

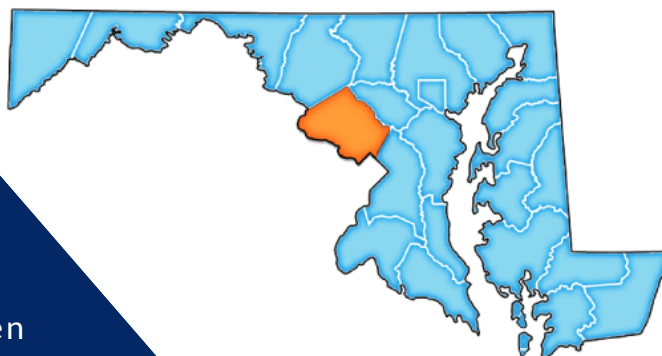


MONTGOMERY COUNTY COUNCIL

SCHOOL-BASED HEALTH CENTER ASSESSMENT AND SITE SUITABILITY ANALYSIS

2018

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ABOUT THE FELLOW

Rebecca is a current Social Policy and Data Analytics Masters Student at the University of Pennsylvania. She is impassioned about health disparities and policy issues affecting her local communities. Rebecca strives to make a difference by connecting data and policy to aid policy makers in visualizing a social problem in a new way. Growing up in Montgomery County, Rebecca witnessed changes, needs, and advances the county made over 18 years. Now 10 years later, she is thrilled to be back and able to assist projects and initiatives the county has undertaken. When not studying policy or creating data visualizations Rebecca can be found running along the Schuylkill River or hiking with her 3 year old adopted dog.



ACKNOWLEDGEMENTS

Thank you to Marlene Michaelson, Executive Director County Council; Linda McMillan, Senior Legislative Analyst; Chunfu Liu, ScD, MPH, MHCA, Chief Epidemiologist Montgomery County DHHS; and Dr. Travis Gayles, MD, PhD County Health Officer and Chief of Public Health Services.

School Based Health Center (SBHC) Analysis & Site Suitability

School based health centers are located in schools or on a school campus and provide onsite comprehensive preventative and primary health services. In Montgomery County there are four SBHC that work with high school students in four local high schools. The centers offer coordinated medical care, preventive and psycho-social services, counseling, and health education.

This report analyzes four of the SBHCs within Montgomery County located in high schools in conjunction with the county's disease burden for seven common health conditions and areas of concern to determine the site for pilot services offering new extended and weekend hours. These extended hours would allow for care to be provided not only to high school students, but to parents, siblings, grandparents, other members of their household. These services would be provided by HHS staff or DHHS contractors. Each site is/ will be equipped with a school nurse, certified nursing assistant, site coordinator, nurse practitioner, pediatrician, case manager, and licensed mental health counselor.



EXECUTIVE SUMMARY



BACKGROUND INTRODUCTION

Overview: The *'Health in Montgomery County 2008-2016 Surveillance Report on Population Health'* clearly outlines health outcomes in Montgomery County have generally performed better than the Maryland and national average. However, several health conditions have shown increasing rates and should be prioritized. Some 36% of high schoolers in Montgomery County are on FARMS. 25% of those high school students live in poverty and 9% are uninsured. School-based Health Centers allow students to be seen for sicknesses, dental, vaccinations, etc. The School Based Health Centers, (SBHC), focus on school-aged children to provide them with comprehensive, quality health care. The School Based Health and Wellness Centers are partners with: HHS; MCPS; Children's Pediatricians & Associates; Catholic University of America and the Primary Care Coalition, along with public-private sector organizations, and the community.

Four of the countywide School Based Health Centers: Watkins Mill High School, Gaithersburg High School, Wheaton High School, and Northwood High School) are being considered for extended hours of operation. Not only will students benefit, but siblings, family members and members of the household could utilize the SBHC extended hours. This over-arching effort helps to serve the whole community. To determine which SBHCs would be the best candidates for the pilot program locations, several disease burdens were considered from within the Health in Montgomery County report:

* STIs

*Heart Disease

*Suicide

*Substance Abuse

* Chronic Lower Respiratory Disease

*Diabetes

KEY FINDINGS

1

INCREASED ACCESS:

In 2004, 1 in 11 Maryland Children under 18 didn't have health insurance, 1 in 4 lived in Poverty. SBHCs increase children's access to health care, treat illness, manage chronic conditions and improve school attendance and outcomes

2

CHRONIC DISEASE:

Heart disease mortality has decreased but heart disease related ER visits have increased. Chronic diseases can be reduced by early screening and health education for the whole family.

3

BEHAVIORAL HEALTH:

Mental health related ER visits have increased overtime. Although lower than state average, substance abuse related ER visits have increased.

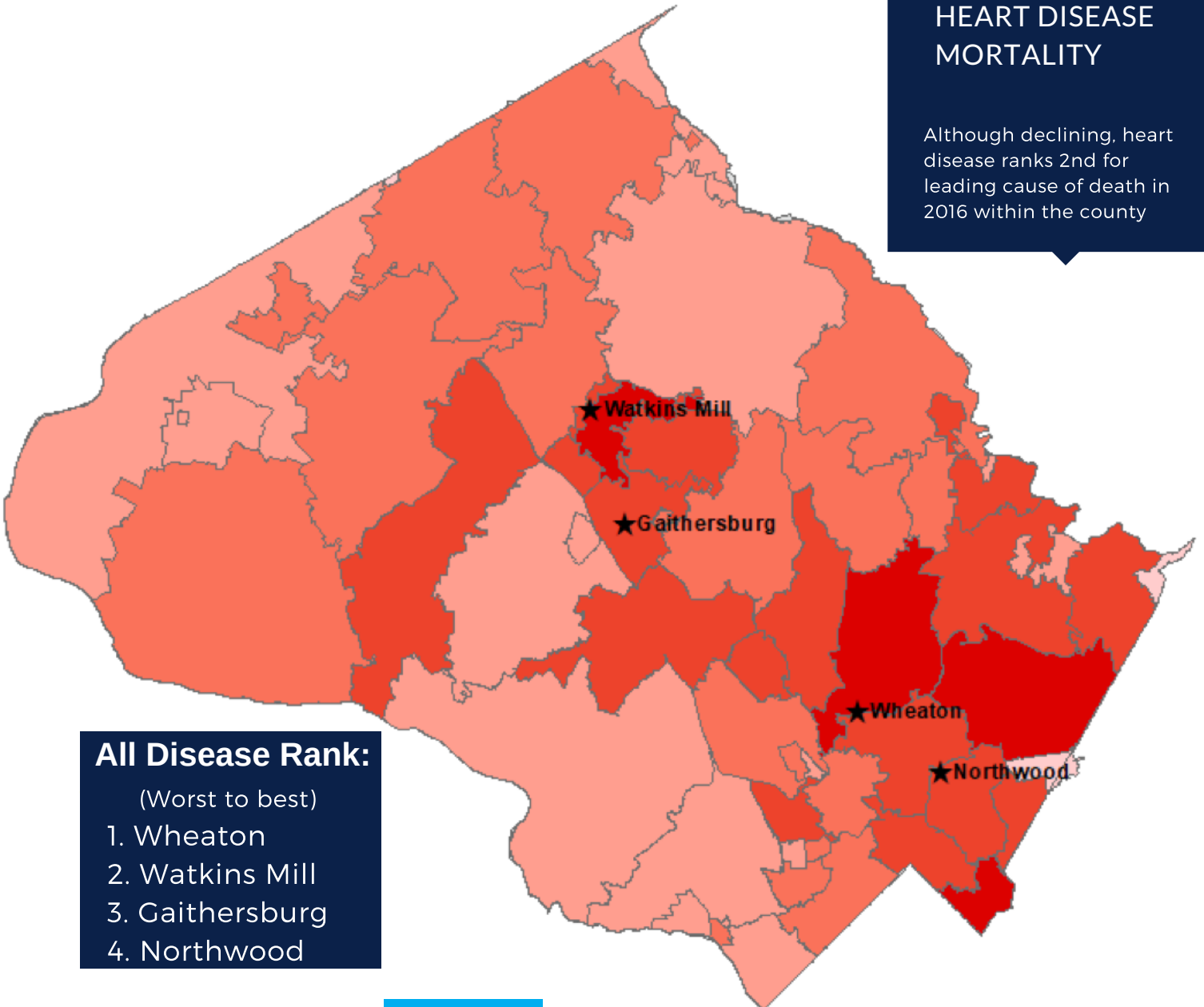
EXECUTIVE SUMMARY

DATA HIGHLIGHTS

22.4%

HEART DISEASE MORTALITY

Although declining, heart disease ranks 2nd for leading cause of death in 2016 within the county



All Disease Rank:

(Worst to best)

1. Wheaton
2. Watkins Mill
3. Gaithersburg
4. Northwood

36%

HIGH SCHOOL STUDENTS ON FARMS

25% of children living in poverty and 9% without insurance.

