

Frictionless Access Leads to Reduced Disparities in Care: A Case Study of a Regional Drive-Through COVID-19 Testing Center

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Abstract

[Meritus Health](#), located in Hagerstown, Maryland, was the first healthcare facility in its region to implement and operate a drive-through COVID-19 testing site. During the course of the site's operation from March 2020 to March 2022, close to 200,000 tests were administered to those who utilized the service, with nearly 150,000 of those tests coming from local residents who resided in Washington County, Maryland, at the time of testing. We know disparities exist overall and in COVID outcomes. This paper analyzed a large data set to assess if disparities existed in a regional drive-through COVID testing center. The analysis showed that the testing conducted at the drive-through site was representative of the racial/ethnic composition of Washington County's overall population as well as by location zip code. For race/ethnicity, the ratio of percent population tested by white, Black/African-American, and Hispanic/Latinx was within 7% of the overall population ratio.

Meritus Health’s agility to facilitate frictionless, free access to COVID-19 testing aided in their ability to provide equitable services to those residing in their service area and reduce disparities in care based on race/ethnicity and location.

Introduction

Meritus Health, western Maryland’s largest healthcare provider, is located at the crossroads of western Maryland, southern Pennsylvania, and the eastern panhandle of West Virginia. With nearly 3,000 employees, 500 medical staff members, and 240 volunteers, Meritus Health serves about 200,000 residents of the tristate region. Meritus Health took initiative during the earliest days of the COVID-19 pandemic to implement a drive-through testing site, which served as the only of its kind within Meritus Health’s designated service region. Meritus Health quickly established itself as the regional diagnostic and treatment center for COVID-19 related needs.

Close to 200,000 tests were administered as part of the drive-through service that spanned from March 2020 to March 2022. In alignment with the organizational mission to improve the health status of the region, Meritus Health ventured outside the walls of the conventional healthcare setting to provide convenience for the community during some of the most trying months of the COVID-19 pandemic in an effort to facilitate frictionless access for its service region. There was no patient charge for testing during the two years. No doctor’s order was needed. All barriers to testing were sought to be removed. During surges, there were approximately 1,000 cars a day.

Disparities in healthcare exist and were seen more visibly during the pandemic. Research has shown disparities in COVID vaccination rates and health outcomes by race and ethnicity. As of July 2022, according to the data collected from 36 states that measure vaccination rates by race and ethnicity, Black populations have lower vaccination rates than white populations in 32 of 36 states and Hispanic or Latinx populations have lower rates in 17 of 32¹. In addition to disparities in vaccination rates, a systematic review deduced that

racial/ethnic minorities face higher rates of confirmed COVID-19 diagnosis, hospitalizations, and death². Many of these disparities in vaccination rates and health outcomes can be attributed to the barriers in care, as dictated by the social determinants of health racial/ethnic minorities face in our country's healthcare system. Our primary question was to assess whether disparities exist in COVID testing and we used our large-scale, regional drive-through testing center for the analysis.

Data

Of the 196,744 tests administered to the case population during the drive-through site's window of operation, 156,831 (80%) of those individuals were from the state of Maryland, 24,686 (13%) were from Pennsylvania, 13,162 (7%) were from West Virginia, and the remaining 1,996 (1%) of tests were administered to those of residency status outside of these three states. Additionally, 76% of all tests administered were attributed to those who reside in Washington County, Maryland.

