

COVID-19 Action Newsletter

UT Southwestern Department of Internal Medicine
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The Situation: Confirmed U.S. Deaths Pass 209,000

In the world as of October 5, 2020, 35,231,182 cases and 1,037,914 deaths have been confirmed. In the United States, there have been 7,418,836 cases, the most in the world followed in order by India, Brazil, Russia and Columbia. China is now 44th in the world with 90,640 cases. Deaths in the U.S. through October 5 have been estimated at 209,734.¹

From March 10 through September 29, there have been 82,161 confirmed cases of Covid-19 reported from Dallas County with 1022 deaths, about 25% of these from long-term facilities.² Seventy percent of hospitalized cases in Dallas County have been under 65 years of age. Diabetes mellitus has been seen in about one-third of all hospitalized patients. More men than women have died, and 53% of the hospitalized cases have occurred in the Hispanic population. As of 9/29, 1022 deaths have been analyzed by race with 26% occurring in Whites (actual White population 29%), Hispanics 46% (population 41%), Blacks 24% (population 24%), and Asians 3% (population 7%). Specimens submitted for diagnosis of respiratory viruses show continuing positivity for SARS-CoV-2 with the latest result on 9/5 being 11.9%, down from a peak value of 30.5% obtained during the week ending 7/4/20.

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2. Dallas County Health and Human Services. Acute Communicable Disease Epidemiology Division 10/5/20

Feature Article

Cultivating Resilience Through Leaning into Stress and Change: Finding Balance in the Unsteady Times of the Pandemic

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Over the last 6 months, the world has undergone a series of profound changes in response to the Covid-19 pandemic. These changes have ushered in a radically different way of life for most people. And from the outset of the pandemic, we have read repeated warnings of the negative mental health effects that the pandemic will usher in. While high quality research is just beginning to characterize the significant mental health effects of the pandemic, certain patterns are emerging. There are reasons for concern, as well as reasons for hope, as we review helpful strategies for mitigating a decline in mental health based on studies of previous responses to traumatic events. Most importantly, most people exposed to real traumatic events emerge not only without symptoms, but also stronger and more resilient.

The disruption of our daily lifestyle that occurred in mid-March has been enormous. In the early days of the lockdown, a so-called honeymoon effect took place, wherein people quickly adapted over the initial weeks to the “new normal”: sheltering in place, leaving home only for essentials, educating children at home, working from home for those who continued to have jobs, and communicating/working over live-streaming platforms.

This disruption of daily routine has been particularly hard on children who thrive on routine and ritual to get through each day. This initial adaptation, while incredibly useful, masked what would quickly become obvious.

With these widespread changes came a staggering loss of social connection that we maintain through work and activities such as going to movies, sports games, eating out, gathering with family and friends, and celebrating special events such as birthdays, weddings, and anniversaries. We miss the people and the events we used to celebrate with co-workers, friends and family. The changes in daily routine and the loss of in-person social connection are responsible for a majority of the decline in mental wellbeing that has now been documented in population-based assessments. Furthermore, events like the global pandemic shatter our assumptions that the world is safe and that we are in control. It is important that we not pathologize emotional reactions to the pandemic. It is normal to be experiencing emotional upset, sadness and grief. Distinguishing these normal reactions from conditions needing treatment is the issue that we are faced with in large numbers.

Research has shown that 60% of Americans report negative mental health impacts during the pandemic. A recent study showing 25% of all adults reporting depression symptoms.¹ Other research indicates that the rate of adults who describe experiencing clinical levels of depression rose three fold during the initial months of this pandemic.² This figure is especially relevant regarding younger Americans since there has been a steadily increasing rate of depression and anxiety in young people over the past decade.³

We also know from studies conducted following previous pandemics that the adverse mental health effects of a pandemic may endure well beyond the duration of the pandemic.⁴ Anxiety, depression, substance use and even thoughts of self-harm or suicide are possible outcomes. We should be prepared to address these issues with friends, family, and co-workers in addition to our patients and their families. A broad body of research links social isolation and loneliness to poor mental health. As the pandemic continues to shut down normal social interactions, we have begun to see increased depression, anxiety, mood disorders, psychological distress, post-traumatic stress disorder, insomnia, fear, stigmatization, low self-esteem and a lack of control.

Underlying the anger and irritability, of course, exists the fear, anxiety and uncertainty that this invisible, yet quite real, threat poses to our lives. The virus seems to randomly choose who will become ill, and who, quite ill, requiring inpatient care and ventilation, and dying. We are learning more about the otherwise healthy who develop protracted course of symptoms lasting over weeks and months, or who develop serious cardiac manifestations post “mild” infection. This pandemic forces us to confront our mortality and our common defense of often blocking out awareness that we all shall die.

