23] SORH and its partners could explore a similar program for Maryland.

Entities Responsible: Health professional schools and advocates.

Expected Outcomes: Increase the number of students from rural areas graduating from Maryland health professional schools with plans to return to practice in those areas.

PRIORITY AREA: Oral Health

STRATEGY:
Increase dental care services in rural areas by collaborating with the Office of Oral Health to carry out the recommendations of their *Evaluation of the Dental Public Health Infrastructure in Maryland* report.

Implementation Direction: The Office of Oral Health completed a comprehensive evaluation of Maryland's public health dental infrastructure in 2006. Based in part on these findings, activities to improve access to oral health could include ensuring rural representation on the statewide Oral Health Coalition, assisting in describing the rural burden of oral health disease and supporting surveillance efforts in this area, and contributing to the developments of any future oral health plans. Additional activities could include support for an increase in loan repayment funds for dentists, bridging the private-public service salary gap for dental professionals, and expansion of public health dental clinics. The SORH and its partners would provide support for this initiative as determined through collaboration with the Office of Oral Health and would serve as a resource for rural, oral health issues to the Office of Oral Health. Rural health entities throughout the State can support the establishment and growth of access to oral health care by raising awareness and making the case for the importance of oral health and the need for improved care throughout rural areas. Rural entities can ensure that the rural burden of oral disease is considered in establishing future programs undertaken in oral health advocacy efforts.

Entities Responsible: Office of Oral Health, DHMH; SORH; oral health advocates.

[23] Rabinowitz HK, Diamond JJ, Markham FW, Rabinowitz C. Long-term retention of graduates from a program to increase the supply of rural family physicians. Acad Med. 2005 Aug;80(8):728-32.

Expected Outcomes: Increase in oral health resources and expansion of the dental public health infrastructure in rural areas.

STRATEGY:
Encourage private dentists' participation in the Maryland State Dental Association's Donated Dental Services Program for adults with physical or mental disabilities, limited income, and severe dental need.

Entities Responsible: Maryland State Dental Association.

Implementation Direction: Promote awareness of the program to private dentists and recruit additional dentists to participate.

Expected Outcomes: Increased access to oral health providers for low-income adults with physical or mental disabilities and severe dental need.

STRATEGY:
Explore the possibility of establishing programs that partner local health departments and private dentists in providing oral health services for Medicaid recipients through a program whereby the local health department provides the administrative and billing services for private dental providers.

Entities Responsible: Local health departments.

Expected Outcomes: Increase in capacity of dentists providing services to Medicaid recipients in rural counties.

SUCCESS STORY: Oral Health

Garrett County, Maryland is a rural community located in the Appalachian Mountains of Western Maryland. Garrett is designated as both a dental and primary care Health Professional Shortage Area. Prior to the initiation of the Garrett County "Something to Smile About" dental network program, there were many barriers to dental care including: a lack of dentists, providers' reluctance to accept dental insurance, and cultural norms that did not include regular preventive dental care. While dental care for pregnant women and children is a benefit provided through Maryland Children's Health Program (MCHP), many families were unable to access care. A phone survey conducted among MCHP recipients revealed that over 37 percent of children over age three had not visited a dentist. Over 60 percent of parents reported that they had not been able to use their MCHP card for dental care. Furthermore, while 98 percent of the families could identify a family doctor, only 62 percent were able to identify a family dentist.

The Garrett County Health Department (GCHD) met with area dentists, who identified reasons few MCHP recipients were receiving dental care: 1) the managed care reimbursement rate was too low, 2) dentists often had claims denied, 3) the turn-around time on receiving reimbursement was too long, and 4) there was the added burden of substantial investment for technology and office staff training required for electronic claim submission.

The GCHD responded to these barriers by developing a network of community dentists, negotiating a 30 percent higher rate of MCHP reimbursement, assisting network dentists with claim submission, guaranteeing payment for valid claims, initiating a public health dental clinic, and renewing community dental health education efforts. As a result, the number of dentists seeing MCHP and Medical Assistance patients increased from three to five. A dental surgery center was established at Garrett County Memorial Hospital, which eliminated a six month waiting period for patients requiring dental care under general anesthesia.

The network of area advocates also promoted fluoridation of community water supplies. Three municipalities have subsequently voted to fluoridate their water. Additional oral health education has been increased in the public schools through the use of a public health dental hygienist, community outreach workers, and three private dentists that volunteer in the health education program.

SELECTED INDICATORS OF ORAL HEALTH STATUS IN GARRETT COUNTY

Kindergarten Children (SOURCE: *GCHD*)	**1998**	**2005**
Percentage of children registering for kindergarten with untreated dental decay	41%	18%
DMF (decayed, missing, filled) Ratio	3.5/child	1.4/child
Community Water Fluoridation (SOURCE: *Garrett County Sanitary District*)	**1998**	**2005**
Percent of families on public water system with fluoridated water	29%	68%
MCHP Encounter Data (SOURCE: *CMS*)	**CY 2000**	**CY 2005**
Dental utilization rate for children 4-20	47.2%	72.4%
Number of children receiving services	517	1626

PRIORITY AREA: Behavioral Health

STRATEGY:
Support the development of comprehensive, continuous, integrated systems of care for co-occurring disorders (individuals who have at least one mental disorder as well as an alcohol or drug use disorder) in rural communities.

ENTITIES RESPONSIBLE: Maryland Department of Health and Mental Hygiene, local health departments.

