Improving Access to Health Care for Medicaid Enrollees in Rural Virginia

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DMAS

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Honor Pledge: I have neither given nor received unauthorized aid on this assignment.

Acronyms

ACA	Affordable Care Act
CHIP	Children's Health Insurance Program
CMS	Centers for Medicare and Medicaid Services
DMAS	Department of Medical Assistance Services
FAMIS	Family Access to Medical Insurance Security
GDP	Gross Domestic Product
HPSA	Health Professional Shortage Area
HRSA	Health Resources and Services Administration
MAGI	Modified Adjusted Gross Income
MCO	Managed Care Organization
MHC	Mobile Health Clinic

I. Executive Summary

Too many people eligible for Virginia's Medicaid program live in rural areas and do not have adequate access to primary health care services. According to the U.S. Department of Health and Humans Services, there are 110 designated health professional shortage areas (HPSAs) in Virginia for primary care alone (HRSA, 2018). The Health Resources and Services Administration (HRSA) is an agency within the U.S. Department of Health and Human Services that determines and designates all health professional shortage areas across the county. To determine if an area should be designated as an HPSA, HRSA examines the population to provider ratio, the percentage of the population below 100% of the Federal Poverty Level, and travel time to the nearest source of care.

This report focuses on the five rural counties in Virginia with the highest number of designated Health Professional Shortage Areas (HPSAs). These counties are: Buckingham County with 10 HPSAs, Lee County with 9 HPSAs, Smyth County with 8 HPSAs, Southampton County with 8 HPSAs, and Wise County with 7 HPSAs (HRSA, 2018). Together these counties account for 42 of the 110 designated HPSAs in Virginia for primary care.

There are many barriers and obstacles that limit access to care for those in rural areas that are eligible for Medicaid. The biggest barrier is the limited number of providers that practice in rural areas. Health care providers are drawn to more populated areas as they can see more patients and thus earn higher profits. Transportation to and from appointments can also be an issue.

Not having adequate access to primary care services results in may costs to society. Rural residents have higher rates of many chronic illnesses than their urban counterparts. Higher rates of illness make it hard for rural residents to maintain steady employment. Failure to maintain steady employment not only negatively impacts them and their family but also affects GDP and labor supply. People without access to care also die sooner than those with proper access to care. On average, males in the five counties die 3.8 years sooner than males in the rest of the state, and females die 3.3 years sooner than females in the rest of the state (University of Washington, 2018). When people do not have access to care, they do not receive appropriate preventative care. This results in more expensive treatment down the road. Access to health care is very important for pregnant women and young children. Proper care at a young age improves cognitive development, which impacts children for the entirety of their lives.

To help improve access, this report considers several policy options in addition to the status quo. The first policy option is to allow tax deductions for providers that set up telemedicine networks within the five rural counties. The second policy option is to provide grant funding to providers to set up school-based health centers within the five counties. The third option is to allow tax credits for providers that provide services via mobile health clinics in the five counties.

The policy options were evaluated based on cost-effectiveness, political feasibility, quality of care, and ease of implementation. After evaluating each option on those four criteria, **this report recommends continuing with the status quo and moving forward with the grant funding for school-based centers**. The status quo helps alleviate transportation issues, while the school-based centers help increase the supply of providers in the underserved areas.

II. Problem Definition

Problem Statement

Too many individuals eligible for Virginia's Medicaid program live in rural areas and do not have adequate access to primary health care services.

In 1993, the Institute of Medicine defined access to care as "the timely use of personal health services to achieve the best possible health outcomes". Rural communities experience many barriers to health care access which contributes to their health disparities. Compared to their urban counterparts, rural communities experience lower access to health care in regard to affordability, proximity, and quality. The Commonwealth of Virginia sets the income limits that are used to determine Medicaid eligibility. Figure 1 below provides eligibility levels based on modified adjusted gross income (MAGI) as required by the Affordable Care Act. Virginia's children's insurance program (CHIP) is called FAMIS. FAMIS stands for Family Access to Medical Insurance Security. The program helps provide insurance to children and pregnant women. In 2017, the federal poverty level for individuals in Virginia was $12,060 (HealthCare.Gov, 2017). The federal poverty level for a family of four was $24,600 as each additional family member increases the income level by approximately $5,000.

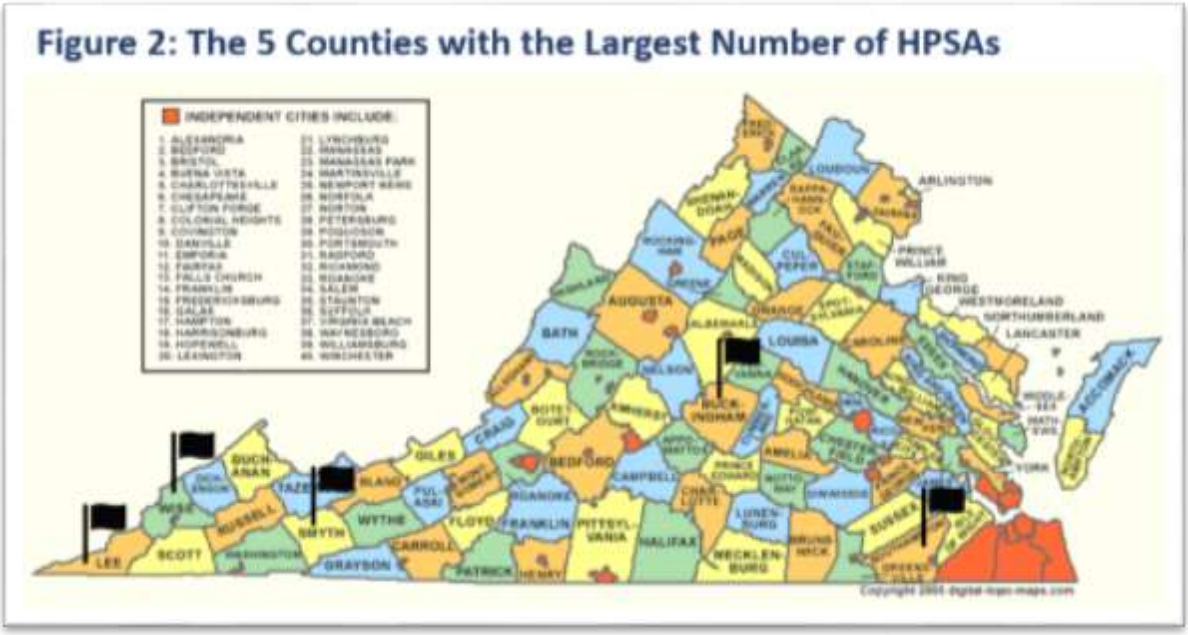
Figure 1: Virginia's Medicaid and FAMIS Income Eligibility Standards

Children		Disabled	Pregnant Women		Adults	
Medicaid	FAMIS	Medicaid	Medicaid	FAMIS	Parent/Caretaker	Childless Adults
143%	200%	80%	143%	200%	49%	Not eligible

Source: Medicaid.Gov

There are many barriers and obstacles that limit access to care for those in rural areas that are eligible for Medicaid. The biggest barrier is the limited number of providers that practice in rural areas. Health care providers are drawn to more populated areas as they can see more patients and thus earn higher profits. Transportation to and from medical appointments is another major barrier to accessing health care. For residents without a car, getting to and from medical appointments can be quite challenging. In rural areas of Virginia, public transit is typically not an option so those without a car often rely on friends and family members for transportation. Moreover, many Virginians eligible for Medicaid do not enroll in the program for a myriad of reasons. Some people do not take the time to go through the lengthy application process, which must be done annually. Some people believe their current situation will improve so there is no need for them to sign up for Medicaid. In addition, some see Medicaid as inferior insurance due to the restrictions on which providers and services are covered, and eligible children need a parent or guardian to sign them up.

This report focuses on the five rural counties in Virginia with the highest number of designated Health Professional Shortage Areas (HPSAs). These counties are: Buckingham County with 10 HPSAs, Lee County with 9 HPSAs, Smyth County with 8 HPSAs, Southampton County with 8 HPSAs, and Wise County with 7 HPSAs (HRSA, 2018). The counties are marked below on the map of Virginia.



Cost to Society

Rural residents have higher rates of many chronic illnesses than their urban counterparts. Higher rates of illness make it hard for rural residents to maintain steady employment. Failure to maintain steady employment not only negatively impacts them and their family but also affects the economy. When workers are sick they cannot work which reduces not only labor supply but the Gross Domestic Product (GDP) as well. By looking at information provided by the U.S. Census Bureau, the University of Wisconsin Population Health Institute, and the Department of Medical Assistance Services (DMAS), I estimated the lost wages due to poor health in the five counties combined. According to the University of Wisconsin Population Health Institute, 15% of adults in Virginia reported fair or poor health (University of Wisconsin, 2017). The five counties had an average rate of 17.5%. This report assumes that adequate access to care would improve the counties' rate of fair/poor health to the state average of 15%. Assuming that 25% of Medicaid enrollees that reported poor or fair health would be able to work if they had proper access to care, over $2.2 million in wages is lost each year in the five counties combined. In other words, it is likely that proper access to care could help get approximately 115 people back to work. The U.S. Census Bureau provides the population and average per capita income for each county. Average per capita income in rural Virginia is $20,000.

