

# Universal SARS-CoV-2 Testing on Labor and Delivery Units: *A Canary in the Coal Mine* for Public Safety Net Hospitals

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## Introduction

The Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) pandemic has had a disparate impact on communities of color across the United States. African Americans have died at a rate of 69.7 per 100,000 people compared to 51.3 for Native Americans, 33.8 for Latinos, 30.2 for White non-Hispanic and 29.3 for Asian Americans.<sup>1-4</sup> More than 25,000 African Americans – about 1 in 1,450 of the entire Black population in the US – have died from COVID-19.<sup>2</sup>

Universal testing has been advocated for high prevalence regions to inform public health surveillance, care coordination, personal protective equipment (PPE) conservation, and to protect healthcare workers.<sup>5</sup> For these reasons, select Labor & Delivery Units have employed rapid universal SARS-CoV-2 testing.

Arizona ranks among the top U.S. states welcoming newly arrived refugee population.<sup>6</sup> Valleywise Health Medical Center (VHMC), the public safety net health care system for Maricopa County, has served over 7,000 refugees since 2008 from over 60 countries across Sub-Saharan Africa, South-East Asia and the Middle-East. VHMC is a tertiary academic teaching institution in Maricopa County, Arizona that performs approximately 2,000 deliveries annually.

## Objective

To evaluate the risk of SARS-CoV-2 among refugee relative to non-refugee parturient patients. We suspect the burden of infection is disproportionately distributed across marginalized communities which may act as sentinels for community outbreaks.

