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2020-06-01/02 DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

Christophe G. Lambert

University of New Mexico Health Sciences Center

Shawn Stoicu

Ingrid Hendrix

University of New Mexico

Lori D. Sloane

Mari Anixter

See next page for additional authors

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Authors

Christophe G. Lambert, Shawn Stoicu, Ingrid Hendrix, Lori D. Sloane, Mari Anixter, Anastasiya Nestsiarovich, Praveen Kumar, Nicolas Lauve, Jenny Situ, Alexandra Yingling, Kristine Tollestrup, Orrin Myers, and Douglas J. Perkins

DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

June 1-2, 2020

Executive Summary

NM Highlights: New public health order. First coronavirus death in state prison. NM case count. ABQ black lives matter protest. Santa Fe Fiesta canceled. U2 drummer donated to Navajo.

US Highlights: Americans' COVID-19 survey. Immunity for essential businesses in 4 states.

International Highlights: Tiananmen Square closed to vigil. Shared approaches helpful for Africa.

Economics, Workforce, Supply Chain, PPE: Face masks effective. Distance and Mask combined key to success. Economic effect on dental practice. Dow predicted to fall before new high.

Epidemiology Highlights: Other causes of death increase. Virus not losing potency. Protests may spread virus. Wastewater surveillance.

Healthcare Policy Recommendations: Recommendations for opening K-12. Air disinfection. Youth sports guidelines. External debt payments.

Practice Guidelines: Algorithm for treatment timing based on clinical, lab and imaging results. The 5th edition of Research Data Alliance guidelines on COVID-19 management is available.

Testing: Rapid point-of-care nucleic acid amplification testing performance. Cold-chain free testing validation and implementation.

Drugs, Vaccines, Therapies, Clinical Trials: Two-tier screen identifies four potential treatments. Warp Speed vaccine short list. RAAS inhibitors protective. Cytokine storm review. Reduced lab monitoring for clozapine use. Lilly starts Phase I AbCellera trial. 82 new trials registered.

Other Science: Breast milk does not transmit virus. Brainstem involvement and respiratory failure. Greater risk of cytokine storm in blacks than whites. Co-infection rates in hospitals. Purifying selection in SARS-CoV-2 evolution. Poor outcomes with perioperative infection. Mental health in Chinese doctors. Pandemic impact on education.

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

- [A new public health order goes into effect today, continuing NM's phase one reopening progress](#)
The public health emergency order amends restrictions on mass gatherings and business operations. Continued social distancing and self-isolation measures remain intact. COVID-safe practices for businesses, employees and customers [here](#).

- [NM reports first coronavirus death of state prison inmate](#)

A 31-year-old inmate at the Otero County Prison Facility in Southern New Mexico has died from COVID-19, the state Corrections Department announced Monday. The victim had multiple preexisting conditions and was hospitalized in El Paso. Forty-six cases have been reported in that facility, and three inmates are hospitalized.

- [NM reports 5 more COVID-19 deaths and 227 additional cases on June 2](#)

As of today (6/2), the total positive cases and total deaths in the state are 8,024 and 367, respectively. The state has performed 206,837 tests, there are 182 individuals currently hospitalized for COVID-19, and 2,960 COVID-19 cases have recovered. [NMDOH portal featuring epidemiologic breakdown of cases.](#)

- [ABQ black lives matter protest thousands attend the protest in downtown ABQ Sunday](#)

Organizers raised \$4000 to distribute masks, sanitizer, water, etc. to reduce COVID spread. After the peaceful event, 100-200 people started looting and destroying property. At that point, APD intervened with rubber bullets and tear gas. No injuries were reported. Both the governor and mayor released statements supporting peaceful protest and opposing "hijacking the protesters' message of justice and nonviolence."

- [Santa Fe Fiesta cancels all public events on the Plaza](#)

The Santa Fe Fiesta Council announced Monday all public events held on the Plaza downtown in celebration of the annual Fiesta de Santa Fe will be canceled this year amid ongoing concerns about the novel coronavirus pandemic.

- [Irish rock band drummer helps Navajo relief fund](#)

Larry Mullen Jr., the drummer for the Irish rock band U2, has donated \$100,000 to the Navajo & Hopi Families COVID-19 Relief Fund, the group said. The group says the drummer's donation will fund two weeks of food for 1,000 Navajo and Hopi households.