People without access to care also die sooner than those with proper access to care. On average, males in the five counties die 3.8 years sooner than males in the rest of the state, and females die 3.3 years sooner than females in the rest of the state (University of Washington, 2018). It is hard to quantify the costs of a lower life expectancy. However, many studies show that life expectancy has a big impact on GDP. If people are dying sooner, then overall GDP will suffer. In addition to the economic costs of a lower life expectancy, there are significant social costs.

When people do not have access to care they do not receive appropriate preventative care. This results in more expensive treatment down the road. The lack of preventative and screening services in rural areas can result in patients needing more expensive hospital care later, which is

a burden to the individual and the health care system as many of these costly hospital visits go unpaid. To estimate the costs, I looked at the rate of preventable hospitalizations for rural and metro areas. The Agency for Healthcare Research and Quality (AHRQ) reports that as of 2011, the hospitalization discharge rates per 100,000 population for rural areas was 2,227, compared to a rate of 1,416 for small, metropolitan areas (HCUP, 2014). Thus, rural people in rural areas are 0.811 percent more likely to be hospitalized than those in metropolitan areas. This leads to approximately 274 more people in the five rural counties being hospitalized. The AHRQ also reports that the average cost of a Medicaid covered hospital stay is $8,100, as of 2012 (HCUP, 2014). Therefore, each year the elevated hospitalization rate in rural areas costs the five counties a combined $2.2 million in hospital bills. This number assumes that improved access to care in the counties would improve the hospitalization discharge rate of rural areas to that of a small, metropolitan area.

Access to health care is very important for pregnant women and young children. Research shows how important prenatal care is for both the mother and the child. Pregnant women in rural areas often do not have access to specialists when complications arise during pregnancy. This increases their risk of injury or death during pregnancy. Limited access to health care services also affects the development of young children. When young children do not receive regular check-ups and immunizations they are much more likely to get sick. Proper care at a young age improves cognitive development, which impacts children for the entirety of their lives. Educational attainment, career opportunities, and future earnings are all impacted by health in early childhood. In Virginia, 37% of people age 25 or above have a bachelor's degree or higher. However, in the five rural counties only 14% of people age 25 or above have a Bachelor's degree or higher. A study that looked at the U.S. Department of Education's Early Childhood Longitudinal Study found that young rural children begin elementary school well behind their urban peers in reading and math skills (Israel, 2005). Mary Logue, a professor of early childhood education at the University of Maine, states the findings are consistent with thinking among rural education experts. She suggests that physicians and pediatricians are often overlooked as resources for students. It is very important for physicians to work with parents regarding healthy rural child development.

Scope of Analysis and Measurement

Improving access to care in the five counties listed previously will be the focus of this report. While the overall goal is to improve access to care for all Medicaid enrollees living in rural areas, focusing on the five counties with the most limited access will enable a more detailed analysis. It is my hope that the analysis and recommendations for these five counties can also be used to help determine the best course of action for improving access to care across the entire Commonwealth.

To move forward with the proposed policy options, DMAS will have to apply for a Section 1115 Demonstration waiver from the Centers for Medicaid and Medicaid (CMS). Under Section 1115 of the Social Security Act, the Secretary of Health and Human Services has the authority to approve experimental, pilot, or demonstration projects that are likely to promote the objectives of the Medicaid program. The waivers are typically approved for an initial five-year period and can be extended up to an additional three to five years (Medicaid.Gov, 2018).

III. Demographics of Virginia and the Five Selected Counties

Virginia is a medium size southeastern state (VDH, 2016). The commonwealth consists of 95 counties and 38 independent cities. Virginia's population continues to grow each year. However, many rural areas in Virginia have seen outward migration over the past few years. The paragraphs below provide information regarding population levels, education levels, median household income, uninsured rates, and poverty rates.

The Commonwealth of Virginia

According to the U.S. Census Bureau, the total population of Virginia was 8,411,808 as of July 2016 (U.S. Census Bureau, 2017). Approximately 37 percent of people in Virginia age 25 or older have a Bachelor's degree or higher. Nearly 10 percent of the population that is under 65 years old does not have health insurance. As of 2016, the median household income was $66,149, and the per capita income was $34,967. Nearly 11 percent of the state's population is in poverty, as defined by the Office of Management and Budget's Statistical Policy Directive.

Buckingham County

Buckingham County is located in central Virginia. According to the U.S. Census Bureau, the total population of Buckingham County was 17,032 in 2016. Only 11.9 percent of people age 25 years or older have a Bachelor's degree or higher. Over 14 percent of the population under age 65 does not have health insurance. As of 2016, the median household income was $43,514, and the annual per capita income was $19,264. Nearly 18 percent of the population is in poverty, compared to 11 percent for the entire state.

Southampton County

Southampton County is located in southeastern Virginia. According to the U.S. Census Bureau, the total population of Southampton County was 18,057 as of July 2016. Approximately 16 percent of people age 25 or older have a Bachelor's degree or higher. Over 12 percent of the population that is under 65 years old does not have health insurance. As of 2016, the median household income was $51,032, and the per capita income was $24,018. Nearly 16 percent of the population is in poverty, compared to 11 percent for the state average.

Lee County

Lee County is located in western Virginia. According to the U.S. Census Bureau, the total population of Lee County was 24,179 as of July 2016. Approximately 12 percent of people age 25 or older have a Bachelor's degree or higher. Over 13 percent of the population that is under 65 years old does not have health insurance. As of 2016, the median household income was $31,577, and the per capita income was $17,820. Nearly 30 percent of the population is in poverty.

Smyth County

Smyth County is located in western Virginia. According to the U.S. Census Bureau, the total population of Smyth County was 31,062 as of July 2016. Approximately 15 percent of people age 25 or older have a Bachelor's degree or higher. Over 11 percent of the population that is under 65 years old does not have health insurance. As of 2016, the median household income was $38,906, and the per capita income was $22,161. Nearly 18 percent of the population is in poverty.

Wise County

Wise County is in western Virginia. According to the U.S. Census Bureau, the total population of Wise County was 39,228 as of July 2016. Approximately 14 percent of people age 25 or older have a Bachelor's degree or higher. Over 11 percent of the population that is under 65 years old does not have health insurance. As of 2016, the median household income was $36,352, and the per capita income was $20,896. Nearly 24 percent of the population is in poverty.

IV. Significant Federal Legislation Affecting Virginia's Medicaid Program

1965 Amendments to the Social Security Act

Title XIX of the Social Security Amendments of 1965, Public Law 89–97, 79 Statute 286 established the Medicaid program. Medicaid was established in response to the inadequacy of welfare medical care under public assistance. Responsibility for administering the Medicaid program was given to the Department of Health and Human Services. The Centers for Medicare and Medicaid Services (CMS) is responsible for the more detailed management of the Medicaid program. Each state works very closely with CMS to manage the Medicaid program in their state (Klees, Wolfe, & Curtis, 2009). Federal statutes and regulations establish broad guidelines, but each state establishes its own eligibility standards; determines the type, duration, and scope of services; sets payment rates; and administers its own program. States generally have broad discretion in determining which groups their Medicaid programs will cover and the financial criteria for Medicaid eligibility. However, federal regulation mandates that certain categorically needy populations be covered. A state's Medicaid program must offer basic medical assistance to these categorically needy populations. The services typically include inpatient hospital services, outpatient hospital services, pregnancy-related services, physician services, family planning services, and laboratory and x-ray services. States may also receive federal matching funds to provide certain optional services. Some of the commonly approved optional Medicaid services include diagnostic services, clinic services, drugs and prosthetic devices, optometrist services, transportation services, and hospice care.

2010 Patient Protection and Affordable Care Act

The Patient Protection and Affordable Care Act, which is frequently called the Affordable Care Act (ACA) or Obamacare, is a federal statute enacted by the 111th United States Congress and signed into law by President Barack Obama on March 23, 2010 (CMS, 2017). The Affordable Care Act technically refers to two separate pieces of legislation. The first being the Patient Protection and Affordable Care Act, which is Public Law 111-148. The second being the Health Care and Education Reconciliation Act of 2010, which is Public Law 111-152. Together these laws expand Medicaid coverage to millions of low-income Americans and make numerous improvements to Medicaid and the Children's Health Insurance Program (CHIP). Beginning in 2014, coverage for the newly eligible adults was fully funded by the federal government for three years. Federal funding then phases down to 90% by 2020. The ACA expanded coverage to the poorest Americans by requiring states to provide Medicaid coverage to individuals under 65 years of age with incomes up to 133 percent of the federal poverty level. However, the Supreme Court ultimately ruled that each state has the right to decide whether or not it will expand Medicaid. For the first time, states can receive federal funds to provide Medicaid coverage for low-income adults without children.

V. State Legislation Affecting Virginia's Medicaid Program

Code of Virginia § 32.1-323. Department of Medical Assistance Services

In 1984, the Virginia General Assembly created the Department of Medical Assistance Services. This department is responsible for the administration and management of Virginia's Medicaid program. The Department is under the direction of the Secretary of Human Resources. The Director of the Department of Medical Assistance Services is appointed by the Governor but subject to confirmation by the General Assembly.

Code of Virginia § 32.1-323.1. Department to submit forecast of expenditures

In 1996, the Virginia General Assembly created a process for forecasting Medicaid expenditures. By November 15 of each year, the Department of Planning and Budget shall work with the Department of Medical Assistance Services to submit an estimate of Medicaid expenditures for the current year and a forecast of such expenditures for the next two years to the House Committees on Appropriations and Health, Welfare and Institutions, to the Senate Committees on Finance and Education and Health, and to the Joint Legislative Audit and Review Commission. This forecast is used for budget planning and allocation of Medicaid dollars.

