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2020-05-20 DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

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UNM GLOBAL HEALTH COVID-19 BRIEFING

May 20, 2020

Executive Summary

NM Highlights: Governor's update. NM case count. Governor's response to republicans. Western Sky Community donation. Santa Feans using face coverings. NM Medicaid enrollment. NM colleges fall reopening. Rio Rancho partial reopening. NM Tourism Department cooking recipes. ABQ Meals on Wheels feeding more.

US Highlights: Mexico influx California hospitals. Arkansas church outbreak.

International Highlights: Estonia immunity passport rollout. South Korea school reopenings.

Economics, Workforce, Supply Chain, PPE Highlights: Hydrogel patches for pressure injuries. Resuscitation with PPE. Journal of wound care PPE guidelines. Food supply chain protections.

Epidemiology Highlights: Higher rates in Black communities. Superspreaders may explain propagation patterns. "Back-projection" used for analysis.

Healthcare Policy Recommendations: Systems analysis of pandemic management is performed. Policy recommendations based on a nationwide psychological China survey.

Practice Guidelines: COPD management FAQ and patient support resources.

Testing: CRISPR rapid test. Fast and simple single tube assay.

Drugs, Vaccines, Therapies, Clinical Trials: Protective immunity in macaques. DNA vaccine. Lopinavir and Ritonavir pharmacokinetics. 32 new trials.

Other science: ACEI/ARB and disease severity. Cold plasma. Survey call for clinicians.

All of our past briefings are maintained in a UNM library repository [here](#).

Our continuously curated practice guidelines in the context of COVID-19 can be found [here](#).

Our continuously curated therapeutic evidence is maintained [here](#).

You may submit content for future briefings [here](#).

NM Highlights

- [Governor Michelle Lujan Grisham provides a COVID-19 update](#)

The New Mexico governor, joined by state officials, gives a videoconference update on New Mexico's COVID-19 efforts and the status of the public health emergency order.

- [NM reports 7 more COVID-19 deaths and 134 additional cases on May 20](#)

As of today (5/20), the total positive cases and total deaths in the state are 6,317 and 283, respectively. The state has performed 147,344 tests, there are 206 individuals currently hospitalized for COVID-19, and 1,985 COVID-19 cases have recovered. [NMDOH portal featuring epidemiologic breakdown of cases](#).

- [Governor responds to letter from 13 state republicans about reopening by May 21](#)
State republicans sent letter to Governor insisting pandemic outcomes have not been as bad as anticipated and therefore state should reopen May, 21. Grisham responds to this by pointing out national death toll, her currently active plan to reopen state and uncertainties about virus outcomes.
- [Western Sky Community Care gives \\$15K for rent aid](#)
The money will be distributed by the city's Family and Community Services with \$10,000 for rental assistance and \$5,000 to buy food boxes distributed through the department's Health and Social Service Centers. The organization also donated 500 care packages for seniors. The care packages include body lotion, alcohol pads for diabetics, facial tissues and laundry detergent.
- [A majority of Santa Feans wearing masks after mandate from Governor](#)
Santa Fe New Mexican reporters observed that most people were wearing masks at big-box stores and outdoor markets this past weekend following the Governor's announcement that everyone must wear masks while in public. The Santa Fe Farmer's Market was mandating that masks be worn and turning away those without. Target and Walmart are requiring employees to wear masks, but just encouraging costumers to do so. Not everyone is happy with the new rule however, with some individuals getting ready to protest a proposed city ordinance that would fine anyone without a mask \$50.
- [NM Medicaid enrollment on rise during COVID-19 pandemic](#)
As businesses shed workers in response to the coronavirus pandemic, Medicaid enrollment increased by roughly 8,650 people in April over the previous month, the Office of the Superintendent of Insurance said on Tuesday. About 40% of New Mexico residents already rely on Medicaid for health care.
- [New Mexico Colleges plan to open again for fall semester](#)
The University of New Mexico plans for scheduled classes to start on August 17. While plans are still being finalized, the administration hopes to have a hybrid in-person and online model for the fall with a limited number of students on campus for classes and dorms. New Mexico State University and Western New Mexico University also plan to have smaller in-person classes this fall, but are allowing students to take the course online if desired. Central New Mexico Community College and Eastern New Mexico University will announce their official plans in June.
- [City of Rio Rancho facilities reopening partially May 26](#)
Various city facilities will open in a limited capacity, but officials are encouraging people to stay home as much as possible. Facilities opening on limited capacity are: Animal Resource Center, City Hall, Motor Vehicle Division (Rio Rancho Location), Municipal Court, Rio Rancho Aquatic Center, and Rio Rancho Public Libraries.
- [New Mexico Tourism Department encourages people to explore your own kitchen](#)
The department posted videos and recipes on how to make some favorite New Mexican dishes. The recipes include posole, green chile stew, biscochitos, and even spicy margaritas. To start exploring your kitchen, visit NewMexico.org.
- [Meals on Wheels of Albuquerque feeding more people during COVID-19 pandemic](#)
Executive director Shauna Frost said the organization typically serves 550 hot meals a day. But since March, Frost said they have added 170 people to their meal delivery service.