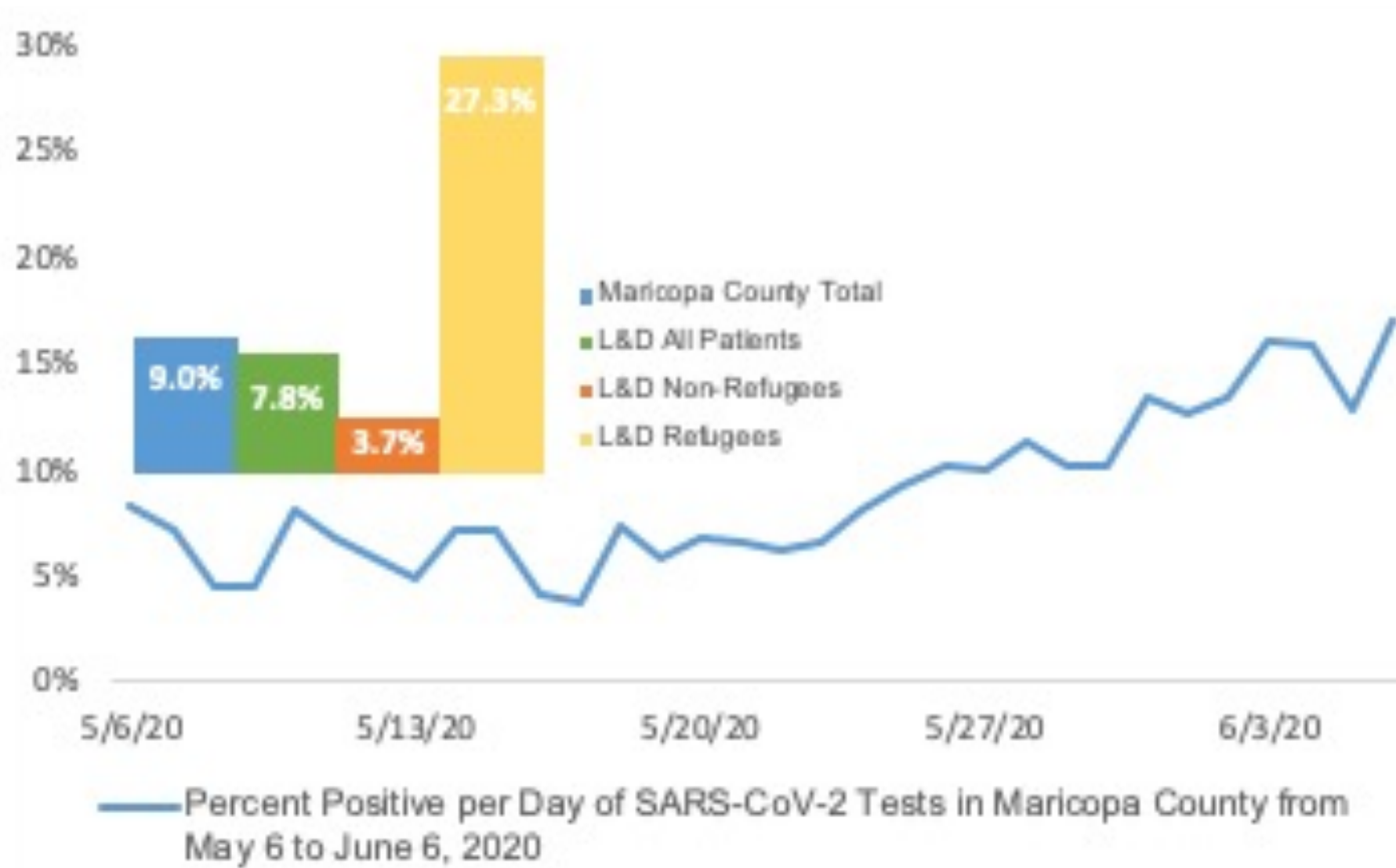


Figure 1 Legend: Daily percent positive of SARS-CoV-2 tests in Maricopa County, Arizona during the study period juxtaposed to comparison of overall percent positive SARS-CoV-2 Tests in Maricopa County with VHMC L&D.

## Methods

- A cross-sectional study was performed examining parturient women admitted to the maternity unit between May 6 and June 6, 2020, when universal testing for SARS-CoV-2 was first employed (Table 1).
- Included: All women admitted to the L&D unit at VHMC for delivery undergoing SARS-CoV-2 tested on admit (rapid Cepheid Xpert ® Xpress SARS-CoV-2 PCR assay).
- Excluded: Patients who refused testing or left against medical advice before testing could be completed. Any non-delivered patients.
- Prevalence ratios (PR) were calculated and comparisons made to county level community prevalence over the same time period.<sup>7</sup>
- This study was approved by the Valleywise Health Institutional Review Board (IRB protocol # 2020-044).

Demographic and Clinical Characteristics	Overall (n=129)
Age, y	
<30	84 (65.1)
30-34	25 (19.4)
≥35	20 (15.5)
Parity	
0	35 (27.1)
1	32 (24.8)
≥ 2	62 (48.1)
BMI, mean	31.8 ±6.7
Insurance Type	
Medicaid	59 (45.7)
Private	12 (9.3)
Fee for Service/Self Pay	56 (43.4)
Other - Corrections	2 (1.6)
SARS-CoV-2 Symptoms	
Asymptomatic Positive	10 (100)
Asymptomatic Negative	117 (98.3)
Symptomatic Positive	0 (0)
Symptomatic Negative	2 (1.7)
Gestational Age	
<32 weeks at birth	2 (1.6)
≥ 32 wks to <37 weeks at birth	15 (11.6)
≥ 37 weeks at birth	110 (85.3)
Non-living	2 (1.6)
Mode of Delivery	
Vaginal Delivery	89 (69)
Operative Delivery	3 (2.3)
Primary Cesarean Delivery	12 (9.3)
Repeat Cesarean Delivery	25 (19.4)
Neonatal Outcomes*	
Apgar <7 at 5 mins	0 (0)
Birth weight, mean (g)	3191.8 ±612.3

## Results

- The total number of positive SARS-CoV-2 tests within the general population during the study period was 10,310 in Maricopa County, with an overall SARS-CoV-2 test-positive percentage of 9.0% (Figure 1).
- 10 women were SARS-CoV-2 positive, resulting in a test-positive percent of 7.8%.
- 22 refugee patients were delivered (17.1%). 27.3% of the refugee patients delivered tested positive (n=6) compared to 3.7% in the non-refugee population (n=4) (Figure 1, 2).
- Refugee patients were from 4 different global regions including the Middle East, Central Africa, Eastern Africa, and Southeast Asia. Half of all SARS-CoV-2 positive cases were among refugees from the Central African region (n=5, 50%, p=0.762) (Table 2).