US Highlights

- [Americans' COVID-19 stress, coping, and adherence to CDC guidelines: a survey results](#)

Springer: An online survey showed that 50.5% of respondents endorsed having at least "mostly" enough money to meet their needs. The most commonly experienced stressors were reading/hearing about the severity and contagiousness of COVID-19, uncertainty about length of quarantine and social distancing requirements, and changes to social and daily personal care routines. Financial concerns were rated most stressful. Younger age, female gender, and caregiver status increased risk for stressor exposure and greater degree of stressfulness. The most frequently reported strategies to manage stress were distraction, active coping, and seeking emotional social support. CDC guideline adherence was generally high, but several key social distancing and hygiene behaviors showed suboptimal adherence, particularly for men and younger adults.

- [Four states grant immunity for essential businesses from COVID-19 claims](#)

Claims Journal: North Carolina, Oklahoma, Utah, and Wyoming grant essential businesses (grocery stores, restaurants, etc.) immunity as long as state safety guidelines were followed. The immunity is not absolute and does not cover criminal charges, negligence, intentional harm, or workers' comp claims. Many states have also granted immunity to healthcare providers and facilities during this time.

International Highlights

- [Hong Kong police block Tiananmen Square vigil, citing Coronavirus concerns](#)

NPR: For the first time in 30 years, police in Hong Kong have denied permission for organizers to hold an annual vigil for victims of the Tiananmen Square massacre. Police have cited concerns over the spread of the coronavirus. Lee Cheuk-yan, who chairs the alliance that organized the event, told the *South China Morning Post* that he believes the government was using the pandemic to shut down the demonstration.

- [Shared approaches, innovations, and challenges to fight COVID-19 in Africa](#)

Clinical Infectious Diseases: The paper discusses COVID-19 screening-testing-contact tracing approaches used in selected

African countries and the need for shared, affordable, innovative methods to overcome challenges and minimize mortality rates. There is an opportunity to align COVID-19 services with those already in place for HIV, TB, malaria, and other non-communicable diseases (NCDs) through mobilization of Africa's inter-professional healthcare workforce to contain the pandemic.

Economics, Workforce, Supply Chain, PPE Highlights

- [Efficacy of face mask in preventing respiratory virus transmission](#)

Travel Medicine and Infectious Disease: A total of 21 studies met our inclusion criteria. Meta-analyses suggest that mask use provided a significant protective effect (OR=0.35 and 95% CI=0.24-0.51). Use of masks by healthcare workers (HCWs) and non-healthcare workers (Non-HCWs) can reduce the risk of respiratory virus infection by 80% (OR=0.20, 95% CI=0.11-0.37) and 47% (OR=0.53, 95% CI=0.36-0.79). The protective effect of wearing masks in Asia (OR=0.31) appeared to be higher than that of Western countries (OR=0.45). Masks had a protective effect against influenza viruses (OR=0.55), SARS (OR=0.26), and SARS-CoV-2 (OR=0.04). In the subgroups based on different study designs, protective effects of wearing mask were significant in cluster randomized trials and observational studies.

- [Distancing and masks cut COVID-19 risk, says largest review of evidence](#)

Reuters: Keeping at least one meter apart and wearing face masks and eye protection are the best ways to cut the risk of COVID-19 infection, according to evidence pooled from 172 studies in 16 countries.

- [Impact COVID-19 on dental practices: economic analysis](#)

Journal of Dentistry: A provider's perspective within German healthcare was taken, with two provider scenarios (low/high volume practice, low/high proportion of non-statutory insurance revenue, low/high staff pool and costs; S1 and S2 scenarios) being modelled. A Markov model with two stages; "pandemic mitigation/suppression policies upheld" or "pandemic mitigation/suppression policies concluded", was constructed, showing that the longer these measures are extended, the more likely they seem to affect the economic capacity of dental practices, which may translate into job losses and qualitative and quantitative changes in care provision. Thus, Covid-19 and associated policies will have profound economic effect on dental practices.

- [The Dow will fall back to coronavirus crash level below 19,000 before new high: CFO survey](#)

CNBC: Chief financial officers of major corporations around the globe are more likely to believe the Dow Jones Industrial Average will retest its coronavirus crash level, below 19,000, before reaching another stock market record high above 29,000, according to the second quarter 2020 CNBC Global CFO Council Survey. A decrease in demand from the U.S. consumer was cited by 80% of North American CFOs, with slightly more than half (53%) describing the demand drop as "major." A little under half of North American CFOs (46%) expect that supply chains will take between three and six months to return to normal.