US Highlights

- [California border hospitals hit hard by COVID-19 cases of dual citizens from Mexico](#)
The only two hospitals in Southern California's rural Imperial County were forced to close their doors to new COVID-19 patients on Tuesday, after admitting a surge of 93 patients on Monday night. The surge in patients consisted of U.S. citizens who live in Mexicali who had been turned away from the Mexicali hospitals, which were overrun with cases.
- [Arkansas coronavirus outbreak linked to church services](#)
In a case study released Tuesday, CDC researchers present how 35 of the 92 people (38%) who attended services at a rural Arkansas church March 6–11 tested positive for the coronavirus, ultimately killing three. Contact tracing found that an

additional 26 people were infected after interacting with attendees of the church, and one person from that group also died. The case shows that even with care and caution, in-person congregations can become hotbeds for coronavirus outbreaks as some states begin to reopen public spaces and businesses.

International Highlights

- [Estonia starts testing digital immunity passport](#)

A digital immunity passport has been developed by Back to Work, a non-governmental organization in Estonia comprised of founders of tech companies Bolt and TransferWise as well as state officials and medical professionals. The digital passport can collect testing data to be shared with a third party, such as an employer. Radisson hotels and PRFoods have started to test the passport. The WHO has advised against such passports as so little is understood about immunity post infection, but the founders claim the passport can be very beneficial and that practices can evolve as once we have better immunity understanding. Estonia has had 1,791 infections with 64 deaths.

- [New infections as South Korean students' return to school](#)

South Korean high schools are all scheduled to reopen between May 20th and June 1st as new daily COVID cases have dropped significantly since the peak in February. In an attempt to open safely, students' temperatures will be taken at the school gates, both students and teachers must wear masks and physical distancing will be enforced by teachers. However, two students tested positive on the first day open in Incheon, sparking concerns. If a student tests positive, the school will convert to online learning for two weeks.

Economics, Workforce, Supply Chain, PPE Highlights

- [Hydrogel patches may prevent facial skin damage caused by N95 PPE compression](#)

A hydrogel patch composing of water, sodium polyacrylate, cellulose gum, and sodium hyaluronate can act as a soft-tissue cushion against compression by N95 PPE for preventing indentation of the skin and relieving pain. This intervention may be helpful for healthcare workers and reduce skin lesions such as ulcers, pimples, redness, and swelling.

- [Resuscitation of patients with suspected/confirmed COVID-19 when wearing PPE](#)

A multicenter, randomized, single-blinded, crossover simulation study was conducted to evaluate chest compression quality of patients with suspected/confirmed COVID-19 by medical students wearing full PPE for aerosol generating procedures. Chest compressions were performed using three methods: Manual chest compressions (CC), using the CPRMeter feedback device, and using the LifeLine ARM system, which is an automatic chest compression device (ACCD). Authors conclude that PPE may hinder proper CC and ACCD should be used for patients with suspected/confirmed COVID-19.

- [Digital consensus guidelines on preventing PPE pressure ulcers and other skin damage](#)

The *Journal of Wound Care* created a consensus document published in February 2020. The JWC is republishing the consensus in a digital format with a new introductory section. The goal of these guidelines is to provide front-line staff with a clear and simple strategy on how to prevent the risk of personal skin damage or pressure ulcers during the pandemic.

- [Executive order to strengthen U.S. food supply chain protections](#)

The USDA and FDA announced a Memorandum of Understanding (MOU) as the next step of executive order 13917, signed on April 28th in order to prevent interruptions at FDA-regulated food facilities and ensure continuity of the food supply chain. The MOU allows the USDA to exercise authority under the Defense Protection Act in regard to domestic food resource facilities that manufacture, process, pack, grow and harvest food. The FDA will continue to work with local and national regulators and keep employees safe.