"While we do fare better than the state and national averages for many of these benchmarks (e.g. life expectancy), the data suggests several concerning trends, including increases in sexually transmitted infections, tuberculosis rates, substance use (e.g. opioid use and overdoses), and utilization of emergency rooms for management of chronic diseases (e.g. diabetes)."

Dr. Travis Gayes MD, PhD

6.2%

MENTAL HEALTH HOSPITALIZATIONS

Mental health hospitalizations have been increasing in recent years.

SBHCS HISTORY AND ROLE IN STUDENTS' HEALTH & BEYOND

Historically, school nurses provide acute care for injuries and illnesses, care for chronic health conditions under the supervision of a physician, conduct screening for health problems, and maintain up-to-date health and immunization records. School nurses do not diagnose or treat illness; they refer children for appropriate medical care. School nurses often serve as the first contact for health issues in a school. They evaluate the problem at hand and either provide care or refer the student to the appropriate provider of care, which may be a SBHC nurse practitioner, a mental health provider, or the child's own doctor.

GRADUATION RATE:

Watkins Mill HS: 89%

Northwood 83%

Wheaton HS: 82%

Gaithersburg HS: 80%

COLLEGE READINESS:

Wheaton HS: 48.7%

Gaithersburg HS: 39.8%

Northwood 35%

Watkins Mill HS: 31.8%

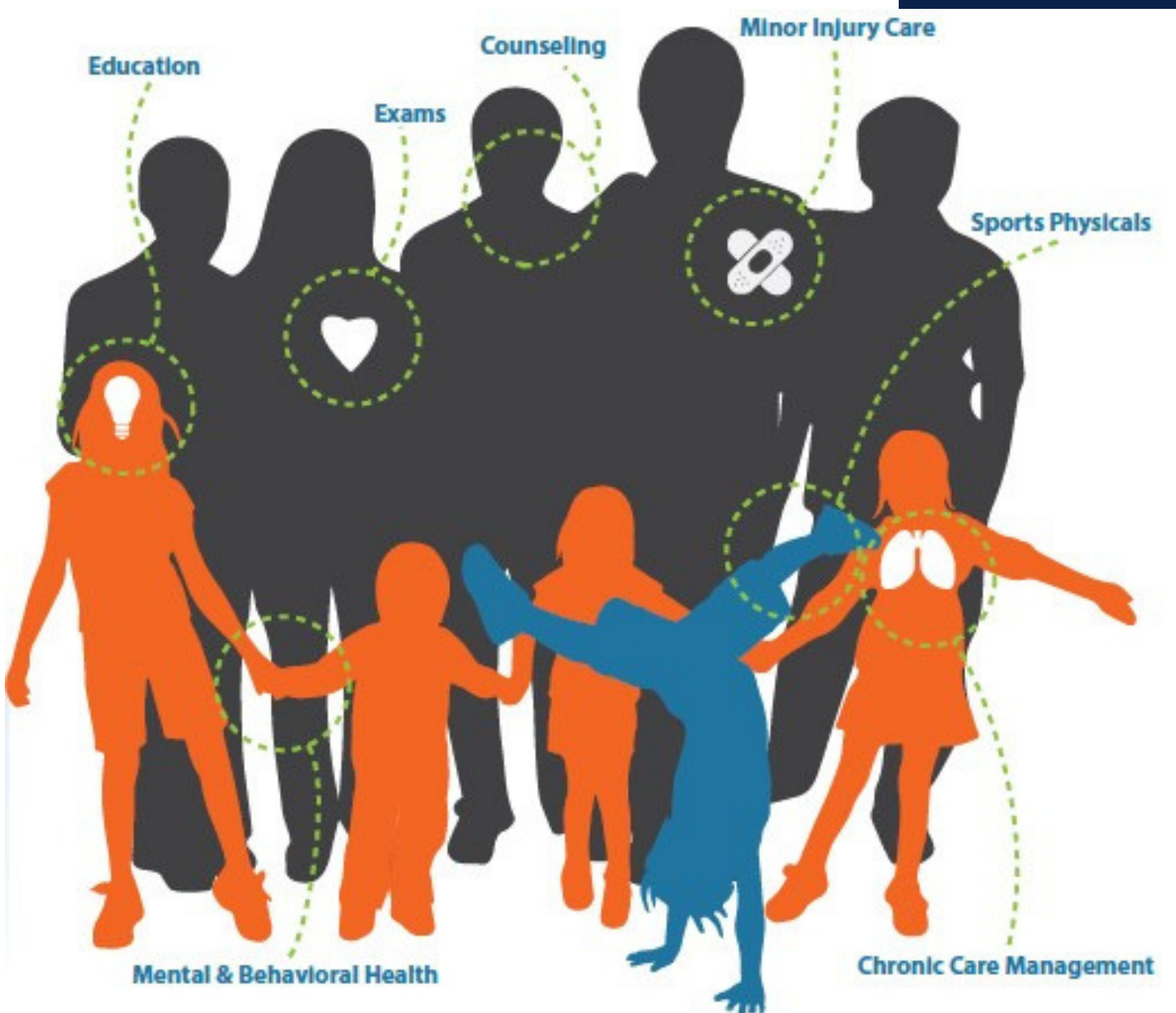


SBHCS HISTORY AND ROLE IN STUDENTS' HEALTH & BEYOND

BENEFITS OF SBHCS

- Address unmet health care needs with celerity by convenient operating locations
- Reach populations least likely to receive care such as minorities, and uninsured
- Promote chronic disease maintenance and teach self-management skills
- Strengthen the connection between the community and the school

SBHCs were started in Maryland in 1985 to increase children's access to health care. They have proven effective in diagnosing and treating illness, managing chronic health conditions, and increasing school attendance for children at risk of missing school due to health issues. In some parts of the United States, where SBHCs have been studied, an increase in student achievement has been noted in schools with SBHCs.



SBHCs are good for all children, though, not just the poor and the uninsured. Many rural Maryland counties have few pediatricians or other child health professionals, so services provided in schools are especially important. In recent years, chronic conditions have increased in children, such as asthma, diabetes, and obesity, which benefit from daily monitoring and treatment in a school setting.

• Aims •

- SBHC Expansion** Examining a possible expansion to a School Based Health Center in Montgomery County.
- Increase care** Opening the SBHC for families of students would enable a greater percentage of the community being serviced
- Promote health education** Several of the diseases plaguing the county are highlighted in this report and are affected by habits which can be altered through improved health education.

