

Updated [4/19/21]

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PICO - Is there increased risk for morbidity and mortality in the Black population from COVID-19?

Key Findings:

- The Johns Hopkins University and American Community Survey indicate that to date, of 131 predominantly Black counties in the US, the infection rate is 137.5/100,000 and the death rate is 6.3/100,000. This is in contrast to an infection rate of 19.5/100,000 and a death rate of 0.5/100,000 in predominately Asian counties, 27.2/100,000 and 0.6/100,000 in predominately Hispanic counties, and 39.8/100,000 and 1.1/100,000 in predominately White counties¹.
- Infection rates
 - Infection rate is more than 3-fold higher in black counties than that in predominantly white counties².
 - Black males are incarcerated at a rate that is at least six times those of white males.¹³
 - African Americans made up almost half of Milwaukee County's 945 cases. In Michigan, where the state's population is 14% black, African Americans made up 35% of cases as of April 3rd.¹⁵
 - In a New Orleans community clinic from March 16th - April 10th, 117/345 patients that were screened tested positive; 68/117 patients were African American.¹⁸
 - Nationally from March 9, 2020 to May 31st, 2020, there was an increasing trend in SARS-CoV-2 NAAT positivity rate in Black non-Hispanic people while there was decreasing trend in SARS-CoV-2 NAAT positivity in White people¹⁹.
 - Nationally, 15% of cancer patients who tested positive for SARS-CoV-2 were African American compared to just 5.5% of White cancer patients.
 - There is an increasing concern amongst lawmakers that COVID-19 cases are underreported in minority communities due to a lack of testing.²⁹
 - Nationally among veterans, African Americans were twice as likely to test positive for SARS-CoV-2.³⁰
 - African Americans with breast cancer, prostate cancer, colorectal cancer, and lung cancer were significantly more likely to be infected with COVID-19 than White breast, prostate, colorectal, and lung cancer patients.³³
 - As of September 28th, 2020, African Americans make up 18.2% of COVID-19 cases nationally while only making up 13.4% of the population.³⁶
 - A 10% increase in a community's African American population has been associated with a 312.3 increase in COVID-19 cases per 100,000.³⁶
 - Nationally, African Americans have a 1.5 to 3.5 times higher risk of being infected with SARS-CoV-2 compared to Whites.³⁷
- Mortality rates
 - While compared to COVID-19 patients prescribed dexamethasone alone, there was an over 60% decreased odds of mortality in those prescribed with tofacitinib as well.⁵¹
 - An uncontrolled immune response due to COVID-19, similar to many other viruses which cause viral induced autoimmunity (SLE, EBV, HCV, etc.) is key for development of COVID-19 pneumonitis.⁵¹

- Use of tocilizumab therapy also provided survival benefit in COVID-19 patients when used along side dexamethasone.⁵¹
- In addition to the factors which are creating disparate health impacts of COVID-19 on the African-American population, there are additional reasons for concern for African-Americans who have been the recipient of solid organ transplants due to chronic immunosuppression potentially exacerbating poor COVID-19 health outcomes. In one study, use of corticosteroids and optimization of calcineurin inhibitor dosing led to excellent prognoses for African-American renal transplant recipients.⁴⁸
- Death rate for predominantly black counties is 6-fold higher than in predominantly white counties².
- A higher mortality from COVID-19 has been locally documented in Black populations from New Orleans, LA, Chicago, IL, Milwaukee, WI and Detroit, MI and even rural Albany, GA. Some of the reasons attributed to this are increased prevalence of comorbidities among the Black population² as well as preexisting healthcare disparities in some of these cities^{4,5,6}.
- One study used existing data to model death rates and found that Blacks have a higher death rate overall, especially states that have higher proportions of Black and Medicare-insured residents. They observed lower death rates due to COVID-19 in the Black population in states with more children and states with a higher population density. The effects of the difference in population density may be explained by differences in resource availability, urban distribution, and other demographic differences that are hard to clarify¹¹.
- 326/3626 COVID-19 positive patients died from COVID-19 in the Louisiana Ochsner Health System, and 70.6% of these patients were black. Black race was not associated with higher in-hospital mortality than white race (hazard ratio for death vs. white race, 0.89; 95% confidence interval, 0.68 to 1.17).¹²
- In Milwaukee, the black population made up 81% of its 27 deaths due to COVID-19; the county population is 26% black. In Michigan, the black population made up 40% of deaths due to COVID-19 as of April 3rd and the state is 14% black.¹⁵
- Nationally, African Americans account for 24% of total COVID-19 deaths despite only making up 12% of the US population.¹⁹
- The Bronx reported more COVID-19 hospitalizations and death than any other New York City Borough. The Bronx has the highest black population, lowest median household income, lowest level of education, and lowest proportion of adults over the age of 65 compared to other New York City Boroughs²⁰.
- African American life expectancy is expected to drop 1.5 years due to COVID-19 compared to only a 0.5 year drop in whites. This will increase the life expectancy gap between African Americans and Whites from 3.6 year to 4.7 years, erasing a decade of reductions in this gap.²¹
- Nationally, the African American death rate from COVID-19 is 85/100,000 compared to 35/100,000 of White Americans.²⁴
- In Texas, counties with greater percentages of African Americans experienced significantly higher COVID-19 mortality rates than counties with lower proportions of minorities.³¹
- Nationally, African Americans aged 55-64 have a higher mortality rate than Whites aged 65-74. Additionally, African Americans aged 65-74 have a higher death rate than Whites aged 75-84.³⁶