Epidemiology Highlights

- [Increase in other causes of deaths, not just COVID-19](#)

NY Times: New York and New Jersey have had more than 44,000 deaths above normal from mid-March to May, according to an analysis of data from the Centers for Disease Control and Prevention (CDC). While COVID-19 is the leading cause of these excess deaths, more people have also died from other causes like heart disease, diabetes and Alzheimer's disease in recent weeks than for the same period in previous years.

- [Experts say no evidence of virus losing potency](#)

Reuters: WHO and experts say there are no data to show that SARS-CoV-2 is changing significantly, either in its form of transmission or in the severity of the disease it causes. Major studies did not identify changes in genetic structure of the virus.

- [Officials warn protests may add to virus spread](#)

Reuters: Health officials are concerned the protests bringing together thousands of people could exacerbate viral spread as

reopening nears for many places. Experts believe chanting and yelling in close proximity can transmit particles through droplets. Wearing masks can dampen the spread, but participants should acknowledge the risks of participating in a protest.

- [Wastewater surveillance for population-wide COVID-19](#)

Science of the Total Environment: Wastewater-based epidemiology (WBE) may be a means of providing rapid, inexpensive mass surveys. Governments should begin evaluating WBE and coordinating the development of a standardized WBE methodology. A worldwide, coordinated approach would result in standardized methodologies across nations.

Healthcare Policy Recommendations

- [The urgency and challenge of opening K-12 schools in the fall of 2020](#)

JAMA: Reopening schools this fall is an urgent national priority. To achieve this goal as safely as possible and reduce the chances that schools are required to close again, policy makers at every level should consider embracing a framework with these 6 components: create conditions for a successful reopening, establish distancing at each school, prioritize children most at risk from missing school, ready a strong public health and environmental response, respect the valid concerns of individual families and teachers, and link curricula, teaching strategies, and remote learning technologies.

- [Airborne spread of SARS-CoV-2 and a potential role for air disinfection](#)

JAMA: Other than natural or mechanical ventilation, only 2 practical methods of air disinfection exist: room air cleaners (ie, using filters, UV, or other means of disinfection) and upper-room germicidal UV (GUV) fixtures. Priority areas for air disinfection might be waiting rooms, emergency departments, intensive care units, bronchoscopy and endoscopy rooms, and other sites where aerosol is generated.

- [CDC guidelines for youth sports](#)

CDC: As youth sports activities start again, CDC released guidelines to assess risk (equipment sharing, physical contact, travel outside community, age of athletes), promote safe behaviors (staying home, hand hygiene, face coverings), maintaining healthy environments (disinfecting shared objects, ventilation of facilities, water systems, modification to shared spaces), maintaining healthy operations (schedule staggering, raising awareness, recognizing signs and symptoms), and actions to take when someone is sick.

- [Delaying external debt repayments](#)

Lancet: COVID-19 pandemic is allowing external agencies to gain more control over the health-care financing in low-income countries. However, there is a strong movement not to let debt repayments become a mechanism through which the COVID-19 crisis strengthens the influence of external forces on low-income countries.

Practice Guidelines

- [Multidisciplinary approach to COVID-19 treatment](#)

Clinical Rheumatology: Based on the literature review, the authors propose a management algorithm, integrating correlations between the clinical COVID-19 features with laboratory and imaging findings to establish the right timing for each treatment.

- [The Global Research Data Alliance community response to the global COVID-19 pandemic](#)

The RDA COVID-19 Working Group released the 5th edition of recommendations and guidelines including the following sections: Clinical; Community Participation; Epidemiology; Indigenous Data; Legal and Ethical; Omics; Social Sciences; Software (pdf found [here](#)).

Testing

- [Rapid point of care nucleic acid testing for hospitalized patients](#)

A point of care nucleic acid amplification-based platform for rapid diagnosis was compared against the standard laboratory RT-PCR test and included an implementation study. Sensitivity and specificity of SAMBA (simple amplification based assay)

against the RT-PCR lab test were 96.9% (95% CI 0.838-0.999) and 99.1% (0.953-0.999) respectively. Median time to result was 2.6 hours (IQR 2.3 to 4.8) for SAMBA II and 26.4 hours (IQR 21.4 to 31.4) for the standard lab RT-PCR test ($p < 0.001$). Point-of-care test was also associated with faster time to triage from the ED, release of isolation rooms, avoidance of hospital bay closures, and movement of patients to open wards and discharge.

