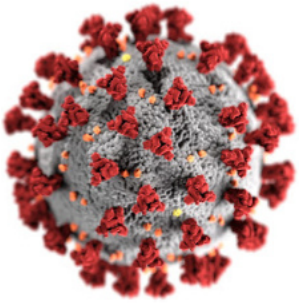

COVID-19 Action Newsletter

UT Southwestern Department of Internal Medicine
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The Situation: County Exceeds 1,000 Cases per Day as State Hits the Daily 10,000 Case Mark

In in the world, as of 7/102020, 12,294,117 cases of COVID-19 have been confirmed, including 555,531 deaths. In the United States, there have been 3,118,168 cases, the most in the world followed in order by Brazil, India, Russia, and Peru. China is now twenty-third in the world with respect to case number with 84,992 cases. Deaths in the U.S. through July 10, 2020 have been estimated at 133,291.[2]

From March 10 through July 10, 2020, there have been 30,361 confirmed cases of Covid-19 reported from Dallas County with 436 confirmed deaths, 33% 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. In the past 3 weeks, the percentage of specimens submitted for diagnosis of respiratory viruses that test positive for SARS-CoV-2 has increased from 13% to 32.0%.[3]

References:

1. Covid-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU) (Updated 7/10/20)
2. Worldometer. Coronavirus update 7/10/20
3. Dallas County Health and Human Services. Acute Communicable Disease Epidemiology Division 7/10/20

Special Populations

Meat and Poultry Processing Plants

The first cases of COVID-19 occurred in Wuhan, China, in November 2019. The onset of the first case in a person born in the U.S. was on February 6, 2020 in Santa Clara, CA. The cases on the cruise ship *Diamond Princess* were discovered and passengers placed in isolation on February 6. A skilled nursing facility epidemic was uncovered on February 26 in Seattle WA. Meat and poultry processing plants were early identified as sources of cases and information about the number of cases and plants involved were compiled by CDC on data published on May 8. At that time, multiple plants were involved from 19 states throughout the U.S. with 4,913 laboratory-documented cases from an employee base of 130,578 (3.0%).[2] Of the 115 affected plants, two, one from Sioux Falls, SD (Smithfield) and one from Perry, Iowa (Tyson) had confirmed case rates >15%, with the Perry facility having an attack rate of 58% (730/1250). Simultaneously, European Union countries began to report human cases related to meat and poultry processing with the exception that European plants tended to be smaller and to have fewer cases than their counterparts in the U.S. However, many of the circumstances underlying the cases were similar in the two regions.

In the U.S., plants are usually built in rural areas close to the source of the product.[4] Employees live in small towns away from the plants and have to travel back and forth daily. The employees often are immigrants,

living away from their families and usually rooming with other employees. Each day they travel to work with multiple persons in the same car or in buses. Crowding for meals or breaks is usual. Personal protective equipment (PPE) like gowns, coats, gloves, masks and face shields are usually in short supply and often have to be reused. Workers have close contact with each other, often working "elbow to elbow." Assembly line speed is faster in the U.S. than in Europe, meaning that each U.S. worker would more rapidly handle multiple carcasses one after the other in rapid succession. The ambient temperature would be low to maintain quality of the meat or poultry product. Communication between workers is limited because of the multiple languages spoken. Environmental cleanliness is difficult to maintain. Breaks and meal time tend to be short. Ventilation for each plant involves cooling and heating with the movement of air usually in a single direction so as to remove airborne debris.[3] Recirculation of treated air remains a serious problem.

When the problem of SARS CoV-2 transmission in these plants was recognized, cleansing was accentuated. For example, the Perry, Iowa plant was closed for 2 weeks. Objective evidence of improvement was difficult to ascertain, however, and its maintenance unsure because of the declaration that meat and poultry processing were part of an "essential industry." Although usual transmission of virus from person to person is probably through infected aerosols, in view of the environmental circumstances and the finding that as much as >50% of the personnel had become infected, it is difficult to exclude the possibility that airborne transmission was contributing.

