



**Office of the Mayor**  
Ron Nirenberg



**NELSON W. WOLFF**  
COUNTY JUDGE

**The COVID-19 Health Transition Team Report: A Guide to Reopening San Antonio & Bexar County** is the first of many steps to a life beyond this pandemic. The San Antonio region is no stranger to natural crises, but this novel coronavirus has demanded an immediate and thorough response. What remains constant in these moments is our spirit of service and sacrifice — which serves as a unifying force in our efforts to heal our community.

Our community has worked cooperatively and compassionately in responding to this crisis. These efforts, in concert with guidelines and assistance from the Centers for Disease Control and Prevention (CDC) and the Texas Department of Health and Human Services, have set a standard of care that has significantly lessened the burden on our greater medical system.

Gatherings have been prohibited, indoor public venues have been closed, businesses and schools have had to adapt to physical distancing measures, residents have been asked to limit all nonessential travel within the county, and we are now required to wear cloth face coverings all for the sake of protecting our families, friends and neighbors. These have been difficult steps to take, but San Antonio has met the challenge with grace and strength.

Policies enacted at the City, County and State levels throughout this response have ensured that San Antonio residents could remain safely in their homes as we weather the brunt of COVID-19. Our area nonprofits, like the San Antonio Food Bank, have worked to deliver millions of pounds of food, millions of dollars, and vital supplies to our neighbors in need. We know that level of care must persist as we chart our course forward.

The reintroduction of area businesses and the restoration of our economy will be guided first and foremost by local medical experts who understand the unique advantages, attributes and challenges of our community. Some of the most painful decisions we've made throughout this process have dealt with suspending certain sectors of our local economy. We know that a healthy economy starts with healthy people, so the road to prosperity must be guided prudently.

Though many of us haven't traveled far as we've sought to limit the spread of this disease, our community has gone the extra mile to prove what is possible when we all work together. Thank you for the privilege of serving you as we look forward to a more equitable, resilient and prosperous San Antonio.



Ron Nirenberg



Nelson Wolff

# COVID-19 Health Transition Team Report

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A guide to reopening San Antonio and Bexar County



Prepared by the San Antonio and Bexar County COVID-19 Health Transition Team  
Submitted April 27, 2020

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## COVID-19 Health Transition Team Members



Barbara Taylor, MD, MS  
UT Health San Antonio  
Chair, COVID-19 Health Transition Team

Dr. Barbara Taylor is an Associate Professor of Infectious Diseases and the Assistant Dean for the MD/MPH Program at UT Health San Antonio. She is an alumna of Princeton University, Harvard Medical School, and the Mailman School of Public Health, and completed her residency and fellowship training at Columbia. Dr. Taylor conducts research to improve health outcomes for those living with or at risk for HIV. She provides treatment for people living with HIV and other infectious diseases in San Antonio. She is a co-chair of the End Stigma End HIV Alliance of San Antonio and the Clinician Key Opinion Leader for San Antonio's Fast Track Cities Initiative. Dr. Taylor works with research groups at UTHSA to expand access HIV and HCV care in South Texas and with Columbia University Medical Center's global health program in the Dominican Republic. Her commitment to education has earned her numerous teaching and service awards.



Bryan J. Alsip, MD, MPH, FACPM  
University Health System

Dr. Bryan Alsip is the Chief Medical Officer for University Health System. Previously, Dr. Alsip served as the Assistant Director of Health for the City of San Antonio. Dr. Alsip is a primary care physician with Board Certification in Preventive Medicine and Public Health who also served on active duty in the United States Army. He holds faculty appointments at the UT Health San Antonio School of Medicine and the University of Texas School of Public Health. Dr. Alsip received his B.S. from Cornell University; his M.D. from Georgetown University School of Medicine; and his M.P.H from Johns Hopkins University School of Public Health. He is a scholar of the Public Health Leadership Institute and a Fellow of the American College of Preventive Medicine. Dr. Alsip serves as Chairman of the Board of Directors for University Medicine Associates and Past Chairman of the San Antonio Medical Foundation Board of Trustees.



Ruth Berggren, MD  
UT Health San Antonio

Dr. Ruth Berggren got her start in infectious diseases by growing up at the Albert Schweitzer Hospital in Haiti. Educated at Oberlin College and Harvard Medical School, she became board certified in internal medicine after training at Massachusetts General Hospital, and later in infectious diseases at the University of Colorado. Her early career focused on HIV/AIDS, from vaccine development, to programs preventing maternal to child HIV transmission in Haiti, to clinical trials treating Hepatitis C. She has

served as an infectious disease specialist at University of Colorado, University of Texas Southwestern Medical Center, Tulane University, and UT Health San Antonio. After five years in New Orleans, including serving through Hurricane Katrina at Charity Hospital, Dr. Berggren turned to the medical humanities. Since 2008, she directs the Center for Medical Humanities & Ethics at UT Health San Antonio, teaching ethics and professionalism while nurturing empathy and humanitarian values. She is a Professor of Medicine and a Master of the American College of Physicians.



Dr. Caroline C. DeWitt, MD  
San Antonio Infectious Diseases Consultants

Dr. Caroline (Carrie) DeWitt is an Infectious Diseases specialist and the managing partner of San Antonio Infectious Diseases Consultants (SAIDC). The group provides Infectious Diseases consultative expertise to the Methodist, Baptist and Christus Healthcare Systems. Dr. DeWitt has served as Medical Director of the Antibiotic Stewardship Committee at Northeast Methodist Hospital since 2018. She has been the Director for Infusion Services at SAIDC since 2010. In 2018 she received the Women in Medicine Leadership Emerald Award from Bexar County Medical Society. Prior to being in private practice Dr. DeWitt was in the United States Air Force where she served as Infectious Diseases Clinic Director at Wilford Hall Medical Center. She received the Air Force Commendation Medal for her work in Bioterrorism response. She has been a member of the STRAC Crisis Standards Committee as well as the ID-Leads Committee providing input on COVID-19 response initiatives.



Michele Durham, MEd  
BEAT AIDS Coalition Trust

Michele Durham has been Executive Director of BEAT AIDS Coalition Trust for 25 years. She holds a Bachelor of Business Administration degree in accounting from Lamar University and a Master's degree in psychological education from the University of Texas at San Antonio. She has served as the chair of the San Antonio AIDS Coalition, chair of the Region 8 HIV/AIDS Consortium, member of the Mayor's HIV/AIDS Commission and is chair of the San Antonio HIV Services Planning Council. She is currently an active member of the Statewide Prevention Syndicate. Mrs. Durham is also a founder of PEERS for Women and the Women's Empowerment and Resiliency Program (WERP), two support groups for minority women affected by HIV, Coalition of Positive People, a support group for HIV positive men, and of Newly Empowered Women, a transitional living facility. Under her leadership, BEAT-AIDS contacts and educates more than 15,000 people annually and has served over 300,000 individuals since 1987. Mrs. Durham has been married to Jerry Durham 22 years with seven children, and seven grandchildren. She attends Holy Redeemer Catholic Church and is a member of Delta Sigma Theta Sorority, Inc. and National Coalition of 100 Black Women.



Dawn Emerick, MPA, Ed.D  
City of San Antonio, San Antonio Metropolitan Health District

Dr. Dawn Emerick is the Director of San Antonio’s Metropolitan Health District. She relocated to San Antonio from Corvallis, Oregon after successfully implementing the first phase of Oregon’s Public Health Modernization legislation and leading transformational changes in two local health departments. Dr. Emerick graduated from Frostburg State University with a degree in Health Education and is a two-time alumnus of the University of North Florida where she received her Masters in Public Administration and Health Administration and her Doctor of Education Leadership/Health Communications. She is currently enrolled in Johns Hopkins Bloomberg School of Public Health’s Population Health Management graduate program. Dawn began her career as a chronic disease educator with the Duval County Health Department in Jacksonville, Florida. Over a span of 27 years, she has crafted her leadership, evaluation, and health communication skills at various public health, healthcare and human service non-profit organizations.



Rita Espinoza, DrPH(c), MPH  
City of San Antonio, San Antonio Metropolitan Health District

Rita Espinoza has served as the Chief of Epidemiology for the San Antonio Metropolitan Health District since April 2015. Rita has over 20 years of experience in Infectious Disease Epidemiology at the state, regional and local level in Texas. She has led numerous disease investigations and was instrumental in the state’s response to the pandemic H1N1. In addition, she has responded to statewide and local public health events, such as hurricanes, tropical storms and disease outbreaks. Rita obtained her master’s degree of public health in epidemiology from Tulane University and is currently in the process of completing her doctoral degree in public health leadership from the University of Illinois at Chicago.



Zan Gibbs, MPH  
City of San Antonio, Office of Equity

Zan serves as the Chief Equity Officer for the City of San Antonio’s Office of Equity, where they are responsible for developing, implementing, supporting and managing, equity and inclusion initiatives and policies with the various City of San Antonio Departments. Prior to this Zan was the Equity and Inclusion Program Manager for the Portland Bureau of Transportation in Oregon, and initially came to doing equity work within the public sector after spending twenty years working on various racial and social justice initiatives in the non-profit and public health sectors. This included designing racial justice community led active transportation programs in public housing programs, leading racial justice trainings and retreats for various non-profit organizations, facilitating multi-day racial justice retreats for environmental organizations from all over the country, and training community health workers in Rwanda, Africa, on utilizing smartphones to track and report on health equity data. Be Strategic, Be Clear, and Be Bold.



Kenneth R. Kemp, MD

Pulmonary and Critical Care Medicine, Pastor Antioch Missionary Baptist Church

Dr. Kenneth R. Kemp is a Pulmonary and Critical Care Medicine Physician. He completed medical school at the University of Arkansas for Medical Sciences in 1988 and he completed residency and fellowship training at Brooke Army Medical Center in 1995. He is board certified in Internal Medicine, Pulmonary Disease, and Critical Care Medicine. He is a Fellow of the American College of Physicians and the American College of Chest Physicians. He is also an ordained minister in the Baptist Church. He was Assistant Pastor of the Antioch Missionary Baptist Church of San Antonio, TX for five years and he has served as the Senior Pastor of Antioch for over 10 years. He also serves as the director of the Health Awareness Team of the National Baptist Convention of America, Incorporated, International.



Jason Morrow, MD, PhD, FAAPM

UT Health San Antonio

Dr. Morrow is a Clinical Ethicist and is Board Certified in Internal Medicine and Hospice and Palliative Medicine and is a Fellow of the American Academy of Hospice and Palliative Medicine. He practices Palliative Care and was the founding Medical Director of Inpatient Palliative Care Consultation at University Health System from 2011-2020. University Health System's Palliative Care Team earned the prestigious Circle of Life Award from the American Hospital Association in 2019. Dr. Morrow helps to lead the Ethics programs at the Center for Medical Humanities & Ethics and at the Long School of Medicine. He is an Ethics consultant and chaired the Bioethics Committee at University Health System. He speaks in San Antonio and around the country on issues related to Professionalism, Complex Decision-Making, Social Determinants of Health, and Empathic Communication Skills. Dr. Morrow has won national awards for his leadership in both Professionalism and in Palliative Care.



Thomas F. Patterson, MD

UT Health San Antonio

Dr. Thomas F Patterson is a Professor of Medicine at UT Health San Antonio and Chief, Division of Infectious Diseases, Director of the San Antonio Center for Medical Mycology and Vice-Chair for Faculty Development in the Department of Medicine. His clinical and research interests focus on the diagnosis and treatment of fungal diseases particularly in immunocompromised hosts. Dr. Patterson has served as president of the Texas Infectious Diseases Society and the International Immunocompromised Host Society. He has been involved in developing new antifungal drugs and in clinical trials of new antifungal compounds and diagnostic development. During this COVID-19 pandemic Dr. Patterson is leading the UT Health Division of Infectious Diseases efforts in clinical management of COVID-19 care and is the principal investigator for the Adaptive COVID-19 Treatment Trial (ACTT) supported by the National Institutes of Health to develop safe and effective therapies against COVID-19.



Dr. Amelie G. Ramirez, DrPH  
UT Health San Antonio

Amelie G. Ramirez, DrPH, is an internationally recognized health disparities researcher at UT Health San Antonio, where she is Chair and Professor of Population Health Sciences and Director of the Institute for Health Promotion Research. She has 30 years of experience conducting behavioral and communications projects to reduce cancer, increase screening and clinical trial participation, promote patient navigation, and improve healthy lifestyles among U.S. Latinos. Dr. Ramirez leads the *Salud America!* communication program to empower its network of over 300,000 community leaders to drive healthy policy/system changes to promote health equity for Latinos ([www.salud-america.org](http://www.salud-america.org)). Dr. Ramirez also directs a bilingual messaging service to help young adults quit smoking ([quitxt.org](http://quitxt.org)) and has trained 300+ Latinos in health fields. Recognitions include 2007 election to the National Academy of Medicine and 2011 White House “Champion of Change.” Dr. Ramirez is on the San Antonio Mayor’s Fitness Council and is President of The Academy of Medicine, Engineering and Science of Texas. Dr. Ramirez, a native of Laredo, Texas, earned MPH and DrPH degrees from UT Health Science Center at the Houston School of Public Health.