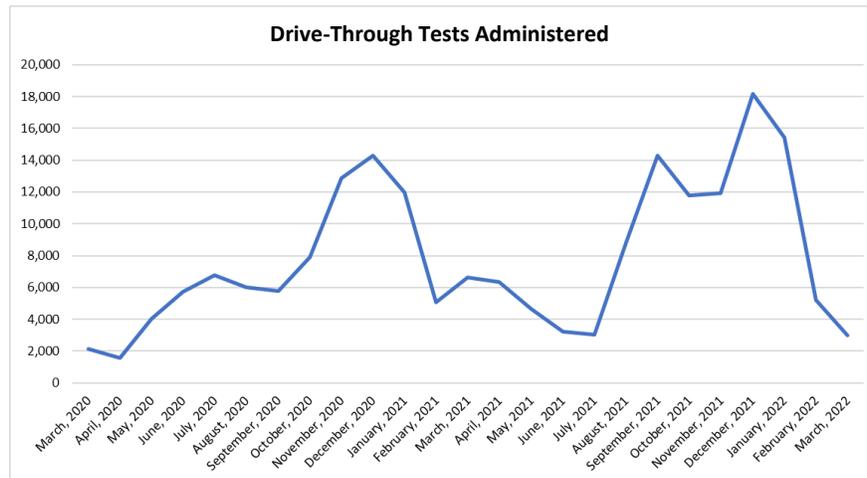
Washington County, which accounted for 148,624 of the tests administered, represents a large bulk of the total sample population for this case. The full geographic breakdown of tests administered by the Washington County zip code can be referenced in Figure 1. According to the most up-to-date U.S. Census Bureau estimates (July 1, 2021), Washington County boasts a total population of approximately 154,937, which represents a little over a 5% increase since 2010. Of those 154,937, 80.9% are white, 13.2% are Black or African-American and 6.5% are Hispanic or Latinx². The demographic makeup of those who utilized the drive-through testing site very closely mirrors that of Washington County's demographics.

Figure 1: Distribution of Testing by Washington County Zip Code

Washington, MD Zip Codes	Total Count of Tests	Percentage of Tests
21740	65066	43.7%
21742	36285	24.4%
21795	10816	7.3%
21783	8209	5.5%
21713	7647	5.1%
21722	6260	4.2%
21782	3202	2.2%
21756	2517	1.7%
21750	2448	1.6%
21767	1662	1.1%
21733	1123	0.8%
21711	931	0.6%
21734	782	0.5%
21719	745	0.5%
21779	440	0.3%
21720	178	0.1%
21741	164	0.1%
21721	110	< 1%
21715	32	< 1%
21746	7	< 1%
Overall Total Count	148624	

During the drive-through testing site’s run of activity, 67,134 tests were administered in 2020, 105,975 tests were administered in 2021 and 23,635 tests were administered over the final three months of 2022 until the testing site was eventually decommissioned. Figure 2 illustrates the month-by-month testing numbers from when the drive-through testing site was initially opened to the public to when it closed. Data collected from the Meritus Health drive-through site greatly coincide with the daily COVID-19 testing trends observed nationally during the same timeframe³.

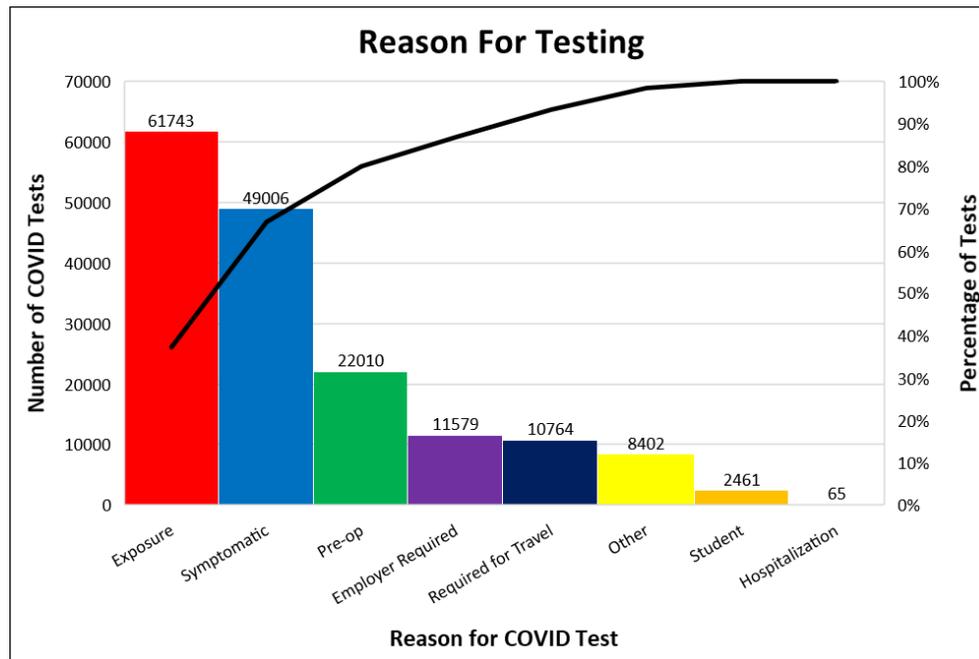
Figure 2: Drive-Through Testing Over Time