• Methodology •

The study population is Montgomery County constituents. The data sources are "Health in Montgomery County 2008–2016 surveillance report"; U.S. Census Data; HHS Montgomery County Hospitalization Data; HHS CHIP County Mortality Data. The disease variables are heart disease, chronic lower respiratory diseases (CLDR), diabetes, substance abuse, suicide, STI prevalence (Gonorrhea and Chlamydia), and teenage pregnancy. Although teenage pregnancy was included in the initial analysis, the frequencies were too low for meaningful comparison and interpretation, therefore the variable was removed. These diseases were selected due to impacts not only on High School aged children but all age groups in order to assess the needs of the entire community as the aim of the analysis is to select a site to pilot evening and weekend SBHC hours available to siblings, family members, and all members of the household.

For this analysis in order to see the census tract and zip code (in the case of STI data) levels of data, each health condition of interest was intersected with the HS cluster shape file. This enabled the average to be calculated for the geometric intersection of any number of feature classes and feature layers. This intersection allows the relationship to be determined by discovering the geometric relationship (intersections) between features from the different features classes (diseases) and the shape layers (either census tract or zip code).

• Definitions •

- SBHC** SBHCs are school based health and wellness centers, located in a school or on a school campus, which provide onsite comprehensive preventive and primary health services.
- STIs** An infection transmitted through sexual contact, caused by bacteria, viruses, or parasites.
- Rank** Diseases are ranked from worst to best (least bad) on the subsequent variable analysis pages

VARIABLE ANALYSIS

HEART DISEASE MORTALITY

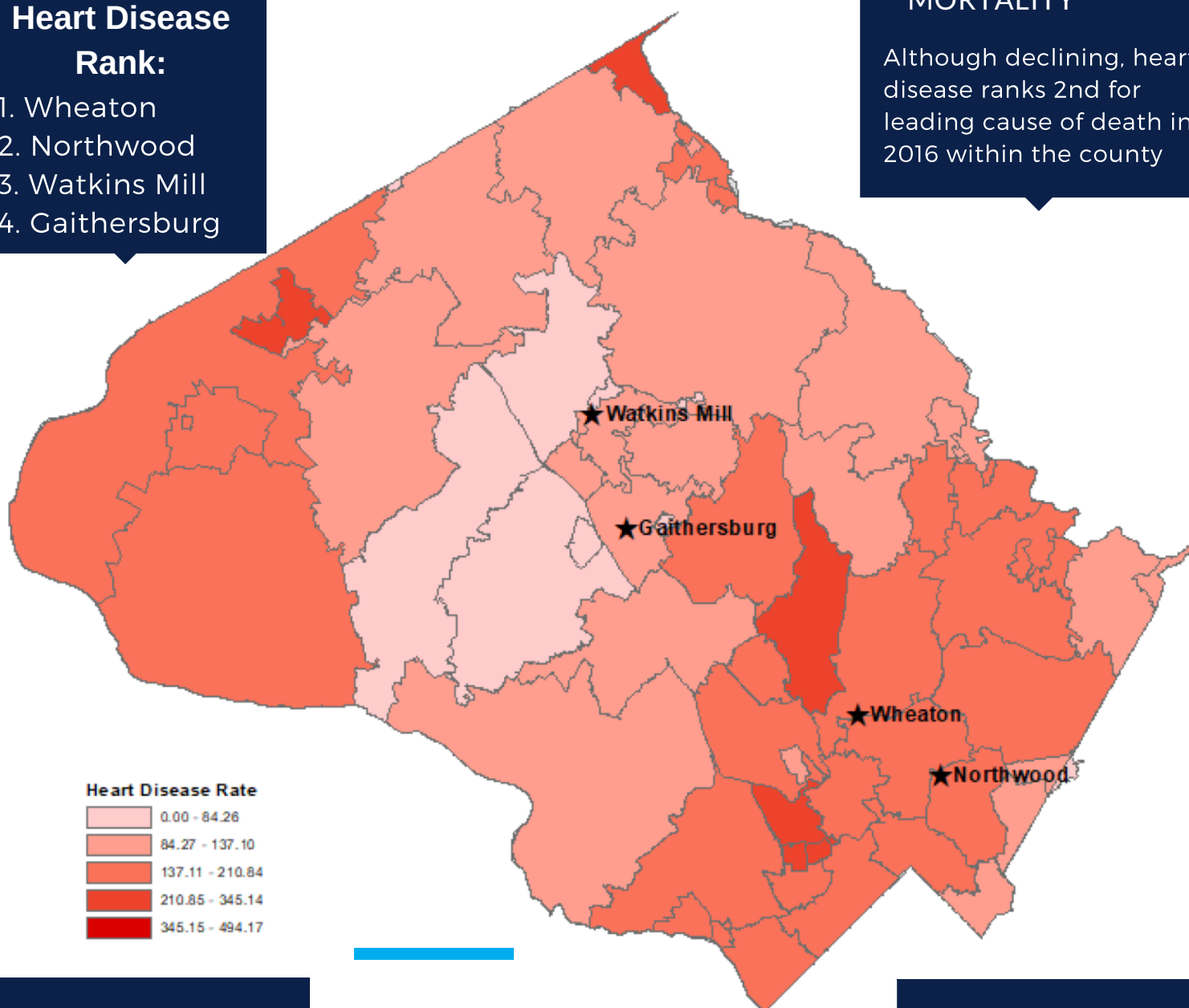
Heart Disease Rank:

1. Wheaton
2. Northwood
3. Watkins Mill
4. Gaithersburg

22.4%

HEART DISEASE MORTALITY

Although declining, heart disease ranks 2nd for leading cause of death in 2016 within the county



52.8%

95% CI: 44.9 - 60.9

Adults 18+ are
overweight or obese in
Montgomery County

Heart disease ER visit rates are increasing, similar to those in Maryland.; the rates in the County are consistently lower than those in Maryland at 1706.4 per 100,000. This rate is highest among Non Hispanic (NH) Blacks with 2,951.4 per 100,000.