The pandemic has caused high numbers of job loss. Research has shown that job loss is associated with increased depression, anxiety, distress, and low self-esteem.⁵ Over time, these states of poor wellbeing can lead to higher rates of substance use disorder and suicide. This effect is likely to be even steeper among vulnerable populations like communities of color, LGBTQ+ people, and people in lower income brackets. These populations tend to be those who are forced back to work sooner as essential workers. Historically, these groups also have greater difficulty accessing mental health care.

Experiencing multiple stressors triggered by the COVID-19 pandemic—such as unemployment—and COVID-19-related media consumption are directly linked to rising acute stress and depressive symptoms across the U.S. From research, those with pre-existing mental and physical conditions are more likely to show both acute stress and depressive symptoms to the pandemic stress.⁶ Secondary stressors—job and wage loss, a shortage of necessities—are also strong predictors in the development of these symptoms. Extensive exposure to pandemic-related news and conflicting information in the news are among the strongest predictors of pandemic-specific acute stress.⁷ These results help us begin to think about who and how to target vulnerable communities in the slow wind-down and aftermath of the pandemic to promote community resilience.

What we are experiencing collectively is an enduring stress and emotional trauma as we find ourselves in the midst of an unfolding natural disaster. Our brains have responded by kicking into the survival mode of flight, fight, or freeze in response. We find ourselves more reactive, brittle and irritable. We see daily examples in the media of people over-reacting to being asked to wear masks in stores. Our responses to these media stories trend toward more emotionality and less calm and unhurried cognitive processes such as reflection, mindful listening, non-judging, avoiding shame/blame, not assuming others’ intent, and remaining open to understand impact.

So, we are experiencing the hardwired effects of the fear, anxiety, and stress the pandemic has brought to our doorstep: scanning and re-scanning the environment for possible threat. This inevitable turning to news sites and social media to stay up-to-date has been named “doom scrolling.”⁸ While part of the urge to keep up-to-date is reality based: knowing what is going on helps us prepare to respond safely; there is another more compulsive habit of being unable to disengage from the media and news sites which research has shown to be highly correlated with negative mental wellbeing.⁹

Many have independently coined the term “Covid brain” to refer to this widespread state of being less thoughtful, more distracted, memory not working as well, and overreacting to ordinary stress and slights.¹⁰ Even those who do not show symptoms of posttraumatic stress may find it hard to concentrate or focus. This “brain fog” happens during prolonged stressful events because the brain shuts down higher functions (executive functions, planning, anticipating, attending) to allow other parts of the brain, those tasked with basic survival, to take over.

Perhaps instead of focusing on how we should “recover” from trauma, we might focus on how these experiences will shape and change us. In dealing with response to trauma, researchers have found that those who reported a sense of purpose and meaning were more likely to remain resilient in the 18 months following the 9/11 attacks. We should recall that only a minority of people develop frank PTSD after a traumatic event. Post traumatic growth (PTG) is experienced by a majority of people who go through trauma. PTG is normative. Those people who manifest this type of resilience attribute positive change in their lives and psychology following the aftermath of traumatic events.¹¹

Here is a list of strategies designed to counter the effects of the Covid-19 pandemic on wellbeing:

1. Check in with someone every day, even if you think they may not need it. It could be you who needs it. Building and creating social connection helps us retain our sense of our fundamental selves, as people connected to other people.
 2. Find ways to help others and yourself feel safe and affirmed. A sense of belonging helps everyone grow through this and maintain their sense of purpose and dignity in the midst of this stressful time. Finding and practicing calming techniques such as deep breathing, yoga, mindfulness and moving techniques such as Tai Chi and QiGong help activate the parasympathetic nervous system and move out of flight/fight mode.
 3. Take the time to listen. Open, non-judgmental communication is the surest way to ensure everyone feels heard, validated, safe, supported and connected.
 4. Use thinking brain. Calling on and using executive functions of the mind/brain to cool down and make wiser decisions helps counter the tendency to make rapid, quick, and often inaccurate and unhelpful decisions.
 5. Talk to your stress. “OK, stress and worry. I see you. You are here trying to keep me safe (maybe riding in the sidecar or sitting on my shoulder.) But that’s OK. I’ve got this. Let’s check in later.”
 6. Be in nature. Exercise. Nuff said.
 7. Use compassion and self-compassion. Refrain from shame and blame with others and especially with yourself. Whatever you are able to bring when you show up is enough. If you consistently are not finding what you bring enough, consider seeing a therapist or mental health provider to help your self-assessment expand to include another point of view.
 8. Practice gratitude. Allowing the mind to center on positive aspects of this life in this moment cultivates a habit of being able to appreciate the good that is always here, embedded in the midst of this stressful time.
- With compassion and connection, we will get through this Covid-19 pandemic together.

