

COVID-19 Action Newsletter

UT Southwestern Department of Internal Medicine
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The Situation: Dallas County Mandates Masking in Businesses as Post-Memorial Day Resurgence Grows World's Confirmed Cases Exceed 8 million

Today, Dallas County Judge Clay Jenkins, with the concurrence of the County Commissioner's Court, issued an executive order requiring all businesses in the county to develop a plan to require all employees and customers to wear face coverings on their premises. Businesses must develop their plans and post the requirements at entrances within 5 days or face a fine of \$500 per violation. Mandated masking is the single most important measure for mitigating the epidemic and preventing hospitals from being overrun. Like major cities throughout the country Dallas is experiencing a major resurgence of the epidemic following further reopening of businesses and lapses in masking and distancing over the Memorial Day holiday.

Dallas County's action is part of a nationwide rush to enact masking mandates as 20 states are experiencing similar or worse exacerbations of their Covid-19 epidemics. According to *Masks4all.com* 15 states have recently enacted statewide mandates for all residents, 31 states have partial mandates for businesses to require masking, and only 4 have no mandates. Earlier this week as hospitals in Arizona were being overrun by critical Covid-19 patients, the state's governor rescinded his prior ban on local masking ordinances, and immediately 12 Arizona cities enacted mandates. In Montgomery, Alabama, with Covid-19 deaths suddenly peaking in overrun hospitals, the mayor overrode the vote of the city council, ordering universal masking.

In Texas, the abrupt rush to masking mandates was a surprise because local mandates had been prohibited by an earlier order of the governor. Two days ago, out of the blue the county judge of Bexar County, which includes San Antonio, issued a local order mandating masks seemingly in violation of the governor's order. The governor's office, however, readily acquiesced because the Bexar County action was a mandate that businesses require masking, which was technically not in violation of the governor's order only banning local governments from placing mandates directly on the public. With the governor's blessing, Dallas County Judge Jenkins immediately drafted the order that was approved this morning by the Commissioner's Court.

Elsewhere in the world, as of June 19, 2020, 8,514,522 cases of COVID-19 have been confirmed, including 454,522 deaths. In the United States, there have been 2,191,371 cases, the most in the world followed in order by Brazil, Russia, India, the United Kingdom, Spain, Peru, Italy, Chile, Iran, France, Germany, Turkey, Mexico, Pakistan, Saudi Arabia, Bangladesh, Canada, Qatar and China.¹ Deaths in the U.S. through June 19 have been estimated at 118,436.²

From March 10 through June 19, there have been 15,648 confirmed cases of Covid-19 reported from Dallas County with 307 confirmed deaths, 37% of these from long-term care facilities.³ Of hospitalized cases in Dallas County, more than two-thirds have been under 65 years of age, and about half have not had any high risk chronic health conditions. Diabetes mellitus has been seen in about one-third of all hospitalized patients. More men than women have died. The age-adjusted rates of confirmed Covid-19 cases in non-hospitalized patients have been highest among Hispanics (667.4/100,000) with Asians (187.4/100,000), Blacks (136.4/100,000) and Whites (43.8/100,000) having lower incidence rates. Sixty percent of the cases have occurred in the Hispanic population. Specimens submitted for diagnosis of respiratory viruses show continuing positivity for SARS-CoV-2 with the latest result being 13.3%.³

References:

1. Covid-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU) (Updated 6/19/20)
2. Worldometer. Coronavirus update 6/19/20
3. Dallas County Health and Human Services. Acute Communicable Disease Epidemiology Division 6/19/20

Early Reports

Will New Waves of Infection Follow the Mass Demonstrations? Followup Testing of Demonstrators Suggests Maybe Not

Since the shocking murder of George Floyd by police in Minneapolis on May 25, daily mass protests throughout the world in the midst of the Covid-19 pandemic have had epidemic watchers bracing for major escalations of infections. With tens of thousands of protesters, police and guardsmen jammed close together marching, running, shouting, and coughing from tear gas for hours on end and whole groups being crowded into police vans and jail cells, social distancing was far from anyone's mind. The only elements possibly retarding viral transmission from the inevitable asymptomatic carriers were being outdoors and wearing masks.