Cherise Rohr-Allegrini, PhD, MPH  
Epidemiology Consultant and The Immunization Partnership

Dr. Rohr-Allegrini is an epidemiology consultant and Director of The Immunization Partnership. She was the epidemiologist and Pandemic Flu Coordinator for the San Antonio Metro Health District in Public Health Emergency Preparedness. Dr. Rohr-Allegrini was later the Communicable Disease Manager for the Department of State Health Services, Region 8 where she led the outbreak investigation of the H1N1 pandemic, and outbreak responses to TB, Syphilis and HIV. She earned a B.A. in Political Science from the University of California at Santa Barbara, and MPH in Infectious Disease Epidemiology from Yale University, and PhD in Tropical Diseases from the University of Notre Dame. Dr. Rohr-Allegrini is a graduate of the Latina Leadership Institute and is president of the Lavaca Neighborhood Association. Dr. Rohr-Allegrini is a housing and community advocate, serving on the Mayor’s Housing Task Force and the City’s Planning Commission, and the Community Advisory Board for The Pride Center’s Strengthening the Colors of Pride.



Junda Woo, MD, MPH  
City of San Antonio, San Antonio Metropolitan Health District

Junda Woo has been Medical Director of the San Antonio Metropolitan Health District since 2015. She was instrumental in bringing the Robert Wood Johnson Culture of Health Prize to San Antonio in 2018 and in the formation of the End Stigma End HIV Alliance. She practiced obstetrics for four years at a federally qualified health center before receiving an MPH from the UT School of Public Health. Prior to joining Metro Health, she was medical director of Planned Parenthood South Texas.

## Liaisons



Ana Sandoval, MPH  
City of San Antonio District 7 Councilwoman

Councilwoman Ana Sandoval serves on the San Antonio City Council, where she represents Council District 7 and champions issues of public health, open government, climate resiliency, and public transportation. She chairs the Council's committee on Community Health & Equity. Since taking office, Councilwoman Sandoval has led policy initiatives to raise the bar for the City's public participation efforts, protect children from the detrimental effects of early-tobacco use and air pollution, and expand transportation options for residents tired of traffic and poor air quality. Councilwoman Sandoval's studies took her from MIT to Stanford to Harvard, where she obtained degrees in engineering and public health. She has devoted her career to public service. Previously, she worked for the San Francisco's Air Quality Management District, where she focused on air quality and environmental justice, and VIA Metropolitan Transit, where she worked as a transportation planner.



Justin Rodriguez  
Bexar County Precinct 2 Commissioner

Commissioner Justin Rodriguez began his career in public service as a juvenile prosecutor for the Bexar County District Attorney's Office. In 2004, he was elected to the Board of Trustees of the San Antonio Independent School District and served in that role for three years. Justin was then elected to the San Antonio City Council where he represented District 7 from 2007-2011. In 2012, Justin was elected to the Texas House of Representatives. He served three full terms as State Representative for House District 125 and was re-elected for a fourth term in 2018. On January 4, 2019, Justin was appointed to serve as Bexar County Commissioner for Precinct 2 and is currently filling the first two years of the unexpired term of long-time Commissioner Paul Elizondo. Justin and his wife Victoria are raising their three children near the campus of St. Mary's University in the heart of San Antonio's west side.



Sharon Ong'uti, MD, MPH, FACP  
UT Health San Antonio Fellow, Lead Writer

Dr. Onguti is currently an Infectious Diseases Fellow at the University of Texas Health San Antonio. She is Board Certified in Internal Medicine and is a Fellow of the American College of Physicians. She has a Master of Public Health with a concentration in Epidemiology and Biostatistics from the Johns Hopkins Bloomberg School of Public Health. She previously served as an Assistant Professor of Internal Medicine at the Southern Illinois University where she was also an Associate Clerkship Director for Internal Medicine. She was recognized for her commitment with the "The Outstanding Hospitalist Faculty and Outstanding Teaching Faculty Awards and had the honor to

hood the graduating Class of 2018 of the Southern Illinois University School of Medicine. She is the Secretary of the Society of Bedside Medicine and has a special interest in medical education plus teaching bedside medicine. After completion of her program at UT Health San Antonio, she will be moving to Stanford University for a fellowship in Antimicrobial Stewardship.

## Support Team

Erin Nichols, City of San Antonio, Public Information Officer

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## Advisors

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UT Health San Antonio Research to Advance Community Health (REACH) Center

Mark Wade, Laboratory Director, San Antonio Metropolitan Health District

## Executive Summary

### Purpose of guidance

The intent of this guidance is to assist leadership in the City of San Antonio and Bexar County as they formulate plans to re-open our community. This guidance is based on existing public health evidence, data, and expertise, and informed by shared values, including a commitment to equity and service to the community.

### Guiding principles

Our recommendations are based on the following guiding principles: beneficence, we prioritize the community's well-being and recognize that health and economic prosperity are tightly linked; evidence-based decision making and responsiveness to new information; respect for individual freedom and privacy; trustworthiness, including teamwork, transparency, and accountability; and equity, a commitment to protect those who are medically at risk or marginalized.

### Process

Our team is made of health experts, including infectious diseases and pulmonary critical care specialists, hospital leaders, epidemiologists, ethicists, and public health experts. To craft this guidance, we gathered and synthesized existing knowledge regarding COVID-19 in our community and in the medical literature. We examined other community re-opening plans. Consensus guidance was developed by the entire team, in collaboration with a larger group of advisors for technical expertise, and is reflected in this report.

### Indicators and capacity

Reopening businesses and other sectors of the economy in San Antonio and Bexar County will require careful consideration of the risk of someone becoming infected with SARS-CoV-2, the virus that causes COVID-19, across many settings. It must be clearly stated that re-opening businesses and other sectors of the economy may increase the risk of COVID-19 in our community. Not all factors for transmission of this virus can be known with certainty.

However, there are certain signs, or indicators, that tell us we are effectively addressing the COVID-19 epidemic in our community. These progress indicators include:



A sustained decline in the number of new cases of COVID-19  $\geq$  14 days



The ability to perform tests for the virus in all people with symptoms of COVID-19, their close contacts, and those in public facing roles



Effective contact tracing capacity to identify all close contacts of people diagnosed with COVID-19 and offer testing to those for whom it is indicated



A prepared healthcare system that can safely care for all patients, including sufficient hospital capacity, workforce, and PPE for healthcare workers

For safe re-opening, we recognize that our community needs more education about COVID-19, improved access to testing for COVID-19, and an expansion of our existing public health capacity for contact tracing and follow up. We also must focus our efforts on those who are medically at risk and on marginalized populations.

## Phases

In alignment with federal guidance for reopening, we recommend a phased process. The first is our current state: Stay Home, Work Safe. Phase II includes staged reopening, determined by specific risks of activities, in the setting of expanded testing and contact tracing capacity and sufficient health system resources to care for all patients. Phase three represents a further easing of restrictions that would be possible in the setting of effective treatment or other medical or public health advances. Phase four begins once COVID-19 is no longer a threat to our community and focuses on improving our readiness for the next public health threat. In each phase, businesses and enterprises should employ universal hand-hygiene and surface-cleaning. At each phase, the indicators mentioned above should be closely monitored. Warning indicators, such as the rate of new laboratory-confirmed cases in the community or the stress on our health systems, must be examined for signs that increased public health safety measures may be needed, including the need to retreat to measures taken in prior phases.

## Strategies by sector

Guidance is provided for businesses and other sectors of the economy based on the risk of someone becoming infected with SARS-CoV-2 in that setting. Risk is determined by: contact intensity, the number of people within 6 feet of one another and the duration of that contact; number of contacts: the number of people in the setting at one time; and modification potential, how easy it is to change the activity or the setting to reduce risk. This guidance can be used by the COVID-19 Economic Transition Team to craft recommendations for specific sectors of the economy.

## Marginalized populations

The team recognizes that racial and economic disparities are vast and deep in San Antonio and Bexar County. This guidance requests that our community prioritize efforts for those most impacted by the COVID-19 pandemic by focusing response and recovery support in low-income communities, communities of color including immigrants, and LGBTQIA+ communities. This is an intersectional strategy that ensures that all who are highest risk are reached for assistance, including the medically at risk, people with disabilities, low wage frontline workers, incarcerated individuals, housing insecure individuals, and seniors. When these individuals are also low-income or from communities of color, they are the most at risk.

## Breakthroughs

Any guidance must be adaptable to new developments. Over the next six months or more, new research and breakthroughs in testing and treatment will require changes to the current plans. Our recommendations provide information regarding how the development of new testing modalities or a safe and effective treatment or vaccine would impact our community response.

## A way forward

Our team is cautiously optimistic that our community can navigate through stages of phased reopening. This approach requires commitment from all members of our community to protect ourselves and each other by following safety guidance. Only by working together and caring for one another will we emerge from the COVID-19 pandemic.

## Statement of Guiding Principles

The COVID-19 Health Transition Team is committed to creating recommendations based on the following guiding principles.<sup>1-3</sup>

### Beneficence

Human health and economic prosperity are tightly linked. We prioritize human life in the face of the COVID-19 pandemic. We understand that continued, severe economic hardship undermines the health of the community as much as disease. We share San Antonio and Bexar County's values of working safely, caring for people across the generations, protecting those who are medically at risk, and ensuring that no one is left behind. These shared values will guide a transition towards economic recovery, balanced by preserving the safety and integrity of our community.

### Evidence-based decision making and responsiveness to new information

The best recommendations are those that are informed by current evidence. Recommendations for community practices should be grounded in public health literature and research. They should be responsive to newly emerging scientific information and local health and economic indicators.

### Respect for autonomy

In the course of preserving public health and safety, the individual right to personal freedom and privacy must be respected. Any potential restrictions on individuals' movement or private information requires community engagement and must involve the least restrictive means to achieve a mutually desired goal.

### Trustworthiness

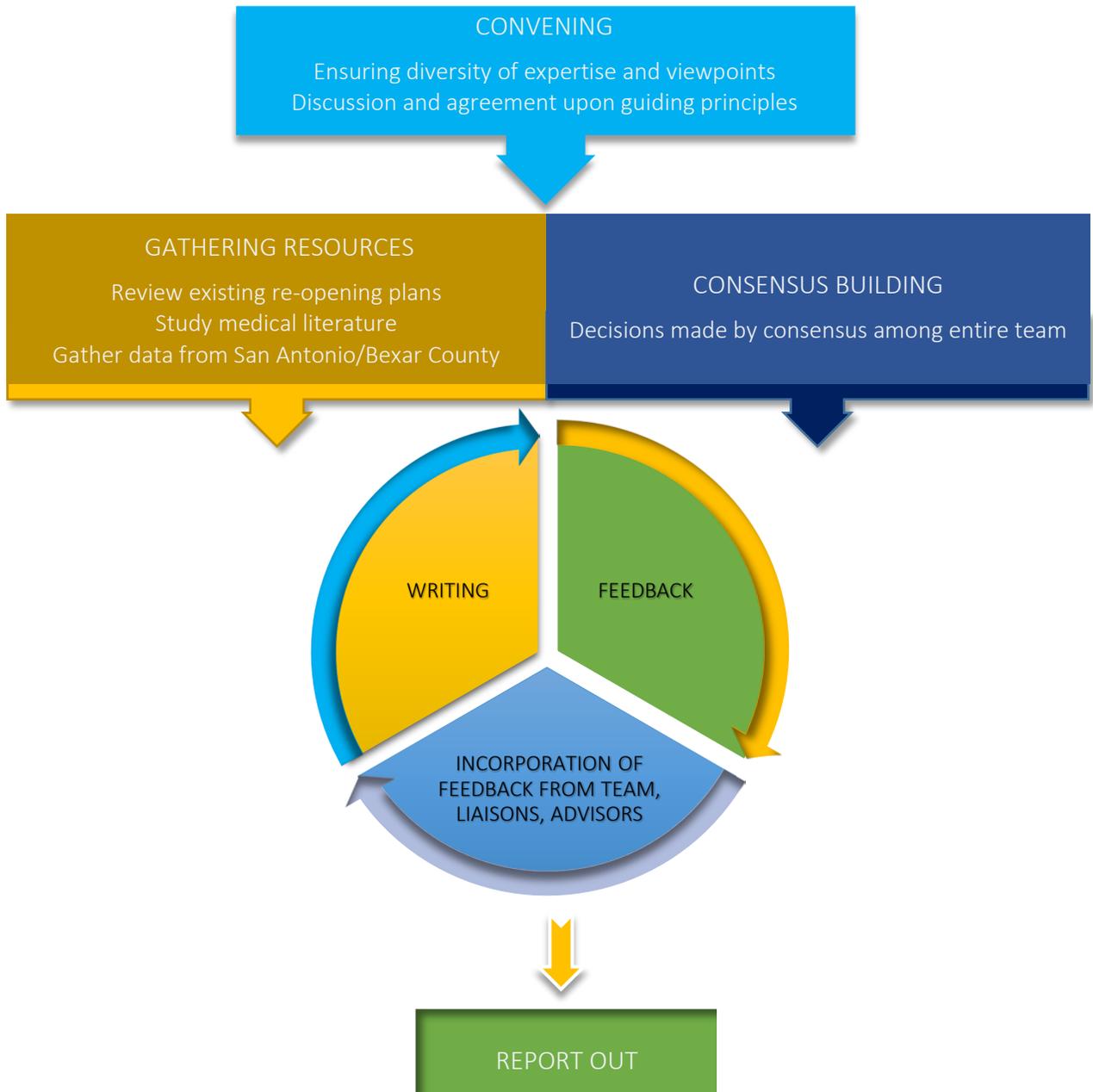
The members of this committee are committed to developing consensus guidelines that are unbiased and which place the community's best interest above our own individual interests. To be worthy of the trust they are given, public officials and advisory councils should demonstrate teamwork, transparency, and accountability. We will communicate the evidence for and reasons behind recommendations clearly. We will also be honest about what we don't yet know.