Epidemiology Highlights

- [Higher COVID-19 mortality and comorbidities in black community](#)

In a study in the USA, nearly 97% of disproportionately black counties (656/677) reported a case and 49% (330/677) reported a death versus 81% (1987/2,465) and 28% (684/ 2465), respectively, for all other counties. Further, Counties with higher

proportions of black people had more COVID-19 diagnoses (RR 1.24, 95% CI 1.17-1.33) and deaths (RR 1.18, 95% CI 1.00-1.40). Social conditions, structural racism, and other factors explain these differences.

- [Superspreaders may explain the propagation pattern of COVID-19](#)

COVID-19 is spreading slowly in some countries and exponentially in others. Superspreaders may explain this discrepancy. Superspreader status describes high viral shedding due to poor immunocompetence, underlying diseases or co-infection, or elevated contact rate due active social behavior and/or occupational exposure. Rather than solely addressing one's disease state, they aim to study disease as a continuous variable, infection intensity.

- ["Back-projection" of COVID-19 diagnosis used for epidemiological analysis](#)

Surveillance data on COVID-19 diagnoses can be analyzed by the method of back-projection using information about the probability distribution of the time between infection and diagnosis, which is primarily determined by the incubation period. This paper demonstrates the value of such analyses using daily diagnoses from Australia.

Healthcare Policy Recommendations

- [Theory of Constraints systems diagnosis and intervention for pandemic management](#)

Annals of Operations Research: Thought-provoking analysis is provided of the vicious cycles that amplify challenges to both the healthcare system and the economy as policy makers navigate the conflict between enforced clampdown to resolve the crisis swiftly versus voluntary restrictions to protect freedom and prosperity. A 5-point action plan for shutting down transmission of the pandemic is proposed, including placing laser focus on managing the bottleneck of contact tracing capacity.

- [A nationwide survey of psychological distress in China: policy recommendations](#)

A questionnaire (N=52,730 respondents) showed that 35% of individuals experienced psychological distress, which was especially high for females, individuals of 18 -30 years of age or above 60, those with higher education, and migrants. The following recommendations for future interventions are given: (1) more attention to vulnerable groups such as youth, elderly, women and migrant workers; (2) improved access to medical resources and public health service system; (3) nationwide strategic planning and coordination for psychological first aid during major disasters, potentially delivered through telemedicine; (4) establishing a comprehensive crisis prevention and intervention system including epidemiological monitoring, screening, referral and targeted intervention

Practice Guidelines

- [Managing chronic obstructive pulmonary disease: FAQ and support program](#)

This commentary summarizes the Canadian Thoracic Society's position statement on managing COPD during the COVID-19 in an easy FAQ format. The full COPD position statement, as well as other valuable clinical tools including links to online patient support programs for self-management and exercise/pulmonary rehabilitation, can be found at <https://cts-sct.ca/covid-19/>.

Testing

- [CRISPR platform to develop rapid COVID test](#)

GSK and Mammoth Biosciences are developing a rapid test to detect viral RNA from a nasal swab using the CRISPR gene editing platform. Tests can produce results in less than 20 minutes and are intended to have the ease to be used at home. GSK and Mammoth plan on applying for FDA emergency use authorization by the end of the year.

- [Single-tube assay for SARS-CoV-2 RNA has comparable sensitivity and specificity to qRT-PCR, but is faster and simpler](#)

A reverse transcription recombinase-aided amplification (RT-RAA) assay for SARS-CoV-2 was conducted within 15 minutes at 39 degrees C with portable instruments after addition of extracted RNA. The clinical performance of RT-RAA assay was evaluated using 947 clinical samples from five institutions in four regions of China, and the approved commercial real-time fluorescent RT-PCR (qRT-PCR) kits were used for parallel detection. The sensitivity and specificity of RT-RAA were compared

and analyzed. The RT-RAA test results of 926 samples were consistent with those of qRT-PCR (330 were positive, 596 were negative) and 21 were inconsistent. The sensitivity and specificity of RT-RAA was 97.63% and 97.87% respectively. The positive predictive value (PPV) and negative predictive value (NPV) were 96.21% and 98.68% respectively. The total coincidence rate was 97.78% and the Kappa was 0.952 ($P < 0.05$). Thus, with comparable sensitivity and specificity to the commercial qRT-PCR kits, RT-RAA assay for SARS-CoV-2 exhibited distinctive advantages of simplicity and rapidity in terms of operation and turn-around time.

