

LITERATURE REVIEW SARS-CoV 2 Epidemiology

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GENERAL POPULATION

Location	Cases	Deaths	Cases per 1000	Fatality rate (%)
World	252,951,549	5,099,690	32.0	2.02
USA	47,700,489	780,805	143.0	1.64
Texas	4,276,788	72,849	143.9	1.70
Bexar County	323,637	4,941	158.0	1.53

*In comparison to our last report, red, yellow, and green highlight correspond to higher, similar, and lower fatality rates/cases per 1000 respectively.

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Metropolitan Health Department August 2021 Epidemiological Report (Released 09/27/2021)

<https://covid19.sanantonio.gov/About-COVID-19/Dashboards-Data/Epidemiological-Reports>

- Increase in New Cases & Positivity Rate
 - Bexar County reported 52,585 new cases (3.2 times those of July), 7,243 new COVID-19 associated hospitalizations, and 222 deaths — an increase of 3.3 and 5.3 respectively from July.
 - Positivity rate had a high of 22.0% during the second week of August and steadily decreased to 7.6% at the end of the month — the lowest positivity rate since the beginning of July.
- Hospitalizations and Deaths
 - With an initial decline in the number of deaths, cases saw an increase of expired patients from the second week to the last week of the month by an 8.4 fold — an increase from 7 deaths to 59 deaths by end of the month.
- Age Group Cases
 - COVID-19 cases aged 0-9 make up 12.5% of August 2021 cases in comparison to the overall average of 7.6% of total COVID-19 cases for that same age group.
 - August's age group 30-39 now makes up the highest age-specific case rate among all age groups with 2,692 cases per 100,000.



MEDICALLY AT-RISK POPULATIONS

LATINX POPULATION

- As of August 12, 2021, Hispanic and Latino people were 2.8 times more likely than non-Hispanic white people to be hospitalized and 2.3 times more likely to die from COVID-19 infection.
- Disparities are attributed to co-morbidities, smaller living spaces, working frontline jobs, language barrier, loss of health insurance, and fear of losing immigration status. Diabetes, heart disease, and cirrhosis are co-morbidities and have an increased prevalence in Hispanic populations compared to other racial and ethnic groups.

Recommendation: Despite increasing data on racial and ethnic epidemiology, more data is needed to fully characterize the effects of COVID-19 on Latinx population, including the consideration of sex and race on hospitalization rates. Evidence suggests that disparity may be worsening due to lack of education and health awareness for Latinx people. National programs (such as CDC's REACH program) and local programs (such as Penn State Project ECHO) are being implemented to increase education and resources dedicated to the Latinx community. These community programs and partnerships are particularly effective at connecting Latinx communities with testing services and increasing the trust that Latinx communities have with said services. More programs at local, state, and national levels should be implemented to educate Latinos by translating information into Spanish and increasing outreach. As vaccination efforts continue across the United States, the racial and ethnic data of those receiving vaccines should be reported to ensure that disparities in vaccination are rapidly identified and addressed.

AFRICAN AMERICAN POPULATION

- In 2020, there were about 1,000 additional deaths per 100,000 person-years among Black and Hispanic people over 65 years, compared to the number of deaths projected.
- In the US, African Americans make up 30% of the (ESKD) population, who experience worse morbidity and mortality outcomes as a result of COVID-19 infection as compared to patients without kidney failure.

Recommendation: Documenting racial/ethnic variations in testing and treatment is essential. Public health officials must prioritize prevention activities in Black communities. Prioritizing access to early testing and equitably applied interventions (including vaccine administration and novel treatments) may alleviate the disparity of disease burden. 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.

For details and references please visit <https://oume.uthscsa.edu/longco/>



INCARCERATED POPULATION

- One prison faced an outbreak of the Delta variant where duration of positive serial test results of both vaccinated and unvaccinated people were equal. Unvaccinated people had more attacks rates, hospitalizations, and deaths.
- As of March 3, 2021, over 620,000 confirmed cases of people incarcerated in US prisons and detention centers were reported. Incarcerated individuals are 5.5 times as likely to be infected as the general population and 3 times more likely to die from Covid-19 infection. The mean age of death attributable to COVID-19 in ICE detention centers in 2020 was 56.9 years, compared to the overall U.S. mean of 78 years. Over a third of all incarcerated individuals have underlying conditions that make them high-risk for infection, hospitalization, and death. Over 81,000 incarcerated individuals are older than 60 years.