### Equity

Fairness and equity require studying and implementing community practices that protect populations who are medically at risk or marginalized by inequitable systems and structures, including those with chronic illness, compromised immune systems, and group living situations. The health and economic inequities that already existed in our community are only intensified and pronounced in emergencies such as the COVID-19 pandemic. These impacts are most deeply felt in low-income and communities of color.

## Process

Figure 1. Visual depiction of the process by which the COVID-19 Health Transition Team developed guidance.



## Indicators and capacity

### Indicators

Reopening businesses, schools, community venues, and other sectors of the economy in San Antonio and Bexar County will require careful consideration of the risk of someone becoming infected with SARS-CoV-2, the virus that causes COVID-19, across many settings. It must be clearly stated that re-opening businesses and other sectors of the economy may increase the risk of COVID-19 in our community. Not all factors for transmission of SARS-CoV-2 are known with certainty.

To monitor the effects of re-opening San Antonio and Bexar County, specific indicators must be collected and analyzed. These metrics provide early recognition of changes in community transmission of COVID-19 or variations in stress on the healthcare system. Indicators may change over time as the epidemic evolves and other data become available.

Due to the dynamic nature of infectious diseases, calculation of progress and warning indicators will be operationalized by the Unified Command of the San Antonio and Bexar County Emergency Operations Center: San Antonio Metropolitan Health District (Metro Health), San Antonio Fire Department (SAFD), and Southwest Texas Regional Advisory Council (STRAC). We propose the following **progress indicators**, reflective of an effective community response to COVID-19:



A sustained decline in the number of new cases of COVID-19  $\geq$  14 days



The ability to perform tests for the virus in all people with symptoms of COVID-19, their close contacts, and those in public facing roles



Effective contact tracing capacity to identify all close contacts of people diagnosed with COVID-19 and offer testing to those for whom it is indicated



A prepared healthcare system that can safely care for all patients, including sufficient hospital capacity, workforce, and PPE for healthcare workers

We also recognize the need for continued monitoring of the epidemic as our community gradually re-opens. We propose the following **warning indicators** as signs that increased public health safety measures may be needed:



A decrease in the number of days it takes for the number of COVID-19 cases in our community to double (doubling time)



An increase in the percentage of COVID-19 tests suggestive of active infection that are positive for COVID-19



An increase in indicators of health system stress, such as reductions in personal protective equipment, hospital bed, or ventilator capacity, and increases in emergency medical system calls

Significant changes in one or more of the indicators may indicate a relevant increase in community transmission rates of COVID-19 or increased stress on the healthcare system. This situation should prompt further assessment and consideration for the re-implementation of specific interventions.

*Action: Development of a clear, public facing dashboard of progress and warning indicators*

To promote transparency in the re-opening process, the team recommends that these indicators should be accessible to the public and updated regularly in the form of a community-facing dashboard.

## Capacity expansion

For safe re-opening, we recognize that our community needs more education about COVID-19, improved access to testing for COVID-19, and an expansion of our existing public health capacity for contact tracing and follow up.

### Assessment of current capacity and expansion of COVID-19 testing

To determine current capacity and need of testing, the following activities are recommended:

- Assess specimen collection and lab material capacity
- Assess specimen collection capacity (maximum daily number of tests available) across the county
- Assess demand for specimen collection across the county
- Assess community member testing need, symptoms, and previous access to testing

*Action: Increase testing for active infection*

Based on current knowledge of the epidemic, our team believes that testing for active infection should be expanded to a capacity of over 3,000 daily, which is twice our current testing capacity as of April 20, 2020.<sup>4</sup> This number is based on the population of Bexar County and derived from Governor Abbott's estimate that appropriate testing capacity for the state is 30,000/day, and aligns with population based estimates from the Harvard Global Health Institute.<sup>5</sup> It is our hope that other laboratory testing capacity from private laboratories is able to supplement testing capacity in the coming weeks. Testing strategies should focus on:

**Symptomatic** Goal to test all symptomatic individuals, with prioritization of:

- Those who are medically at risk
  - Persons 65 years and older
  - Persons with chronic medical conditions such as hypertension, diabetes, obesity and immunosuppression
  - Healthcare providers
  - First responders
- Marginalized communities
  - Communities of color including immigrants and asylum seekers of color
  - Low-income communities including housing insecure and homeless individuals
  - People with disabilities

- LGBTQIA+ communities

### **Asymptomatic**

- As the epidemic evolves, testing of asymptomatic individuals in specific settings may be indicated. These may include: persons living and working in nursing homes, skilled nursing facilities, assisted living facilities, shelters, unsheltered homeless, and other congregate settings.

#### *Action: Assess asymptomatic transmission*

Because testing has been limited, and because only individuals with symptoms have been tested, no one knows how many people in Bexar County / City of San Antonio actually have the virus. In partnership with the San Antonio Fire Department's Mobile Integrative Health Unit, the University of Texas Health Science Center San Antonio (UT Health), and University Health System, City of San Antonio Metropolitan Health District (Metro Health) plans to assess asymptomatic transmission. Plans for this innovative public health/academic partnership are forthcoming.

#### *Assessment of current capacity and expansion of contact tracing*

Contacts to cases are identified through the epidemiological investigation to identify individuals that have had close, prolonged contact with a confirmed COVID-19 case. Those with COVID-19 are placed in isolation and are given guidance on when they can be released from isolation. Close contacts (individuals that have prolonged exposure and within 6 feet proximity) are identified and information is obtained on these individuals. Each contact outside of the household is called by a team of nurses to inform them of their exposure and to place them on 14-day quarantine.

#### *Action: Increase contact tracing capacity at Metro Health*

We recommend that contact tracing efforts be increased to approximately 175 investigators, to align with national standards.<sup>4,5</sup> These investigators' efforts should prioritize case tracing of people with COVID-19 in marginalized communities. Furthermore, the data management system and team will need to be augmented to deal with a surge of cases. The team may need to triple or quadruple in size depending on the number of cases being reported daily.

Methodologies currently being pursued to increase contact tracing capacity:

##### 1) Metro Health/STRAC case reporting

The City of San Antonio Metropolitan Health District (Metro Health) and the Southwest Texas Regional Advisory Council (STRAC) have developed a comprehensive system to identify and manage cases for persons with active COVID-19 disease. The system will capture positive cases through hospitals, clinics, and laboratories connected within the STRAC network and will allow Metro Health's Epidemiology unit the ability to upload cases reported directly to the health department. Metro Health will upload these cases daily at 9 pm, allowing our public health department to have full visibility to both negative and positive cases identified within the health district's jurisdiction. This protocol will enable our Metro Health staff greater ability to perform investigations on COVID-19 index cases and conduct outreach to persons who have had contact with these individuals and may be at risk of exposure to the virus.

## 2) emocha Patient Mobile App for contact tracing

Metro Health and Information Technology Services Department (ITSD) are engaging in a technology and staffing services development with emocha (a mobile health company) to provide a patient-facing application (Patient Mobile App) that allows all COVID-19–positive patients and exposed close contact individuals (who have the technical capability to do so) to daily self-monitor and report symptoms using emocha’s mobile and web applications. The Patient Mobile App allows patients to record and submit videos and report symptoms. Patients can also track their progress and send messages to Metro Health, or to emocha consultants who will provide data monitoring services. Installation of web-based software (Dashboard) allows Metro Health officials to live-monitor all COVID-19 positive patients and exposed individuals using the emocha patient-facing applications. The Provider-Facing Dashboard is a web-based software platform that allows Metro Health to enable patient access to the Patient Mobile App, review and track videos and health data submitted by patients, and access reports. Metro Health can use the Dashboard to send messages to patients that can be accessed through the Patient Mobile App. Metro Health can access analytics and reports through the Dashboard.

Emocha will also provide additional staffing to augment the Metro Health and epidemiology teams to conduct Contact Tracing Interviews with close-contact individuals by using a dedicated team of emocha Enrollment Specialists. Once contacted, they can enroll them in the Patient Mobile App tools.

By deploying this self-service technology to patients and individuals who have the ability to use it and by providing additional emocha staff to conduct contact tracing interviews, we will be able to redirect Metro Health and epidemiology staff resources to more complex cases and investigations and to those patients and individuals who do not have access to this form of technology, increasing the overall capacity of the team for contact tracing and monitoring.

### Support coordinated testing and contact tracing efforts through public-private partnerships

Metro Health leads the COVID-19 Testing Task Force, a central body in which all stakeholders and agencies involved in COVID-19 testing are communicating regularly and thus can quickly adjust and make changes to the response as needed. To date, the Testing Task Force has developed and launched the COVID-19 self-screening tool, established definitions and guidance for COVID-19 specimen collection and laboratory testing, developed cumulative data reports from public and private laboratories, and fostered partnership to expand free testing.

As the epidemic evolves, the need for coordination between testing and contact tracing will only increase. Fostering public-private partnerships to support these efforts must continue to be a priority.

### *Action: Leverage current Testing Task Force to create a combined Testing and Tracing Task Force*

We recommend that the current Testing Task Force membership be expanded to include coordination with contact tracing efforts. This body, led by Metro Health, will be able to rapidly review and assess alternate testing methods for COVID-19, including new modalities for antibody testing, rapid testing, and self-testing. Coordination with contact tracing efforts will allow

innovations to be rapidly deployed into the community, prioritizing the medically at-risk and marginalized populations described above.

*Action: Assure sufficient resources for effective, long term testing and tracing strategies*

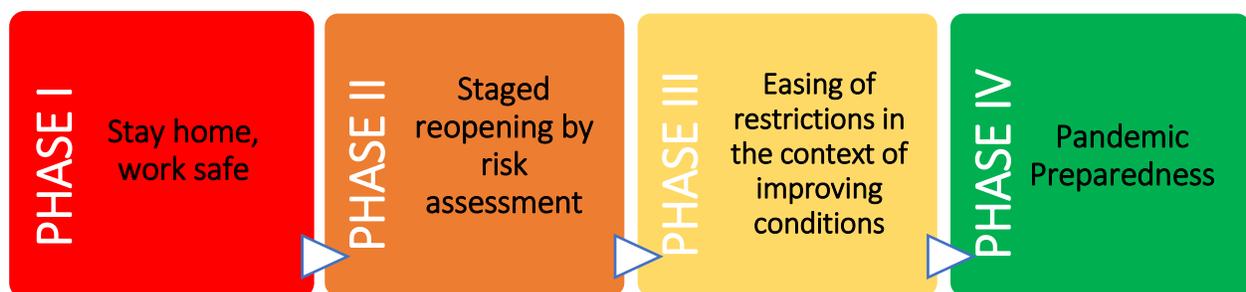
For long term testing and contact tracing strategies to be successful, sufficient and timely resource allocation is required. We recommend allocation of resources towards this goal. This includes funding to hire staff and scale up outreach activities. Support from leaders and stakeholders to allow the rapid recruitment and training of volunteers and the infrastructure to support such strategies are also needed.

## Phases to reopening San Antonio and Bexar County

In alignment with federal guidance for reopening<sup>6</sup>, we recommend a phased process. The first is our current state: Stay Home, Work Safe. Phase II includes staged reopening, determined by specific risks of activities, in the setting of expanded testing and contact tracing capacity and sufficient health system resources to care for all patients. Phase III represents a further easing of restrictions that would be possible in the setting of effective treatment or other medical or public health advances. Phase IV begins once COVID-19 is no longer a threat to our community and focuses on improving our readiness for the next public health threat. In each phase, businesses and enterprises should employ universal hand-hygiene and surface-cleaning<sup>7</sup>.

Throughout all phases, the indicators mentioned above should be closely monitored. **Warning indicators**, such as the rate of new laboratory-confirmed cases in the community or the stress on our health systems, must be examined for signs that increased public health safety measures may be needed, including the need to retreat to measures taken in prior phases.

Figure 2. Phases overview



### Phase I: Stay Home, Work Safe

During Phase I we have evidence of community spread of COVID-19 infections<sup>8</sup>. This means that confirmed cases cannot be traced back to a prior known case. To slow the spread, enforced mitigation measures include physical distancing, increased diagnostic testing, and optimizing healthcare system capacity (see Table 1). During this phase, we recommend that public health and local leadership coordinate with regional and state operations to mobilize resources, activate response teams and communicate directly with medically at-risk populations and settings. City and county authorities should provide enforcement for community mitigation strategies.