45.8

RATE PER 100,000

Heart Disease
Mortality Rates for 35-
64 year olds in
Montgomery County

VARIABLE ANALYSIS

CHRONIC LOWER RESPIRATORY DISEASES (CLDR) MORTAILITY

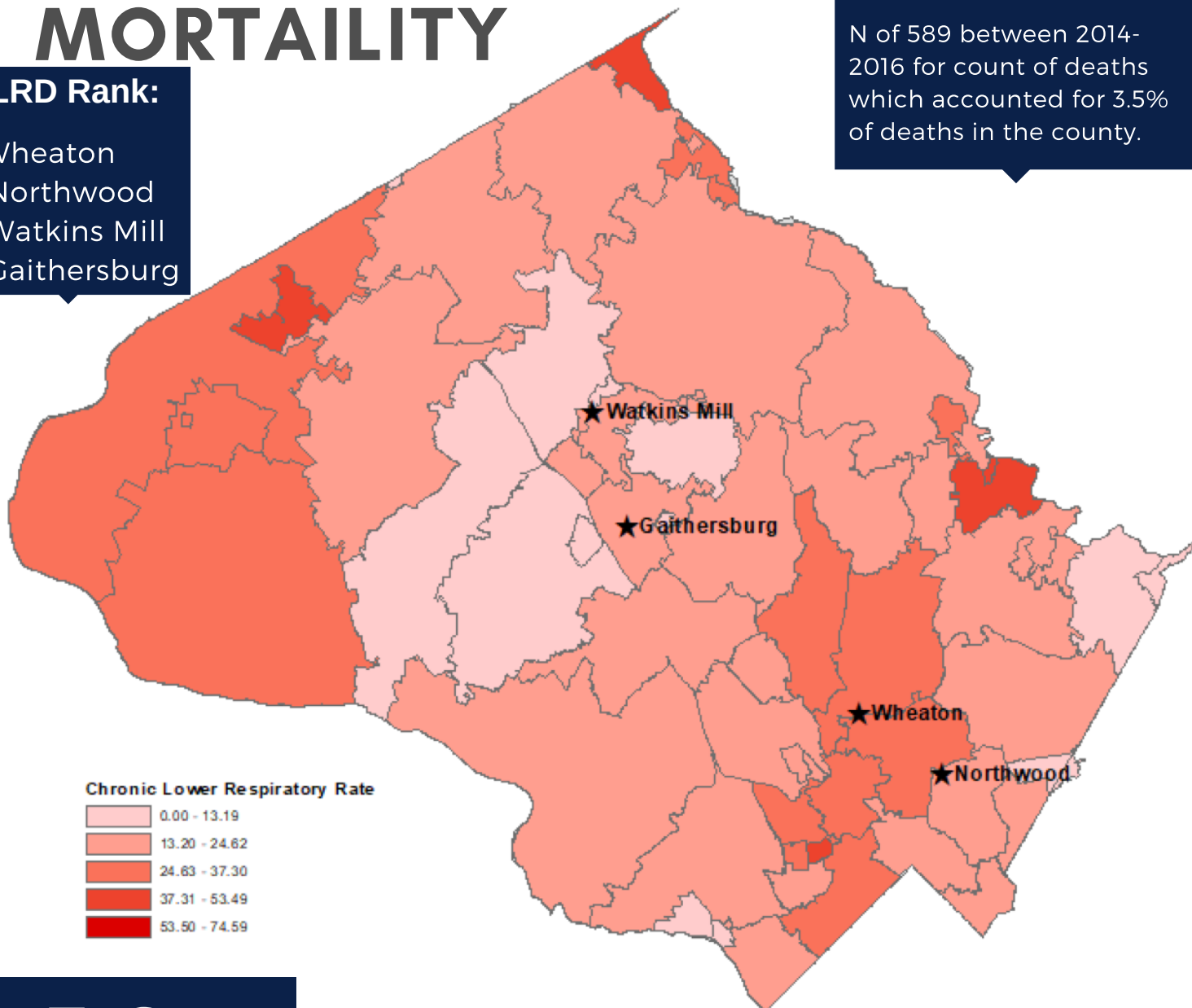
CLRD Rank:

1. Wheaton
2. Northwood
3. Watkins Mill
4. Gaithersburg

5TH

LEADING CAUSE
OF DEATH

N of 589 between 2014-
2016 for count of deaths
which accounted for 3.5%
of deaths in the county.



3.6

RATE PER 100,000

For 35-64 year olds as
compared to 122.6 for
65+ year olds.

Montgomery County had a decreasing trend of chronic lower respiratory disease mortality, following the same trends as Maryland and the U.S.; chronic lower respiratory disease mortality in the County was consistently lower than that of Maryland and the U.S. with an age adjusted mortality of 15.5 compared to ~30 (MD) and ~40 (U.S.)

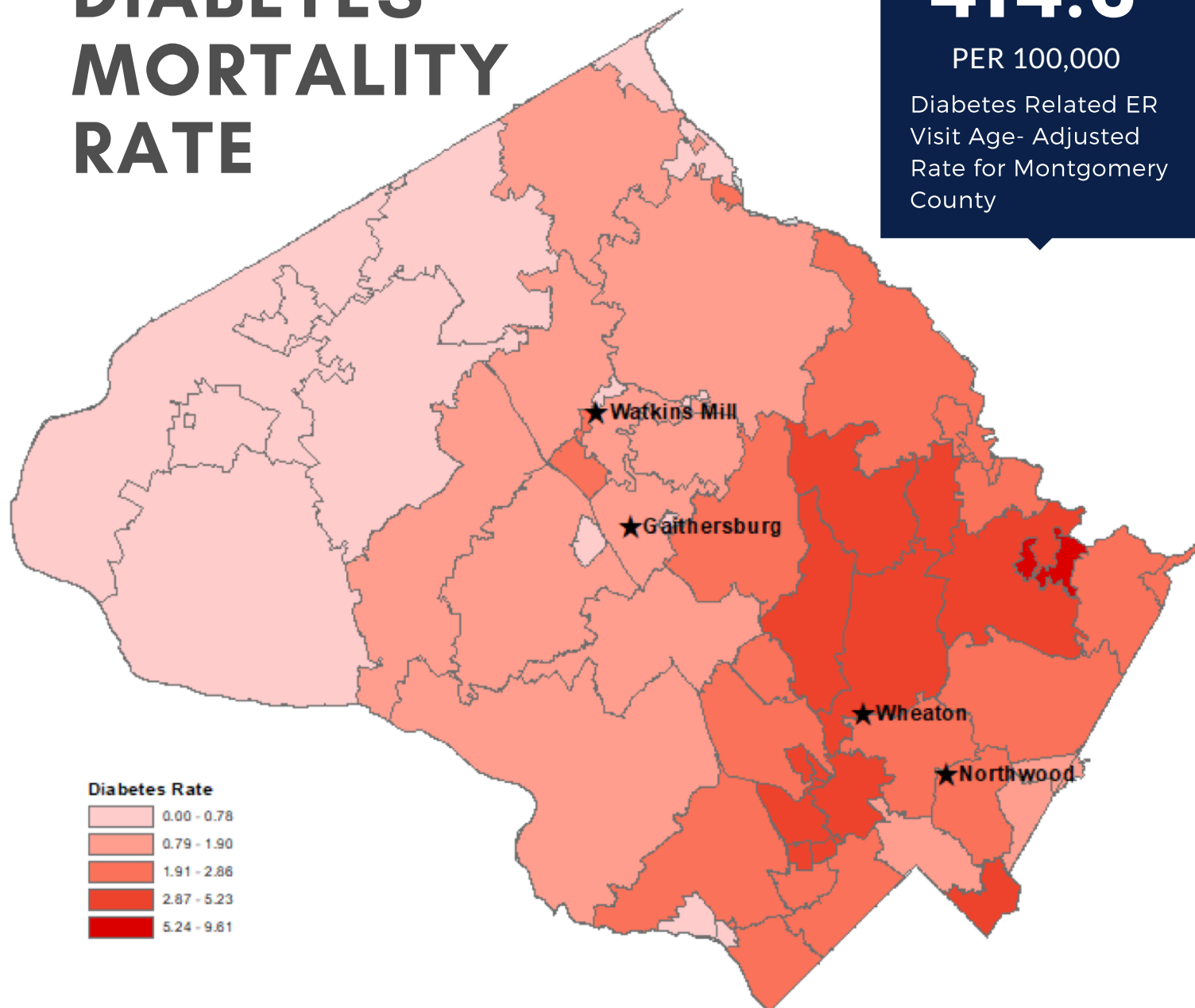
VARIABLE ANALYSIS

DIABETES MORTALITY RATE

414.6

PER 100,000

Diabetes Related ER
Visit Age- Adjusted
Rate for Montgomery
County



848.6

AGE ADJUSTED RATE
PER 100,000

NH Blacks had the highest
rate among sub groups
followed by Hispanics
with 500.6 AAR.

While diabetes mortality showed a decreasing trend in the County, diabetes related ER visits rates increased. The County had lower mortality and ER visit rates than Maryland. NH-Blacks had the highest mortality and ER visit rates. Diabetes mortality rates also increase with age.