Codes of Virginia § 30.336 - 30.338 Joint Subcommittee to Evaluate Tax Preferences

In 2012, the Joint Subcommittee to Evaluate Tax Preferences (Joint Subcommittee) was established within the legislative branch of the state government. The Joint Subcommittee is responsible for overseeing the evaluation of Virginia's tax preferences, which include tax credits, deductions, subtractions, exemptions, and exclusions. The Joint Subcommittee submits an annual report to the General Assembly and the Governor with recommendations for which tax preferences should be continued, modified, or eliminated. The Joint Subcommittee consists of 14 legislative members. Eight members are from the House of Delegates, and six members are from the State Senate.

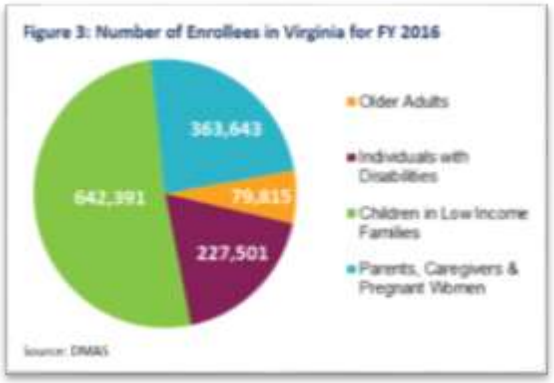
2015 Amendments to § 38.2-3418.16 and § 54.1-3303 of the Code of Virginia

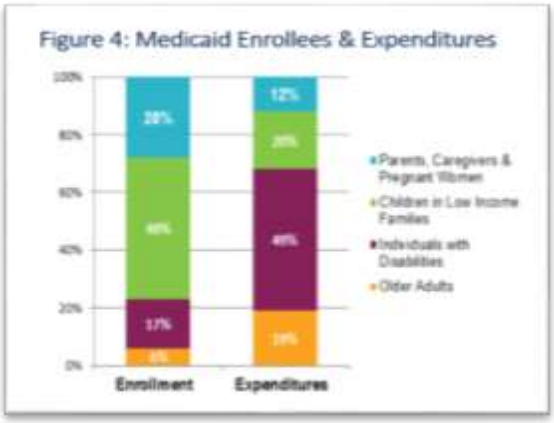
State law requires that private health insurers and health maintenance organizations cover health care services provided via telemedicine technology. In addition, health care professionals must provide the same standard of care that would be expected from an in-person visit. The Commonwealth of Virginia provides the formal definition of telemedicine as "the use of electronic technology or media, including interactive audio or video, for diagnosing or treating a patient or consulting with other health care providers regarding a patient's diagnosis or treatment." Practitioners must take appropriate steps to establish a practitioner-patient relationship. Practitioners are discouraged from providing medical services via telemedicine without verifying the location of the patient, confirming the identity of the patient, disclosing the practitioner's identity and credentials, and obtaining the appropriate consents from patients. Evidence that documents the patient's informed consent for telemedicine services must be obtained and maintained. Other legislation exists regarding the prescribing of controlled substances, mainly in efforts to prevent controlled substance abuse.

VI. Background Information

Background on Virginia's Medicaid Program

Virginia's Medicaid program is administered by the Virginia Department of Medical Assistance Services (DMAS). Medicaid currently provides health care access to over a million Virginians (DMAS, 2017). If certain income requirements are met, then Medicaid is available to children, pregnant women, parents, elderly adults, and individuals with disabilities. In 2016, Medicaid covered one out of every three births in Virginia, and fifty percent of Medicaid enrollees are children. Figure 3 to the right show the breakdown of Medicaid enrollees per category from fiscal year 2016. Figure 4 shows the expenditures per category. As you can see, individuals with disabilities account for almost half of all Medicaid expenditures. DMAS recently reported to the General Assembly that in 2015 an estimated 28,000 adults and 60,000 children were eligible for Medicaid but not enrolled (U.S. News, 2017). In other words, approximately 0.05% of nonelderly adults and 4.9% of children throughout the state were eligible for Medicaid but not enrolled. For the five counties in this analysis that equals approximately 260 nonelderly adults and 1,296 children, for a total of 1,556 that should be enrolled in Medicaid. Enrolling these individuals would increase the demand for health care and then hopefully as demand increases the supply of health care will also increase via new providers entering the market.

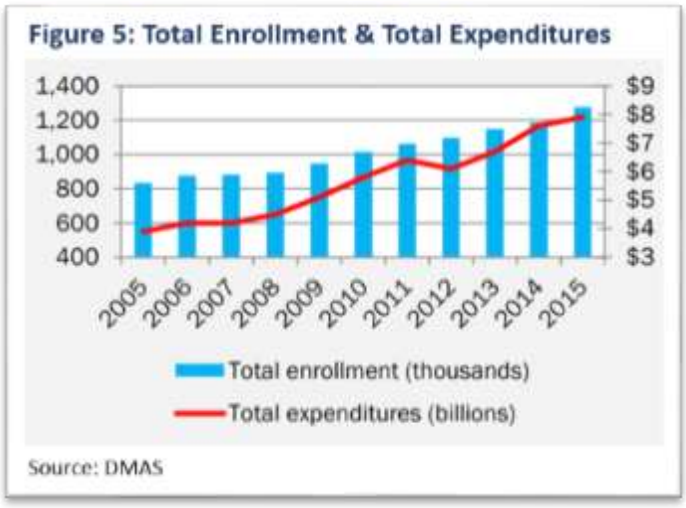




Medicaid is jointly funded by the state and the federal government. The federal government guarantees matching funds to states for qualifying Medicaid expenditures. States are guaranteed at least $1 in federal funds for every $1 in state spending on the program. The federal matching rate for Virginia is 50%, meaning Virginia receives $1 of federal funds for every $1 Virginia spends on Medicaid. All states must follow core federal Medicaid guidelines regarding who is covered, but states set their own income and asset eligibility criteria. To qualify for this benefit program, one must be a resident of the state of Virginia, a U.S. national, a permanent resident, or a legal alien, in need of health care assistance, and have a financial situation that is considered low income or very low income (CMS, 2017). One must also be either: (1) pregnant, (2) a parent or relative caretaker of a dependent child under age 19, (3) under age 21 and in foster care, adoption assistance, or a nursing facility, (4) blind, (5) disabled, or (6) be 65 years of age or older. The Medicaid income limits are different, depending on which group of individuals you fall into.

Medicaid Spending

In fiscal year 2015, DMAS paid out $8.2 billion (JLARC, 2017). Fifty percent of these funds came from the state's general fund. Over the past five years, total inflation-adjusted growth of Medicaid spending per enrollee has been low at 0.36 percent. However, total Medicaid spending has increased due to increased enrollment. Over the past five years, Medicaid enrollment has increased by 16.5 percent. The figure to the left shows the change in enrollment and expenditure rates from 2005 to 2015. Increased program awareness and additional waivers for individuals with disabilities are two major drivers of enrollment growth. Over the past ten years, general fund spending on Medicaid has grown by an average of 8.9 percent annually, while total general fund spending only increased by 1.3 percent. In fiscal year 2016, Medicaid spending accounted for 22 percent of the general fund budget.



Virginia's eligibility criteria are among the strictest in the nation. As a result, Virginia is 47th in the nation on per capita Medicaid spending, which means there are only three states that spend less per capita than Virginia Medicaid (DMAS, 2017). The Affordable Care Act (ACA) sparked interest in the possibility of Medicaid expansion as additional federal financing became available to each state under the new law. The ACA created an enhanced matching rate for Medicaid expansion. This means that for the states that expand, the federal government will pay 100 percent of the Medicaid costs of those newly eligible from 2014 to 2016. The federal share gradually phases down to 90 percent in 2020 and remains at that level. There is no deadline to adopt the expansion; however, the federal match rates are tied to specific years. Currently, Virginia has chosen not expand Medicaid.

Researchers frequently note that low Medicaid reimbursement rates play an important role in the limited access to care that Medicaid enrollees face. In 2013, the percentage of office-based physicians in Virginia that accepted new privately insured patients was 85.4 percent (CDC, 2015). However, only 70 percent of office-based physicians in Virginia accepted new Medicaid patients. In 2016, the Medicaid Physician Fee Index for primary care services in Virginia was 1.11 (KFF, 2016). The Medicaid Fee Index measures each state's physician fees relative to national average Medicaid fees. As the rate indicates, Virginia reimburses primary care physicians that see Medicaid patients more than the national average.

Most Medicaid enrollees are enrolled in one of the state's managed care organizations (Cover Virginia, 2017). However, some remain in fee-for-service plans. A managed care organization (MCO) is a network of primary care providers, specialists, hospitals, and other health care providers. Virginia currently contracts with six health plans for Managed Care. These plans include for-profit and not-for-profit plans: Anthem HealthKeepers, CareNet, AmeriGroup, Virginia

Premier, Optima Family Care, and MajestaCare. It also contracts with one national for-profit plan for non-emergency transportation services (LogistiCare Solutions). The MCO available to those eligible for Medicaid is based on where they live within the state (Medicaid.Gov, 2014). The state selects plans based on a competitive procurement and sets rates using an actuarial process that accounts for variation in beneficiary characteristics. In 2013, Virginia began to develop a performance incentive award program in which the state withholds a small portion of the monthly capitated payment to MCOs (.15%) to fund an incentive pool. The state will make proportional awards to each MCO based on quality of care and member experience.