- Nationally, African Americans have a 3.2 times greater risk of mortality from COVID-19 than Whites.³⁷
 - In Indiana, zip codes with higher percentages of African Americans have higher rates of COVID-19 infections.³⁸
- Hospitalization rates
 - Data from 13 states indicate that compared with White persons, Hispanic and American Indian or Alaska Native persons experienced 1.7 times the rate, and Black persons experienced 1.4 times the rate of emergency department care visits for COVID-19 during October–December 2020.⁵²
 - In California, the odds of hospitalization is 2.7x higher for Black patients when compared to non-hispanic whites³.
 - Examination of hospitalization rates and trends within the Ochsner Health System in Louisiana found that 39.7% of COVID-19 positive patients (n=1382) were hospitalized and 76.9% were Black. Higher numbers of Black patients presented with elevated lab markers and, of patients who received critical care of mechanical ventilation, approximately 80% were black.¹²
 - 6/117 patients from a New Orleans community clinic were hospitalized (3 African American, 2 Latinx, and 1 white).¹⁸
 - Nationally, COVID-19 related hospitalizations are 4.6 times higher for African Americans compared to Whites.³⁶
- Co-morbidities and other potential factors contributing to the disproportionate COVID-19 rates in African Americans/Blacks
 - In the United States, African Americans make up approximately 30% of the End Stage Kidney Disease (ESKD) population. Another study looking at morbidity and mortality in COVID-19 patients showed that ESKD population have worse outcomes when compared to patients without kidney failure.⁴⁹
 - ESKD patients on dialysis are a high-risk population for transmitting COVID-19 due to the challenges associated with ensuring adequate social distancing.⁴⁹
 - Among African American patients on dialysis with a COVID-19 diagnosis, CRP, D-dimer, bilirubin, and the presence of vascular diseases were associated with worsened mortality.⁴⁹
 - Among the ESKD patients diagnosed with COVID-19, none who had a normal IL-6 levels were admitted to the ICU.⁴⁹
 - D-dimer is significantly elevated in ESKD COVID positive patients. In one study, mean D-dimer was 3114 ng/mL (upper limit of normal is approximately 574 ng/mL).⁴⁹
 - Former and current redlining practices have led to a persistent negative impact on predominantly African American neighborhoods through higher exposure to toxins and injurious chemicals.⁴⁷
 - The capacity to social distance is related to privilege, with major impacts on the ability to successfully social distance exerted by housing and socioeconomic status.⁴⁷
 - The region with the highest concentration of African Americans is the southeast. This region also has a higher concentration of adults who are both cash-poor and without healthcare, further exacerbating existing inequities.⁴³
 - Based on a national survey, a higher proportion of African American men smoke as compared to White men. Smokers have increased levels of Angiotensin Converting Enzyme II (which is the receptor for SARS-CoV-2, leading to both increased susceptibility and severity of symptoms).⁴³