- [Rapid implementation and validation of a cold-chain free SARS-CoV-2 diagnostic testing](#)

A laboratory workflow twinning research environment with clinical laboratory capabilities was implemented and validated in the University of Birmingham. The diagnostic capability was centered on an IVD CE-marked RT-PCR kit and designed to provide surge capacity to the nearby Queen Elizabeth Hospital. The laboratory tested a total of 1282 health care workers for SARS-CoV-2 RNA in throat swabs. RNA was detected in 54 % of those who reported symptoms compatible with COVID-19, but in only 4% who were asymptomatic.

Drugs, Vaccines, Therapies, Clinical Trials

- [Bexarotene, Cetilistat, Diiodohydroxyquinoline, and Abiraterone as potential treatments](#)

Pharmacological Research: The authors established a two-tier drug screening system that combines SARS-CoV-2 enzyme-linked immunosorbent assay and cell viability assay and applied it to screen a library consisting 1528 FDA-approved drugs. Cetilistat (anti-pancreatic lipase), diiodohydroxyquinoline (anti-parasitic), abiraterone acetate (synthetic androstane steroid), and bexarotene (antineoplastic retinoid) exhibited potent in vitro anti-SARS-CoV-2 activity (EC_{50} 1.13-2.01 μ M). Bexarotene demonstrated the highest $C_{max}:EC_{50}$ ratio (1.69) which was higher than those of chloroquine, hydroxychloroquine, and ivermectin. Thus, two-tier screening system is effective and identified potential COVID-19 treatments which can achieve effective levels if given by inhalation or systemically depending on their pharmacokinetics.

- [Operation Warp Speed selects billionaire scientist's COVID-19 vaccine for monkey tests Science](#)

Science: Billionaire Soon-Shiong says after he and his team made a Zoom presentation to HHS on 9 April, they were invited to submit a full proposal and told that their vaccine would be among the candidates that Warp Speed assesses in head-to-head monkey studies. Soon-Shiong's companies, the publicly traded Nant Kwest and the privately held Immunity Bio, have not published any data on their vaccine, which takes an unusual approach to stimulating an immune response against SARS-CoV-2. Operation Warp Speed has plans to whittle down 14 candidates from its initial selection to about eight for early stage human trials.

- [RAAS inhibitors associated with better COVID-19 prognosis: a meta-analysis](#)

Journal of Infection: 16 studies were included that involved 24,676 COVID-19 patients, and patients with critical ($n=4134$) vs. non-critical ($n=20,542$) outcomes were compared. The use of ACEIs/ARBs is not associated with higher risk of in-hospital-death and/or severe illness among hypertensive patients with COVID-19 infection. On the contrary, effect estimate shows an overall protective effect of RAAS inhibitors/blockers (ACEIs, ARBs, and/or ACEIs/ARBs) with approximately 23% reduced risk of death and/or critical disease (OR: 0.768, 95%CI: 0.651-0.907, $p=0.0018$). The use of ACEIs (OR:0.652, 95%CI:0.478-0.891, $p=0.0072$) but not ACEIs/ARBs (OR:0.867, 95%CI:0.638-1.179, $p=NS$) or ARBs alone (OR:0.810, 95%CI:0.629-1.044, $p=NS$) may explain the overall protection displayed by RAAS intervention combined.

- [Cytokine storm in COVID-19: pathogenesis and overview of treatment](#)

Clinical Rheumatology review article: Impairment of SARS-CoV-2 clearance due to genetic and viral features, lower levels of interferons, increased neutrophil extracellular traps and increased pyroptosis create a background for severe disease course complicated by macrophage activation syndrome and cytokine storm. Various genetic mutations may also constitute a risk factor for severe disease course and occurrence of cytokine storm in COVID-19. Once immunologic complications occur, anti-viral treatment alone is not enough and should be combined with appropriate anti-inflammatory treatment. Anti-rheumatic drugs, which are tried for managing immunologic complications of COVID-19 infection, are discussed including chloroquine, HCQ, JAK inhibitors, IL-6 inhibitors, IL-1 inhibitors, anti-TNF-alpha agents, corticosteroids, intravenous immunoglobulin, and colchicine.

