

Severe acute respiratory syndrome coronavirus 2: a canary in the coal mine for public safety net hospitals



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BACKGROUND: The coronavirus disease 2019 pandemic has exposed disproportionate health inequities among underserved populations, including refugees. Public safety net healthcare systems play a critical role in facilitating access to care for refugees and informing coordinated public health prevention and mitigation efforts during a pandemic.

OBJECTIVE: This study aimed to evaluate the prevalence ratios of severe acute respiratory syndrome coronavirus 2 infection between refugee women and nonrefugee parturient patients admitted to the hospital for delivery. Here, we suspected that the burden of infection was disproportionately distributed across refugee communities that may act as sentinels for community outbreaks.

STUDY DESIGN: A cross-sectional study was conducted examining parturient women admitted to the maternity unit between May 6, 2020, and July 22, 2020, when universal testing for severe acute respiratory syndrome coronavirus 2 was first employed. Risk factors for severe acute respiratory syndrome 2 positivity were ascertained, disaggregated by refugee status, and other clinical and sociodemographic variables examined. Prevalence ratios were calculated and comparisons made to county-level community prevalence over the same period.

RESULTS: The positive test percentage at the county-level during this study period was 21.6%. Of 350 women admitted to the hospital for delivery, 33 (9.4%) tested positive for severe acute respiratory syndrome 2. When refugee status was determined, 45 women (12.8%) were identified as refugees. Of the 45 refugee women, 8 (17.8%) tested positive for severe acute respiratory syndrome 2 compared with 25 nonrefugee patients (8.19%) who tested positive for severe acute respiratory syndrome 2 (prevalence ratio, 2.16; 95% confidence interval, 1.04–4.51). In addition, 7 of the refugee women who tested positive for severe acute respiratory syndrome coronavirus 2 were from Central Africa.

CONCLUSION: The severe acute respiratory syndrome coronavirus 2 outbreak has disproportionately affected refugee populations. This study highlighted the utility of universal screening in mounting a rapid response to an evolving pandemic and how we can better serve refugee communities. Focused response may help achieve more equitable care related to severe acute respiratory syndrome 2 among vulnerable communities. The identification of such populations may help mitigate the spread of the disease and facilitate a timely, culturally, and linguistically enhanced public health response.

Key words: COVID-19, health disparities, health equity, labor and delivery, maternity care, public safety net, refugees, SARS-CoV-2, universal testing

Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has laid bare the disproportionate burden of disease among communities of color across the United States. With a death rate of 88.4 per 100,000 people, African Americans have the highest

death rate among minority groups in the United State (Native Americans, 73.2 per 100,000 people; Latinos, 54.4 per 100,000 people; non-Hispanic white, 40.4 per 100,000 people; Asian Americans, 36.4 per 100,000 people).^{1–4} In addition, more than 35,761 black Americans—about 1 in 1125 of the

entire black population in the United States—have died from coronavirus disease 2019 (COVID-19).² Selected labor and delivery (L&D) units across the country have adopted universal testing of pregnant women, reporting rates of SARS-CoV-2 infection among asymptomatic women of 0.0% to 13.5%.^{5–11}

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AJOG MFM at a Glance

Why was this study conducted?

The burden of the coronavirus disease 2019 (COVID-19) pandemic has disproportionately affected refugee communities that may act as sentinels for community outbreaks. Universal severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) testing on maternity units illuminated disproportionate burden of disease among refugee populations. However, limited data exist on the impact of COVID-19 among refugee populations in the United States.

Universal SARS-CoV-2 testing is a sentinel for community outbreaks among vulnerable populations in public safety net hospitals.

Key findings

Among 350 parturient women, 33 (9.4%) tested positive for SARS-CoV-2, with 7 of the 33 patients (21.2%) showing symptoms of COVID-19. Here, 17.8% of refugee patients tested positive for SARS-CoV-2 compared with 8.19% of nonrefugee patients who tested positive for SARS-CoV-2 (prevalence ratio, 2.16; 95% confidence interval, 1.04–4.51).

What does this add to what is known?

Universal SARS-CoV-2 testing on maternity units of public safety net hospitals is crucial in identifying vulnerable populations. The higher distribution of SARS-CoV-2 infection among Central African refugees argues for greater specificity in race and ethnicity categorization, including language and nativity, to identify hidden communities of color.