- There is limited evidence of genetic differences between individuals of African and European descent which may play a part in susceptibility to viral infections. A recent study looking at differences in transcriptional response to immune challenges found the strongest variation between these two responses was observed in genes for antiviral and inflammatory-related functionalities.⁴³
- Among the children with documented multisystem inflammatory syndrome (MIS-C), there is a clear predominance of those with African American ancestry.⁴⁴
- The predominance of women of color in frontline jobs during the COVID-19 pandemic has been established. However, despite the ascription of the “essential” tag to these jobs, many essential workers have been furloughed or laid off, complicating the process of receiving testing or treatment for COVID-19.⁴⁵
- Beyond the impact of implicit bias on part of clinicians with regards to “Do Not Resuscitate” (DNR) orders, there have also been well documented instances of African American women being denied access to COVID-19 testing or treatment due to clinician skepticism – many have led to significant adverse events, including death.⁴⁵
- The onset of the COVID-19 pandemic has posed significant challenges to patients in their ability to get access to medications for nonrelated conditions. Specifically, many patients living with lupus (among whom African American women are numerous), there have been noted difficulties in accessing drugs such as hydroxychloroquine to treat effects of this disease.⁴⁵
- African American women are more likely to reside in food deserts, making them more likely to suffer from pre-existing conditions which are risk factors for severity of COVID-19 symptoms. These areas are also generally characterized by lack of access to quality healthcare.⁴⁵
- In LA alone, the top 3 underlying conditions among COVID-19 deaths are hypertension (59.76%), diabetes (38.10%) and chronic kidney disease (22.50%).^{4,5,6}
- Disparities may be due to a higher rate of comorbidities in the Black population, as well as persisting social inequities, such as poverty, racial discrimination and spatial exclusion⁷.
- Incarcerated communities are especially susceptible to COVID-19 due to higher risk for transmission caused by close indoor confinement, overcrowding, poor nutrition, and inadequate healthcare¹³.
- Obesity is associated with higher risk of contracting severe COVID-19 infection. African-Americans have higher rates of obesity than their white counterparts.^{14,36}
- In a New York study based on zip-codes, the second strongest unadjusted bivariate predictor of positive COVID-19 tests was self-identifying as African American/Black; the strongest predictor was having COPD. This may be due to environmental factors such as population and housing density; 80% of non-medical staff working at some of the hardest hit New York Hospital are African American/Black or Hispanic.¹⁷
- Cardiovascular disease, hypertension, diabetes, chronic respiratory diseases, and end-stage renal disease are more common in African American populations compared to white populations. Individuals with these co-morbidities are at an increased risk of developing severe complications or dying from COVID-19 infection.^{22,36, 39}
- Air pollution has been found to have a significant correlation with increased number of positive COVID cases. African Americans are at greater risk of being negatively affected by air pollution.²²

- Many African Americans are employed in professions that place them at an increased risk of contracting COVID-19. Many African Americans work in service industry, transportation, and health care jobs which place them at an increased risk for contracting COVID-19^{19,30,31,36}. Additionally, only 1/5 African Americans is employed in a profession that is suitable for work from home²⁰.
- African Americans are more likely to live in high density housing. COVID-19 positive individuals are at a much higher risk of transmitting COVID to their family and neighbors if they live-in high-density housing.^{25,26,29,30,36} Additionally, from March 2020 to May 2020, the unemployment rate of African Americans rose to 6.7% to 16.8%. This likely exacerbated existing crowding in homes, raising the risk of exposure to COVID-19.²⁶
- Individual habits, such as mask wearing and social distancing, aimed at preventing the spread of COVID-19 were nearly identical in African American communities compared to White and Latino communities. Therefore, the heightened rates of infection, hospitalization, and mortality from COVID-19 in African American communities cannot be attributed to individual habits.²⁶
- Vitamin D deficiency is significantly higher in African American populations compared to White populations. Vitamin D deficiency has been linked to increased length of COVID-19 hospitalizations. Additionally, it has been postulated that Vitamin D deficiency can worsen the body's response to SARs-CoV-2 infection.²⁷
- African American women are particularly at risk for contracting and developing complications from COVID-19 due to overrepresentation in essential jobs, more co-morbidities, and lack of access to testing and care. Additionally, many African American women have been denied testing or COVID-19 treatment because their concerns were dismissed by providers.^{29,32}
- Lack of testing in African American communities has delayed the diagnosis of SARs-CoV-2 infection, increased the community spread of COVID-19 and severity of cases.²⁹
- Evidence suggests that use of ACEi/ARBs does not increase an individual's infection risk or severity and therefore cannot be attributed for causing an increase in infection rates and mortality in African American communities.³⁰
- There is no current evidence that a genetic or immunologic predisposition is responsible for the racial disparities in COVID-19 infection rates and mortality.³⁰
- There is mistrust and confusion towards COVID-19 information and guidelines due to misinformation on social media and historical mistrust of healthcare professionals and authority figures.³²
- African Americans are more likely rely on public transportation for their means of transportation.³⁴
- In Cleveland, COVID-19 ICU patients with hyperglycemia were found to have a higher mortality rate and longer ICU stay than normoglycemic individuals. In this same study, African American race was found to be a statistically significant predictor of increased risk of hyperglycemia.³⁵
- The rate of uninsured is significantly higher in African Americans than Whites. This has caused African Americans to have less access to COVID-19 treatment or has caused them to delay receiving treatment.³⁶
- HIV-positive individuals with co-morbidities as a result of their illness are more likely to have severe COVID-19 complications. African Americans who are HIV-positive are more likely to have ≥ 1 co-morbidity than White and Hispanic HIV-positive individuals.