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Epi Corner

Airborne Transmission of Covid-19. Review of 3 Articles

Three recent articles have called attention to the problems posed by the possibility that SARS-CoV-2 could in certain instances be transmitted by the airborne route. The first was an *Invited Commentary* appearing in *Clinical Infectious Diseases*, signed by a total of 239 co-signees.¹ It detailed the evidence for airborne transmission by which other viruses can spread and issued a plea to consider the wider application of control measures which might affect airborne transmission of Covid-19. The second article described a study in a hospital with a patient with acute Covid-19 in which sampled air was found to be positive for viable virus at a room's length distance (16 feet) from the infected patient.² The study featured improvements in air sampling technology and in virus culturing.³ Prior studies using older technology have been able to demonstrate viral RNA but have usually failed to find viable or replication-competent virus. The third study described a Covid-19 epidemic in Washington state with an attack rate >85% where the evidence strongly supports airborne transmission.⁴

The first paper, the *Invited Commentary*, reviewed the mechanism of the formation of infected large and small droplet aerosols.¹ Large droplets are produced in the upper airway before being exhaled, are ≥ 5 microns in diameter, are heavier than air, and settle to the ground after a short distance (<2 meters). Small droplet aerosols consist of smaller particles (1 to <5 microns), are lighter and can be carried by air currents through and beyond the room. Both types of particles can land on fomites and on surfaces and carry viral RNA detected by RT-PCR. Viral cultures for viable virus, however, have usually been negative, because the virus is either defective or inactivated by mechanical disruption or drying.⁵ Other viruses like influenza A virus, respiratory syncytial virus, SARS-CoV-1 and MERS-CoV are known to be potentially transmitted in part by infective aerosols. If there is a possibility that airborne transmission might be occurring, the authors advocate considering control measures that could remove infectious particles, including increased ventilation, local exhaust, air filtration and the use of ultraviolet light. They would discourage overcrowding particularly in closed spaces and in public transport. They emphasized that increased ventilation and air turnover increase the removal of both large and small airborne particles (**Fig. 1, next page**).

The second paper describes improvements in air sampling and viral culturing that might increase the detection of viral RNA and document the existence of viable virus in air samples distant from the patient.² These samples are often viral RNA-positive by RT-PCR but usually are negative by culture and are thought to represent viral fragments resulting from defective production, mechanical disruption or dessication.^{5,6} Using newly