Although there is great geographic variation in the prevalence of COVID-19, universal testing has been advocated for regions with high prevalence of SARS-CoV-2 infection to inform public health surveillance, coordinate care, conserve personal protective equipment (PPE), and protect healthcare workers.¹² However, data are limited on the utility of universal testing in public safety net healthcare systems serving a higher proportion of racial and ethnic minorities and other marginalized communities, including refugees.

Arizona ranks among the top US states welcoming newly arrived refugee populations, resettling approximately 83,000 refugees since 1975.¹³ Valleywise Health Medical Center (VHMC), the public safety net healthcare system for the greater Phoenix Area (Maricopa County), has served over 9000 refugees since 2008 from over 60 countries across sub-Saharan Africa, South-East Asia, and the Middle East.

We suspected that the burden of SARS-CoV-2 infection was significantly higher in the refugee community. As the pandemic evolved, initial data after the first 4 weeks of universal testing in

the L&D unit at VHMC demonstrated an alarming positive test percentage of 27.3% in the refugee patients compared with a positive test percentage of 3.7% in nonrefugee patients. We considered this phenomenon the proverbial “canary in the coal mine.” As the pandemic unfolded over the ensuing summer months, it became clear that the refugee population had been a sentinel for the subsequent disease burden. The positive test percentage rates for Maricopa County subsequently grew to become among the highest worldwide, portended by early outbreaks within the refugee community. Here, our objective was to evaluate the prevalence ratios of SARS-CoV-2 infection between refugee patients and nonrefugee parturient patients during the pandemic.

Study Design

A cross-sectional study was performed on the L&D Unit at VHMC from May 6, 2020 to July 22, 2020, for which universal rapid testing was performed on all patients admitted to the Unit for delivery. The VHMC is a tertiary academic teaching institution in Maricopa

County, Arizona, that performs approximately 2000 deliveries annually.

On admission to the L&D unit, all women were screened for symptoms of COVID-19 (fever or chills, cough, shortness of breath, fatigue, muscle or body aches, loss of taste or smell, sore throat, congestion, nausea or vomiting, or diarrhea). SARS-CoV-2 testing was performed via a nasopharyngeal swab with the rapid Cepheid Xpert Xpress SARS-CoV-2 polymerase chain reaction (PCR) assay. This assay has a reported sensitivity of 98%, and results were available within 1 hour.^{14,15} If the rapid test was reported as negative but there was a high degree of clinical suspicion, the patient also underwent the Abbott RealTime SARS-CoV-2 assay, which has a sensitivity of 93% and specificity of 100%.¹⁶ Hospital practice is to allow asymptomatic positive and mildly symptomatic patients the option of rooming in with their newborn following delivery. Viral testing was performed on all neonates born to mothers who tested positive for SARS-CoV-2 within 48 hours after birth. Patients who refused testing or left against medical advice before testing could be completed were excluded from the final analysis. Only women who were admitted and gave birth were included in the study. Any patients who did not give birth were excluded as these might comprise a heterogeneous group of subjects.

All hospital personnel wore full PPE (defined as an N95 respirator covered by a surgical mask, face shield or goggles, disposable head and shoe coverings, isolation gown, and gloves) in all clinical encounters while awaiting test results and continued for patients who tested positive for SARS-CoV-2. Hospital infection control protocols were employed for all patients who tested positive for SARS-CoV-2. All patients along with 1 allowable support person were given face masks to wear throughout their hospitalization. Support personnel were screened for symptoms of COVID-19 but did not undergo testing.

Patients who tested positive for SARS-CoV-2 were categorized on the basis of the presence or absence of symptoms. In addition, data were collected

regarding mode of delivery, need for admission to the infectious disease unit (IDU), neonatal Apgar scores, and birth-weight. The IDU is the VHMC critical care unit dedicated to patients with SARS-CoV-2 infection. To determine whether the refugee population displayed a higher prevalence of infection, patient demographics were reviewed for linkage with a local refugee resettlement agency and language spoken, and the mother's nativity was ascertained. Refugee status was designated by any of the following: (1) patient received prenatal care in the VHMC's Refugee Women's Health Clinic, and (2) patient is from a refugee source country or country of first asylum.¹⁷ Other risk factors examined included age, race and ethnicity, gravity and parity, gestational age at delivery, body mass index (BMI), and insurance status.