EXPECTED OUTCOMES: Increase in quality of treatment for those with co-occurring disorders.

SUCCESS STORY: Worcester County Health Department Telemedicine Project

In 2003, Worcester County Health Department (WCHD) implemented a Tele-medicine project in partnership with Sheppard Pratt Health System, Inc. The purpose was to expand comprehensive mental health services for persons with co-occurring disorders of addiction and mental illness.

Needs

- Worcester County is a designated shortage area for psychiatry and has difficulty recruiting providers
- Worcester's waiting time for an appointment with a psychiatrist or Master's level addictions clinician was six weeks or more

Partnership Roles

- Sheppard Pratt applied for Health Resources and Services Administration funds to update the Worcester Tele-medicine hardware
- Sheppard Pratt provides access to psychiatrist time for diagnosis, treatment planning and medication prescriptions for WCHD patients with co-occurring disorders
- WCHD coordinates the identification of appropriate clients, scheduling and local case management
- Weekly progress monitoring with the treatment team at both locations was instituted by both partners to allow quick response to changing treatment needs

Challenges

- Integration of the documentation needs of two distinct record and billing systems
- Learning curve for clinicians on appropriate case identification for shared clients
- Financial sustainability, including billing and reimbursement

Results

- No waiting for entry into treatment
- Increased client attendance
- Implementation of four new dual diagnosis groups at the Worcester Health Addictions location
- Patients report satisfaction score of 4.33 on a scale of one to five
- Sheppard Pratt provides an average of six hours of psychiatric time per week
- WCHD's Mental Health program implemented a pilot program for children and adolescents in 2006 for an additional eight hours a week which is funded by a DHMH Mental Hygiene Administration grant

Future Plans

- Continue to grow as needed to serve clients in rural Worcester County
- WCHD's Mental Health clinic intends to expand tele-psychiatry to adult outpatient consumers

VIII. REFERENCES (IN ALPHABETICAL ORDER)

For full references and jurisdiction-by-jurisdiction figures for the indicators presented in this report, please see the Maryland Rural Health Plan Appendix, available on-line at *www.fha.state.md.us/ohpp/ruralhlth/*.

Centers for Medicaid and Medicare Services Medicare Advantage Enrollment Data
www.cms.hhs.gov/HealthPlanRepFileData/

Maryland Adolescent Survey, 2004, Maryland State Department of Education
www.marylandpublicschools.org/MSDE/newsroom/special_reports/adolescent_survey.htm

Maryland Behavioral Risk Factor Surveillance System, Family Health Administration, Department of Health and Mental Hygiene
www.marylandbrfss.org

Maryland Department of Human Resources Fact Pack
www.dhr.state.md.us/pi/index.htm

Maryland Department of Planning State Data Center
www.mdp.state.md.us/msdc/

Maryland Career and Workforce Information, Maryland Department of Labor, Licensing, and Regulation
www.dllr.state.md.us/lmi/laus/lausmain.htm

U.S. Census Bureau
www.census.gov

Vital Statistics Administration, Department of Health and Mental Hygiene
www.vsa.state.md.us/

IX. RURAL HEALTH PLAN STEERING COMMITTEE

Bonnie Braun, PhD
Associate Professor and
Extension Policy Specialist,
University of Maryland College Park

Kathleen H. Foster, RN, MS
Health Officer,
Talbot County Health Department

Jake Frego
President,
Maryland Rural Health Association and
Executive Director,
Eastern Maryland Area Health Education Center

Rodney Glotfelty, RS, MPH
Health Officer,
Garrett County Health Department

Deborah Goeller, RN, MS
Health Officer,
Worcester County Health Department

Wayne Howard
CEO,
Choptank Community Health System, Inc.

Tracy Kubinec, MBA
Deputy Health Officer,
St. Mary's Health Department

Rebecca Loukides
Deputy Health Officer,
Caroline County Health Department

Christine Power
Research Statistician,
Worcester County Health Department

Robert Stephens, MS
Director of Behavioral and Family Health,
Garrett County Health Department

Susan K. Stewart
Executive Director,
Western Maryland Area
Health Education Center

Earl Stoner, MPH
Deputy Health Officer,
Washington County Health Department

Douglas H. Wilson, PhD
Director,
Planning, Business Development, &
Government Relations
Peninsula Regional Medical Center

Linda Wilson, CRNP, MSN
Deputy Health Officer,
Kent County Health Department

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To print copies of the Maryland Rural Health Plan, visit: *www.fha.state.md.us/ohpp/ruralhlth/*.

For additional information on this document, please contact the SORH at 410-767-5301 or OHPP@dhmh.state.md.us.

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Jennifer English
Programmer Analyst,
Information Resources
Management Administration

Robin Jacobs
Director, MIS & Data Analysis,
Mental Hygiene Administration

Helio Lopez, MS
Behavioral Risk Factor
Surveillance Survey Coordinator,
Family Health Administration

Kelly Sage
Chief,
Office of Oral Health,
Family Health Administration

Hal Sommers, M.A.
Research Statistician,
Vital Statistics Administration

The appendices include:

- detailed definitions of rural
- summary charts/tables of the following information presented in the Plan:
  – demographic, economic, and health indicators
  – county-by-county values for each of the indicators
- more in-depth information on Maryland's programs for
  – improving the health care workforce and
  – improving availability of health care facilities.

The appendices are available on-line at *http://www.fha.state.md.us/ohpp/ruralhlth/*.