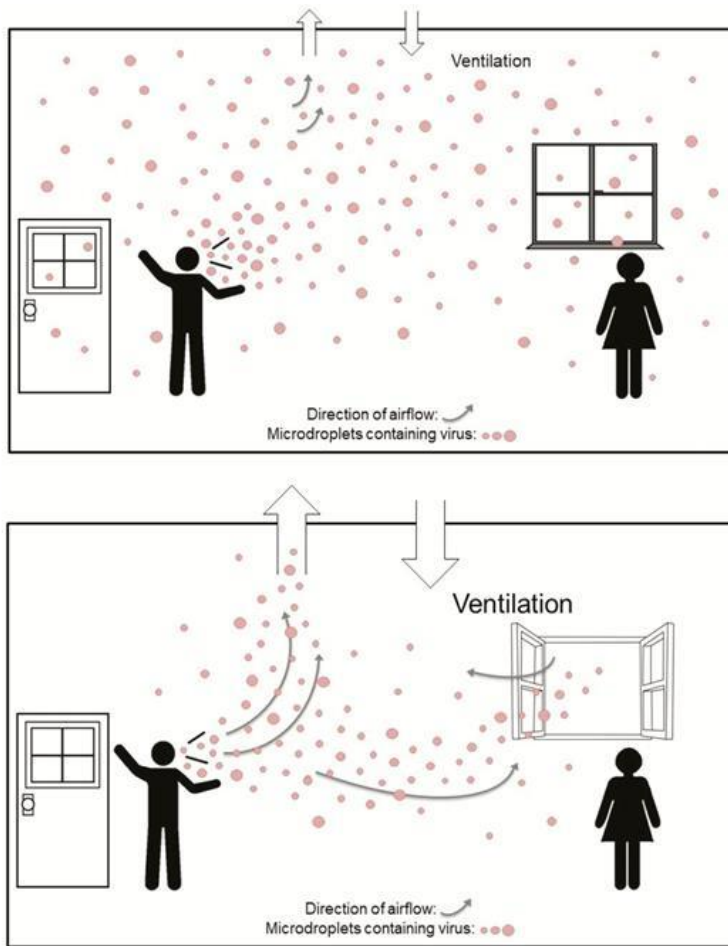


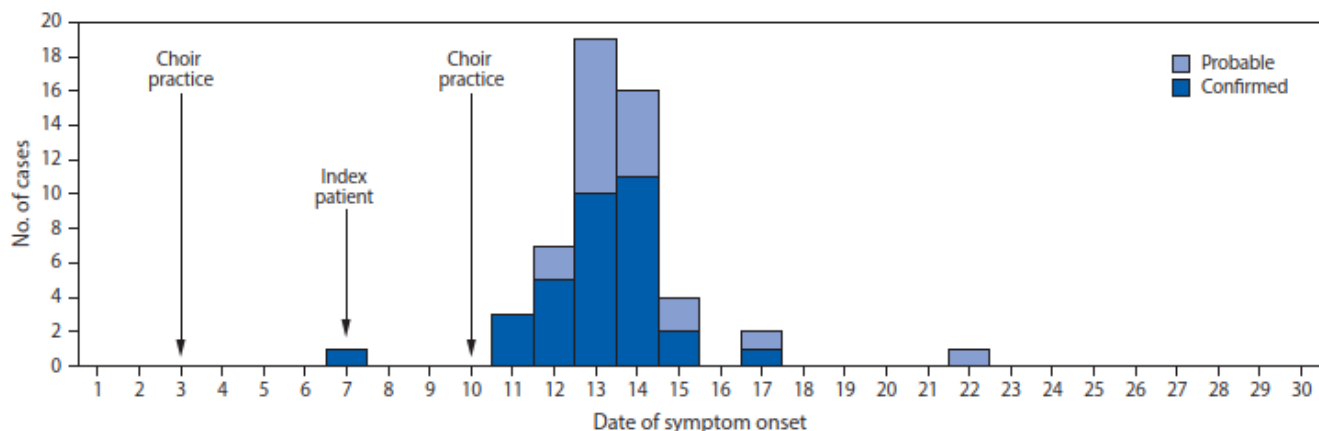
Fig. 1. Distribution of respiratory microdroplets in an indoor environment with (top) inadequate ventilation and (bottom) adequate ventilation.

designed air sampling devices and laminar flow, they were able to change the aerosol into liquid droplets which were then gently deposited onto a liquid surface containing a genomic preservative.³ Using these improved methods, two patients were studied, one of whom had positive pharyngeal PCR tests. Six samples were obtained and studied, four of which were positive for virus by PCR. Two of the positive tests were obtained at samplers stationed 2 meters (6.6 feet) from the positive patient's head, and two of the other tests were obtained 4.8 meters (15.7 feet) from the positive patient's head. Viable viral counts were calculated and estimated to be between 6 and 74 TCID₅₀ units/L of air (TCID₅₀ is the median tissue culture infectious dose). Although these measurements must be verified, they would appear to indicate that viral RNA and replication-competent, or transmissible, virus can travel at least 16 feet from the mouth and nose of the infected patient, raising questions about the present recommendation of 6 feet as the separation necessary to prevent virus transmission.

The third paper described a Covid-19 epidemic in Skagit County, Washington, that occurred in March 2020 among 122 persons who were members of a church choral

group.⁴ The index case became ill on March 7 (**Fig. 2**). Sixty members of the choir were present at rehearsals on March 3 and 10. Of 60 persons who attended on either March 3 or March 10 or on both evenings, 52 (86.7%) became ill (**Fig. 2**). Of 37 who did not attend either of the rehearsals, 2 (5.4%) became ill, for an odds ratio of

Fig. 2. Confirmed* and probable† cases of COVID-19 associated with two choir practices, by date of symptom onset (N = 53) — Skagit County, Washington, March 2020



Abbreviation: COVID-19 = coronavirus disease 2019.

* Positive reverse transcription-polymerase chain reaction test result.

† Attendance at the March 10 practice and clinically compatible symptoms as defined by the Council of State and Territorial Epidemiologists, Interim-20-ID-01: Standardized surveillance case definition and national notification for 2019 novel coronavirus disease (COVID-19). https://cdn.ymaws.com/www.cste.org/resource/resmgr/2020ps/interim-20-id-01_covid-19.pdf.

16.0. Thirty-two (61.5%) of the 52 patients who became ill and were considered cases were confirmed by RT-PCR testing. Three patients required hospitalization, including two who died. Since the investigation was begun on March 18 (8 days after the second choir practice), no attempt was made to demonstrate viral RNA in environmental samples. The epidemic curve was typical of a point source epidemic (**Fig. 2**). Transmission was thought to have occurred during choir from close proximity of persons to the index case who had mild symptoms, augmented by the act of singing which is known to increase infectious aerosols. Since members of the choir had close contact with each other during practice and socially afterwards, however, it is not possible to exclude some element of transmission by direct contact or by exposure to large droplet aerosols.

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From the Editors

The editors thank Dr. Wiles for his feature article on cultivating resilience during the pandemic.

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.