General demographic and clinical features of the patients were described with proportions for count variables. Measures of central tendency and dispersion were calculated for continuous variables at 4 weeks and 11 weeks (at completion of universal screening period). Chi-square tests for factors and Wilcoxon rank-sum tests for nonnormal continuous variables were used to compare between test-positive and test-negative groups across the demographic strata. In addition, we examined severe maternal morbidity (SMM) indicators as defined by the Centers for Disease Control and Prevention and corresponding International Classification of Diseases, Tenth Revision, codes during delivery hospitalizations during the study period to determine whether refugee status was associated with comorbidity.¹⁸ To calculate the positive test percentage per day in Maricopa County, the number of confirmed positive cases per day was divided by the number of SARS-CoV-2 PCR tests performed per day during the study period. A summative proportion was also calculated for the study period. These calculations were performed using publicly available data through the Arizona Department of Health Services Data Dashboard. Furthermore, this study was approved by the Valleywise Health Institutional

Review Board (IRB protocol number 2020-044).

Results

During the study period, 416 SARS-CoV-2 tests were performed in the L&D unit at VHMC. Only patients screened for SARS-CoV-2 and admitted for delivery and who ultimately delivered were included (N=350). No patient refused testing. Patient characteristics and delivery and neonatal outcomes are summarized in [Table 1](#). The statistical analysis demonstrated that refugee patients were older, had a lower BMI, were more likely to deliver at term, were less likely to have Federal Emergency Services coverage, and were more likely to have a low Apgar score at delivery ([Table 1](#)).

A total of 310 women (88.57%) delivered at full term, and 40 women (11.43%) delivered before term (<37 completed weeks of gestation). There were 3 intrauterine fetal demise and 1 second-trimester loss. The primary cesarean delivery rate was 9.3%, whereas the repeat cesarean delivery rate was 19.4%.

At the completion of the study period (11 weeks), the total number of positive SARS-CoV-2 tests within the general population during the study period was 110,301 in Maricopa County, with an overall SARS-CoV-2-positive test percentage of 21.6% ([Figure 1](#)).¹⁹ Of the 350 patients tested at time of admission to the L&D unit, 33 women tested positive for SARS-CoV-2, resulting in a positive test percentage of 9.43%. Furthermore, 7 of the 33 women who tested positive for SARS-CoV-2 showed symptoms of COVID-19. A total of 32 neonates were tested for SARS-CoV-2 after delivery, with 1 stillborn delivery from a mother with positive SARS-CoV-2 infection excluded from the study. In addition, 2 of the 32 neonates (6.3%) tested positive for SARS-CoV-2 infection, with 1 of the newborns having an initial positive result from a swab test taken within 15 minutes after birth. However, the result was presumed inaccurate given suspicion that the swab was contaminated with maternal bodily fluid. Neonatal testing was done using the

Cepheid rapid nasopharyngeal swab. Neonates that were still inpatient for 48 hours had 2 swab tests performed.

During the study period, 45 refugee patients delivered, representing 12.9% of the proportion of women presenting for delivery in the VHMC maternity unit. The proportion of positive results was thus 17.8% among refugee patients (8 of 45 patients) compared with 8.2% in the nonrefugee patients (25 of 305 patients) ([Figures 1 and 2](#)). This demonstrated a prevalence ratio of 2.17 (95% confidence interval, 1.04–5.5). Refugee patients were from 5 global regions, including the Middle East, Central Africa, Western Africa, Eastern Africa, and Southeast Asia. Furthermore, 7 of 33 cases (21.2%) with positive SARS-CoV-2 infection were among refugees from the Central African region ([Table 2](#)). A disproportionate burden of comorbidities was not identified between refugee and nonrefugee patients as comorbidities were too sparse for valid statistical comparisons.