Diabetes Rank:

1. Wheaton
2. Northwood
3. Gaithersburg
4. Watkins Mill

VARIABLE ANALYSIS

SUBSTANCE ABUSE

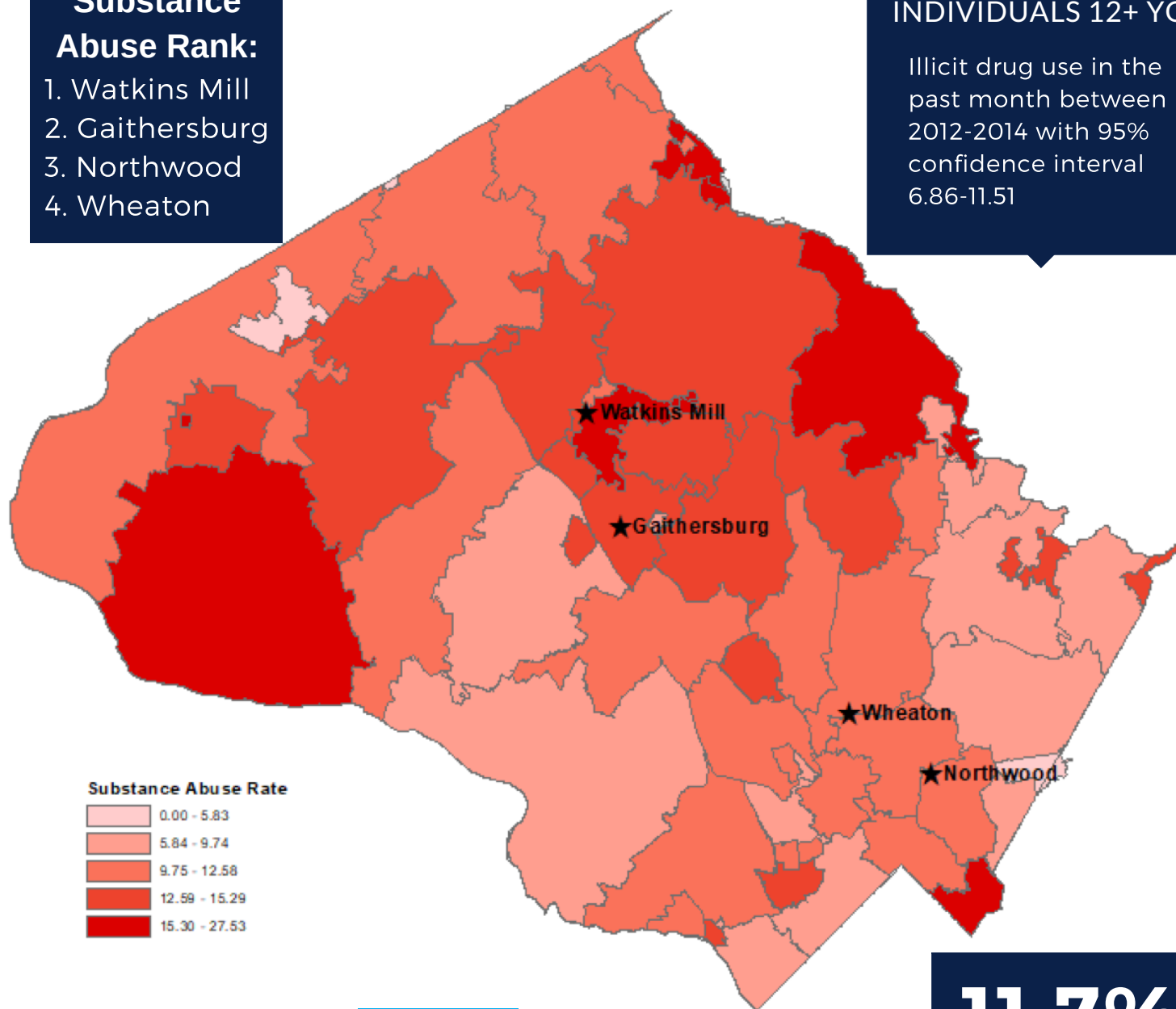
Substance Abuse Rank:

1. Watkins Mill
2. Gaithersburg
3. Northwood
4. Wheaton

8.91%

INDIVIDUALS 12+ YO

Illicit drug use in the
past month between
2012-2014 with 95%
confidence interval
6.86-11.51



12.5%

HIGH SCHOOL
STUDENTS

Have ever taken a
prescription drug
without a prescription.

Drug-induced mortality rates in the County has continued to increase, which is consistent with that in Maryland and the U.S. NH-White had the highest rate among all sub groups; and of those males had higher rates than females. People ages 18-34 had the highest mortality rate, followed by age 35-64.

11.7%

AAR PER 100,000

Drug induced
mortality rate

VARIABLE ANALYSIS

SUICIDE

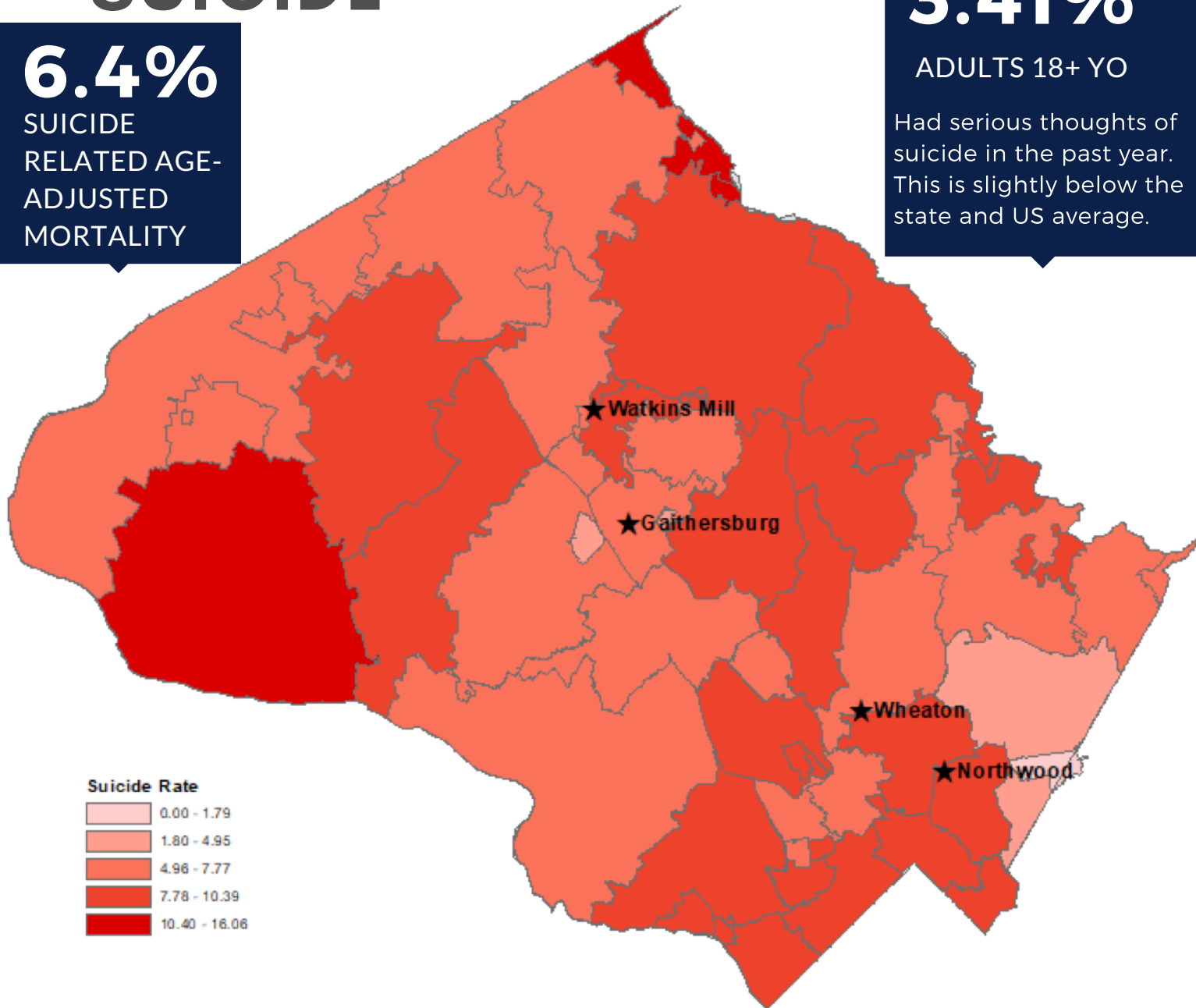
6.4%

SUICIDE
RELATED AGE-
ADJUSTED
MORTALITY

3.41%

ADULTS 18+ YO

Had serious thoughts of
suicide in the past year.
This is slightly below the
state and US average.