The goals of Phase I are to:

- Slow the transmission of COVID-19
- Increase testing capacity
- Ensure that the healthcare system has capacity to safely treat both COVID-19 patients and others requiring care
- Prepare for Phase II

Table 1. Recommended Components of Phase I

<b>Maintain Physical Distancing</b>			
Close community gathering spaces such as: schools, shopping centers, museums, gyms, places of worship...	Promote telework	Limit unnecessary domestic or international travel. Returning travelers from areas with community spread self-quarantine for 14 days and consider testing if indicated	
Stay-at-home advisories for transmission hot spots	Cancel or postpone meetings and mass gatherings; promote virtual meetings and conferences	Close dining areas but encourage restaurants and bars to provide takeout/delivery services	
<b>Increase Testing Capacity</b>			
<i>Easily accessible testing with rapid turnaround time for:</i>			
Hospitalized patients	Healthcare workers and workers in public-facing roles	Close contacts of confirmed cases	Marginalized populations
Persons who live in congregate settings, such as homeless shelters, where physical distancing is challenging		Outpatients with symptoms	
<i>Assess and lower barriers to acceptability of testing</i>			
<i>Communicate all test results efficiently and confidentially to health authorities and to those tested</i>			
<b>Optimize Healthcare System Functioning</b>			
<i>Hospital surge plans to be optimized with regards to:</i>			
Critical-care and expansion capacity	Increase supply of personal protective equipment for healthcare workers	Ventilators	Staffing
<b>Implement Comprehensive Disease Monitoring Systems</b>			
Detect increase in new cases	Widespread testing	Track and Contain new infections	
<i>Monitoring should be initiated and maintained at places of work, including public buildings, healthcare facilities and restaurants, and should include twice daily temperature checks and symptom screening</i>			
<b>Intensive Contact Tracing</b>			
New COVID-19 positive + patients should be isolated at home or in the hospital	Close contacts of confirmed cases should be quarantined and monitored for 14 days	Increase capacity for isolation and quarantine of individuals who cannot be isolated at home.	
<b>Masking, Hand Hygiene, and Surface Cleaning</b>			
Including: people who are $\geq 2$ years should wear nonmedical fabric masks while in public <sup>1</sup>			

<sup>1</sup><https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>

## Thresholds for considering transition to Phase II

Transition from Phase I to Phase II should be considered when the following **progress indicators**, to be operationalized by the Unified Command and the Emergency Operations Center, are met<sup>8</sup>:



A sustained decline in the number of new cases of COVID-19  $\geq 14$  days



The ability to perform tests for the virus in all people with symptoms of COVID-19, their close contacts, and those in public facing roles



Effective contact tracing capacity to identify all close contacts of people diagnosed with COVID-19 and offer testing to those for whom it is indicated



A prepared healthcare system that can safely care for all patients, including sufficient hospital capacity, workforce, and PPE for healthcare workers

## Phase II: Staged reopening by risk assessment

Phase II is a cautious step towards re-opening, determined by specific risks of activities, in the setting of expanded testing and contact tracing capacity and sufficient health system resources to care for all patients<sup>8</sup>. During this phase, we recommend various sectors start to re-open using a graduated approach. Suggested approaches and strategies to guide Phase II activities include:

- Resuming activities takes place in stages
  - Intermediate stages are necessary to prevent a surge of infections after reopening, to permit strengthening of mitigation procedures, and allow additional time for observation of new case rates.
  - Services may be opened at reduced capacity initially, with a plan for increasing capacity if safety measures are met.
  - Risk tables in the “Risk Assessment by Sector” document may be used to determine sectors included in the first wave of reopening.
- Continued risk mitigation
  - People who are working successfully from home may continue to do so.
  - Elderly and those with medical risk factors should still stay home as much as possible.
  - Continued limitations to sizes of gatherings and a prohibition on large gatherings (>50)
  - Employers should screen employees (temperature checks, symptom questions)
  - Employers should continue with masking, hand hygiene and surface cleaning
- Team effort and community outreach
  - Develop strong partnerships, as well as clear and frequent communication between the public and health advisors
  - Safety monitoring methods should support the development of teamwork and mutual support.

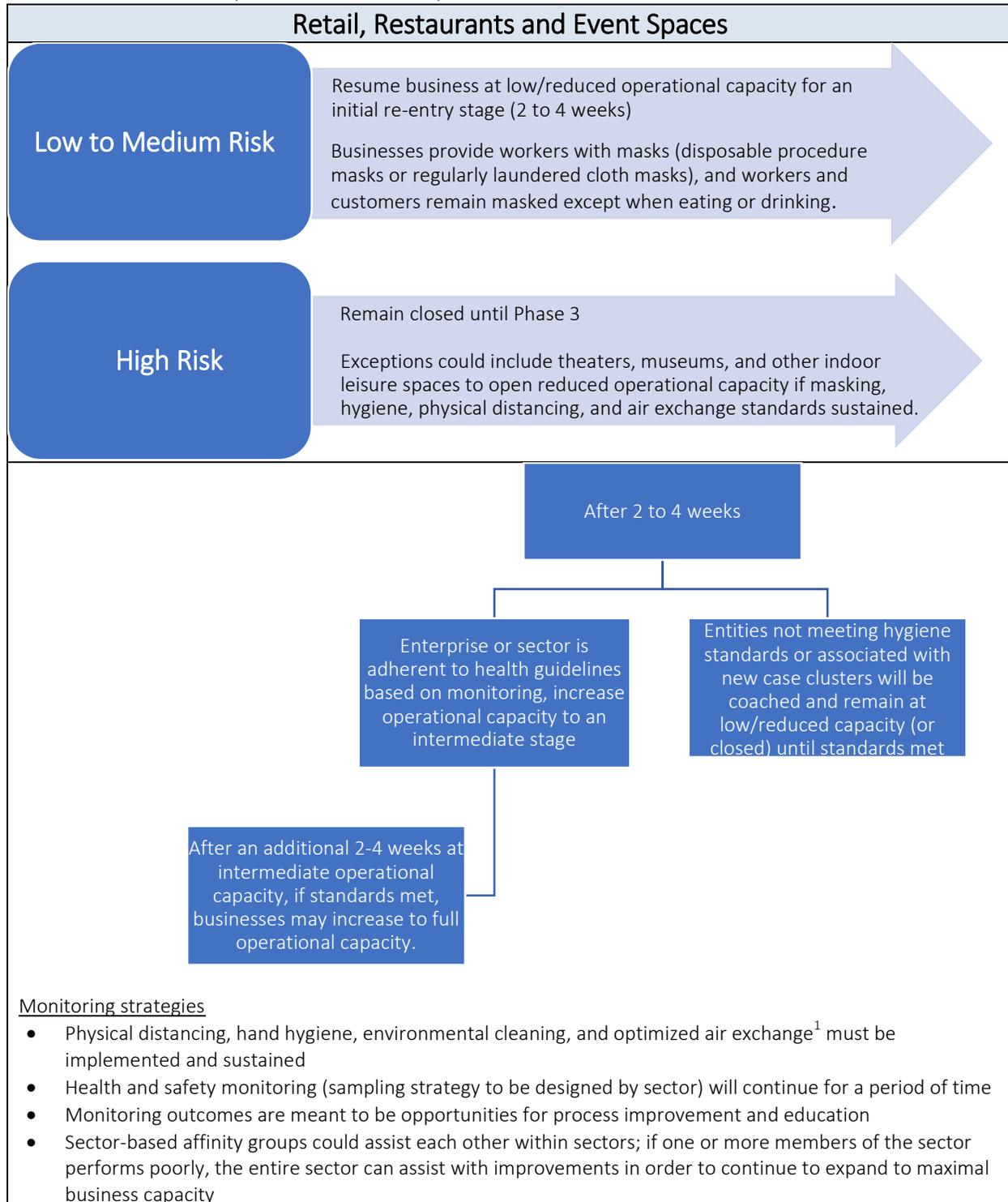
- Continued education of the public regarding how to avoid infection (physical distancing, hand hygiene, environmental surface cleaning, and masking).
- Recommended monitoring
  - All businesses and organizations agree to participate in health and hygiene monitoring for safety, permitting coaching visits from city/county health workers.
  - Monitoring may utilize existing health and safety workers and implemented with a sampling strategy for evaluating businesses and organizations.
  - System to ensure that individuals and businesses adhere to current safety guidelines
  - Testing of targeted asymptomatic high-risk populations such as Persons living in nursing homes, skilled nursing facilities, assisted living facilities, shelters, unsheltered homeless, and other congregate settings.

#### Guidance for employees and employers

We recommend that employers and employees consult the U.S. Center for Disease Control and Prevention (CDC) guidance regarding isolation of workers with COVID-19 and conditions permitting return to work.<sup>9</sup> Employers could consider routine screening of employees with daily temperature checks and screening questions on arrival to work. Those with symptoms or fever should return home and be tested for COVID-19. Those with a negative test may return to work after 24 hours without fever. Those who are diagnosed with COVID-19 should follow the CDC recommendations for isolation mentioned above. For workplaces with clusters of new cases identified by Metro Health, asymptomatic testing should be considered.

The Health Transition Team recommends that the Economic Transition Team develop strategies to promote sector-based affinity group support for risk mitigation within businesses in collaboration with local authorities. An example of a monitoring strategy is described in detail in Figure 3.

Figure 3. Example of a sector-specific monitoring strategy for risk mitigation. Please see section on risk assessment by sector for a description of risk.



<sup>1</sup>Please see Appendix II for air exchange guidance.

Table 2. Recommended components of Phase II

Schools and Childcare facilities <sup>1</sup>	
Re-open in Phase II <ul style="list-style-type: none"> <li>- Childcare facilities (daycare, preschools), with CDC/WHO mitigation resources, if not already open.</li> <li>- Noncontact school sports</li> <li>- Summer day camps without congregate living</li> </ul> <p style="text-align: center;"><i>For Daycares and Summer camps consider COVID-19 lab testing/monitoring of counselors and screening of campers before camp</i></p>	Remain closed until authorities mandate re-opening or Phase III conditions are met: <ul style="list-style-type: none"> <li>- Schools</li> <li>- Contact school sports</li> <li>- Summer overnight camps</li> <li>- Institutions of Higher Education</li> </ul>
Retail and Restaurants	
Re-open in Phase II: Gradual re-opening with low operational capacity and progress towards full operational capacity. Physical distancing and other mitigation strategies will be critical.	
Outdoor Spaces	
Re-open in Phase II <ul style="list-style-type: none"> <li>- Parks, walking paths/trails, dog parks</li> <li>- Athletic fields without crowds (<math>\leq 50</math>, outdoors, with distancing)</li> <li>- Outdoor Pools</li> <li>- Playgrounds, skateparks, other outdoor recreation spaces</li> </ul>	Remain closed until Phase III <ul style="list-style-type: none"> <li>- Outdoor areas drawing crowds, determined by community feedback.</li> </ul>
Community Gathering Spaces	
Re-open in Phase II <ul style="list-style-type: none"> <li>- Libraries (with physical distancing and risk mitigation)</li> </ul>	Remain closed until Phase III <ul style="list-style-type: none"> <li>- Places of worship (except small gatherings allowing for physical distancing)</li> <li>- Community centers (except where physical distancing and hygiene can be enforced)</li> </ul> Alternative strategy <ul style="list-style-type: none"> <li>- Places of worship to open, with masks, alternate distance seating, staggered sessions to avoid large crowds. Virtual sessions for elderly and at-risk. Consider some sessions outside with distancing.</li> </ul>
Transportation	
Recommend avoiding nonessential travel, but do not ban travel. Consider COVID-19 testing and self-quarantine upon return, especially if travel to communities with higher COVID19 incidence than Bexar County	
Mass Gathering	
Recommend large concerts, gala fundraisers, Fiesta closed in Phase II	
Interpersonal Gatherings	
Allowed: Small social gatherings Example: birthday parties, preferred outdoors, $\leq 50$ people	Not allowed: Large social gatherings Example: Weddings, funerals, with $>50$ people outdoor preferred
Masking, Hand Hygiene, and Surface Cleaning	
Continued from Phase I including: people who are $\geq 2$ years should wear nonmedical fabric masks while in public	

<sup>1</sup>Childcare facilities are assessed a lower risk than schools because of a lower number of contacts and better modification potential, especially with CDC/WHO mitigation strategies. The team recognizes that without childcare options, it will be very difficult for San Antonio and Bexar County to successfully reopen. (See Table 4)

Throughout Phase II, public health authorities will monitor the **warning indicators**, to be operationalized by the Unified Command and the Emergency Operations Center, as signs that increased public health safety measures may be needed. These may include:



A decrease in the number of days it takes for the number of COVID-19 cases in our community to double (doubling time)



An increase in the percentage of COVID-19 tests suggestive of active infection that are positive for COVID-19



An increase in indicators of health system stress, such as reductions in personal protective equipment, hospital bed, or ventilator capacity, and increases in emergency medical system calls

Significant changes in one or more of the warning indicators, or increased numbers of hot spots may indicate a relevant increase in community transmission rates of COVID-19 or increased stress on the healthcare system. Any of these should lead to consideration of re-implementation of specific interventions or resumption of Phase I by leaders and health authorities.