Discussion

Principal findings

This study examined the prevalence ratio of SARS-CoV-2 infection among refugee women receiving maternity care in the United States. Our experience with SARS-CoV-2 universal testing demonstrated the utility of incorporating routine screening in the L&D unit to identify high-risk populations. In the first 4 weeks of universal testing, the positive test percentage in the L&D unit was similar to Maricopa County (7.8% and 9.0%, respectively). During this time, however, the prevalence ratio of positive status among refugee patients was 7 times higher than their nonrefugee counterparts (27.3% vs 3.7%, respectively). After completion of 11 weeks of universal testing, the total positive test percentage for Maricopa County grew to parallel that of the refugee population tested in the L&D unit (21.6% and 17.8%, respectively). The implementation of universal testing for SARS-CoV-2 enabled early identification of a high proportion of SARS-CoV-2 infection among refugee communities during the early days of the

TABLE 1
Characteristics of women tested for severe acute respiratory syndrome coronavirus 2 on admission for delivery

| Patient characteristics | Overall (N=350) | Refugee (n=45) | Nonrefugee (n=305) | P value ^a |
|-------------------------------------|---------------------|---------------------|--------------------|----------------------|
| Age | | | | |
| Mean | 28.20 | 29.80 | 27.96 | .041 |
| Median (range) | 28 (15–46) | 30 (16–44) | 27 (15–46) | |
| Gravidity | | | | |
| Mean | 3.24 | 3.64 | 3.18 | .282 |
| Median (range) | 3 (1–12) | 3 (1–9) | 3 (1–12) | |
| BMI | | | | |
| Mean | 32.18 | 29.03 | 32.64 | <.001 |
| Median (range) | 31.00 (17.43–64.00) | 28.64 (20.08–42.17) | 31.49 (17.43–64) | |
| Term delivery | | | | |
| Mean | 1.66 | 2.47 | 1.54 | .018 |
| Median (range) | 1 (0–8) | 2 (0–8) | 1 (0–7) | |
| Preterm delivery | | | | |
| Mean | 0.14 | 0 | 0.16 | .014 |
| Median (range) | 0 (0–4) | 0 (0–0) | 0 (0–4) | |
| Birthweight, mean (g) | | | | |
| Mean | 3253.40 | 3355.00 | 3238.79 | .481 |
| Median (range) | 3295 (560–4400) | 3270 (2270–4240) | 3300 (560–4400) | |
| Gestational age (wk ± d) | | | | |
| Mean | 38.3 | 39.3 | 38.4 | .010 |
| Median (range) | 39.1 (9.2–42.4) | 39.3 (36.4–41.4) | 39.1 (9.2–298.0) | |
| Categorical variable, n (%) | | | | |
| Insurance status^b | | | | |
| Arizona State Medicaid | 146 | 29 (64.44) | 118 (38.69) | .322 |
| Federal Emergency Services | 164 | 12 (26.67) | 152 (49.84) | <.001 |
| Other | 6 | 0 (0) | 6 (1.97) | .498 |
| Private | 33 | 4 (8.89) | 29 (9.51) | Ref |
| Symptomatic patients with COVID-19 | 11 | 0 (0) | 11 (3.61) | .215 |
| Positive test | 33 | 8 (17.78) | 25 (8.20) | .060 |
| Mode of delivery | | | | |
| Vaginal delivery | 242 (69.10) | 27 (60.00) | 215 (70.50) | Ref |
| Operative delivery | 13 (3.70) | 3 (6.70) | 10 (3.30) | .238 |
| Primary cesarean delivery | 45 (12.90) | 7 (15.60) | 38 (12.50) | .408 |
| Repeat cesarean delivery | 50 (14.30) | 8 (17.80) | 42 (13.80) | .347 |
| Neonatal variables | | | | |
| Apgar score of <7 at 1 and 5 min | 17 | 7 (15.56) | 10 (3.30) | .003 |