With the SARS-CoV-2 virus being transmitted primarily by droplet, aerosol and possibly airborne routes, outdoor breeze and open space quickly dissipate infective exhalant, and sunlight rapidly inactivates the virus. The intense crowding in many situations, however, would have limited the dilution effect, and much of the demonstrating occurred at night when no sunlight inactivation occurs. Amazingly, continuous television coverage showed that rates of masking among the demonstrators in every city covered approached 100%, setting up a crude natural experiment of the effectiveness of masking for blocking transmission of the SARS-Cov-2 virus.

In an effort to prevent a major surge in infections, public health officials in Minneapolis and St. Paul set up free testing sites and advertised for protest participants to come in for testing. To date 3,200 protesters have been tested at the popup test sites, and HealthPartners, a large healthcare system in the state, has tested 8,500. To everyone's surprise the rate of positive tests was 1.8% in the popup clinics and 0.99% at the health system's sites. These rates appear to be at or below the expected background rate of the population before the demonstrations began. In the first reports from similar testing in other major cities, Seattle officials are finding fewer than 1% positive of the first 3,000 participants from their mass protests, and in Boston, only 14 positives (1.1%) of 1,288 tested.

These consistently low prevalence rates of infection are fueling cautious optimism that being outdoors and wearing masks may have effectively suppressed viral transmission in the crowds of protestors. Of course, these conclusions are tempered by the fact that the individuals who stepped forward for testing are not entirely representative of all the demonstrators, and we have seen brisk increases in epidemic infections and hospitalizations in recent weeks which are being attributed to concurrent opening of businesses and relaxing of mitigation measures across the entire country. Surveillance testing will continue to address this question, but for now there is reason for increased confidence in the protection afforded by being outdoors and universal masking.

This weekend the epidemic watchers are again bracing for the next test, a mass campaign rally of tens of thousands crowded indoors with limited to no masking.

Reference:

Molteni M. What Minnesota's protests are revealing about Covid-19 spread. *Wired* 18 June 2020.

News Update

The following article appeared in the *Dallas Morning News* on Saturday, June 13, 2020.

All Working Together We Can Stop the Epidemic

Everyone Must Help With Masking and Distancing, Testing and Tracing

By ROBERT HALEY and DEBBIE BRANSON

Everyone is ready for the Covid-19 pandemic to end so we can resume our lives and save the economy, but more Dallasites continue to test positive for the stubborn virus every day. Infections have just begun surging again after widespread indiscretions over the Memorial Day weekend. So how are we going to stop it?

This virus is highly contagious. It spreads from person to person mainly by invisible droplets expelled when an infected person breathes, talks, yells, sings, coughs or sneezes; a far less common way is by touching virus-contaminated surfaces and then your eye or nose. This virus can also spread stealthily from people who don't feel sick, either in the couple of days before they break out with symptoms or even when they will never feel bad from it.

It turns out, however, that we can make it go away; other countries have. But it will take a vigorous partnership by every citizen working with our veteran health department epidemiologists on the four fundamentals of epidemic control: masking and distancing, testing and tracing.

First and most important, everyone should assume that he or she might be carrying the virus and resolve to protect others by wearing a face covering and maintaining 6 feet social distancing whenever out in public. This is easy to do; it just takes getting used to. The 12 countries with longstanding traditions of people wearing masks when ill were the only countries to have controlled their COVID-19 epidemics rapidly. Presently the great majority of Dallasites are doing this scrupulously now, but the remaining few are helping to maintain the new cases we are seeing.

The second line of defense is the system of testing and tracing. Health departments all over the world, including ours in Dallas, have been using this since the 1920s and have proven many times over that it can contribute importantly to containing the most contagious epidemics like smallpox, tuberculosis, meningitis, and whooping cough.

Contact tracing begins as our state-certified health department, acting under state confidentiality laws, receives the names of all people in the county who have just tested positive for the COVID-19 virus. A health department doctor, nurse or epidemiologist with clinical experience interviews each sick patient, discusses how to take care of himself or herself, and helps the individual recall everyone with whom he or she came in close contact while infectious, usually from 2 days before the illness began. The numbers of close contacts in a given case can range from zero for a person who became ill while living alone to hundreds for cases of people who spend time in group settings like nursing homes or meat packing plants.

The health department then ensures that all the contacts listed by the patient are notified of their exposure and of the need to quarantine for 14 days to avoid infecting others, while twice a day taking their own temperature and checking for symptoms so they can seek testing if they become ill. Testing people without symptoms is rarely useful. All health department personnel who take part in

contact tracing are trained and agree to respect the confidentiality of the information they collect, most importantly not revealing the patient who provided someone's name.