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1. Picture from Agri-Pulse. New guidance recommends social distancing in meat plants 2020. Creator: Preston Keres. Credit: Office of communications.
2. Meat and Poultry Processing Workers and Employers. Coronavirus Disease 2019. CDC Centers for Disease Control and Prevention. Updated June 18, 2020.
3. Heber AJ, Zimmerman NJ and Linton RH. Ventilation of Poultry slaughtering and Processing Plants. Purdue University Cooperative Extension Service. Lafayette, IN 47907.
4. Wikipedia. Impact of the COVID-19 Pandemic on the meat industry in the United States. https://en.wikipedia.org/wiki/Impact_ of_the_COVID-19_pandemic_on_the_meat_industry

Special Populations

Covid-19 (Dikos Ntsaaigii-19, Big Cough-19) and the Navajo Nation

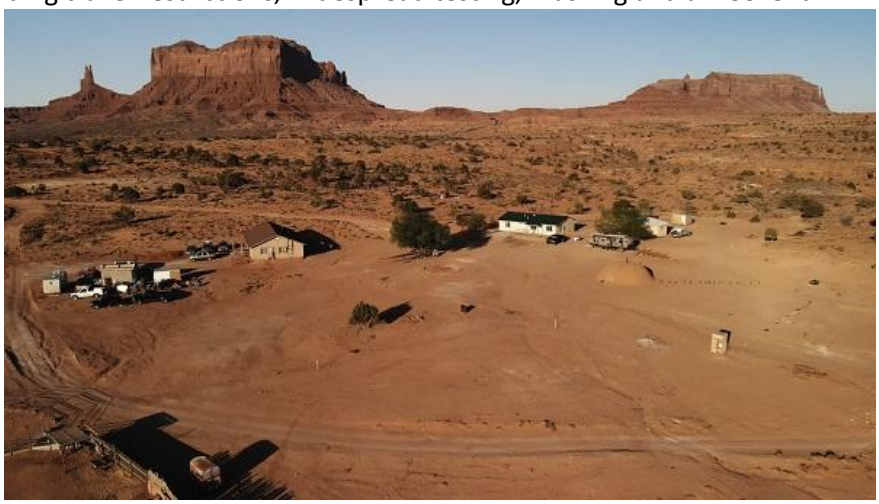
The reservation of the Navajo Nation is located in the Four Corners area of the Southwest U.S. where Colorado, Utah, Arizona and New Mexico meet. There are about 175,000 Navajos who live in a reservation ceded to them by the U.S. federal Government. The reservation is about 27,000 square miles, an area that is the size of West Virginia. The reservation has 6 hospitals compared to West Virginia's 63. There are 13 grocery stores on the reservation relative to West Virginia's 163. For the Navajo Nation, 30% of persons do not have running water and the unemployment rate is 40%.

As of July 7, 2020, there have been documented 7,941 confirmed cases of Covid-19 with 379 deaths in the Navajo Nation.[2] These rates are the highest in the U.S., include the rates in New York City at the height of its

recent epidemic in March and April 2020. These rates for the Navajo Nation are in the setting of a testing rate of 25%, compared with rates between 5% and 8% in the largely surrounding state of Arizona.

The Navajo live in a semi-arid environment. Their population density per square mile is low but crowding is marked since they tend to live in family units where multiple persons live together in single housing units separated by large uninhabited areas. The family units also called clans are multi-generational, including many elderly.[3] Diabetes mellitus and hypertension are highly endemic in the population. So what are the Navajo doing about the present situation? They are involved in recognizing the problem, accepting it, and seeking solutions.

With the rapid rise in Covid-19 cases and over 300 deaths on the reservation, in mid-May the Navajo intensified public health measures including travel restrictions, widespread testing, masking and a weekend curfew so that the incidence of new cases began falling in early June. Fearing reversal of their progress as cases began surging in Arizona and Utah, they extended travel restrictions and weekend lock-downs and curfews.



Jonathan Nez, president of the Navajo Nation, is pressing both for federal and state aid in improving health care for patients with Covid-19 and long-term solutions such as improving their water supply and electrification.