### Phase III: Easing of restrictions in the context of improving conditions

Phase III represents a further easing of restrictions that would be possible in the setting of effective treatment or other medical or public health advances<sup>8</sup>. During this phase, the current COVID-19 epidemic has been controlled, with decreasing incidence of new infections, appropriate support for medically at-risk populations, and effective public, community, and business partnerships for effective monitoring, testing, tracing, and isolation. Conditions should also be in place that ensure the risk of COVID-19 infection is significantly reduced either through effective and safe therapeutics that prevent infection, spread, and/or progression to severe illness or widespread immunity to COVID-19

Suggested approaches and strategies to guide Phase III activities include:

- Continue increased capacity in operations across businesses and enterprises
- Continue universal hand hygiene and surface cleaning standards
- De-escalate restrictions related to isolation, social distancing, modified work environments and schedules
- High risk businesses and enterprises--those not meeting safety guidelines--will receive targeted support, education, and restrictions until standard guideline conditions are met
- For de-escalation of restrictions related to school, sports, travel, and large/mass gatherings: coordinate with state and federal agencies

Throughout Phase III, public health authorities will monitor **warning indicators** as signs that increased public health safety measures or a return to Phase I or II mitigation and assessment strategies may be needed. It is likely that additional warning indicators will be appropriate at this time, but these could include the same warning indicators as noted in Phase II.

### Phase IV: Pandemic Preparedness

The objective of phase IV is increasing readiness for the next public health threat; this could begin during Phase III activities.<sup>8</sup> Readiness implies investment in the scientific, public health and medical infrastructure with attention to community resilience and trauma informed care for community

psychological and social well-being. This phase should provide opportunity to remedy the health system, public health and preparedness deficiencies that were revealed by the pandemic, leading to a more equitable distribution of resources for healthcare access, education, and prevention activities. We should be able to identify and test all suspected cases, promptly isolate and care for confirmed cases, identify and quarantine close contacts of confirmed cases.

Recommended activities during this phase include:

- Local capacity building
  - Invest and modernize the Metro Health’s public health system to ensure critical public health protections are in place for every person in Bexar County, that the public health system is prepared and has the right resources to address emerging health threats, and that the public health system is engaged daily to eliminate health disparities. Funding is needed to improve communicable disease data systems that are used across the county and to improve how population health data are collected, reported, and made available to municipalities and partners who rely on them.
  - Strengthen the Southwest Texas Regional Advisory Council (STRAC): one of twenty-two regional advisory councils in Texas that comprise the Texas Trauma / Emergency Healthcare system
  - Modernize and fortify the Healthcare System: improve hospital bed and ICU capacity to accommodate large surges of patients through a Hospital Preparedness Program, expand supply chain of personal protective equipment, and precautionary measures.
- Biomedical research
  - Develop vaccines for novel viruses rapidly, support flexible manufacturing capacity to scale up production to a global level in an emergency.
  - Participate in ongoing research to be prepared to move quickly towards widespread asymptomatic testing, vaccines and a cure.
- Augment disaster preparedness
  - Agree upon indicators and case rates, for any disease, that constitute a public health threat.
  - Develop a city/county crisis plan including phases from containment to reestablishment of commerce post threat, and consideration of marginalized communities.
  - Have a public relations and media plan in place to inform and engage the public
  - Fully document successes, lessons learned, and challenges with the current public health threat and any future health threats with special attention to:
    - improved alertness, responsiveness, and adaptability for both public health and business operations to pandemic threats,
    - protecting populations most at risk for adverse outcomes and long-term consequences, and
    - embed racial and economic equity principles into the updates of all local emergency preparedness plans.

- Advocate for a National Infectious Disease Forecasting Center whose primary focus would be to ensure a timely response to any public health threat that affects the country, state, or county. The national response team would also be prepared to develop a federal emergency plan to assist state and local governments with guidelines, infrastructure, and resources to contain the threat and slow or stop a pandemic from occurring.

## Risk assessment by sector

Reopening businesses and other sectors of the economy in San Antonio and Bexar County will require close consideration of the risk of someone becoming infected with SARS-CoV-2, the virus that causes COVID-19, across many settings. While mitigation strategies can be put in place to reduce the likelihood of community transmission, control of community transmission cannot be guaranteed. Thus, careful monitoring of community spread will be required, and strict social distancing measures may need to be re-instituted if a resurgence is detected. Vigilant management of COVID-19 cases will be required throughout the pandemic, even after the peak transmission period when businesses and other sectors of the economy start re-opening.

Commonly, the risk of transmitting COVID-19 has been compared to that of the spread of the Influenza. However, COVID-19 and Influenza are distinctly different infections with different characteristics of transmission. For instance, SARS-CoV-2 may be carried in the nasopharynx of a high percentage of infected persons who are asymptomatic. It has recently been reported in an Icelandic population that 43% of people with a positive test were asymptomatic in overall population screening<sup>10</sup> and 56% of nursing home residents screened in a Seattle skilled nursing facility during a COVID-19 outbreak were asymptomatic.<sup>11</sup> Finally, COVID-19 has the potential to spread rapidly and overwhelm medical resources, resulting in the possibility of the loss of life among individuals who might have otherwise survived with adequate medical supportive care.

Though there are many things we do not yet know about SARS-CoV-2 and COVID-19, there is clear evidence on what types of activities put people at risk. Our consensus recommendation for staging the opening of activities and businesses is to focus on *the potential for viral transmission and mitigation* instead of trying to define whether particular activities or businesses are essential or not. A guidance document prepared by the Johns Hopkins Bloomberg School of Public Health's Center for Health Security recommends ranking activities by the risk of transmission.<sup>12</sup> This risk is determined by three characteristics:

1. **Contact intensity:** Are people in this setting close to one another (<6 feet) or farther away? How long are people in this setting in contact with one another? For example, low contact intensity would be walking past someone in a store; high contact intensity would be sharing an apartment with someone.
2. **Number of contacts:** How many people will be in the setting at the same time? Higher numbers of people in the same place at the same time raise the risk for COVID-19.
3. **Modification potential:** This considers how easy it is to modify the activity or setting to reduce risk. Settings where it is easier for people to remain 6 feet apart have higher modification potential. The U.S. Centers for Disease Control and Prevention has a document that describes these "mitigation strategies" across many different settings.<sup>13</sup> For more information see Appendix III which includes a list of mitigation resources.

The tables below describe the risk of infection (contact intensity and number of contacts) for many different sectors of our community and the possibility of modifying or reducing the risk. We added an overall risk assessment for each sector. Please know, these assessments are not based on a

mathematical assessment of risk but may help to provide an overall idea of how risky a specific activity could be. All risk assessments could vary based on mitigation strategies or advances in our ability to prevent infection in specific contexts. The assessment of risk will require an analysis of the characteristics mentioned above. Furthermore, the risk assessment of individual businesses and other sectors of the economy will have to be fluid, frequently updated, and modified as necessary based on evolving data and scientific breakthroughs.

All tables in this section are adapted from the guidance prepared by the Johns Hopkins Bloomberg School of Public Health’s Center for Health Security.<sup>12</sup>

Table 3. Retail, Restaurants, Event Spaces

Category	Contact Intensity	Number of Contacts	Modification Potential	Total Risk Assessment
Restaurants <sup>1</sup>	Medium	Medium	Medium	Medium
Bars <sup>1</sup>	High	High	Medium	High
Salon, spas, and other personal care industries	Medium/high	Low	Medium	Medium
Retailers	Low	Medium	Medium	Low
Shopping malls	Low	Medium	Medium	Low
Gyms/fitness studios	Medium	Medium	Medium	Medium
Theaters, museums, and other indoor leisure spaces	Medium	High	Medium	Medium
Outdoor large venues (concerts, sports)	High	High	Medium	High
Indoor large venues (concerts, sports)	High	High	Poor	High

<sup>1</sup>Specific mitigation strategies may be developed for outdoor restaurants and bars, which would be more aligned with the outdoor spaces table.

Table 4. School and Childcare Facilities

Please note that our current knowledge of transmission dynamics in children is low. More information about the impact of mitigation strategies, such as symptom and temperature screening upon entry, could also reduce the overall risk described in the table.

Category	Contact Intensity	Number of Contacts	Modification Potential	Total Risk Score
Childcare facilities (daycare, preschools)	High	Medium/High	Poor/Medium	High
Schools (elementary, middle, and high)	High	High	Poor	High
Contact school sports	High	Medium/High	Poor	High
Noncontact school sports	Low	Medium	Good	Low
School performing arts	High	Medium/High	Medium	Medium
Summer camps	High	High	Poor	High
Institutions of higher education	High	High	Good	Medium
Residence halls and other overnight programs	High	Medium	Poor	High

Table 5. Outdoor Spaces

Category	Contact Intensity	Number of Contacts	Modification Potential	Total Risk Score
Parks, walking paths/ trails, dog parks	Low	Low	Poor	Low
Athletic fields and other outdoor congregate settings	Medium	Medium	Poor	Medium
Pools	Medium	Low	Good	Low
Playgrounds, skateparks, and other outdoor recreation spaces	Medium	Medium	Medium	Medium

Table 6. Community Gathering Spaces

Category	Contact Intensity	Number of Contacts	Modification Potential	Total Risk Score
Places of worship	High	High	Medium	High
Libraries	Low	Low	Medium	Low
Community centers	Medium	High	Medium	Medium

Table 7. Transportation

Category	Contact Intensity	Number of Contacts	Modification Potential	Total Risk Score
Buses	High	High	Medium	High
Metros/rail	High	High	Medium	High
Airplanes	High	High	Medium	High
Rideshare/taxis	High	Low	Poor	Medium

Table 8. Mass Gatherings

Category	Contact Intensity	Number of Contacts	Modification Potential	Total Risk Score
Sports related mass gatherings: games, tournaments, championships	High	High	Medium	High
Sports related mass gatherings: training	High (sport dependent)	Medium	Medium	Medium
Religious related mass gatherings: large celebrations, festivals, pilgrimages	High	High	Medium	High
Business-related mass gatherings: trade shows, conferences, conventions, workshops, retreats	High	High	Good	Medium
Entertainment-related mass gatherings: large concerts, festivals, carnivals, conventions, shows	High	High	Medium	High
Politically related mass gatherings: election rallies, polling centers, parades, speeches/ addresses	High	High	Medium	High

Table 9. Interpersonal Gatherings

Category	Contact Intensity	Number of Contacts	Modification Potential	Total Risk Score
Small social gatherings (<50)	High	Medium	Good	Medium
Large social gatherings (≥50)	High	High	Good	Medium

# Principles for a Common-Sense, Street-Smart Recovery with a Focus on the Most Marginalized

## Guiding Statement

Racial and economic disparities are vast and deep in San Antonio, and specific details about these local disparities can be found in the supporting documents included in the Appendix IV:

1. San Antonio Racial Equity Indicator Report
2. San Antonio Poverty Report

San Antonio should prioritize the needs of those most impacted by the COVID-19 pandemic by focusing response and recovery efforts in low-income communities, communities of color (Latinx/Hispanic, Black/African American, Indigenous and Native, Asian/Pacific Islander, etc.), and LGBTQIA+ communities. This is an intersectional strategy that ensures that all who are highest risk are reached, including people with disabilities, the medically vulnerable, low wage frontline workers, imprisoned individuals, housing insecure individuals, seniors, and many others., as when these individuals are also low-income and/or from communities of color they are the most at risk. We recognize that we have not distinctly named all of groups of people who are disenfranchised, but they are all included, as we use the term marginalized populations to explicitly refer to the communities most at risk due to systems and structures of oppression.

San Antonio can best meet the economic needs of businesses and the public, by recognizing the contributions of, and paying fairly for, the labor of essential workers and their families. As we begin to think about recovery, we must commit to become a better and more equitable city and a better and more just nation than we were before this pandemic.

## Recommended Actions

### *Action: Center Racial and Economic Equity*

Centering racial and economic equity must be at the core of this recovery and be a required core principle of the response and recovery efforts in all City Departments, county efforts, COVID-19 task forces, and committees.

**Why?** Low-income people and people of color will experience the worst impacts of this crisis. Therefore, now is the time to step up efforts to sustain equity gains that have already been made and secure more.

### *Action: Put Marginalized People First and Make Sure They are in the Room*

The scale and duration of relief must match the scale and duration of the need and low-income people and people of color must shape the recovery decisions that affect their lives and communities. Ensure representation of marginalized community members on all COVID-19 response related task forces and committees.

**Why?** Since 2013, the overall poverty rate for the City of San Antonio has remained at 18-20%, indicating that about one in five individuals are experiencing the financial and social burdens of poverty. Poverty is one of the most important determinants of health, longevity, and quality of life.

Roughly 60 percent of Americans do not have enough savings to cover a \$1,200 emergency expense. The vast racial wealth gap leaves households of color especially vulnerable right now.<sup>14</sup> Two out of three households of color do not possess enough savings to sustain themselves for three months if their income were disrupted; and one-third of African Americans and Latinos have no financial assets at all. Building the long-term financial security of low-income households and households of color involves harnessing an array of resources and institutional supports that enable vulnerable families to thrive and move up the economic ladder.<sup>15</sup>

We must address the dire human need and support people to manage their lives by protecting and expanding the safety net for everyone, regardless of status, and delivering emergency aid in the form of direct cash payments, debt forgiveness, rent and mortgage relief, loans and grants for small business owners, and other measures, with specific outreach to marginalized communities.