Over the drive-through testing site’s run of activity, Meritus Health compiled data that would indicate the reason for testing among those who elected to provide this information. Participants were given a questionnaire upon arrival that allowed them to detail the reason behind their visit. The information contained within these questionnaires would eventually be registered into each individual participant's electronic record.

Conventionally utilized to distinguish and prioritize different organizational issues, a Pareto analysis was utilized for the purposes of this case study to illustrate the reasons why individuals chose to utilize the drive-through testing service. The conducted Pareto analysis yielded that virus exposure and COVID-like symptoms accounted for nearly 70% of all tests, whereas the remaining 30% consisted of factors such as mandatory pre-op testing, travel requirements, and students returning to their college campus, among other reasons. (Figure 3).

Figure 3: Pareto Analysis of Reasons for Testing



Analysis

Meritus Health sought to understand whether or not the sample population of those who utilized the drive-through testing site were representative of the Meritus Medical Center’s service region based on race/ethnicity and location. In an effort to gauge the representativeness of the sample population for the categories under question, simple ratios were utilized to assess the relationship between drive-through testing site data and demographic data collected by the U.S. Census Bureau. Figure 4 represents these ratios to demonstrate whether or not the sample population is representative of the population Meritus Health serves within its service area of Washington County.

Figure 4: Race/Ethnicity Ratios

	White	Black or African-American	Hispanic or Latinx
Percentage of Tests Administered	80.4% (99,884)	12.7% (15,729)	7.0% (8,664)
Percentage of Washington County Population	80.9%	13.2%	6.5%
Ratio	0.99	0.96	1.07

Meritus Health’s drive-through testing site served a diverse sample population from 20 zip codes within the bounds of Washington County. Given that more than 80% of the total tests administered to residents of Washington County were individuals residing in four out of 20 total zip codes, the organization conducted additional data analysis to further understand representativeness among the zip code demographics and the sample populations for the top four zip codes within the county. Demographic information retrieved from the most recent American Community Survey conducted by the U.S. Census Bureau for the following zip codes 21740, 21742, 21795, and 21783 was compared to the drive-through site utilization data for those who reside in these zip codes to gauge representativeness within the specified populations⁴. These relationships are illustrated further throughout Figure 5.

Figure 5: Zip Code Ratios

	21740	21742	21795	21783
Total Tests Administered	65,066	36,285	10,816	8,209
Zip Code Population	60,922	33,425	9,150	9,637
Ratio	1.06	1.08	1.18	0.85

Discussion

As seen in Figure 1, no ratio was greater than 7% from 1.0. Figure 2 illustrated similar findings with no ratio exceeding 18% from 1.0. Although we did not

conduct statistical analyses of the data, these ratios demonstrate that meaningful disparities did not exist in COVID testing by race/ethnicity or location.

Conclusion

There are many limitations to our case study for generalization. This was only one region across the tristate area Meritus Health serves. Additionally, we did not conduct statistical analyses. However, from the simple analyses, this frictionless testing ensured that the people receiving the COVID-19 test were representative of the location and race/ethnicity of the population that was served, thus helping to ensure that no disparities in testing were apparent among the sample group tracked for the purposes of this case.

The ease of the drive-through testing, no cost to the patient, and no physician order needed may have played a large part in contributing to the equitable access facilitated by the drive-through testing site. As we continue to work collectively as a field to reduce disparities in care, facilitating easy, seamless access may be one of the essential components required to move forward.

References

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