Managed Care Organizations are paid capitation rates by the state. Basically, the MCOs receive a certain amount of money per month per member that they provide services to. The Centers for Medicare and Medicaid services sets requirements for how capitation rates are calculated. It is a very complicated process based on historical claims data, demographic trends, and other projections. The capitation rates in 2017 varied from $200 per member per month to $1,800 per member per month depending on the category of the individual (PricewaterhouseCoopers, 2016).

DMAS reimburses telemedicine services from approved health care providers via a "hub-and-spoke" model (ChironHealth.Com, 2018). The "hub" is the location of the distant site where the medical specialist works. The medical specialist provides services to the "spoke" where both provider and patient are located. The two sites typically communicate via a real-time, two-way audio and video telecommunication system. DMAS began reimbursing for certain telemedicine services in 2003 and continues to this day. Providers must follow their respective contract with the Managed Care Organization to be reimbursed properly for the services they provide via telemedicine. School-based health care services are predominantly provided to students with disabilities. Each disabled student has an Individualized Education Program (IEP) to ensure he or she receives the needed services to receive an appropriate education. DMAS covers school-based health services that are identified in the student's IEP if those services are covered under the state's Medicaid plan.

Designated Health Professional Shortage Areas (HPSAs)

According to the U.S. Department of Health and Humans Services, there are 110 designated health professional shortage areas (HPSAs) in Virginia for primary care alone (HRSA, 2018). There are even more designated health professional shortage areas for specialties such as, mental health and dental health care providers. It is estimated that the shortage areas need 185 primary care practitioners for the shortage designation to be removed.

The Health Resources and Services Administration (HRSA) is an agency within the U.S. Department of Health and Human Services (HHS). The HRSA works to provide health care and resources to people who are geographically isolated, and/or economically or medically vulnerable (HRSA, 2018). This agency is in charge of determining and designating all health professional shortage areas (HPSAs) across the county. State Primary Care Offices must submit applications to HRSA to have areas designated as a HPSA. To determine if an area should be designated as a HPSA, HRSA examines the population to provider ratio, the percentage of the population below 100% of the Federal Poverty Level, and travel time to the nearest source of care. Areas that become designated as a HPSA are eligible for certain federal benefit programs. For example, the Centers for Medicare and Medicaid Services (CMS) provides millions of dollars in bonus payments each

year to health care providers for services in certain shortage designation areas. In addition, CMS can name certain clinics in rural areas as Rural Health Clinics (RHCs) which allows these clinics to receive increased Medicare reimbursement.

The Health Care Industry in Virginia

In Virginia, there are approximately 20 companies offering private health plans to individuals and families (NCQA, 2018). These companies range from large insurance companies such as, Kaiser Permanente, Aetna, Cigna, and Anthem Blue Cross/Blue Shield to smaller companies such as, Coventry Health Care of Virginia, Innovation Health Plan, and Optima Health Insurance. Anthem Blue Cross Blue Shield provides coverage for about 30% of Virginia's residents through various plans and programs (Virginia Health Insurance Quotes, 2018). Wellpoint, Aenta, and CareFirst are the largest providers of individual insurance plans throughout the state, with a combined market share of 72% of the market for individual insurance plans.

Currently, there are 92 hospitals in Virginia (KFF, 2015). Seven of these hospitals are designated as Critical Access Hospitals (CAHs). CAHs are rural hospitals that receive certain benefits from the federal government to ensure that they remain open. Virginia's two primary safety net hospitals are VCU's Medical Center and UVA's Medical Center. Combined, these hospitals provide over $2 billion in charity care each year. There are 30 Rural Health Clinics throughout Virginia, and 26 Federally Qualified Health Centers, which provide services at 142 sites across the state (RHI Hub, 2017).

VII. Technology & Best Practices

Telemedicine

Telemedicine has the potential to add value in many areas of medicine, including primary care, care coordination, chronic illnesses treatment, and specialist consultation. In 2010, over 110 million primary care visits were for a prescription refill, cough, stomach pain, sore throat, earache, and/or skin rash (Deloitte, 2014). These are relatively simple illnesses that can potentially be diagnosed and treated via telemedicine. A study based on data from various health insurance networks reports that medical providers were able to resolve a patient's issues during a telehealth visit 75% of the time (Evisit.Com, 2018). Approximately 60% of these telehealth visits were resolved with a prescription. Interestingly, 12.3% of patients noted they would have done nothing if the telemedicine option was not available.

The University of Arkansas uses telemedicine to provide rural women with high-risk pregnancies access to specialists at the University of Arkansas. The telemedicine technology allows the distant site specialist to view an ultrasound in real-time and provide guidance to the local health care staff. The program has had a positive impact on high-risk pregnancies in Arkansas. Since 2003, the program is credited with reducing the 60-day infant mortality rate in Arkansas by 0.5% (PHI, 2011). Telemedicine via videoconference is an easy way to gain access to medical specialists.

Surveys indicate that rural patients enjoy and value the quick access to care telemedicine provides. A study from 2005 showed that the introduction of telemedicine in rural communities improved patients' ratings of the quality of health care they received (Nesbitt et al., 2005). The improvement in satisfaction was attributed to the collaboration between local health care staff and medical

specialists in distant areas. Local health care staff talked with experts in distant locations and gained valuable insight from them. This collaboration and sharing of knowledge improved the overall quality of care rural patients received.

Virtual treatment decreases human interaction among health care professionals and patients, which may increase the chance of error (Telerad rxdx, 2014). In addition, confidential medical information could be leaked through unsecure electronic systems. Treatment via telemedicine might take longer due to technical difficulties, such as slow internet speed or server problems. It is also important to think about the populations that do not have access to internet. According to a 2016 Virginia Chamber of Commerce study, only 55 percent of homes in rural areas have access to high-speed broadband (ODU, 2016). This would make remote monitoring difficult.

School-Based Programs

School-based health centers are what the name implies; a health center that is located within a school (Keeton et al., 2012). Many school-based health centers are operated as a partnership between the school and a community health organization. The type of services provided by school-based health centers typically varies based on the needs of the community and the resources available. According to a recent National Assembly, approximately 2,000 school-based health centers operate nationwide. At the centers, students can be treated for a myriad of things from acute illnesses, such as the flu, to chronic conditions, such as asthma and diabetes.

School-based health centers also provide many opportunities for prevention education, outreach, early screening, and continuity of care for students, families, the school workforce, and even other members of the community (Keeton et al., 2012). Through health fairs and other types of informational events, knowledge on nutrition, exercise, stress reduction, and other important topics can be provided to members of the community. During this process, early screening, follow-up information, and referrals to additional community resources can be provided to the community members.

In 1998, staff at the Blue Ridge Medical Center Nelson County realized that children in the area lacked basic health knowledge and also had very low immunization rates (RHI Hub, 2017). Thus, the Blue Ridge Medical Center (BRMC) applied for a federal grant to start a school nurse program. The Blue Ridge Medical Center was awarded a three-year grant from the Federal Office of Rural Health Policy. Beginning in 1998, registered nurses from Blue Ridge Medical Center were placed in the county's public schools. Now a registered nurse and a part-time school nurse coordinator are in each of the four county schools. The program allows nurses to assess students' daily health issues, assist students with chronic disease management, assist staff with minor health needs throughout the day, administer prescription medications, track immunization compliance, and educate parents about Virginia's public health insurance programs. The program is still in place today and has grown into a vital service for students in Nelson County. For fiscal year 2016 there were 29,083 visits to school nurses. There are only 1,965 students in the Nelson County school system. In addition, nurses made contact with parents by phone, email, or face-to-face visits over 21,000 times. The program also helped improve the school immunization compliance rate to over 99%. The program does face challenges that should be addressed when considering a similar program in a different location. The BRMC staff noted difficulties finding substitute nurses when regular school nurse needed time away. Without an adequate backup staff, the school nurses were

sometimes working when ill, which is not a good public health practice. Moreover, with over 29,000 visits annually, each nurse faces an overwhelming workload as he/she sees an average of 42.5 students each day.

Mobile Health Clinics

Mobile Health Clinics (MHCs) can help improve access to health care. Studies have shown that MHCs can help underserved populations by offering urgent care, providing preventative health screenings, and helping with chronic disease management (Campos & Olmstead-Rose, 2012).

Numerous studies have shown that MHCs can be a platform that helps patients understand our confusing health care system and connect them to the proper medical resources in their community (Aung et al., 2015). MHCs can also help provide medical services to people that do not have the time, money, or ability to travel to traditional clinics. Qualitative studies indicate that patients appreciate the convenient neighborhood locations that only mobile clinics can occupy (Rodriguez et al., 2007).

MHCs have seen success in providing prenatal care to expectant mothers. A study completed in a Miami-based community found that clients of MHCs were more likely to start receiving prenatal care services earlier compared to other mothers accessing traditional clinics (O'Connell et al., 2010). The mothers that visited the MHCs reported significantly lower rates of pre-term and low-birthweight infant births, 4.4% compared to 8.8%.