Additionally, HIV-positive African Americans are more likely to be hospitalized for COVID-19 than HIV-positive Hispanics and Whites.⁴⁰

Other

- Disproportionate impact of major pandemics on the African American population has been documented before, notably in the H1N1 outbreak in 2009 as well as the Spanish Influenza pandemic of 1918.⁴³
- In a study of African-American patients admitted to the ICU for treatment of COVID-19, depression rates reaching 45% were found based on patient responses to PHQ-9 questionnaire. This has been attributed to a variety of factors, including psychosocial stressors, social stigma, and symptoms of the virus itself.⁵⁰

Recommendations:

- The relationship between systemic racism and social determinants of health must be examined to increase health outcomes for historically underserved populations as well as to prepare for future infectious disease circumstances.⁴⁷
- Technological interventions which work within existing social networks of the African American community may play an important role in reducing the disproportionate impact of COVID-19 on this population.⁴³
- The COVID-19 pandemic provides a unique opportunity for clinicians to both recognize and act in response to well documented inequities in health care with regards to the African American population – both the stories of African Americans as well as the data around this population must be considered when health policy is discussed.⁴⁶
- The potential impact of both sex and race on COVID-19-associated hospitalization rates, need to be confirmed with additional data⁸.
- Current evidence in this area suggests that Black individuals may experience higher hospitalization rates and receive mechanical ventilation at a higher rate than white individuals. These differences may be attributable to different risk factors in daily life through job exposure and delays in accessing care that are a common barrier the Black patient population faces^{1-6,12}.
- It is important to assess the effects that differences in resource availability, urban distribution, and other demographic differences may have on population density and the resulting effect on death rates.¹¹
- Systematic and structural factors such as Implicit bias from provider needs to be further investigated with a special attention to Do Not Resuscitate (DNR) orders in their patients¹⁰.
- In order to account for the vast overrepresentation of African-Americans in COVID cases, it must be determined whether this stems from comorbidities, job exposure, or overall systemic racism in healthcare/society at large.¹⁵ Some evidence suggests that environmental factors (e.g. population and housing density) may be contributing to the disproportionate effect on African Americans/Blacks.^{17, 22}
- Efforts towards eliminating co-morbidities, providing health equity, and increasing professional opportunities for African American communities should be a public health priority.²⁴
- Concrete efforts should be made to provide rehabilitative services to African American survivors of COVID-19.²⁸
- Trusted community organizations should be recruited to assist in disseminating factual COVID-19 information to African American communities.³² Additionally, these community organizations could be enlisted to help disseminate PPE and COVID-19 prevention kits in high-risk communities.⁴¹

- States should collect sociodemographic data on COVID-19 testing in order to assess disease burden in different communities and allow for appropriate allocation of resources based on need. As of May 2020, only 4 states collect this data.⁴¹
- City and Statewide plans should be implemented to share resources and patients between hospital systems. Academic and large hospital networks should share equipment and PPE with smaller, less resourced hospitals in high-risk communities.⁴¹
- Special consideration should be given to minority and impoverished communities when determining priority for COVID-19 vaccination and novel treatments.⁴¹
- As vaccination campaigns continue across the United States, it is essential that racial and ethnic data be reported at both the provider and jurisdictional levels. This will allow for monitoring of vaccine administration and ensure the rapid detection of racial and ethnic disparities in vaccine distribution. In the first month of COVID-19 vaccinations (December 14th, 2020 – January 14th 2021), racial and ethnic data was missing for 48.1% of vaccine recipients.⁴²

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