15.6%
HIGH SCHOOL
STUDENTS

Seriously considered
suicide in the past year.
(Below state and US
average)

Males had higher rates of
suicide than females. People
aged 65+ had the highest
suicide mortality rates, followed
by age 35-46, and then age 18-
34.

Suicide Rank:

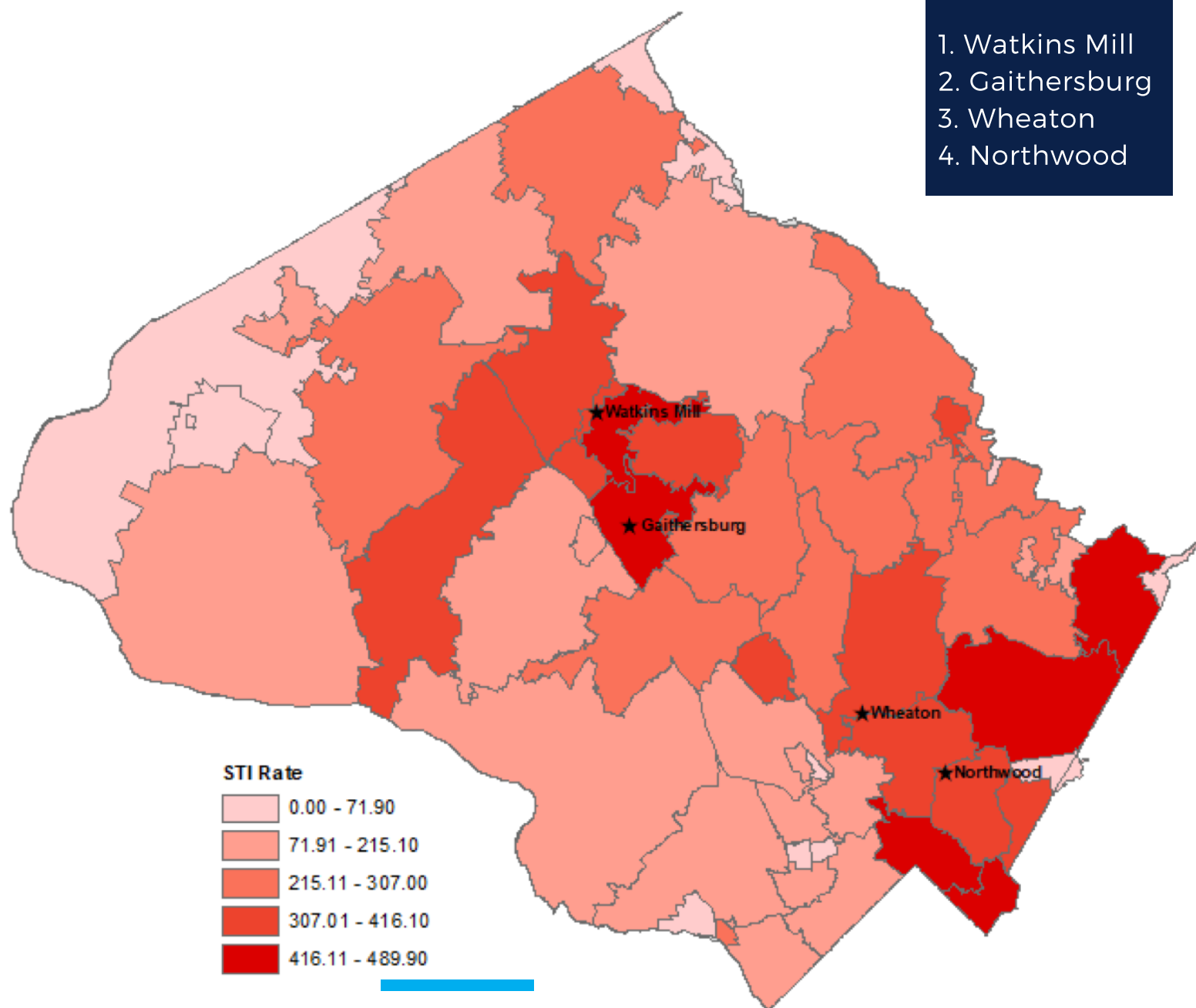
1. Watkins Mill
2. Northwood
3. Gaithersburg
4. Wheaton

VARIABLE ANALYSIS

STI INCIDENCE RATE

STI Rank:

1. Watkins Mill
2. Gaithersburg
3. Wheaton
4. Northwood



53.9

GONORRHEA
INCIDENCE RATE
PER 100,000

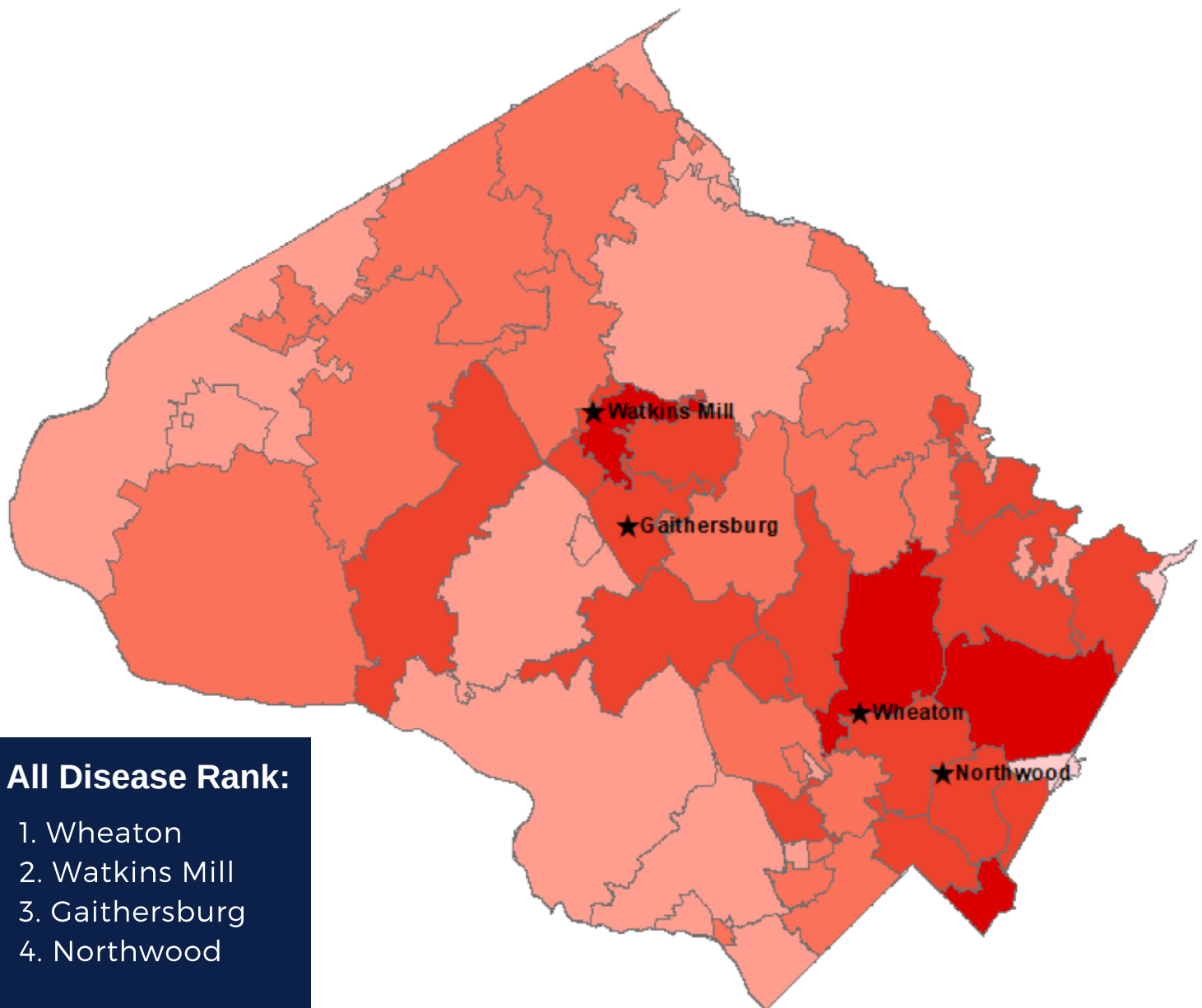
Chlamydia infection rates and Gonorrhea infection rates had an overall increase over time in Montgomery County, similar to that in Maryland and the U.S.; however, the rates in the County were consistently lower than Maryland and the U.S.