MHCs have a proven track-record in helping underserved populations manage chronic diseases. A MHC in Massachusetts saw 5900 patients between 2010 and 2012 (Song et al., 2013). Patients that initially had high blood pressure showed average reductions of 10.7 mmHg and 6.2 mmHg in systolic and diastolic blood pressure, respectively during follow-up visits. These reductions in blood pressure represent a significant reduction in the risk of myocardial infarction and stroke. A MHC in New Mexico also had success in helping patients manage their cholesterol levels (Connolly, Concha, & English, 2014). After 4 visits over a nine-month period, patients demonstrated decreases in low-density lipoprotein levels and increases in high-density lipoprotein

MHCs face three major limitations: (1) risk of increased fragmentation of care, (2) space and structure constraints, and (3) logistical planning challenges (Yu et al., 2017). Many MHCs are not integrated into the health care system so continuity of care can become an issue as some patients do not attend their follow-ups or specialty referral appointments. The limited physical size of the mobile health clinic can also become an issue as care is provided in such a small area. In addition, this creates confidentiality concerns as it is easy for other patients to overhear private conversations between a doctor and a patient. The logistics of finding a safe location to park for an extended period of time can also present challenges for MHCs. These issues must be considered when starting a mobile health clinic operation.

Other Rural Health Incentive Programs

In 2007, New Mexico established a Rural Health Care Practitioner Tax Credit Program that provides a tax credit of either $3,000 or $5,000 to eligible providers that practice in rural areas (ASTHO, 2011). Each year, more than 1,500 rural health care practitioners receive the tax credit. On average, $5 million in tax credits are issued each year. Approximately 25% of the awards are

given to health care providers working part-time in approved, rural areas. These providers typically spend the rest of their time working in urban areas. Program staff at the New Mexico Department of Health have received anecdotal evidence that the tax credit is sufficient to keep providers working in rural areas.

VIII. Policy Alternatives

Option 1: Let Present Trends Continue

Continuing with the status quo would not require any policy action as current programs would continue as is. Currently, efforts from DMAS to improve access to care for Medicaid enrollees in underserved, rural areas are limited. DMAS covers non-emergency transportation services for most members. For fee-for-service enrollees transportation service is managed through LogistiCare. For MCO enrollees, the MCO is responsible for contracting with appropriate transportation providers. In both cases, the transportation must be pre-scheduled, pre-authorized, and medically necessary. In addition, the services that an enrollee is being transported to and from must also be Medicaid-covered services. DMAS will also pay gas reimbursement to family members or friends that drive enrollees to Medicaid covered appointments.

In general, access is a two-fold problem. First, enrollees must have a provider nearby, and second, they must be able to get to and from the provider's office. Providing transportation services does not address the larger issue, which is that these rural areas do not having enough primary care providers working in the area.

Option 2: Tax Deductions to Establish Telemedicine Networks

Telemedicine continues to become more popular as a way to provide services to those in underserved communities. This option would consist of DMAS working with healthcare providers and the Joint Subcommittee on Tax Preferences to introduce an amendment to Virginia's tax code that would allow health care providers to receive tax deductions for setting up eligible telemedicine networks. The deducted expenses must be incurred from setting up telemedicine networks within the five rural counties. To become a reality, the General Assembly would have to support and pass this tax amendment.

This report recommends that providers be allowed to deduct up to $50,000 of the costs of setting up and staffing the new telemedicine centers. The money providers would save from paying less in taxes would provide an incentive for providers to set up telemedicine networks. The tax savings are intended to help cover the initial, setup costs of establishing new telemedicine centers. In addition to the tax deductions, these providers would be able to see Medicare and private pay patients as well. Allowing this, also increases the attractiveness of the option as providers are paid a higher amount for Medicare and private pay patients. The tax deductions would provide a financial incentive for providers to come to the area and thus, increase the supply of primary care services in the underserved, rural communities. This tax amendment should sunset in five years as five years gives the providers enough time to build a successful practice in the rural areas that no longer needs the tax subsidy.

Option 3: Grant Funding for School-based Health Care Programs

This option would consist of a block grant being allocated to DMAS during the state's budgeting process. The block grant would be used to setup one school-based health center at a public school in each of the five rural counties. DMAS would be responsible for finding providers to staff the school-based centers. The block grant would cover approximately 60 percent of the equipment and staffing costs for the first five years, which is approximately $5 million. Appendix B provides more detail regarding the costs of setting up and staffing school-based health centers. After the first five years, the providers should be able to exist without government aide. This option increases the supply of primary care services in the underserved, rural areas.

Option 4: Tax Credits for Mobile Health Clinics

Research shows that mobile health clinics can help improve health care access for underserved populations. This option would consist of DMAS working with healthcare providers and the Joint Subcommittee on Tax Preferences to introduce an amendment to Virginia's tax code that would allow mobile health clinics to receive tax credits for services provided to Medicaid enrollees in the five rural counties. The General Assembly would have to pass new legislation that amends Virginia's tax code and allows the MHCs to receive tax credits. Under this option, the clinics would be able to receive a tax credit of up to $20,000. To be eligible for the tax credit, each mobile health clinic would be required to consist of at least one physician and two registered nurses and operate exclusively in underserved, rural areas. The mobile health clinics must provide a robust level of primary care. This would include the treatment of chronic conditions like diabetes, high blood pressure, high cholesterol and the provision of screenings and immunizations.

IX. Evaluation Criteria

Cost Effectiveness (50%)

The commonwealth of Virginia already devotes a large amount of money to the Medicaid program each year. The state government will want to award funding to a program that costs the least per outcome. Each proposed policy option will be evaluated on the total cost per Medicaid enrollee that now has access to care. The measured outcome is the number of Medicaid enrollees that have improved access to care.

Medicaid already costs the state billions of dollars each year so a proposed policy must not be overly expensive for the state. Therefore, this criterion is weighted the most heavily, at 50 percent of the total.

The cost effectiveness analysis provided later in this write-up compares each proposed policy option against one another. Each policy option will be ranked from most cost-effective to least cost-effective, with five being the most-cost effective option. The option with the highest cost effectiveness will be the one that provides the greatest number of Medicaid enrollees with access to health care services relative to costs.

Political Feasibility (25%)

Political feasibility refers to whether or not the policy option would be accepted in Virginia's current political climate. Currently, the Governor and the General Assembly are focused on passing a budget that would expand Medicaid to approximately 400,000 low-income adults. The

House of Delegates recently approved a budget that would expand Medicaid to low-income adults. The proposed budget now has to be approved by the State Senate. With so much attention on Medicaid expansion, it is likely that improving access to health care in rural Virginia will not be given much attention in the next few years. If Medicaid expansion does happen this year, then the General Assembly will likely spend the next few years discussing its effectiveness and how costly it is. Republicans will likely try to undo the Medicaid expansion in the next budget planning session. If Medicaid is not expanded this year, then Democrats will try again at the next budget planning session to expand Medicaid. Either way, the next few years will be dominated by discussions of Medicaid expansion, not discussions of improving access to care for Medicaid enrollees.

If a policy option is unable to be passed through the state government, then it will not be an effective option for improving access to health care. Therefore, political feasibility is weighted as the second highest evaluation criterion, at 25 percent. This criterion will be assigned scores based on a qualitative basis. Feasibility will consider the difficulty in passing legislation, the difficulty securing funding, and general political support for each option. Each policy option will be ranked from one to five, with five being the most politically feasible.

Quality of Care (15%)

This criterion will examine the quality of health care services that patients receive under each policy option. The quality of care received has a direct impact on health outcomes. Patients deserve an option that provides high-quality care. This criterion is given a 15 percent weight as it is important to consider how each policy option directly impacts patients. Each policy option will be ranked from High quality of care to Low quality of care, with five being the option with the highest quality of care for patients.

The CMS uses over 33 metrics to evaluate the quality of care provided by accountable care organizations. Many of the metrics are diagnosis-specific. This report focuses on five of the metrics to determine an overall quality measure for each policy option: (1) timely care and appointments, (2) provider communication, (3) health promotion and education, (4) risk standardized readmissions, and (5) preventive care and screening.

Ease of Implementation (10%)

This criterion asses how easy it is to implement each policy option. Support from stakeholders, complexity of the policy, and the number of organizations/agencies involved will be evaluated. This criterion is given a 10 percent weight as it is important to consider how implementation of each policy option would take place. Many well-written policies are derailed during implementation and thus never come to fruition. If implementation would be extremely complex or if the policy is unable to be implemented for a certain reason, then the option will be given a lower score. Each policy option will be ranked from one to five, with five being the easiest to implement.

X. Cost Effectiveness Analysis & Methodology

A variety of sources were reviewed to project costs and outcomes for the status quo and each policy option. In addition, many assumptions were made when making calculations. The following

assumptions are key in the analysis of every option. According to the Health Resources and Services Administration, 63 percent of the need is met within the designated health professional shortage areas throughout Virginia (HRSA, 2018). Thus, it is assumed that 37 percent of those enrolled in Medicaid in the five counties do not have access to care. With this assumption, between 12,000 and 13,000 Medicaid enrollees do not have access to care in the combined counties. It is estimated that the policy options in this report will increase access to care for between 1,300 and 1,966 Medicaid enrollees each year. With so many still needing care after the policy options, it is assumed that the utilization of health care services will be approximately 80 percent of the providers' capacity in each option. Provider capacity was calculated with the following assumptions. If a physician works 210 days per year, 8 hours per day, sees each patient 4 times each year, and spends 30 minutes with each patient every visit, then a physician would be able to manage 840 patients per year. According to Forbes, the average American visits their doctor four times per year. Therefore, for a Medicaid enrollee to be considered as having access to care, they must be able see a doctor four times per year in each policy option.