In Bexar County, 15% of Latinx/Hispanic community members do not have health insurance. In the Black/African American community, more than 30% do not have health insurance.<sup>16</sup> In the past 12 months, 24% of Latinx/Hispanic adults and almost 18% of Blacks/African Americans (non-Hispanics) did not see a doctor due to cost. In the LGBTQIA+ community, the lack of culturally competent care layered on racial and economic inequities has led to even greater health inequities. In the past year, 46% of LGBTQIA+ people surveyed said they have avoided seeing a healthcare provider in the past year and 30.8% said they had been refused health care.<sup>15</sup> The challenges our marginalized residents face in accessing health care discourage them from visiting a doctor when sick. As a result, individuals in this situation will not seek health care until severely ill, which is worse for their health and worse for the healthcare system.

We need to improve access to care for our most marginalized San Antonio and Bexar County residents by including health care enrollment efforts in our community outreach actions and by providing resources for medical care options for those who remain uninsured. Recognizing that a lack of culturally competent providers is also a barrier to access for many, we must also create and promote a list of providers who have demonstrated a commitment to full inclusion of treatment for all patients and specifically list which providers are LGBTQIA+ affirming.

#### *Action: Invest in Community Infrastructure*

The essential social service organizations must be prioritized for safe re-opening in the first phase, which should include free training and free distribution of essential supplies that can help prevent the spread of COVID-19 in their facilities, such as PPE and cleaning supplies.

**Why?** The trusted network of nonprofit, cultural, philanthropic, and local institutions that support the well-being and resilience of the most marginalized communities will be called to do more with fewer resources. Their work is urgently needed now and essential for the long road to recovery. We must commit to continuing to channel funds to help them keep services running and adapt to social distancing and online platforms as needed.

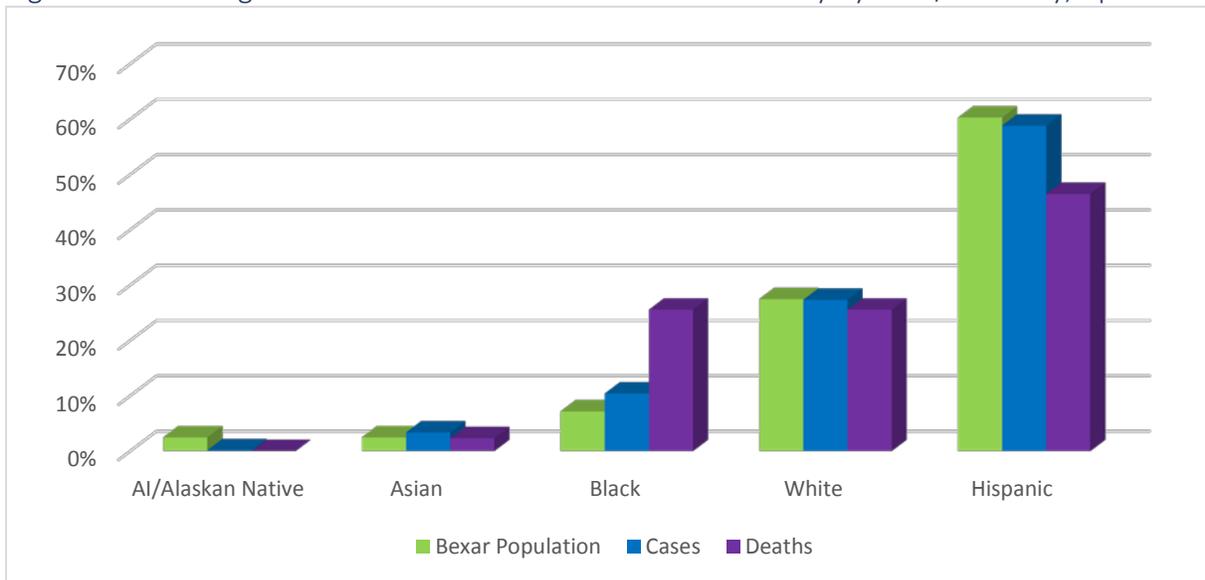
We must target investments to people and institutions rooted in and deeply committed to communities, with a track record for getting results for the populations they serve. This must include organizations serving low-income communities, the Latinx/Hispanic, Black and African American communities, and the LGBTQIA+ communities specifically.

*Action: Support Free Targeted Testing*

Testing, tracing and supported isolation needs to be made free and available for marginalized communities, without the need for a referral, and provided in their neighborhoods and/or via mobile testing units. Testing should include a random sample of *asymptomatic* and all mildly symptomatic individuals in these populations. Contact tracing efforts must be expanded (please see Indicators and Capacity Section) and their efforts should ensure prompt and prioritized case tracing of people with COVID-19 in marginalized communities.<sup>17</sup>

**Why?** The Black/African American community in Bexar County have not escaped the nationwide pattern. Black San Antonians account for 25% of COVID-19 deaths and 10% of cases, despite making up only 7.2% of the population. Latinx/Hispanics account for 58% of the cases and 46% of the deaths.<sup>18</sup> Both of these populations experience higher rates of lung disease, heart disease, diabetes, obesity, and other risk factors for severe COVID-19 disease.<sup>19</sup>

Figure 4. Percentage of known cases and deaths in Bexar County by Race/ Ethnicity, April 2020<sup>1</sup>



<sup>1</sup>See Table 14 in Appendix IV associated with this graph. All percentages are n/total confirmed cases of COVID-19 to date.

*Action: Develop a Community Health Equity Task Force*

With the support of the Mayor and Council and County Commissioners Court, it is recommended to launch a “Community Health Equity Task Force” that would be a coordinated effort between the Council’s Community Health and Equity Committee, the Mayor’s LGBTQIA+ Committee, Metro Health, and the Office of Equity.

**Why?** This task force should be primarily composed of community members from the most marginalized populations (which includes people of color including immigrants and asylum seekers, low-income communities, people with disabilities, and LGBTQIA+) be assembled quickly, and remain in place for at least 18 months, recognizing that the response efforts needed to address health equity disparities will require an extended effort.

The Task Force would act in an advisory capacity to the Mayor of the City of San Antonio and Bexar County, as well as the City of San Antonio Departments, and at a minimum would do the following:

1. Study the causes of racial disparities for COVID-19 and recommend actions to address such disparities.
2. Recommend actions to increase collection of and access to data regarding the racial and ethnic impact of COVID-19, and impacts on marginalized communities including:
  - a. remove barriers to accessing physical and mental health care
  - b. reduce the impact of medical bias in testing and treatment
  - c. mitigate environmental and infrastructure factors contributing to increased exposure during pandemics resulting in mortality
  - d. develop and improve systems for supporting long-term economic recovery and physical and mental health care following a pandemic.
3. Perform outreach to ensure all stakeholders in impacted areas are informed, educated, and empowered. Stakeholder outreach will include, but is not limited to, community leaders, partner organizations, tribal leaders.
4. Perform outreach to ensure the general public is informed about racial disparities in the impact of COVID-19, and the work of the Task Force.
5. Identify avenues of funding for combating racial disparities in the impact of COVID-19.
6. Recommend changes in San Antonio City and Bexar County policy relevant to combating racial disparities in the impact of and response to pandemics.
7. Identify other issues and provide recommendations to the City of San Antonio and the County on any other matters relevant to addressing racial disparities in the impact of and response to pandemics. Specific concerns could include: fear of testing positive and consequent job loss, contact tracing and possible deportation of undocumented immigrants.

#### *Action: Build an Equitable Economy*

Prioritize the needs of small and minority owned businesses and their employees.

**Why?** Providing direct support to workers and helping small and micro-businesses (<50 employees) preserve jobs through the mandated shelter-in-place orders is the best economic policy right now, and will yield the best results for a sustained economic recovery that will benefit everyone. Ensure that the needs of the small and minority owned businesses are addressed during every phase of the re-opening. This could include targeted relief, loans, and guidance on how to implement best practices relating to virus prevention techniques within their businesses. The health of San Antonio and Bexar County residents will also be improved by providing increased support for workforce development programs. April 3rd, 2020, Ramiro A. Cavazos, president and CEO of the U.S. Hispanic Chamber of Commerce, estimated that 1 in 4 Latinx/Hispanic owned enterprises may never reopen<sup>20</sup>, and we know that the health and well-being of our marginalized communities is heavily intertwined with their economic well-being. It is probable that these estimates are considerably higher now, three weeks later, and also higher in San Antonio specifically, based on the high number of Latinx/Hispanic owned enterprises in our city that routinely operate with tight

margins. In 2010 there were 37,000 Hispanic-owned businesses in San Antonio, according to the Texas Governor's Office.<sup>21</sup>

## Breakthroughs

Any plan must be adaptable to new developments. Over the next six months or more, new research and breakthroughs in testing and treatment will require changes to the current plans. Following is a chart describing each of these factors and how we would recommend addressing them.

Table 10. Breakthroughs in testing

Breakthrough	What would change?	Current barriers	Current possible workaround	Resources needed
<p><b>Rapid on-site testing</b> at work sites and mass gatherings</p>	<p>More uninfected people able to gather</p> <p>Early identification of asymptomatic people</p>	<ul style="list-style-type: none"> <li>• Current test requires moderate to high complexity lab</li> <li>• Limited supplies: reagents, swabs, viral medium</li> </ul>	<ul style="list-style-type: none"> <li>• Work sites could require serial testing                             <ul style="list-style-type: none"> <li>• All employees regardless of symptoms</li> <li>• Employees in direct public contact</li> </ul> </li> <li>• Establish quarantine facilities for workers to live away from households (not practical for mass gatherings)</li> </ul>	<ul style="list-style-type: none"> <li>• Many mobile testing units</li> <li>• Quarantine facilities                             <ul style="list-style-type: none"> <li>• More hotels</li> <li>• Wraparound services at those hotels, incl. childcare</li> <li>• Different from current <i>isolation</i> facilities, which do not allow residents to leave at all</li> </ul> </li> </ul>
<p><b>Serology Testing</b> Antibody testing with high validity and reliability</p> <p>Consensus that immunity is protective and long lasting</p> <p><i>Not for diagnosis of current infection.</i> Antibody tests can be used for population studies and to measure herd immunity</p>	<p>Previously infected people able to work and serve as caretakers</p> <ul style="list-style-type: none"> <li>• They would still use protection, but it could help stabilize the workforce by reducing exposure to workers who haven't been infected</li> </ul> <p>Potential plasma donors available for treatment</p>	<ul style="list-style-type: none"> <li>• Need results of antibody test studies</li> <li>• Need results of immunity studies</li> <li>• Concern that using immunity as qualifier will make people want to become sick (like chicken pox parties)</li> <li>• False positives would give a false sense of security</li> </ul>	<ul style="list-style-type: none"> <li>• People with severe illness who require hospitalization may be immune for an undetermined period of time</li> <li>• Should not require immune "proof" for work. It can be voluntary. If a person has COVID-19 recovery, immune status may be inferred, and they can work in higher risk environments. May be useful for healthcare workers treating COVID-19 patients</li> </ul>	<ul style="list-style-type: none"> <li>• FDA approved antibody tests</li> <li>• Database management of test results</li> <li>• Collaboration with academia to conduct cross-sectional studies</li> </ul>
<p><b>Additional Testing Opportunities</b> e.g. saliva tests<sup>22</sup> vs nose-throat swab vs nostril</p>	<ul style="list-style-type: none"> <li>• Reduced need for PPE in Collection</li> <li>• More likely to get a better sample – less</li> </ul>	<ul style="list-style-type: none"> <li>• Saliva not currently accepted by CDC for diagnosis</li> <li>• Unclear how often</li> </ul>	<p>Current nose-throat (nasopharyngeal) swab at clinic or drive-through</p>	<p>Assess all tests as they become available</p> <ul style="list-style-type: none"> <li>• Testing Task Force</li> <li>• Outside Researchers</li> </ul>

swab; home test kits	painful to the patient and more willing to repeat test	we have false negatives with nostril swab		
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Table 11. Breakthroughs in treatment

Breakthrough	What would change?	Current barriers	Current possible workaround	Resources needed
Safe and Effective treatment that is widely available, regardless of income	Reduced public fear knowing there is a treatment	<ul style="list-style-type: none"> <li>• Studies on-going</li> <li>• Lack of access to many of these medicines</li> <li>• Lack of access to health care related to barriers of cost and cultural factors impacting key populations</li> </ul>	<ul style="list-style-type: none"> <li>• Non-pharmaceutical interventions such as physical distancing</li> <li>• Education and Outreach</li> <li>• Lay groundwork to ensure that treatments will be available at low cost to call</li> </ul>	<ul style="list-style-type: none"> <li>• Education and outreach, including messaging that is culturally responsive <ul style="list-style-type: none"> <li>• Utilize Community Health Workers</li> </ul> </li> <li>• Identify funding resources for treatments and office visits for those without insurance</li> </ul>