328.3

CHLAMYDIA
INCIDENCE RATE
PER 100,000

VARIABLE ANALYSIS

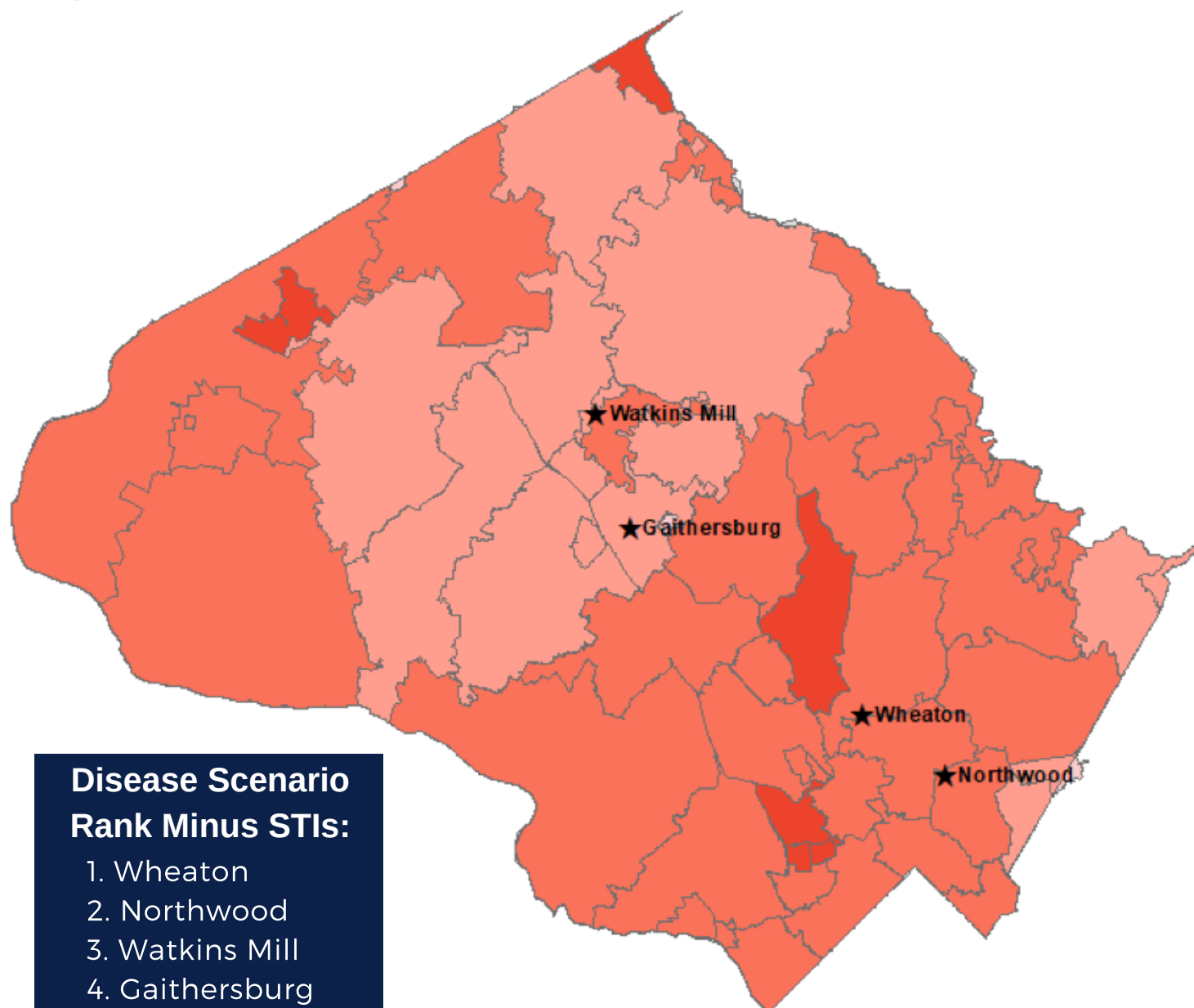
AGGREGATE (ALL 6 DISEASE BURDENS)



To create an aggregate score and determine which school should pilot the program I created two scenarios. With STIs included in the overall scores (all seven variables) and then without STIs. The reasoning for this is that it drastically changes the overall score and questions what methodologies and target populations for the services provided in these SBHCs.