As of 2016, the average cost for primary care services per Medicaid enrollee in the five counties was $1,851.75. This report assumes that these costs will grow at 6 percent each year until 2028. To determine the number of Medicaid enrollees in the counties, this report reviewed county population estimates provided by the University of Virginia's Weldon Cooper Center (Weldon Cooper Center, 2018). Wise and Smyth Counties are expected to see decreases in their populations each year, while Lee, Southampton, and Buckingham are expected to see minimal increases in population each year. On average, the combined areas are expected to see a growth of 15 - 20 people each year. Appendix B provides more detailed information for the costs and outcomes of each policy option.

Costs of Status Quo

Population estimates from the Weldon Cooper Center were used to project how many people in each of the five counties would be eligible for Medicaid each year. As of 2016, the average cost for primary care services per Medicaid enrollee in the five counties was $1,851.75. This report assumes that these costs will grow at 6 percent each year until 2028. Costs for the status quo were calculated by simply multiplying the number of Medicaid enrollees by the average cost per enrollee for each year. The average cost for Non-Emergency Transportations Services was $129.80 per trip, with a total of 50,612 trips in 2017. Keeping in line with our assumption that a person should see a doctor four times per year, this leads to 12,653 Medicaid enrollees gaining access at a cost of $519.19 per person. Based on DMAS's *Medicaid at a Glance* publication, administrative costs are 2.5 percent of total expenditures. Therefore, 2.5 percent was used to calculate administrative costs for the status quo. To determine the net present value of the total costs, this report uses a 7 percent discount rate as recommended by the Office of Management and Budget.

Outcomes of Status Quo

According to DMAS's 2017 Data Book, there were 50,612 transportation trips in 2017. Dividing that by four yields the estimate that 12,653 people obtained access through the transportation program.

Costs of Telemedicine

Setting up five telemedicine centers will require equipment, training, and additional personnel. Based on estimates from AMD Global, a telemedicine equipment and technology company, the costs for all-in-one telemedicine systems range from $20,000 - $30,000. This report assumes the low end of the range, $20,000 per setup, as each telemedicine location will have three rooms set up for telemedicine so some duplicative costs can be avoided. In addition, the hospitals the locations will be tied into already have functioning telemedicine networks so some software will likely not be needed. With each location having three telemedicine setups, the cost of telemedicine equipment is estimated as $60,000 per location, for a total of $300,000. According to AMD Global, training can range from $200 - $2000. This report assumes training will cost $1,000 per location in the first year and then $200 per location thereafter. Rent for the building is estimated at $1,200 per location, for a total of $72,000 in year 1. It is estimated that rent will increase by 2 percent each year. The added demand from the five locations will create the need for 12 Nurse Practitioners at the off-site hospitals. According to Indeed.com, the average salary for a Nurse Practitioner is $100,000 per year. Each location will be staffed with one Registered Nurse (RN), three Licensed Practical Nurses (LPNs), and one billing/administrative specialist. According to Indeed.com, the average salary for an RN in Virginia is $78,000 per year, and the average salary for a LPN is $43,000 per year. The average salary for a billing specialist is $40,000 per year. In year, the total cost of all salaries is $2,435,000. This report estimates that salaries will grow at 2 percent each year. Employee benefits and other administrative costs were calculated by multiplying salaries by 25 percent. However, the telemedicine locations will be open to all types of payors, including Medicaid, Medicare, and private pay patients. Based on information provided by DMAS, 26 percent of the population in the counties are enrolled in Medicaid. Therefore, this report only attributes 26 percent of total costs to this option. It is estimated that the locations can see a total of 12,600 patients each year. The report estimates that providers will operate at 80 percent of capacity. Assuming that 26 percent of patients seen are Medicaid enrollees leads to 2,621 Medicaid enrollees seen at the telemedicine locations each year. Average costs per visit from the status quo are applied to determine the clinical costs of Medicaid visits.

Outcomes of Telemedicine

Approximately 75 percent of primary care visits can be remedied via telemedicine (Evisit.com, 2018). Considering this, 75 percent of the 2,621 Medicaid patients seen will be considered as having access to care. Thus, the telemedicine option provides access to care for 1,966 Medicaid enrollees each year.

Costs of School-based Health Centers

Setting up school-based health care programs will require equipment, renovations, and additional personnel. A recent publication estimates that starting a primary care practice can cost between $50,000 to $65,000 (Terry, 2013). This report assumes $50,000 per location as the providers and/or the schools likely have some equipment and furniture that can be used. This yields a total cost of $250,000 for needed medical equipment, furniture, and office equipment for the five school centers over the ten-year time frame. A portion of the school will have to be renovated to set up the health centers. The health center will be approximately the size of a classroom, which is approximately 900 square feet. According to JLL Research, the average cost for a major classroom renovation is $150 per square foot (JLL Research, 2017). Thus, a 900-square foot classroom renovation would cost approximately $135,000 per health center. This yields a total cost of $675,000 for all five

schools. Each location will be staffed by two Nurse Practitioners, one Registered Nurse, and one billing specialist. According to Indeed.com, the average salary for each position is $100,000 per year, $78,000 per year, and $40,000 per year, respectively. This yields a total of $1,590,000 in salaries for the first year. This report assumes salaries will increase by 2 percent each year. Employee benefits and other administrative costs were calculated by multiplying salaries by 25 percent. However, the health centers will be open to all types of payors, including Medicaid, Medicare, and private pay patients. Based on information provided by DMAS, 26 percent of the population in the counties are enrolled in Medicaid. Therefore, this report only attributes 26 percent of total costs to this option. It is estimated that the locations will see a total of 6,720 patients each year. Assuming that 26 percent of patients seen are Medicaid enrollees leads to 1,747 Medicaid enrollees seen at the school locations each year. Average clinical costs per visit from the status quo are applied to determine the costs of doctor visits by the Medicaid enrollees.

Outcomes School-based Health Centers

Based on capacity estimates discussed at the opening of this section, the school-based health centers have the ability to see 8,400 patients per year. If they operate at 80 percent of capacity, then they will see 6,720 patients each year. If 26 percent of these patients are enrolled in Medicaid, then 1,747 Medicaid enrollees now have access to care each year.

Costs Mobile Health Clinics

Setting up safe and effective mobile health clinics will require the purchasing of mobile health vans along with staffing the vans. According to a publication from the mobile healthcare association, the average cost of buying a mobile health van is $250,000 (Santana, 2017). Therefore, buying five vans would cost a total of 1,250,000. This cost can be spread over the ten-year time frame to yield an annual cost of $125,000 per year. Each mobile health clinic will be staffed by one Nurse Practitioner, one Licensed Practical Nurse, one billing specialist, and one driver. According to Indeed.com, the average salary for each position is $100,000 per year, $43,000 per year, $40,000 per year, and $50,000, respectively. In addition, an off-site coordinator will be required to coordinate and plan where the mobile health clinics will set up. This yields a total of $1,210,000 in salaries for the first year. This report assumes salaries will increase by 2 percent each year. Employee benefits and other administrative costs were calculated by multiplying salaries by 25 percent. However, the mobile clinics will be open to all types of payors, including Medicaid, Medicare, and private pay patients. Based on information provided by DMAS, 26 percent of the population in the counties are enrolled in Medicaid. Therefore, this report only attributes 26 percent of total equipment and staffing costs to this option. It is estimated that the locations will see a total of 5,000 patients each year. Assuming that 26 percent of patients seen are Medicaid enrollees leads to 1,300 Medicaid enrollees seen at the school locations each year. Average costs per visit from the status quo are applied to determine the costs of doctor visits by the Medicaid enrollees.

Outcomes of Mobile Health Clinics

According to the mobile healthcare association, it is estimated that a mobile health clinic can see 20 patients per day. The report assumes the mobile health clinics would be open 50 weeks per year, and thus have the capacity for 6,250 patient visits per year. Assuming that the average person goes to the doctor four times per year, each mobile health clinic could see 1,250 unique patients. The five mobile clinics could therefore see a total of 6,250 unique patients each year. If

they operate at 80 percent of capacity, then they will see 5,000 patients each year. Assuming that 26 percent of patients seen are Medicaid enrollees leads to 1,300 Medicaid enrollees seen at the mobile health centers each year.

Option 1: Let Present Trends Continue

Cost Effectiveness
This option looks at Medicaid's current non-emergency transportation program. The present value of the cost of this program over the ten-year time frame is $338,872,261. The estimated total number of Medicaid enrollees that gain access to care through this option is 126,530. This yields a cost-effectiveness of $2,678 per Medicaid enrollee that gains access to care.

Political Feasibility
The political feasibility of maintaining with the status quo is high. DMAS already has the programs, personnel, and infrastructure in place so continuing with school-based services and transportation services is likely as it requires no action from the state legislature.

In addition, the status quo is very inexpensive compared to other Medicaid expenditures. It is not likely that lawmakers would want to cut transportation services due to the limited impact it would have on the overall Medicaid budget. Lawmakers are currently focused on Medicaid expansion for childless adults and work requirements, not cutting or changing transportation services.