Editorial Note: Of historical interest and related to the other great pandemic of the Twentieth Century is the disproportionate effects of the 1918 influenza A pandemic on the Inuit people of the Arctic north. This resulted in death of many Inuits and the necessity for mass graves. Taubenberger and his associates[4] used pulmonary tissue obtained from bodies long buried and frozen in the tundra to obtain copies of viral RNA which they eventually reconstituted as a viable influenza A virus identical to the one causing the pandemic. The concern is that pandemic viruses may have a predilection for causing higher attack rates and more severe disease in indigenous people and that the disproportionate severity of the problem in the Navajo Nation has a precedent in its earlier occurrence in the Inuit population.

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1. Picture from Kuer. Census Recruitment Lagging on Utah Strip of Navajo Nation. Creator: Alena Mozhjer. Credit: Getty Images.
2. COVID-19-Navajo Department of Health-Navajo Nation. www.ndoh.navajo-nsn.gov
3. Kovich H. Perspective. Rural Matters-Coronavirus and the Navajo Nation. April 24, 2020. DOI: 10:1056/NEJMp2012114.
4. Jordan D. The Deadliest Flu: The Complete Story of the Discovery and Reconstruction of the 1918Pandemic Virus. Centers for Disease Control and Prevention. Atlanta, Georgia

Epi Corner

Trends in Covid-19 Incidence at the State and County Levels

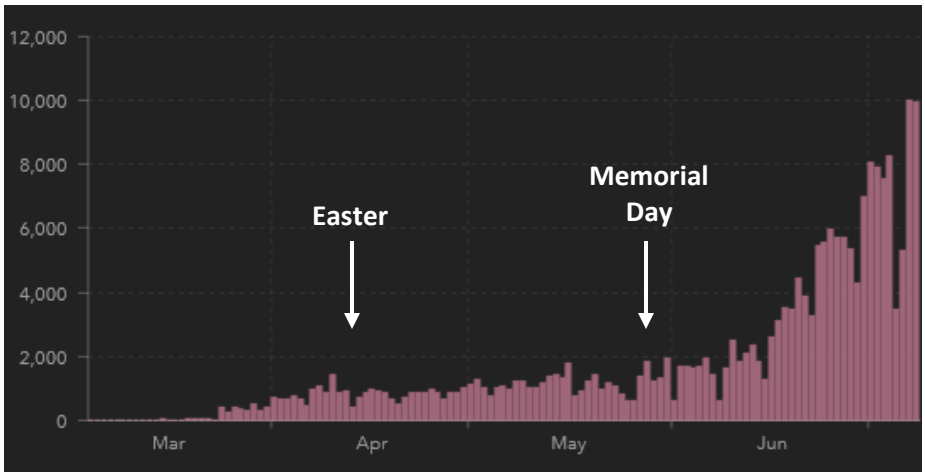
The incidence of new confirmed Covid-19 cases in Texas, which is reflects surges at different times in communities across the state, has shown a gradual upward trend since mid-March and a sudden increase in slope since mid-June (graph A, next page).

The incidence of new confirmed cases of Covid-19 in Dallas County has undergone 3 accelerations—mid-March, late April and early June—each time leading to a sustained plateau but with no downward deflections (graph B). The March increase occurred with the initial introduction of the virus into Dallas in residents returning from Spring Break travels to regions already experiencing epidemics. The April and June increases followed by a week or 2 the Easter and Memorial Day holidays and coincided with the staged opening of the Texas economy, which began April 20.