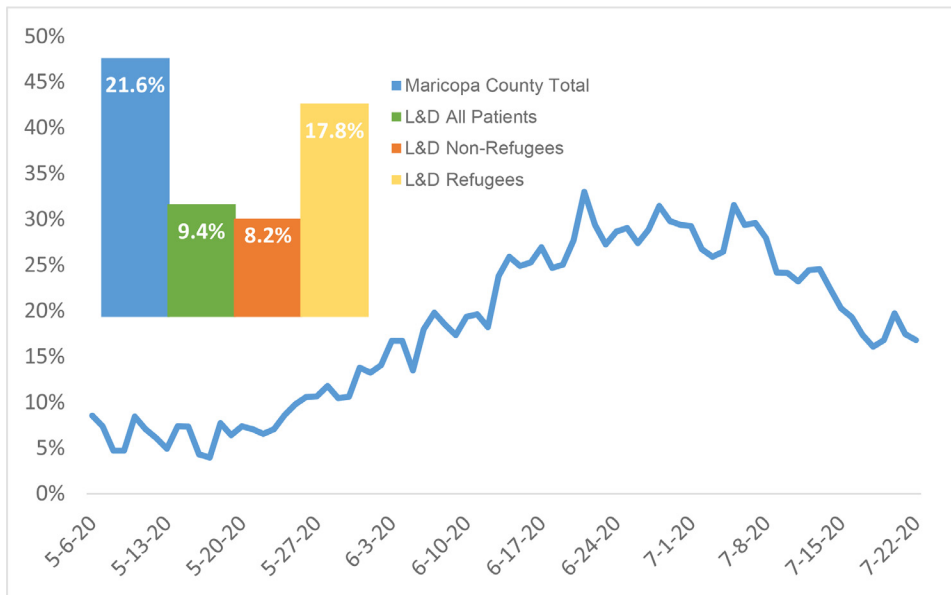
Data are presented as mean, median (range), or number (percentage). For neonatal outcomes, only live births were included.

^a Wilcoxon rank-sum test was used for nonnormally distributed continuous variables. Chi-square mid-*P* exact test was used for categorical variables; ^b Compared with "private" insurance.

BMI, body mass index; COVID-19, coronavirus disease 2019; Ref, XXX.

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FIGURE 1
Daily positive test percentage of SARS-CoV-2 in Maricopa County, Arizona

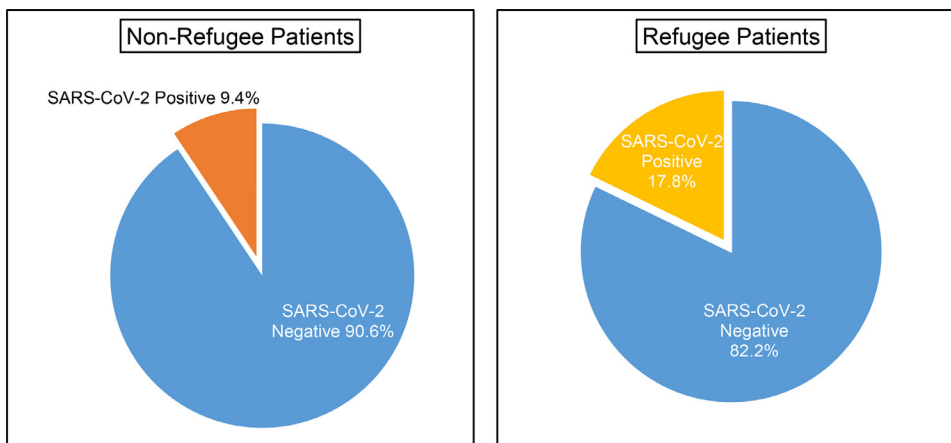


The *trend line* demonstrates the daily positive percentage of SARS-CoV-2 tests in Maricopa County, Arizona, during the study period. The subset bar graph demonstrates the overall positive percentage of SARS-CoV-2 tests in Maricopa County over the study period compared with the positive percentage in the L&D unit among all parturient women, nonrefugee women, and refugee women presenting to Valleywise Health Medical Center in Phoenix, Arizona.

L&D, labor and delivery; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

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FIGURE 2
SARS-CoV-2 test results for patients presenting for delivery



The positive test percentages of nonrefugee and refugee patients admitted to the labor and delivery unit at Valleywise Health Medical Center from May 6, 2020, to July 22, 2020.

SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

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TABLE 2

Demographics of women tested for severe acute respiratory syndrome coronavirus 2 on admission for delivery

| Variable | PCR: positive | PCR: negative | P value ^a |
|--------------------------------------|---------------|---------------|----------------------|
| Race | | | |
| American Indian or Alaska Native | 0 (0) | 4 (100.00) | .685 |
| Asian | 0 (0) | 10 (100.00) | .392 |
| Black or African American | 8 (14.04) | 49 (85.96) | .275 |
| Other | 0 (0) | 2 (100.00) | .827 |
| Other Pacific Islander | 0 (0) | 2 (100.00) | .827 |
| Refuse to report or unable to answer | 0 (0) | 1 (100.00) | .909 |
| White | 25 (9.12) | 249 (90.88) | Ref |
| Ethnicity | | | |
| Hispanic | 25 (10.37) | 216 (89.63) | .368 |
| Non-Hispanic | 8 (7.34) | 101 (92.66) | |
| Refugee status | | | |
| Nonrefugee | 25 (8.20) | 280 (91.80) | .040 |
| Refugee | 8 (17.78) | 37 (82.22) | |

Data are presented as number (percentage), unless otherwise specified.