Quality of Care
The quality of care under the status quo is rated as medium/high. If enrollees have access to a provider, then they most likely receive care in-person from a standard physician group or private practice. This in-person care is likely to result in good communication between the patient and provider and helpful discussions about preventive care and healthy choices. However, enrollees that do not have a regular provider do not receive high quality care. The ranking of medium/high for the status quo comes from a blending of those that have access to a provider and those that do not have access to a provider.

Ease of Implementation
The ease of implementation for the status quo is high. The status quo has been in place for years, so there are not any new implementation steps that need to be taken. Maintaining with the status quo require no new legislation and funding for the status quo is already in place.

Option 2: Tax Deductions for Telemedicine Networks

Cost Effectiveness
The present value of the cost of this program over the ten-year timeframe is $62,366,847. The estimated total number of Medicaid enrollees that gain access to care through this option is 19,656. This yields a cost-effectiveness of $3,173 per Medicaid enrollee that gains access to care. This is the least cost-effective option.

Political Feasibility

The political feasibility of this option is rated as low. As discussed previously, lawmakers are currently focused on Medicaid expansion which diverts attention away from improving access to care for underserved Medicaid enrollees. It is likely that the debate and discussions about Medicaid expansion will remain a hot topic for years to come. Given Virginia's relatively short legislative sessions, it is likely more pressing issues will be addressed instead of access to care.

In addition, this option requires changes to Virginia's tax code. As discussed earlier, the Joint Subcommittee on Tax Preferences would have to evaluate and recommend any tax deductions for healthcare providers that wish to set up telemedicine networks in the five rural counties. The recently proposed budget has many new clauses, that if passed, will keep the Joint Subcommittee very busy for the next few years. The proposed Medicaid expansion budget calls for all excess tax revenue collected this year to into a new cash reserve fund. More importantly, the proposed budget includes a proposed tax on hospital revenues, which is in direct conflict with this policy option.

Quality of Care

The quality of care for this option is rated as medium. This option is rated slightly lower than the status quo for two reasons. First, data suggests that medical providers are only able to resolve a patient's issues during a telehealth visit 75% of the time (Evisit.Com, 2018). This means certain diagnoses and conditions cannot be treated via telemedicine. Second, communication over video streams is not as effective as in-person communication, so the patient-provider relationship may not be as strong as would be the case if they met in person.

Ease of Implementation

The ease of implementation for this option is rated as medium. Setting up telemedicine networks requires a substantial amount of specialized equipment and secure software systems. However, many providers in the state already have functioning telemedicine networks, so it is likely they have the knowledge and experience to set up a telemedicine network. Finding a building to rent out should not be too challenging. To be eligible for the tax deductions, the providers would be required to submit an application to DMAS which shows that the telemedicine networks are in the specified, rural counties. DMAS would then validate this and provide an eligibility certificate to the providers. This step is needed to prevent providers that are not operating in the rural counties from receiving the tax deduction.

Option 3: Grant Funding for School-based Centers

Cost Effectiveness

The present value of the cost of this program over the ten-year timeframe is $41,339,499. The estimated total number of Medicaid enrollees that gain access to care through this option is 17,472. This yields a cost-effectiveness of $2,366 per Medicaid enrollee that gains access to care. This is the most cost-effective option.

Political Feasibility

The political feasibility of this option is rated as medium. This option is seen as more feasible than the telemedicine and mobile health clinic options for three reasons. First, this is the most cost-

effective option. In the General Assembly, Medicaid is a fiscal issue, not a healthcare issue. Therefore, the most cost-effective option is naturally more politically feasible. Second, as of fiscal year 2016, low-income children, parents, and pregnant women made up over 75 percent of Medicaid enrollees. Since children go to school regularly this option would be a very convenient option for children and parents, which make up the vast majority of Medicaid enrollees. Third, politicians on both sides of the aisle can gain easy popularity points by supporting this option and spinning it as a program that will help the Commonwealth's children. It is easier to gain political support for programs that help children.

Quality of Care

The quality of care for this option is rated as medium/high. This option is higher than the telemedicine option because the providers and patients will be meeting in person, which allows for better communication. In addition, research suggests that some conditions require treatment in person versus via telemedicine. Given the greater scope of care, and the improved patient-provider relationship via in-person communication, this option received a ranking of medium/high.

Ease of Implementation

The ease of implementation for this option is also rated as medium. The schools are already build so finding an appropriate place in the building to setup the health center should not be too challenging and renovation costs were already considered in the cost effectiveness analysis. The health center would be approximately the size of a classroom, which is approximately 900 square feet. The health center would need to be renovated so it can function as a health center and also to ensure the safety of the students at the school. The health center would need to have one secure entrance/exit that does not have access to the inside of the school. Other than these specific renovations, setting up a small health center would be similar to physicians setting up a small, private-practice. Office supplies, furniture, and equipment can easily be purchased and shipped to the location.

Option 4: Tax Credits for Mobile Health Clinics

Cost Effectiveness

The present value of the cost of this program over the ten-year timeframe is $30,939,645. The estimated total number of Medicaid enrollees that gain access to care through this option is 13,000. This yields a cost-effectiveness of $2,380 per Medicaid enrollee that gains access to care.

Political Feasibility

From a political feasibility standpoint, this option is very similar to the option to provide tax deductions for telemedicine networks. Thus, the political feasibility of this option is also rated as low. For the next few years, lawmakers will be too wrapped up in discussions about funding for Medicaid expansion to discuss options for improving access to care for underserved populations in rural Virginia.

This option also requires changes to Virginia's tax code. As discussed earlier, the Joint Subcommittee on Tax Preferences would have to evaluate and recommend any tax deductions for healthcare providers that wish to set up mobile health clinics in rural areas. Again, the

proposed Medicaid expansion budget includes a proposed tax on hospital revenues, which is in direct conflict with this policy option.

Quality of Care

This option received a quality care ranking of medium. One concern regarding MHCs is the size of the MHC. MHCs are typically small compared to a normal office, which could impact the care and treatment options. In addition, if MHCs do not have regular places to park and setup, then patients may miss follow-up visits, which would reduce the quality of services received.

Ease of Implementation

The east of implementation for this option is rated as low/medium. Buying mobile health clinics and outfitting them with the appropriate equipment is not exceedingly challenging. However, this option is rates slightly lower than the other options as the coordination of where the mobile health clinics will setup each week may be challenging and unpredictable. The MHCs will have to find locations that will allow them to park and provide care. Many MHCs have arrangements with schools, faith-based organizations, non-profits, etc. that allows them to park and provide care on their property. However, these places may change their minds in the future or even move locations, which would impact the implementation of this option.

To be eligible for the tax credits, the providers would be required to submit an application to DMAS which proves that the MHCs are operating in the specified, rural counties. DMAS would then validate this and provide an eligibility certificate to the providers. This step is needed to prevent providers that are not in the rural counties from receiving the tax credit.

XI. Outcomes Matrix

Outcomes Matrix				
	Status Quo	**Tax Deductions for Telemedicine**	**Grants for School-based Centers**	**Tax Credits for MHCs**
Cost Effectiveness (50%)	Score: 3 $2,678	Score: 2 $3,173	Score: 4 $2,366	Score: 3 $2,380
Political Feasibility (25%)	5 - High feasibility as no legislative action required	1 - Low feasibility as lawmakers will be focused on Medicaid expansion	3 - Medium feasibility as it is the most cost-effective and it can be presented to the public as an option to help children	1 - Low feasibility as lawmakers will be focused on Medicaid expansion
Quality of Care (15%)	4 - Medium/High as enrollees with a physician receive high quality care, but enrollees without a provider do not receive care	3 - Medium as some conditions cannot be treated via telemedicine and communication in person is preferable to video communication	4 - Medium/High as enrollees will be seen in-person, which improve communication and builds a better patient-provider relationship	3 - Medium as the small size of MHCs can negatively impact treatment and MHCs may not have regular places to park and setup
Ease of Implementation (10%)	5 - High as there is nothing new to implement by continuing with the status quo	3 - Medium as telemedicine networks require specialized equipment and secure software systems	3 - Medium as the schools are already built, but renovations would have to be made to setup a secure health center	2 - Low/Medium as the coordination of where and when MHCs will setup may be challenging and constantly changing
Total	**3.85**	**2**	**3.65**	**2.4**
1 = Low; 5 = High				

XII. Recommendation & Implementation

After analyzing the options, I recommend **maintaining the status quo while also moving forward with Option 3, which is to provide a grant to create school-based health centers.**

Maintaining the status quo will ensure that enrollees that have access to a primary care provider can continue to be seen by that provider. The status quo requires no new efforts from DMAS or Virginia's General Assembly. In addition, it is relatively cost-effective compared to other options. Unfortunately, the status quo does nothing to address the shortage of providers in the rural counties.

Creating school-based health centers will help bring new providers to the area, which increases the supply of primary care services. Creating school-based health centers is the most cost-effective option and is projected to provide access to care for over 17,000 Medicaid enrollees over the next ten years. Politically, this option is more feasible than the others as it can be presented to the public as a policy that helps ensure the health of Virginia's children. This option also provides a higher quality of care as enrollees will be able to be seen in-person.

Implementation

To make school-based health centers a reality, DMAS will have to be awarded with a grant-fund of approximately $5 million in the Commonwealth's next budget. The schools are already built so finding an appropriate place in the building to setup the health center should not be too challenging. DMAS would have to work with county leaders and the School Board to determine which schools are best suited for the health centers. The health center would be approximately the size of a classroom, which is approximately 900 square feet. The health center would need to be renovated so it can function as a health center and also to ensure the safety of the students at the school. The health center would need to have one secure entrance/exit that does not have access to the inside of the school. Other than these specific renovations, setting up a small health center would be similar to physicians setting up a small, private-practice. Office supplies, furniture, and equipment can easily be purchased and shipped to the location. By taking steps to improve access to care in rural Virginia, DMAS can help improve the quality of life for these residents, while also reducing the social and economic costs associated with limited access to health care.