Our resourceful county health department has responded to the expanded tracing requirement by augmenting its relatively small staff of permanent contact tracers with more than 150 emergency volunteer healthcare professionals. These include retired physicians, hospital and school nurses, and medical students from UT Southwestern and Texas A&M medical schools, organized and scheduled in crisis mode by staff of the Dallas County Medical Society. In addition, the county dedicated approximately \$10 million in funding received through the CARES Act to further expand contact tracing capacity.

Testing and tracing only works when the whole community is mobilized to control the epidemic. The entire citizenry must follow emergency advice to shelter in place, wear masks and practice social distancing to cut the epidemic down to a size that testing and tracing can manage. Patients ill with COVID-19 must be willing to provide the names and contact information of their close contacts, and contacts alerted to their exposure must be willing to self-quarantine to avoid exposing others. With half-hearted community engagement, epidemics like this one tend to explode, rendering testing and tracing futile.

As we risk reopening businesses even as hundreds of new cases appear every day, everyone, please wear face masks and maintain social distance. If you are contacted by a health department professional, cooperate fully, knowing that you are protecting your family and friends, that your confidentiality will be respected, and that you are helping in an important way to make this epidemic go away. This is how we are going to stop it.

Robert Haley is a medical epidemiologist at UT Southwestern Medical Center. Debbie Branson is a Dallas attorney and past chair of the Parkland Board of Managers. Both serve on Dallas County's Public Health Advisory Committee for the Covid-19 pandemic response. They wrote this column for The Dallas Morning News.

Epi Corner

Evidence for Mandating Universal Masking Accumulates

Over the past month scores of articles have appeared in peer-reviewed journals as well as online and in the popular media overwhelmingly supporting the effectiveness of community-wide masking in blocking the transmission of SARS-CoV-2 and reducing the incidence of Covid-19 illness. Here are summaries of several of the best ones.

Early in the pandemic there was widespread agreement that face masks and other personal protective gear should not be worn by the public but should be reserved for healthcare workers. On April 3, the Centers for Disease Control and Prevention (CDC) dramatically reversed this recommendation with this message.

We now know that a significant proportion of individuals with coronavirus lack symptoms ("asymptomatic") and that even those who eventually develop symptoms ("pre-symptomatic") can transmit the virus to others before showing symptoms. . . . In light of this new evidence, CDC recommends wearing cloth face coverings in public settings . . . to slow the spread of the virus and help people who may have the virus and do not know it from transmitting it to others. . . . surgical masks and N-95

respirators . . . must continue to be reserved for healthcare workers and medical first responders. . . .¹

Instantly everyone who had been discouraging masking by the public reacted, “Lightbulb! Of course.”

Zhang et al. from Texas A&M, UT Austin, Caltech and UC San Diego, published a paper in *PNAS* comparing epidemic trends and mitigation measures used in Wuhan, China; Italy; New York City; and the rest of the U.S. (**Fig. 1**).² From their modeling they inferred that airborne transmission must be the dominant route of spread and that mandated face covering determined the different pandemic trends. They concluded that other mitigation measures, including social distancing, practiced in the U.S. are insufficient by themselves to protect the public and that high compliance with masking in public reduced the number of Covid-19 infections in one month by over 78,000 in Italy and over 66,000 in New York. (The study has been criticized on methodological grounds although with acknowledgement that the conclusions are in agreement with other published studies.)

Lyu and Wehby of the University of Iowa described in *Health Affairs* their statistical modeling of the natural experiment in the U.S. where the governors of 15 states and the District of Columbia signed orders mandating masking in public and at work, those of 20 states ordered employee-only mandates, and 15 states issued no masking orders.³ At the state level, they modelled the change in the number of confirmed Covid-19 cases from one day to the next in 5-day intervals from the date the order was signed. The model allowed them to control for differences among the states in population density, socioeconomic and demographic factors, and other epidemic mitigation and social distancing policies as well as trends in infections before the orders were