Recommendation: Prevention efforts in incarcerated settings should prioritize both decarceration and vaccination. Due to overcrowding, poor sanitation, and poor ventilation in correctional facilities, vaccination alone may not be effective in protecting vulnerable subpopulations from infection, hospitalization, and death from COVID-19 infection. Decarceration efforts early on in the pandemic have shown effectiveness in minimizing transmission of infection in prisons.

PEDIATRIC POPULATION

- From June to August 2021, as the Delta variant became the predominant strain...increased almost fivefold. Although severe illness remained the same before and after Delta, hospitalization rates among unvaccinated adolescents were ten times greater than among fully vaccinated adolescents.

Recommendation: Clinicians should monitor for progression of illness in children, especially in infants, and children with pre-existing conditions. Public health efforts should ensure equitable allocation of testing and culturally appropriate prevention education. More research is needed to determine the modifiable reasons for disparities in COVID infection rates and hospitalizations. Schools will need to have adequate preventive measures (distancing, sanitization, and air ventilation and filtration) to reopen safely. Close contact sports in which mask wearing is not safe should be postponed due to increase in transmission rates. Additional studies show an increased number of psychiatric cases and interventions in pediatric populations with a history of stringent physical and social isolation secondary to COVID, so clinicians should have a lower threshold for psychiatric assessment of mental illnesses.

MALE POPULATION

- Males face a greater incidence, longer clinical course, and mortality than women.
- Disparities might be due to prevalence of co-morbidities and higher presence of angiotensin-converting enzyme 2 (ACE-2) in males.

Recommendation: The sex and gender disparities observed in COVID-19 vulnerability emphasize the need to better understand the impact of sex and gender on incidence and case fatality of the disease and to tailor treatment according to sex and gender. Clinical suspicion, accompanied by a relevant epidemiological history, should be followed by early imaging and a virological assay.

PREGNANT POPULATION

- There is minimal evidence of vertical transmission and no evidence of transmission through breastfeeding. Risk for pregnancy related complications is inconclusive, but there is evidence of increased risk of preeclampsia, caesarian delivery, and pre-term birth.

Recommendation: Systematic screening of potential COVID-19 infection during pregnancy and extensive intensive follow-up for confirmed mothers and their fetuses is recommended. Breastfeeding can be continued if the parent is COVID-19 positive but precautions (hand washing before touching the infant and mask wearing) should be taken. There is still uncertainty if COVID-19 can cross the placenta in-utero but study suggest low rates of vertical transmission of COVID-19 during the third trimester. Ensuring proper social distancing, handwashing, and mask-wearing might decrease COVID transmission to pregnant women, which could lower hospitalized and COVID-related illness.

LGBTQ+ POPULATION

- Specific data is not collected on COVID-19 incidence, hospitalizations, or mortality in the LGBTQ+ population.
- The pandemic has exacerbated social and economic stressors on this population, increasing unemployment and poor mental health status, while decreasing access to routine care, medication and mental health services.

Recommendation: Telehealth and a mailed specimen self-collection services should be developed to ensure continued access to mental health care (including to address the mental health impacts of social distancing) and HIV/STI prevention and treatment. To avoid exacerbating health disparities, large-scale seroprevalence studies must be deployed to better understand the potential co-morbidity of HIV and SARS-CoV-2 among MSM. LGBTQ individuals may also benefit from periodic home-calls from healthcare providers. This is to ensure that these individuals are not in any dangerous/unfavorable situations at home while under stay-at-home orders. These home-calls should include a multidisciplinary team of providers who can provide care in different aspects of the individual's life. While home-calls can be beneficence, those who are living in homes where their LGBTQ status is unknown or not supported at home, a secure text-based support may provide a better way to ensure the individuals privacy and safety.