Drugs, Vaccines, Therapies, Clinical Trials

- [SARS-CoV-2 infection induces protective immunity in rhesus macaques](#)

Authors developed a rhesus macaque model of SARS-CoV-2 infection and observed that macaques ($n = 9$) had high viral loads in the upper and lower respiratory tract, humoral and cellular immune responses, and pathologic evidence of viral pneumonia. Following initial viral clearance, animals were rechallenged with SARS-CoV-2 and showed 5 log₁₀ reductions in median viral loads in bronchoalveolar lavage and nasal mucosa compared with primary infection. Anamnestic immune responses following challenge suggested that protection was mediated by immunologic control.

- [DNA vaccine protective against SARS-CoV-2 in rhesus macaques](#)

Study developed a series of DNA vaccine candidates expressing different forms of the SARS-CoV-2 Spike (S) protein and evaluated them in 35 rhesus macaques. Vaccinated animals developed humoral and cellular immune responses, including neutralizing antibody titers comparable to those found in convalescent humans and macaques infected with SARS-CoV-2. Following vaccination, all animals were challenged with SARS-CoV-2, and the vaccine encoding the full-length S protein resulted in >3.1 and >3.7 log₁₀ reductions in median viral loads in bronchoalveolar lavage and nasal mucosa, respectively, as compared with sham controls. Vaccine-elicited neutralizing antibody titers correlated with protective efficacy, suggesting an immune correlate of protection. These data demonstrate vaccine protection against SARS-CoV-2 in nonhuman primates.

- [Lopinavir and Ritonavir may not reach effective concentrations: pharmacokinetic study](#)

In this series of 8 patients admitted to a “normal care” ward because of COVID-19, the authors quantified trough plasma concentrations of lopinavir and ritonavir by liquid chromatography–tandem mass spectrometry. Trough concentrations are the lowest concentration reached by a drug before the next dose is administered. Compared to patients with HIV, approximately 60- to 120-fold higher concentrations are required to reach the assumed EC₅₀ at trough levels, making effective treatment of COVID-19 with lopinavir and ritonavir at the currently used doses unlikely.

- [32 New COVID-19 Trials registered today at clinicaltrials.gov](#)

Treatment trials: Convalescent plasma vs Anti-COVID-19 Ig, AT-527, Test home usability, Disguise study, Exercise training and sedentary lifestyle on outcomes, BTK-mediated hyperinflammatory response, C3 inhibitor AMY-101, Maternal-fetal transmission, ALLIANCE study on prevention therapies, Arrhythmias, Ayurveda prophylaxis, 1,3,7-Trimethylxanthine, Psychiatric consultation, Dexamethasone, Air contamination during visceral surgery, Sleep quality in HCW, ResCure, Physical activity in patients, Psychological status IVF interrupted, Lockdown and children with disabilities, Prone and high-flow nasal cannula, Fertility discontinuation, Collateral Damage IVT Anti-angiogenic agents, Sexual function, Pediatric Acute car, Helmet CPAP vs HFNC, Body awareness therapy, SCD, Alvelestat and Isotretinoin, Subq Pertuzumab and Trastuzumab, Resilience initiative. At time of writing, a total of 1539 were active, 89 completed, and 3 posted results.

Other Science

- [ACEI/ARB not associated with a higher risk of infection or severity and decreases risk mortality](#)

The systematic review and meta-analysis show that use of angiotensin-converting enzyme inhibitors (ACEI) and angiotensin receptor blockers (ARBs), which are used for the treatment of hypertension, do not increase the risk of COVID-19 infection, severity or mortality. Interestingly, ACEI/ARB exposure was associated with a lower risk of mortality than those with non-ACEI/ARB antihypertensive drugs.

- [Inactivation of viruses using cold plasma](#)

In a review, authors provide a comprehensive overview of current progress in the cold plasma virus field. They describe and

discuss the modes of cold plasma-mediated virus inactivation, historical applications, and mechanisms of inactivation. Research suggests the formation of reactive oxygen species (ROS) and/or reactive nitrogen species (RNS) is the main feature of cold plasma viral inactivation.

- [A call to participate in COVID-19-related clinician wellness survey](#)

Preliminary findings from American College of Medical Quality the survey showed that the most common feeling among frontline residents and fellows in clinical training in the face of COVID-19 is anxiety. During clinical work, residents are currently most worried about contracting COVID-19 at work or spreading it to family, friends, colleagues, and patients. To access the survey click [here](#) or contact SRF Chair [Dr. Mike Jin](#) at michael.jin@stonybrookmedicine.edu for assistance.

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