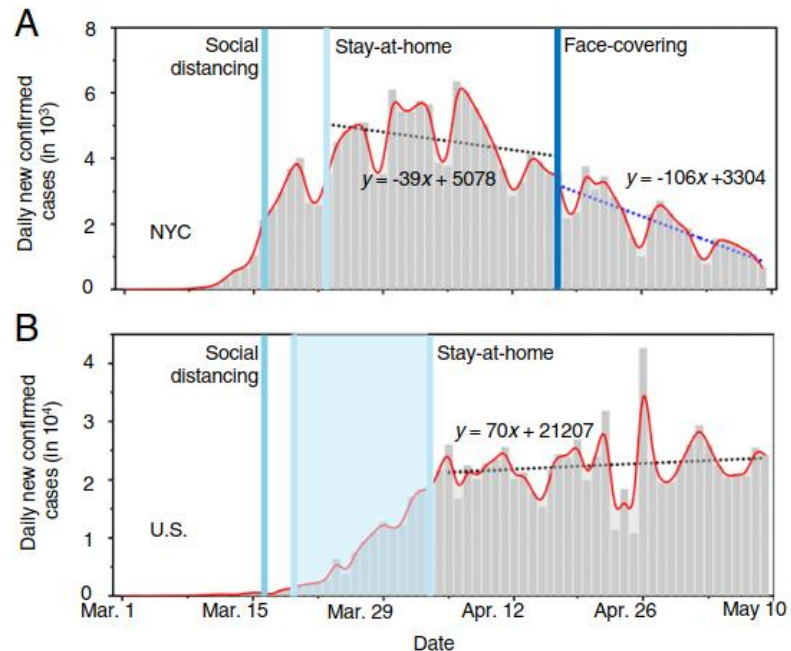
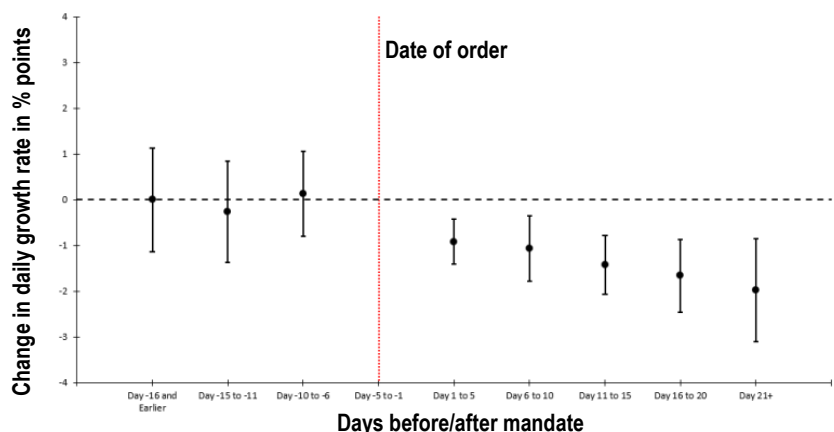


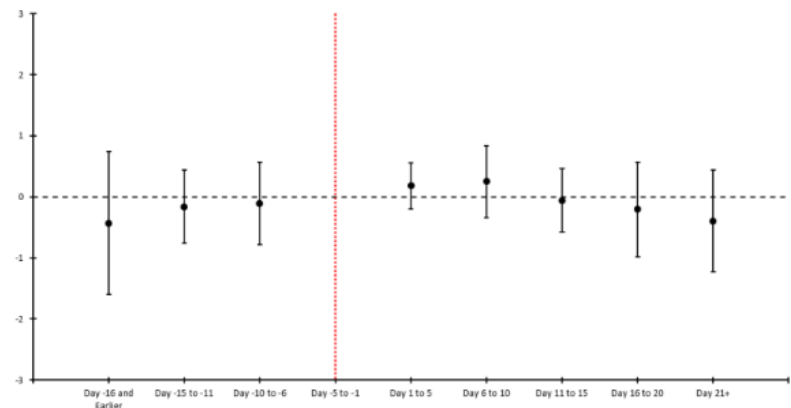
Fig. 1. Contrasting the trends of new infections between NYC and the United States. Daily new confirmed infections in (A) NYC and (B) the United States. The dotted lines represent linear fitting to the data between April 17 and May 9 in NYC and between April 4 and May 9 in the United States. In B, the number in NYC was subtracted from that in the United States. The vertical lines label the dates for social distancing, stay-at-home orders, and mandated face-covering.