Table 12. Breakthrough with vaccine

Breakthrough	What would change?	Current barriers	Current possible workaround	Resources needed
<p>Safe and effective vaccine</p> <p>Available to all with no out of pocket expense, regardless of insurance status</p>	<ul style="list-style-type: none"> <li>• Would protect individuals from infection<sup>23</sup></li> </ul>	<ol style="list-style-type: none"> <li>1) Vaccine development is ~18 months off</li> <li>2) Vaccine hesitancy                             <ul style="list-style-type: none"> <li>• Difficulty creating state law requiring vaccination</li> <li>• May not achieve herd immunity.<sup>24</sup></li> <li>• Lack of access to health care</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>• Non-pharmaceutical interventions such as physical distancing</li> <li>• Education and Outreach regarding the importance of vaccination</li> <li>• Legislative advocacy for vaccination requirements (<i>note this is only likely to impact school aged population</i>)</li> <li>• Lay groundwork to ensure that vaccine will be available at low cost to all</li> </ul>	<ul style="list-style-type: none"> <li>• Education and outreach, materials and expertise to craft messaging that:                             <ul style="list-style-type: none"> <li>• Is culturally responsive</li> <li>• Addresses vaccine hesitancy</li> <li>• Includes legislator education</li> </ul> </li> <li>• Identify funding resources for vaccines without insurance</li> <li>• Establish school-based clinics and mobile vaccine clinics</li> <li>• Target high risk populations within the community</li> </ul>

Table 13. Breakthrough in knowledge of disease transmission

Breakthrough	What would change?	Current barriers	Current possible workaround	Resources needed
<p>Role of Children</p> <ul style="list-style-type: none"> <li>Children are less likely to be very sick, but they do become infected. It's not clear what role they play in transmission<sup>25-28</sup></li> </ul> <p>Role of Asymptomatic and Pre-symptomatic Infection</p> <ul style="list-style-type: none"> <li>Infected but asymptomatic or pre-symptomatic people can potentially spread SARS-CoV-2</li> <li>Not yet clear how many infections are caused by asymptomatic carriers<sup>29-31</sup></li> </ul>	<ul style="list-style-type: none"> <li>Targeted interventions</li> <li>Impact school closures</li> <li>Better define need (or not) for face masks</li> </ul>	<ol style="list-style-type: none"> <li>Ongoing research</li> <li>Data are unclear on role of children in community transmission</li> <li>Assume asymptomatic transmission but the level or impact on community spread is unclear</li> </ol>	<ul style="list-style-type: none"> <li>Non-pharmaceutical interventions such as physical distancing</li> <li>Testing of employees with high likelihood of multiple public contacts during the course of their assigned duties to identify asymptomatic carriers</li> </ul>	<ul style="list-style-type: none"> <li>Monitor and evaluate further studies as they become available</li> <li>Address needs to school districts should physical distancing be required for return to school</li> </ul>

See Appendix V for detailed explanation.

## Appendices

### Appendix I: Glossary of terms

**Active infection:** An infection is present, sometimes active infections are only associated with symptoms, or feeling ill with the disease. Some active infections can be present, and even contagious without making a person feel ill or “symptomatic”

**Asymptomatic:** A person who has no physical features, or symptoms, of a specific illness. For example, in COVID-19 someone who does not have cough, fever, shortness of breath, or any other symptoms.

**Communities of color:** For the purposes of this document, communities of color are composed of people who are Latinx/Hispanic, Black/African American, Indigenous and Native, Asian or Pacific Islander. These also include immigrants or asylum seekers who fall into this category.

**Contact intensity:** This is a part of assessing the risk of a specific activity and is determined by the contact type (ranging from close to distant) and duration (ranging from brief to prolonged) of the contact.

**COVID-19:** Is an abbreviation for “coronavirus 2019” and is the name for the illness caused by a new coronavirus, called SARS-CoV-2 that usually causes a severe flu with cough, fever, body aches, and can progress to pneumonia and even death. This new illness was first discovered in December 2019 and has now caused a global pandemic.

**Epidemic:** A widespread occurrence of an illness, usually an infectious disease, at a particular time in a community.

**First responders:** Someone designated or trained to respond to an emergency. For example, fire fighters, police, emergency medical technicians

**Health care providers:** Individual trained to provide care for others. For the purposes of this document, this includes nurses, respiratory technicians, doctors, physical therapists, or anyone else providing care to patients.

**Health care:** Refers to the actions that providers take in caring for patients

**Healthcare:** Is the industry or the system that provides medical care to an individual or a community

**High Complexity Tests:** These are tests that are most difficult to perform or are most subject to error. They are usually performed only by large clinical laboratories and require quality control, quality assurance, proficiency testing and stricter personnel requirements. The major differences in requirements between moderate and high complexity testing is in quality control and personnel standards.

**Indicator:** A thing, like a trend or a fact, that tells how something is working or the state of something.

**LGBTQIA+ communities:** This term includes people who are lesbian, gay, bisexual, trans or transgender, queer, intersex and asexual, and the plus allows for inclusion of others who are non-heterosexual or non-*cis*-gender but do not fit in those categories.

**Low-income communities:** These are communities where the median household income is at or below 80% the median income for their area. For example, in San Antonio and Bexar County, this would be a combined income of less than \$57,600 for a family of four.

**Marginalized populations:** For the purposes of this document, marginalized communities include: communities of color including immigrants and asylum seekers of color, low-income communities including housing insecure and homeless individuals, people with disabilities, and LGBTQIA+ communities

**Medium/Moderate Complexity Tests:** Much of the testing performed in clinical laboratories falls into this category. Examples of moderate complexity tests are microscopic analysis of urinary sediment, some direct antigen strep A tests and some hematology and chemistry tests.

**Mitigation:** This is a step or series of steps that people or organizations can take to reduce the risk of a certain activity or setting. For COVID-19, reducing the number of people going in to a store, making sure they all stay 6 feet apart, and asking people to wear masks are all examples of mitigation.

**Modification potential:** This is a part of assessing the risk of a specific setting or activity and is determined by the degree to which changes in the activity (eg, the space, the number of people) can reduce the risk.

**Nasopharyngeal swab:** A method for collecting a clinical test sample of nasal secretions from the back of the nose and throat. The swab is difficult to do correctly and can be uncomfortable/painful for the patient. False negatives due to sampling technique as well as timing of specimen collection may be common with these swabs.

**Number of contacts:** This is a part of assessing the risk of a specific activity and is determined by the approximate number of people in a setting or doing an activity at the same time, on average.

**Pandemic:** A disease that is present across many countries around the globe.

**Medically at-risk:** for the purposes of this document and COVID-19, we know that persons 65 years and older or with chronic health conditions such as hypertension, diabetes, obesity, or immunocompromise

**Pre-symptomatic:** Someone who has a disease but has not yet developed symptoms (become sick) from it. These people will eventually become ill.

**Progress indicators:** These are things that tell us that we are moving in the right direction in controlling the COVID-19 epidemic.

**Public facing role:** these are any workers or volunteers that interact with members of the public. For example, a checkout person at a supermarket or a front desk worker at a clinic have public facing roles. A person working in a factory that is not open to the public does not have a public-facing role.

**SARS-CoV-2:** This stands for severe acute respiratory syndrome coronavirus 2, the name of the new virus that causes COVID-19.

**Sensitivity:** The proportion of true-positives which actually test positive; how well a test is able to detect positive individuals in a population.

**Specificity:** The proportion of true-negatives which actually test negative; how well an assay performs in a group of disease negative individuals.

**Symptomatic:** A person who has a sign of an illness, such as a cough or a fever.

**Test for active infection:** For the purposes of this document, these are tests that allow you to tell if someone is currently infected with SARS-CoV-2, the virus that causes COVID-19. Usually these are molecular tests that check for pieces of the virus in a person's throat or the back of their nose.

**Warning indicators:** These are things that tell us that the risk of COVID-19 in our community is increasing and that we need to make changes to protect ourselves and others.

## Appendix II: Resources on Air Exchange

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Position Document on Infectious Aerosols

[https://www.ashrae.org/file%20library/about/position%20documents/pd\\_infectiousaerosols\\_2020.pdf](https://www.ashrae.org/file%20library/about/position%20documents/pd_infectiousaerosols_2020.pdf)

COVID-19 specific statements from ASHRAE (direct quotes from position document April 2020, refer to ASHRAE for updates):

Separate from the approval of this position document, ASHRAE's Executive Committee and Epidemic Task Force approved the following statements specific to the ongoing response to the COVID-19 pandemic. The two statements are appended here due to the unique relationship between the statements and the protective design strategies discussed in this position document:

[Statement on airborne transmission of SARS-CoV-2](#): Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.

[Statement on operation of heating, ventilating, and air-conditioning systems to reduce SARS-CoV-2 transmission](#): Ventilation and filtration provided by heating, ventilating, and air-conditioning systems can reduce the airborne concentration of SARS-CoV-2 and thus the risk of transmission through the air. Unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection. In general, disabling of heating, ventilating, and air-conditioning systems is not a recommended measure to reduce the transmission of the virus.

### Who or what is ASHRAE:

ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. The Society and its members focus on building systems, energy efficiency, indoor air quality, refrigeration and sustainability within the industry. Through research, standards writing, publishing and continuing education, ASHRAE shapes tomorrow's built environment today. ASHRAE was formed as the American Society of Heating, Refrigerating and Air-Conditioning Engineers by the merger in 1959 of American Society of Heating and Air-Conditioning Engineers (ASHAE) founded in 1894 and The American Society of Refrigerating Engineers (ASRE) founded in 1904.

### Coronavirus (COVID-19) Response Resources from ASHRAE and Others

ASHRAE has published two statements to define guidance on managing the spread of COVID-19 with respect to the operation and maintenance of HVAC systems in buildings. ASHRAE recommends operators continue to run systems during this time to help control the spread of the virus. Read the official statements and affiliated guidance on ASHRAE's official COVID-19 page.

## Appendix III: Resources for risk assessment by sector

National Restaurant Association

<https://restaurant.org/Covid19>

Food Safety and the Coronavirus Disease 2019 (COVID-19)

<https://www.fda.gov/food/food-safety-during-emergencies/food-safety-and-coronavirus-disease-2019-covid-19>

TN Cosmetology & Barber Guidelines

<https://www.tn.gov/commerce/news/2020/3/17/covid-19-guidelines-for-cosmetology-and-barber-licensees.html>

NY state guidance, OSHA

[https://coronavirus.health.ny.gov/system/files/documents/2020/03/doh\\_covid19\\_cleaningdisinfectingretailstores\\_031620.pdf](https://coronavirus.health.ny.gov/system/files/documents/2020/03/doh_covid19_cleaningdisinfectingretailstores_031620.pdf)

NC state guidance, OSHA

<https://files.nc.gov/ncdhhs/documents/files/covid-19/NC-Interim-Guidance-for-Malls-and-Shopping-Centers-3-14-20.pdf>

CDC Small Business guidance

<https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-small-business.html>

CA entertainment venue guidance, Americans for the Arts, American Alliance of Museums

[https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CDPH%20Guidance%20for%20Entertainment%20Venues\\_ADA%20Compliant\\_3.13.20.pdf](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CDPH%20Guidance%20for%20Entertainment%20Venues_ADA%20Compliant_3.13.20.pdf)

CDC Mass Gathering guidance

<https://www.cdc.gov/coronavirus/2019-ncov/community/large-events/mass-gatherings-ready-for-covid-19.html#plan-prepare>

CDC Guidance for Child Care Programs that Remain Open

<https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/guidance-for-childcare.html>

WHO Key Messages and Actions for COVID-19 Prevention and Control in Schools

[https://www.who.int/docs/default-source/coronaviruse/key-messages-and-actions-for-covid-19-prevention-and-control-in-schools-march-2020.pdf?sfvrsn=baf81d52\\_4](https://www.who.int/docs/default-source/coronaviruse/key-messages-and-actions-for-covid-19-prevention-and-control-in-schools-march-2020.pdf?sfvrsn=baf81d52_4)

CDC Interim Guidance for Administrators of US K-12 Schools and Child Care Programs

<https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/guidance-for-schools.html>

CDC Guidance for Administrators in Parks and Recreational Facilities

<https://www.cdc.gov/coronavirus/2019-ncov/community/parks-rec/park-administrators.html>

National Collegiate Athletic Association Coronavirus (COVID-19)

<http://www.ncaa.org/sport-science-institute/coronavirus-covid-19>

American Camp Association, Association of Camp Nursing  
<https://www.acacamps.org/resource-library/coronavirus-information-camps>

American College Health Association  
<https://www.acha.org/COVID-19>

CDC Interim Guidance for Administrators of US Institutions of Higher Education  
<https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-ihe-response.html>

NYC guidance for congregate settings and residential buildings  
<https://www1.nyc.gov/assets/doh/downloads/pdf/imm/guidance-for-congregate-settings-covid19.pdf>

Guidance from Maryland: Parks  
<https://dnr.maryland.gov/publiclands/Pages/COVID-19-Personal-Spacing-at-Parks.aspx>

Guidance from Rhode Island: Parks  
<http://riparks.com/covid19.php>

Guidance from Los Angeles CA, Parks  
<https://www.laparks.org/covid-19>  
Guidance from the National Mall Trust in Washington, DC  
<https://nationalmall.org/coronavirus>

CDC Water and COVID-19 FAQs: Pools  
<https://www.cdc.gov/coronavirus/2019-ncov/php/water.html>

COVID-19 Guidance: Water Recreation Facilities WA  
<https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/WaterRecreationProgGuidanceCOVID-19.pdf>

Guidance from Orange Beach, AL, Beaches, Piers  
<https://www.orangebeachal.gov/news/covid-19-updates>