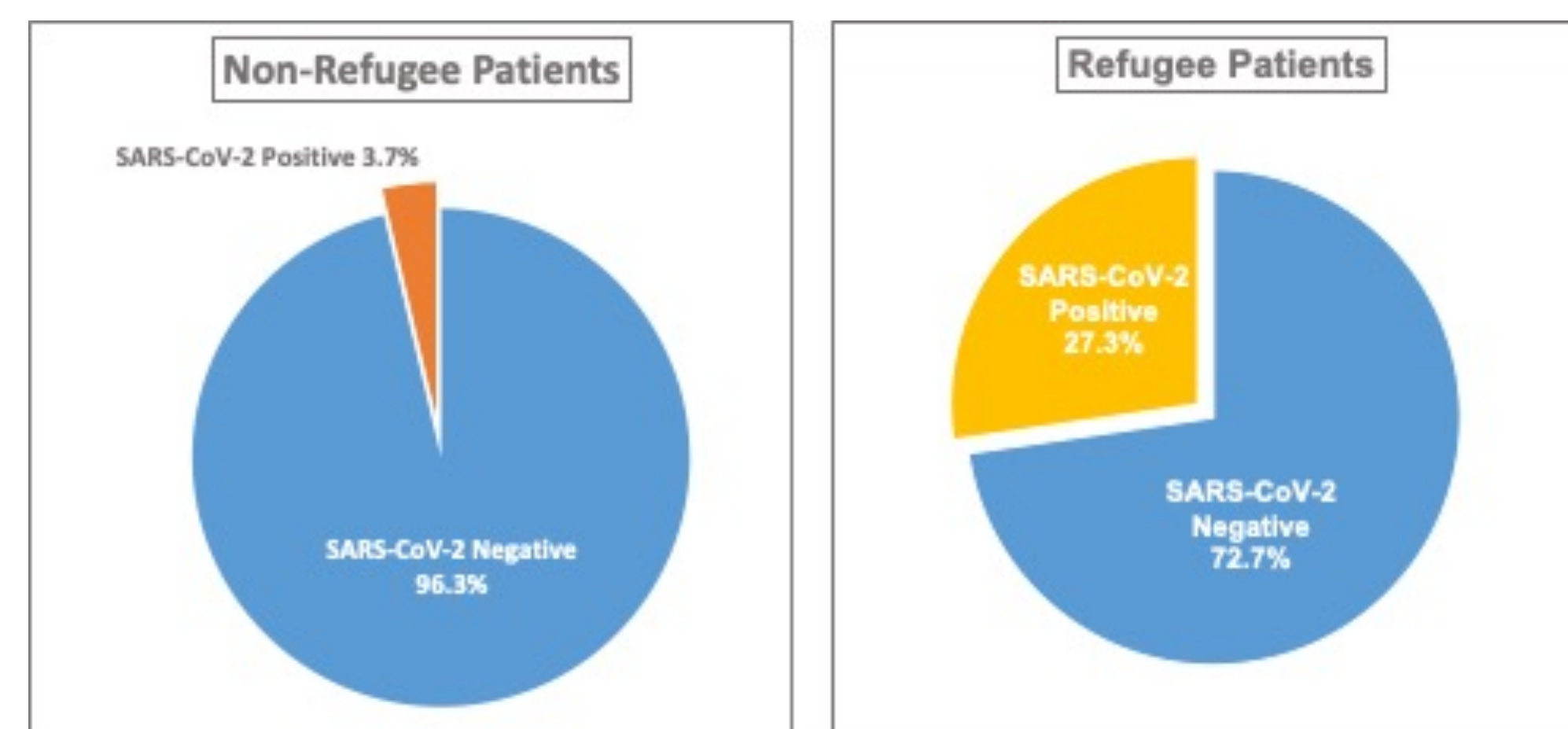


Figure 2 Legend: The test-positive percentages for non-refugee and refugee patients for the study period May 6 to June 6, 2020.

Sociodemographic Characteristics	SARS-CoV-2 PCR Results		
	Positive (n=10)	Negative (n=119)	p-value
Race/Ethnicity			0.064
White			
Hispanic	4 (40)	77 (64.7)	
Non-Hispanic	0 (0)	13 (10.9)	
Black or African American	6 (60)	23 (19.3)	
Asian	0 (0)	3 (2.5)	
American Indian/Alaskan	0 (0)	2 (1.7)	
Pacific Islander	0 (0)	1 (0.8)	
Refugee Status			<0.001
Refugee	6 (60)	16 (13.4)	
Non-refugee	4 (40)	103 (86.6)	
Refugee Region of Origin*			0.762
Middle East	0 (0)	1 (6.2)	
Central Africa	5 (83.3)	10 (62.5)	
Eastern Africa	1 (16.7)	4 (25)	
Southeast Asia	0 (0)	1 (6.2)	

## Discussion

This study demonstrates the utility of incorporating routine screening on L&D to identify high-risk populations in order to direct effective public health strategies in the community. This ability to identify the high proportion of SARS-CoV-2 among refugee communities is the proverbial ‘canary in the coal mine,’ highlighting the need for a more robust public health response in these communities.

These findings highlight the need for greater specificity in race/ethnicity data collection to include language and/or nativity in order to capture hidden communities of color who would otherwise not be captured. Identification of these specific communities is integral to mounting a culturally and linguistically inclusive public health response. Consideration must be made in balancing the ethics of universal testing while avoiding unintentional harm in singling out particular ethnic/cultural groups already stigmatized.

Generalizability is limited, however, as asymptomatic pregnant women may not be representative of the community prevalence of asymptomatic viremia.

Following these findings, Maricopa County is implementing several of these recommendations to mitigate this pandemic. Public safety net health care systems are crucial to implementing innovative culturally and linguistically appropriate clinical and public health strategies to reduce the spread of COVID-19 within the refugee population.

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