^a Two-sided mid-*P* exact test was used.

PCR, polymerase chain reaction; Ref, XXX.

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rapidly evolving pandemic, thus encapsulating the proverbial “canary in the coal mine,” which portended the gravity of an emerging calamity. Consequently, a more robust and coordinated public health response was mounted to support innovative, culturally, and linguistically appropriate strategies to enhance testing, contact tracing, isolation, and educational outreach specifically in the refugee communities.

Clinical implications

Universal testing allows for the rapid identification of mothers with positive SARS-CoV-2 infection, identification of asymptomatic carriers, and subsequent allocation of limited inpatient resources that would otherwise not be possible with symptomatic screening alone. Although universal testing has the potential to identify marginalized populations, asymptomatic pregnant women may not be representative of the community prevalence of asymptomatic viremia, thus limiting

generalizability.^{5,20} Nevertheless, this study’s demonstrated overall positive test percentage in the L&D unit was only slightly higher than county-level statistics. In addition, we recognized our small sample size over 11 weeks of data collection at a single institution. However, our findings of profound disparity in the refugee population justified timely release of preliminary findings to guide further research and to mobilize enhanced public health responses.

Moreover, we found that refugee women were at a much higher risk of infection. Systemic racism and structural inequities disproportionately affect communities of color and have profound implications for achieving health equity.^{21,22} Among marginalized communities, additional factors, such as economic instability, poor health literacy, and environmental disparities, may further exacerbate inequalities. Here, SMM has been shown to be higher in migrant populations.²³ Furthermore, there is an increased risk of disease

morbidity associated with SARS-CoV-2 infection in populations with underlying medical comorbidities.^{24,25} However, in our study, the presence of comorbidities was too sparse to compare refugee and nonrefugee groups. The disproportionate burden of SARS-CoV-2 infection in the refugee population may be more indicative of factors related to acquisition of disease because of social determinants of health rather than underlying comorbidities.^{26–30} The COVID-19 pandemic has further illuminated such disparities.^{2,4,31} Emeruwa et al³² reported a cross-sectional study among 434 parturient New York City residents and found higher SARS-CoV-2 infection rates for patients residing in neighborhoods of lower median income, lower assessed property value, and high household membership. Refugee populations who have been forcibly displaced from their homeland by war and conflict arrive with a host of socioeconomic, environmental, linguistic, and sociocultural barriers to health and economic self-sufficiency that may further contribute to the high prevalence of SARS-CoV-2 infection.^{17,33,34} In Maine, for example, black residents, composed largely of migrant communities, represent 1.4% of the population but 27.7% of COVID-19 cases, contracting SARS-CoV-2 at a rate 27 times higher than white residents, with most cases occurring in refugee communities where household crowding, reliance on public transportation, and “frontline” jobs are common.³⁵ These factors, while not exhaustive, are summarized in Table 3 and must be considered when coordinating a public health response to the COVID-19 pandemic.

Research implications

Our finding of a higher proportion of Central African refugees among our parturient women with SARS-CoV-2 argued for the need for greater specificity in race and ethnicity data collection to include language and nativity to capture hidden communities of color who would otherwise not be captured. The umbrella terms “black” and “African American” encompass not only US-born blacks who are

TABLE 3**Barriers to care and understanding for the refugee patient**

Systemic racism and discrimination must be recognized as foundational forces throughout institutional and social domains described below, exacerbating disparities and inequities in healthcare for the refugee community.