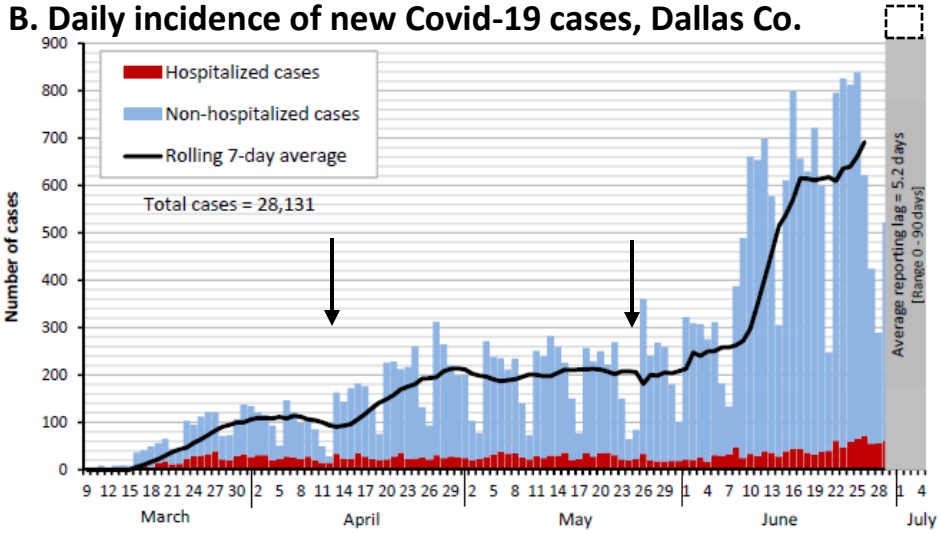
Increases in the weekly incidence of Covid-19 hospitalizations in Dallas County hospitals followed each increase in cases with a lag of 1-2 weeks (graph C). The incidence of ICU admissions followed the March and April increases in hospitalizations with lags of a week or so, but the dramatic June increase in cases has not yet produced the expected increase in ICU admissions (graph D).

The most likely reason for this is that, while the earlier increases occurred primarily in nursing homes and in older workers holding essential jobs who could not follow the stay-at-home orders, the June increase occurred largely in young people infected through gathering in groups without masking. Since the illness is milder in the young, ICU admissions have not increased proportionately. However, as the epidemic grows, it may be spreading to older people who will fare worse. This already appears to be happening in Houston where ICUs are full.

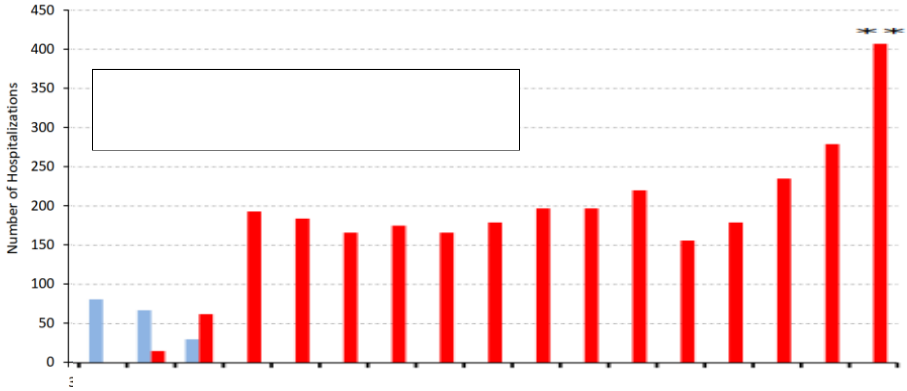
A. Daily incidence of new Covid-19 cases, Texas



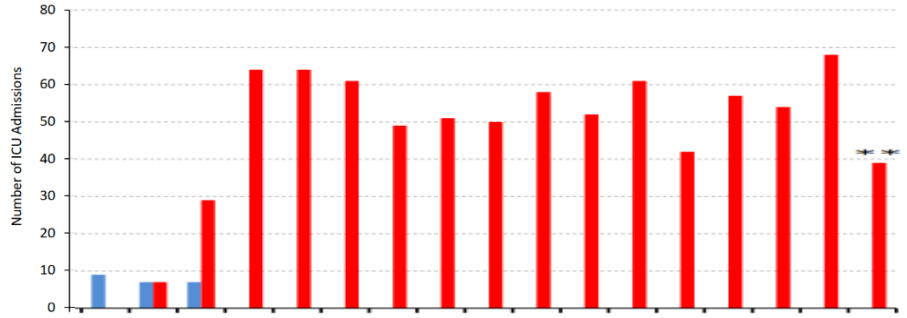
B. Daily incidence of new Covid-19 cases, Dallas Co.



C. Weekly incidence of Covid-19 hospitalizations, Dallas



D. Weekly incidence of Covid-19 ICU admissions, Dallas Co.



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.