Guidance from RI, Beaches, Piers  
<http://riparks.com/covid19.php>

Guidance from MD, Parks  
<https://dnr.maryland.gov/publiclands/Pages/COVID-19-Personal-Spacing-at-Parks.aspx>

Guidance from Santa Cruz, CA, Parks  
<http://www.cityofsantacruz.com/government/city-departments/parks-recreation/covid-19>

CDC Resources for Community- and Faith-Based Leaders  
<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/index.html>

FAQ for Faith Leaders from NYC

<https://www1.nyc.gov/assets/doh/downloads/pdf/imm/covid-19-faith-faq.pdf>

NY state: Guidance for Cleaning and Disinfection for COVID-19 For Houses of Worship

[https://coronavirus.health.ny.gov/system/files/documents/2020/03/cleaning\\_guidance\\_houses\\_of\\_worship.pdf](https://coronavirus.health.ny.gov/system/files/documents/2020/03/cleaning_guidance_houses_of_worship.pdf)

How to use WHO risk assessment and mitigation checklist for Mass Gatherings in the context of COVID-19

<https://www.who.int/publications-detail/how-to-use-who-risk-assessment-and-mitigation-checklist-for-mass-gatherings-in-the-context-of-covid-19>

Decision Tree from WHO: Religious Mass Gathering

[https://www.who.int/docs/default-source/coronaviruse/who-2019-ncov-mg-decision-tree-religious.pdf?sfvrsn=f3433c0a\\_2](https://www.who.int/docs/default-source/coronaviruse/who-2019-ncov-mg-decision-tree-religious.pdf?sfvrsn=f3433c0a_2)

CDC Resources for Community- and Faith-Based Leaders

<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/index.html>

Guidance from Baltimore County Public Library

<https://www.bcpl.info/blog/2020/the-library-and-covid-19>

Pennsylvania Senior Community Centers – Guidance for COVID-19

<https://www.aging.pa.gov/service-provider-quicklinks/covid-19-provider-guidance/Documents/COVID-19%20Senior%20Center%20Guidance-update-3-15.pdf>

Guidance from Riverside University Health System, Senior Center and Community Services

[https://www.rivcoph.org/Portals/0/Documents/CoronaVirus/COVID-19\\_Senior\\_Center\\_and\\_Community\\_Services\\_Guidance.pdf](https://www.rivcoph.org/Portals/0/Documents/CoronaVirus/COVID-19_Senior_Center_and_Community_Services_Guidance.pdf)

Guidance from IL Community Organizations Guidance

<https://www.dph.illinois.gov/topics-services/diseases-and-conditions/diseases-a-z-list/coronavirus/preventing-spread-communities/community>

CDC What Bus Transit Operators Need to Know About COVID-19

<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/bus-transit-operator.html>

NY Interim Guidance for Cleaning and Disinfection of Public Transportation Settings for COVID-19

[https://coronavirus.health.ny.gov/system/files/documents/2020/03/cleaning\\_guidance\\_public\\_transportation.pdf](https://coronavirus.health.ny.gov/system/files/documents/2020/03/cleaning_guidance_public_transportation.pdf)

CDC What Transit Station Workers Need to Know About COVID-19

<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/transit-station-workers.html>

CDC What Rail Transit Operators Need to Know About COVID-19

<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/rail-transit-operator.html>

CDC What Airport Baggage and Cargo Handlers Need to Know about COVID-19  
<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/airport-baggage-cargo-handlers.html>

CDC What Airport Custodial Staff Need to Know about COVID-19  
<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/airport-custodial-staff.html>

CDC What Airport Passenger Assistance Workers Need to Know about COVID-19  
<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/airport-passenger-assistance-workers.html>

CDC What Aircraft Maintenance Workers Need to Know about COVID-19  
<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/aircraft-maintenance-workers.html>

Washington State **Guidance for Rideshare and Taxi Drivers**  
<https://www.doh.wa.gov/Emergencies/NovelCoronavirusOutbreak2020COVID19/RideshareandTaxiDrivers>

Toronto COVID-19 Guidance for Taxi and Ride Share Vehicles  
<https://www.toronto.ca/wp-content/uploads/2020/03/8d19-COVID-19-Guidance-for-Taxi-Ride-Share-Employers-Drivers-Vehicle-Owners.pdf>

CDC Get Your Mass Gatherings or Large Community Events Ready  
<https://www.cdc.gov/coronavirus/2019-ncov/community/large-events/mass-gatherings-ready-for-covid-19.html#plan-prepare>

WHO Practical considerations and recommendations for religious leaders and faith-based communities in the context of COVID-19  
<https://www.who.int/publications-detail/practical-considerations-and-recommendations-for-religious-leaders-and-faith-based-communities-in-the-context-of-covid-19>

National Funeral Directors Association guidance  
<https://www.nfda.org/covid-19/visitations-funerals>

Appendix IV: Additional Data from ‘Principles for a Common-Sense, Street-Smart Recovery with a Focus on the Most Marginalized’

San Antonio Racial Equity Indicator Report

<https://www.sanantonio.gov/Portals/0/Files/Equity/IndicatorReport.pdf>

San Antonio Poverty Report

<https://www.sanantonio.gov/Portals/0/Files/HumanServices/FaithBased/2019PovertyReport.pdf>

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Article: Why Tracking and Reporting on Race Matters

[https://www.sa2020.org/blog/uncategorized/why-tracking-and-reporting-on-race-matters/?fbclid=IwAR1K7YIPszWPB1uLz\\_zs6wHmvM7B2gfDEpJrKufbxpw5Wl4HYXv-XBNYWbc](https://www.sa2020.org/blog/uncategorized/why-tracking-and-reporting-on-race-matters/?fbclid=IwAR1K7YIPszWPB1uLz_zs6wHmvM7B2gfDEpJrKufbxpw5Wl4HYXv-XBNYWbc)

Metropolitan Health District: COVID-19 SURVEILLANCE DASHBOARDS

<https://www.sanantonio.gov/Health/News/Alerts/CoronaVirus>

Table 14. Known cases and deaths in Bexar County by Race/Ethnicity, April 2020

Race/Ethnicity Case	Bexar Population (%)	Bexar Cases n (%)	Bexar Deaths n (%)
<b>AI/Alaskan N</b>	2.50%	2 (0.17%)	-
<b>Asian</b>	2.50%	40 (3.42%)	1 (2.33%)
<b>Black</b>	7.20%	120 (10.27%)	11 (25.58%)
<b>White</b>	27.50%	319 (27.29%)	11 (25.58%)
<b>Hispanic</b>	60.30%	690 (59.02%)	20 (46.51%)
<b>Total</b>		1169	43

## Appendix V: Scientific information on breakthroughs

### COVID-19 Testing

There are two types of tests cleared for emergency use by the FDA:

- Molecular tests are diagnostic for acute infection. These identify the presence of specific nucleic acids produced by the virus within swabs and respiratory samples. These are currently in use.
- Serology tests look for antibodies against SARS-CoV-2, the virus that causes COVID-19. These identify if the person has immunity.

#### Molecular tests

SARS-Cov2 only contains RNA, which means it relies on infiltrating healthy cells to multiply and survive. A sample is collected from the nose or throat and is treated with several chemical solutions to remove proteins and fats. In order to detect the virus, technicians need to convert the RNA to DNA so they can copy the sample (reverse transcription) hundreds of thousands of times (amplification). This produces a large enough quantity of the viral DNA to confirm the presence of SARS-Cov2. The sample mixture is then placed in an RT-PCR machine that cycles through temperatures that heat and cool the mixture to trigger specific chemical reactions. A standard real time RT-PCR setup usually goes through 35 cycles, which means it creates around 35 billion copies of the viral DNA in the sample.

With good sampling technique, RT-PCR, in general, is sensitive and specific and can deliver a reliable diagnosis. It continues to be the most accurate method available for detection of the coronavirus. The difference between the automated RT-PCR and a manual RT-PCR is comparable to a boxed cake mix and a cake made from scratch. The automated kits have significant benefits by reducing the risk of cross-contamination and minimizing errors caused by manual interventions. The manual RT-PCR can lead to more sample-to-sample variation, less reproducibility, and less precision when mixing reagents (like a cake from scratch where you measure all the ingredients).

Many of the approved tests require nasopharyngeal (NP) swabs, which is a sample of secretions from the back of the nose and throat. The NP swab is difficult to do correctly and can be uncomfortable for the patient thus resulting in false negatives due to poor sampling technique. Given the supply issues with swabs and reagents, another type of test would be ideal.

#### Serology tests

The FDA granted approval for four antibody tests as of April 23, 2020. Usually within a few days after infection, the body's immune response produces antibodies called IgM. Later, the immune response produces long lasting antibodies called IgG. These IgG antibodies are specific to the virus. In some cases, it can take up to 11 days for an individual's immune system to produce the antibodies. That's why the tests are not used to diagnose patients with COVID-19 that are showing symptoms within the first two or three days. Antibody tests could be valuable to determine if a person was infected in the past. IgG antibody positivity suggests the person is recovered and may be protected

from future infection, which would be valuable to know for healthcare workers. At this point, it is unclear how long immunity lasts, and there are concerns about false positive results. If reliable and valid tests become available, healthcare and other critical workers could be prioritized. The recovered workers could be assigned COVID-19 patients, still using appropriate personal protective equipment. This could help stabilize the workforce by reducing exposure to the workers who haven't been infected.

### Testing Terms

**Medium/Moderate Complexity Tests:** Much of the testing performed in clinical laboratories falls into this category. Examples of moderate complexity tests are microscopic analysis of urinary sediment, some direct antigen strep A tests and some hematology and chemistry tests.

**High Complexity Tests:** These are tests that are most difficult to perform or are most subject to error. They are usually performed only by large clinical laboratories and require quality control, quality assurance, proficiency testing and stricter personnel requirements. The major differences in requirements between moderate and high complexity testing is in quality control and personnel standards.

**Nasopharyngeal swab:** A method for collecting a clinical test sample of nasal secretions from the back of the nose and throat. The swab is difficult to do correctly and can be uncomfortable/painful for the patient. False negatives due to sampling technique as well as timing of specimen collection may be common with these swabs.

**Sensitivity:** The proportion of true-positives which actually test positive; how well a test is able to detect positive individuals in a population.

**Specificity:** The proportion of true-negatives which actually test negative; how well an assay performs in a group of disease negative individuals.

### Treatment

Currently, there are no approved treatments for patients infected with COVID-19. While many people with COVID-19 have mild symptoms and can remain at home, it can take 10-14 days to clear the infection. During this time they are contagious to others. An effective treatment could shorten the number of days they're contagious, limiting the spread of the virus. Hospital care is limited to experimental treatments and supporting and preserving vital functions.<sup>32</sup> If a pharmaceutical treatment becomes available, not only will this save lives, it will reduce fear among the public.

### Vaccination

Scientists around the world are researching and testing vaccine candidates against COVID-19. While efforts are being made to speed up the process of vaccine development, experts warn it may be 12-18 months before a vaccine is available.<sup>33</sup>

A safe and effective vaccine can halt the spread of disease dramatically. We need to prepare over the next six to 12 months for the mechanisms necessary to deliver the vaccine. For example, how can we set up clinics? Can we use schools? How do we get adults to come in for vaccination? Older adults will remember people lining up to get the polio vaccine when it first became available.<sup>34</sup>

There is currently an NIAID-sponsored Phase I Vaccine Trial underway in Seattle, Atlanta, and Bethesda.<sup>35</sup> This trial includes 45 healthy adults, ages 18-55, 30 healthy adults ages 56-70 and 30 healthy adults over 71 years old.

Below are some vaccine candidates in the United States.<sup>36</sup> There are more than a dozen studies worldwide.

Table 15. Examples of vaccine trials for COVID-19 underway in the U.S.

Developers	Status
<b>Moderna and US Government</b>	Phase I clinical trial underway in Seattle; Preparing for Phase 2 and 3 clinical trials to begin upon successful completion
<b>Johnson &amp; Johnson and US Government</b>	Aiming to initiate a Phase 1 clinical study in September 2020, with clinical data on safety and efficacy expected to be available by the end of the year. This could allow vaccine availability for emergency use in early 2021. <sup>37</sup>
<b>Inovio Pharmaceuticals</b>	Phase I trial underway with plans to manufacture 1 million doses of its candidate this year.

### New Research

Much is still unknown about SARS-CoV-2. We must be prepared to adjust our plans in light of new research.

There is still some confusion on the role children play in the spread of COVID-19. While the data have been consistent that children are less likely to become severely ill, they do get infected. Unlike many other viruses, it's unclear if children shed the virus as much as adults do.<sup>25-28</sup> As we learn more about the role of children, this will influence safety practices in schools.

An asymptomatic person is one who is infected with the virus but never develops symptoms. A pre-symptomatic person is one who is infected and not yet showing symptoms when tested but later develops symptoms. Scientists believe infected people can transmit the virus early in the course of infection when symptoms are not yet noticeable. A pre-symptomatic person is believed to be contagious one to three days before symptoms develop.<sup>38</sup> Due to this potential for transmission, we have recommended face masks when one is likely to be in contact with others. However, it's still unclear how much of a role that plays in the spread of the disease. As we learn more, we can alter our guidelines.<sup>29-31</sup>

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