| Concept | Detail |
|-----------------------------------|--|
| Economic stability and employment | <ul style="list-style-type: none"> - Financial constraints resulting in obligation to work despite symptoms or known positive status - Need for financial assistance with rent, utilities, and food expenses if employment is lost - Disconnected cell phone service causing barriers to contact tracing - Inability to socially distance at work - Insufficient access to PPE - Frontline or essential worker unable to work from home - Lack of paid sick time from employer - Fear of disclosing positive status or contacts with positive status because of fear of loss of employment |
| Environment and neighborhood | <ul style="list-style-type: none"> - Shared communal spaces - Common retail stores without adequate PPE or distancing measures - Population density, high number of residential units per building - Lack of independent transportation - Refusal of transportation agencies to provide services for symptomatic patients - Lack of access to food delivery services if symptomatic or quarantined |
| Healthcare and health literacy | <ul style="list-style-type: none"> - Lack of established preventive care with primary care providers - Limited understanding of impact of positive status - Limited understanding of possible infectivity despite lack of symptoms - Limited understanding of social distancing needs - Limited understanding of CDC self-quarantine guidelines if exposed - Seeking care at more advanced stages of disease and symptomatology - Obtaining medical information from unreliable social media sources - Decreased access to quality care because of uninsured or underinsured status |
| Language | <ul style="list-style-type: none"> - Delay in reporting results to patient because of language barriers - Lack of multilingual contact tracers - Lack of health provider linguistic or cultural competency - Failure to trust healthcare providers because of impaired understanding from incomplete or inadequate translation of services |
| Household and cultural | <ul style="list-style-type: none"> - Large household membership within small residential housing units - Multigenerational households - High value in familial relations resulting in reluctance to self-quarantine - Myths regarding immunity to illness - Perception that the current crisis does not pertain to them - Hyperreligiosity that God alone will protect them without taking necessary preventive precautions - Concerns of stigmatization resulting in challenges to contact tracing and expanded testing of identified high-risk areas |

CDC, Centers for Disease Control and Prevention; PPE, personal protective equipment.

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direct ancestral descendants, possessing the cultural and historic legacy of enslaved Africans, but also immigrants from the African diaspora who have arrived in the United States in recent decades from Africa, the Caribbean, and Europe. Consideration must be made in balancing the ethics of universal testing while avoiding unintentional harm in singling out particular ethnic and cultural groups stigmatized because of their refugee status, as identification of these vulnerable and marginalized communities may have

profound implications for mounting a culturally and linguistically inclusive public health response.^{7,36,37}

In addition, our findings have wider generalizability to bolstering public health responses in vulnerable, otherwise hidden, communities across the United States. A relatively higher risk of infection among patients receiving care in a public safety net healthcare system and further higher risk of infection among refugees also elucidate the importance of focused testing among vulnerable communities that may act as

sentinels for community outbreaks. Public health policies should consider prioritizing universal testing in public safety net hospitals to guide a more targeted response in marginalized populations. Strategies within refugee communities may include the deployment of mobile testing units, utilization of multilingual community health workers to facilitate contact tracing and education, and prioritization of family-centered isolation in transitional housing for large, multigenerational families. Furthermore, public health infrastructure

should foster coordination of medical care in partnership with refugee resettlement and social service agencies. Following these early findings, Maricopa County is now implementing several of these recommendations in attempts to reduce the spread of COVID-19 within the refugee population.

Strengths and limitations

The major strength of this paper was that the current literature on the COVID-19 pandemic has yet to describe the burden of disease felt by the refugee population in the United States. The generalizability of this study was limited because of our primary focus on quantifying SARS-CoV-2 infection specifically among parturient patients. Hence, our findings are not estimates of true prevalence in the community but, instead, a demonstration of disparity in the refugee population that will inform public health interventions. However, because presenting for delivery is not likely to be influenced by the presence or absence of infection, it might represent a less biased estimate of the difference in the populations. The statistical analysis was likely weakened by the small total number of patients included in our study. However, we hope that ongoing data collection will improve the strength of this analysis.

Conclusions

Public safety net healthcare systems are playing a crucial role in facilitating access to care for underserved populations throughout this COVID-19 pandemic. Universal testing for SARS-CoV-2 on maternity units in these systems provides the opportunity to identify asymptomatic yet high-risk patient populations in need of targeted interventions to mitigate the spread of infection and facilitate a timely, culturally, and linguistically enhanced public health response. Data collection efforts should include a level of ethnocultural specificity to help identify communities of color most likely to be disproportionately influenced by racism, socioeconomic, environmental, linguistic, and sociocultural barriers, and other

factors that might also contribute to the high prevalence of SARS-CoV-2 infection. Universal maternity testing is 1 step toward achieving health equity among vulnerable, otherwise hidden, communities. ■

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