Appendix A: Payor Mix

Type of Insurance Coverage for the 5 Counties	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Population	129,603	129,621	129,639	129,657	129,675	129,693	129,711	129,729	129,747	129,765
Number of Medicaid Enrollees (26%)	33,752	33,756	33,760	33,765	33,769	33,773	33,777	33,781	33,785	33,789
Number of Medicare Enrollees (15%)	19,440	19,443	19,446	19,449	19,451	19,454	19,457	19,459	19,462	19,465
Number of Private Pay (47%)	60,858	60,867	60,876	60,885	60,894	60,903	60,912	60,921	60,930	60,939
Number of Uninsured (12%)	15,552	15,555	15,557	15,559	15,561	15,563	15,565	15,567	15,570	15,572

Appendix B: Cost Effectiveness Details per Policy Option

Status Quo: Non-Emergency Transportation	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Cost of Non-Emergency Transport	$6,569,358	$6,963,520	$7,381,331	$7,824,211	$8,293,663	$8,791,283	$9,318,760	$9,877,886	$10,470,559	$11,098,793
Cost of Medicaid Visits	$27,905,685	$29,580,027	$31,354,828	$33,236,118	$35,230,285	$37,344,102	$39,584,748	$41,959,833	$44,477,423	$47,146,068
Administrative Costs	$861,876	$913,589	$968,404	$1,026,508	$1,088,099	$1,153,385	$1,222,588	$1,295,943	$1,373,700	$1,456,122
Total Cost	**$35,336,920**	**$37,457,135**	**$39,704,563**	**$42,086,837**	**$44,612,047**	**$47,288,770**	**$50,126,096**	**$53,133,662**	**$56,321,681**	**$59,700,982**
Present Value of Total Costs	$ 338,872,261									
# of Enrollees that Gain Access	126,530									
CEA	**$ 2,678**									

Option 2: Tax Deductions for Telemedicine	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Telemedicine Equipment	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Telemedicine Training	$ 5,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Rent	$ 72,000	$ 73,440	$ 74,909	$ 76,407	$ 77,935	$ 79,494	$ 81,084	$ 82,705	$ 84,359	$ 86,047
12 NPs at Off-site Locations	$ 1,200,000	$1,224,000	$ 1,248,480	$ 1,273,450	$ 1,298,919	$ 1,324,897	$1,351,395	$1,378,423	$ 1,405,991	$ 1,434,111
5 Registered Nurses	$ 390,000	$ 397,800	$ 405,756	$ 413,871	$ 422,149	$ 430,592	$ 439,203	$ 447,987	$ 456,947	$ 466,086
15 Licensed Practical Nurses	$ 645,000	$ 657,900	$ 671,058	$ 684,479	$ 698,169	$ 712,132	$ 726,375	$ 740,902	$ 755,720	$ 770,835
5 billing specialists	$ 200,000	$ 204,000	$ 208,080	$ 212,242	$ 216,486	$ 220,816	$ 225,232	$ 229,737	$ 234,332	$ 239,019
Sum of Above	***$ 2,542,000***	***$ 2,588,140***	***$ 2,639,283***	***$ 2,691,448***	***$ 2,744,657***	***$ 2,798,931***	***$ 2,854,289***	***$ 2,910,755***	***$ 2,968,350***	***$ 3,027,097***
Medicaid 26% of Above Sum	$ 660,920	$ 672,916	$ 686,214	$ 699,777	$ 713,611	$ 727,722	$ 742,115	$ 756,796	$ 771,771	$ 787,045
Addt'l Administrative Costs	$ 158,275	$ 201,801	$ 205,837	$ 209,953	$ 214,152	$ 218,435	$ 222,804	$ 227,260	$ 231,805	$ 236,442
Costs of Addt'l Medicaid Visits	$ 5,780,070	$6,126,874	$ 6,494,486	$ 6,884,155	$ 7,297,205	$ 7,735,037	$8,199,139	$8,691,088	$ 9,212,553	$ 9,765,306
Total Cost	**$ 6,599,265**	**$7,001,591**	**$ 7,386,536**	**$ 7,793,885**	**$ 8,224,968**	**$ 8,681,194**	**$9,164,059**	**$9,675,144**	**$10,216,129**	**$10,788,793**
Present Value of Total Costs	$ 62,366,847									
# of Enrollees that Gain Access	19,656									
CEA	**$ 3,173**									

Option 3: Grant Funding for School-based Programs	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Medical Equipment	$ 17,500	$ 17,500	$ 17,500	$ 17,500	$ 17,500	$ 17,500	$ 17,500	$ 17,500	$ 17,500	$ 17,500
Furniture & Office Equipment	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500
Renovation Costs	$ 67,500	$ 67,500	$ 67,500	$ 67,500	$ 67,500	$ 67,500	$ 67,500	$ 67,500	$ 67,500	$ 67,500
10 Nurse Practitioners	$1,000,000	$1,020,000	$1,040,400	$ 1,061,208	$1,082,432	$1,104,081	$1,126,162	$1,148,686	$1,171,659	$1,195,093
5 Registered Nurses	$ 390,000	$ 397,800	$ 405,756	$ 413,871	$ 422,149	$ 430,592	$ 439,203	$ 447,987	$ 456,947	$ 466,086
5 Billing Specialists	$ 200,000	$ 204,000	$ 208,080	$ 212,242	$ 216,486	$ 220,816	$ 225,232	$ 229,737	$ 234,332	$ 239,019
Sum of above	**$1,682,500**	**$1,714,300**	**$1,746,736**	**$ 1,779,821**	**$1,813,567**	**$1,847,988**	**$1,883,098**	**$1,918,910**	**$1,955,438**	**$1,992,697**
Medicaid 26% of the above	$ 437,450	$ 445,718	$ 454,151	$ 462,753	$ 471,527	$ 480,477	$ 489,606	$ 498,917	$ 508,414	$ 518,101
Costs of Addt'l Medicaid Visits	$3,853,380	$4,084,582	$4,329,657	$ 4,589,437	$4,864,803	$5,156,691	$5,466,093	$5,794,058	$6,141,702	$6,510,204
Addt'l Administrative Costs	$ 103,350	$ 105,417	$ 107,525	$ 109,676	$ 111,869	$ 114,107	$ 116,389	$ 118,717	$ 121,091	$ 123,513
Total	**$4,394,180**	**$4,635,717**	**$4,891,334**	**$ 5,161,866**	**$5,448,200**	**$5,751,275**	**$6,072,087**	**$6,411,692**	**$6,771,207**	**$7,151,818**
Present Value of Total Costs	$ 41,339,499									
# of Enrollees that Gain Access	17,472									
CEA	**$ 2,366**									

Option 4: Tax Credits for Mobile Health Clinics										
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Purchasing 5 Mobile Health Clinics	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000
5 Nurse Practitioners	$ 500,000	$ 510,000	$ 520,200	$ 530,604	$ 541,216	$ 552,040	$ 563,081	$ 574,343	$ 585,830	$ 597,546
5 Technicians/Billing Specialists	$ 200,000	$ 204,000	$ 208,080	$ 212,242	$ 216,486	$ 220,816	$ 225,232	$ 229,737	$ 234,332	$ 239,019
5 Licensed Practical Nurses	$ 215,000	$ 219,300	$ 223,686	$ 228,160	$ 232,723	$ 237,377	$ 242,125	$ 246,967	$ 251,907	$ 256,945
5 Drivers	$ 250,000	$ 255,000	$ 260,100	$ 265,302	$ 270,608	$ 276,020	$ 281,541	$ 287,171	$ 292,915	$ 298,773
1 Off-site Coordinator	$ 45,000	$ 45,900	$ 46,818	$ 47,754	$ 48,709	$ 49,684	$ 50,677	$ 51,691	$ 52,725	$ 53,779
Sum of above	**$1,335,000**	**$1,359,200**	**$1,383,884**	**$1,409,062**	**$1,434,743**	**$1,460,938**	**$1,487,657**	**$1,514,910**	**$1,542,708**	**$1,571,062**
Medicaid 26% of the above	$ 347,100	$ 353,392	$ 359,810	$ 366,356	$ 373,033	$ 379,844	$ 386,791	$ 393,877	$ 401,104	$ 408,476
Costs of Addt'l Medicaid Visits	$2,867,098	$3,039,124	$3,221,471	$3,414,760	$3,619,645	$3,836,824	$4,067,033	$4,311,055	$4,569,719	$4,843,902
Addt'l Administrative Costs	$ 78,650	$ 80,223	$ 81,827	$ 83,464	$ 85,133	$ 86,836	$ 88,573	$ 90,344	$ 92,151	$ 93,994
Total	**$3,292,848**	**$3,472,739**	**$3,663,109**	**$3,864,580**	**$4,077,812**	**$4,303,504**	**$4,542,397**	**$4,795,276**	**$5,062,974**	**$5,346,372**
Present Value of Total Costs	$ 30,939,645									
# of Enrollees that Gain Access	13,000									
CEA	**$ 2,380**									

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