VARIABLE ANALYSIS

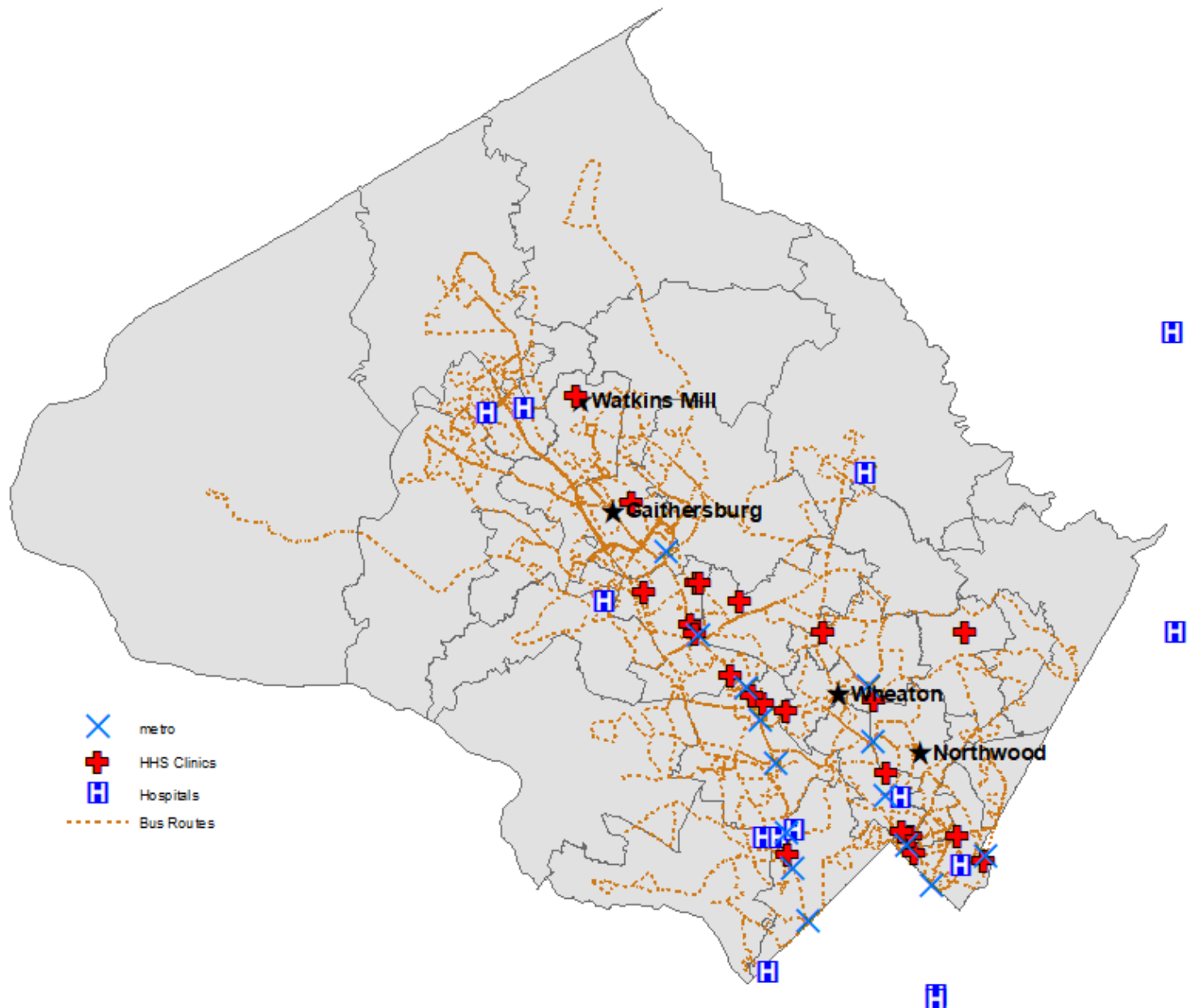
AGGREGATE MINUS STI RATE



The STD rate increases across the country may have less to do with a changing sexual landscape, and more to do with more limited access to sexual health care. To reverse the trend, health officials called for better awareness campaigns about safer sex and these STDs, and money to keep STD clinics open and accessible. “The resurgence of syphilis, and particularly congenital syphilis, is not an arbitrary event,” Gail Bolan, the director of the division of STD prevention at the Centers for Disease Control and Prevention wrote in the preface of the CDC report, “but rather a symptom of a deteriorating public health infrastructure and lack of access to health care.”

VARIABLE ANALYSIS

NON HEALTH RELATED CONSIDERATIONS



“Health and well-being are inextricably linked to the social and economic conditions in which people live,” American Hospital Association explained. “Research has shown that only 20 percent of health can be attributed to medical care, while social and economic factors—like access to healthy food, housing status, educational attainment and access to transportation—account for 40 percent.” An individual who does not have transportation access and has a physical impairment is more limited than an individual without a car but who can ride a bike to the hospital, for example.

Recommendations:

Choice 1: Consider All Diseases

Quick Stats

- 41% of households in Wheaton make less than \$60k a year as compared to county median income of ~\$100k
- The population density in Wheaton is 1421% higher than Maryland. (U.S. Census Bureau)

If considering all diseases then the choice is between Wheaton and Watkins Mill. Wheaton has an aggregate score (added result of each disease burden) of 651.32. The second closest SBHC is Watkins Mill with an aggregate score of 646.84. Wheaton has the highest rates of Heart disease mortality, CLDRs mortality and Diabetes. All three of these factors affect populations outside of high school, which this program is aiming to target with additional services.

Wheaton High School's location is easy to access by metro rail and bus routes. The high school is also further from other HHS clinics and hospitals in the county. This lack of other county resource sites would potentially indicate an increased need for the extended services at this SBHC.

38% of residents in Wheaton speak English, 39% speak Spanish and 23% speak another language.

"Wheaton is poised to be on of the big, vibrant epicenters of the county."
Councilmember
Nancy Navarro
District 4

As a close second choice candidate, Watkins Mill HS saw highest STI incidence, Suicide Rates, and Substance Abuse rates but lower rankings (better outcomes) for heart disease, CLDRs, and Diabetes. These factors are on the rise in Montgomery County and beyond. However, Watkins Mill is next to an existing HHS clinic and closer to two hospitals. However there are very little metro rail and bus transportation routes nearby. Should the center be accessible via public transit or are the needs of Watkins Mill outweighing accessibility?

	All 6 Disease Burdens	Disease Burdens Minus STI
Northwood	567.72	194
Gaithersburg	615.78	159
Watkins Mill	646.84	174
Wheaton	651.32	264

Choice II: Consider All Diseases Minus STIs

If considering diseases minus STIs then the choice is clearly Wheaton with a score of 264 with Northwood coming in second with a score of 194. The STI values in high school clusters in question range from 307- 489. This drastically changes the total score of the different areas. The total range from 471.1-7-789.63 with STI incidences versus 87-264 without STI incidence rates includes. This drastic change ensures we need to scientifically determine whether or not to consider STI incidence when determining the site suitability of this pilot program. Although



removing STIs completely may not be the best choice for the health of the county overall, it raises the awareness of a need to weight different diseases and incidence rates to better compare to one another. These comparable prevalence, mortality and incidence rates would better allow for a clear decision to be made. In addition to this added research it is important to note that Wheaton remains the first choice due to diseases burdens with and without STIs in consideration.

Choice III: Question and Prioritize Mental Health and Rising STI concerns:

Due tot the increasing rates of mental health disease, substance abuse, suicide, and STIs there needs to be thoughtful consideration of these disease areas when piloting the new SBHC. Watkins Mill and Northwood had the highest rates of suicide. Meanwhile, Watkins Mill and Gaithersburg had the highest rates of substance abuse. Whereas STI incidence was highest in Watkins Mill and Gaithersburg. It may be worth considering an increased STI awareness program in all four School Based Health Centers and then re-creating the aggregate score without STIs or weighting STIs differently and thus helping all four communities while also selecting one program to pilot the extended hours.

The questions and subtleties around each disease demonstrate the complexity of the health concerns in the community. It is paramount we look at the whole target population (not just students) for this program while secondarily helping as many communities as we can possibly reach through varied interventions.

CONCLUDING REMARKS

Piloting an evening hour and weekend program would increase access and education around some of the gravest health concerns facing the county. Parents and guardians play an important role in shaping opportunities and outcomes for children and youth. Through increasing care for the whole family, parents and guardians especially can be catalysts towards school-wide wellness for their children, their communities and the county. If SBHC professionals make a positive connection with parents and guardians their will be increased support and positive health outcome for the students and the whole family.



School-based health care represents an essential strategy toward improving the lives of Maryland's children, siblings and their families and optimizing their ability to become contributing members of the county. School-based health care addresses the unique needs of students and their families, and increases access to medical, mental, dental and/or other health related services. Piloting an evening and weekend hour program would only make the county as a whole better off.

FUTURE RESEARCH

WEIGHT VARIABLES

PRIORITIZE AND WEIGHT THE VARIABLES TO REFLECT THE NEEDS OF THE COUNTY WHETHER IT BE TO REDUCE STIS OR CONTINUE TO COMBAT HEART DISEASE FOR EXAMPLE.

DETERMINE TRANSPORTATION NEEDS OF TARGET POPULATION

THE FOUR SBHCS HAVE VERY DIFFERENT TRANSPORTATION CONSTRAINTS. WHEATON AND NORTHWOOD ARE MOST ACCESSIBLE VIA METRO AND BUS; HOWEVER, SHOULD WE BE SERVICING COMMUNITIES THAT HAVE LESS ACCESS TO PUBLIC TRANSIT?

CONSIDER OTHER RESOURCES

WHEN DECIDING ON WHICH SCHOOL TO PILOT THE PROGRAM IT IS ALSO IMPORTANT TO CONSIDER OTHER HEALTH SERVICES IN THE AREA. IF THERE ARE OTHER CLINICS IN THE COMMUNITIES SERVICING THE NEEDIEST POPULATIONS THEN PERHAPS A DIFFERENT SCHOOL SHOULD BE PRIORITIZED.

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