Fig. 2. Event Study Estimates of Effects of States Mandating Face Mask Use in Public on Daily County-Level Growth Rate of COVID-19 Cases.



issued. Since they were unable to model enforcement or compliance with the orders, the study estimated the intention-to-treat effects. They found that in the states that issued the public masking mandates, the number of infections declined progressively from the day the orders were signed through the 21+ day final category of followup (**Fig. 2**). By 21+ days, the public masking mandate was reducing infections by 2 percentage points *per day* compared with the other states. In

Event Study Estimates of Effects of States Mandating Only Employee Use of Face Masks during Working Time on Daily County-Level Growth Rate of COVID-19 Cases.



contrast, the states that issued employee-only masking mandates showed no significant reduction compared with those having no mandates (**Fig. 3**). The authors concluded, “The study provides evidence that states in the US mandating use of face masks in public had a greater decline in daily COVID-19 growth rates after issuing these mandates compared to states that did not issue mandates. These effects are observed conditional on other existing social distancing measures and are independent of the CDC recommendation to wear facial covers issued on April 3. As countries worldwide and states begin to relax social distancing restrictions and considering the high likelihood of a second COVID-19 wave in the fall/winter, requiring use of face masks in public might help in reducing COVID-19 spread.”

Finally, Prather, Want and Schooley in a perspective in *Science* reviewed relevant literature and concluded:

Aerosol transmission of viruses must be acknowledged as a key factor leading to the spread of infectious respiratory diseases. Evidence suggests that SARS-CoV-2 is silently spreading in aerosols exhaled by highly contagious infected individuals with no symptoms. Owing to their smaller size, aerosols may lead to higher severity of COVID-19 because virus-containing aerosols penetrate more deeply into the lungs (10). It is essential that control measures be introduced to reduce aerosol transmission. A multidisciplinary approach is needed to address a wide range of factors that lead to the production and airborne transmission of respiratory viruses, including the minimum virus titer required to cause COVID-19; viral load emitted as a function of droplet size before, during, and after infection; viability of the virus indoors and outdoors; mechanisms of transmission; airborne concentrations; and spatial patterns. More studies of the filtering efficiency of different types of masks are also needed. COVID-19 has inspired research that is already leading to a better understanding of the importance of airborne transmission of respiratory disease.⁴

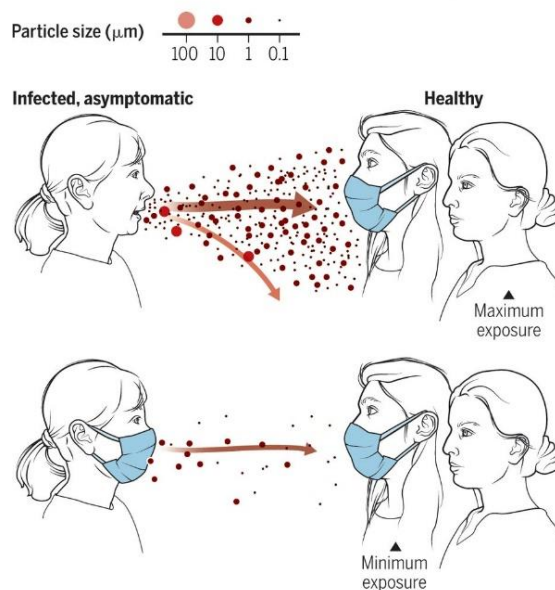
Their article was illustrated by the instructional cartoon by the *Science* illustrator Valerie Altounian shown on the following page.

References:

1. Centers for Disease Control and Prevention. Recommendation regarding the use of cloth face coverings, especially in areas of significant community-based transmission. 3 April 2020. <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html>.
2. Zhang R, Li Y, Zhang AL, Wang Y, Molina MJ. Identifying airborne transmission as the dominant route for the spread of COVID-19. *Proceedings of the National Academy of Sciences*. 2020:202009637 doi:10.1073/pnas.2009637117.
3. Lyu W, Wehby GL. Community use of face masks and COVID-19: evidence from a natural experiment of state mandates in the US. *Health Aff*. 2020(0):10.1377/hlthaff.2020.00818 doi:10.1377/hlthaff.2020.00818.
4. Prather KA, Wang CC, Schooley RT. Reducing transmission of SARS-CoV-2. *Science*. 2020:6197 doi:10.1126/science.abc6197.

Masks reduce airborne transmission

Infectious aerosol particles can be released during breathing and speaking by asymptomatic infected individuals. No masking maximizes exposure, whereas universal masking results in the least exposure.



GRAPHIC: V. ALTOUNIAN/SCIENCE

From the Editors

The aim of this weekly newsletter is to serve as a source of information for the UT Southwestern community which can lead to better understanding and control of a new disease (COVID-19) caused by the pandemic spread of an emerging viral pathogen (SARS-CoV-2). We welcome questions, comments, and suggestions for topics and authors.