- [Experience of the US clozapine clinic in treating schizophrenia patients during the COVID-19](#)

Schizophrenia Research: Antipsychotic Clozapine is the only medication in the USA dispensed with a "no blood, no drug" FDA

mandate, requiring regular absolute neutrophil count (ANC) reporting. FDA issued guidance that prescribers may use clinical judgment on whether the benefits of deferring laboratory monitoring (ANC) outweighs the risk of continuing clozapine treatment without an updated ANC. The authors permitted patients receiving clozapine for ≥ 1 year with normal ANCs and with no signs of infection to switch to telepsychiatry nurse visits; at the discretion of the attending physician, monthly ANC requirements were also relaxed up to every 3 months, consistent with a recent expert consensus statement. Starting in early April through May 15, 2020, fifty patients (27%) had ANC monitoring exempted. At the time of writing (May 18, 2020), no clinical decompensation among clozapine treated patients has occurred.

- [Lilly begins world's first study of a potential COVID-19 antibody treatment in humans](#)

Lilly press release: The first patients have been dosed in a Phase 1 study of LY-CoV555, the lead antibody from Lilly's collaboration with AbCellera. The placebo-controlled study will investigate safety, tolerability, pharmacokinetics, and pharmacodynamics in patients hospitalized with COVID-19 with results anticipated by the end of June. If Phase 1 results show the antibody can be safely administered, Lilly will initiate a Phase 2 proof of concept study to assess efficacy in vulnerable populations.

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

Treatment trials: Merimepodib in combination with Remdesivir, ATYR1923, Tofacitinib, Sargramostim, Anakinra and Tocilizumab, Aggrenox, Hydroxychloroquine and Favipiravir, Cyclosporine, Tocilizumab, Povidone-Iodine, LY3819253 (LY-CoV555), RTB101, Melatonin, Remdesivir plus Tocilizumab, Icosapent Ethyl (Vascepa TM), CERC-002, Cholecalciferol. At time of writing, a total of 1800 were active, 117 completed, and 3 posted results.

Other Science

- [Virus not detected in breast milk](#)

MedRxiv preprint: In this small study of 23 women in China and their infants, SARS-CoV-2 was not detected in the breast milk of any of the mothers. There is currently no evidence for mother-to-child transmission via breast feeding in women with COVID-19 in the third trimester and puerperium.

- [Brainstem COVID-19 involvement may underlie respiratory failure and long ICU stays](#)

Neurological Sciences: The authors described 3 COVID-19 patients in ICU at Federico II Hospital in Naples that, although had recovered from pneumonia, could not be weaned from invasive mechanical ventilation. The clinical evaluation was consistent with an involvement of the brainstem and especially of the respiratory center. The data indicate that brainstem involvement may play a role in respiratory failure, long ICU stays, and perhaps in the high death rate of COVID-19 patients.

- [Gene expression studies suggests greater risk of cytokine storm in blacks than whites](#)

Clinical Immunology: Using RNA seq gene analysis data from the Genotype-Tissue Expression (GTEx) project the authors compared the expression of cytokines and other central immune modulators between healthy black and white Americans. The authors' findings suggest that, on average, black individuals may develop a harsher pro-inflammatory cytokine response. They posit that when confronted with SARS-cov-2, black Americans would be more prone to develop a rapid and more aggressive cytokine storm. This may necessitate earlier administration of biologics to block the ensuing overwhelming immune response.

- [Co-infections present in 7% of hospitalized COVID-19 patients – 14% in ICU vs. 4% outside](#)

Journal of Infection: In this systematic review and meta-analysis, 30 studies including 3834 patients were included. Overall, 7% of hospitalized COVID-19 patients had a bacterial co-infection (95% CI 3-12%, $n=2183$, $I(2)=922\%$). A higher proportion of ICU patients had bacterial co-infections than patients in mixed ward/ICU settings (14%, 95% CI 5-26, $I(2)=747\%$ versus 4%, 95% CI 1-9, $I(2)=917\%$). The commonest bacteria were *Mycoplasma pneumoniae*, *Pseudomonas aeruginosa* and *Haemophilus influenzae*. The pooled proportion with a viral co-infection was 3% (95% CI 1-6, $n=1014$, $I(2)=623\%$), with respiratory syncytial virus (RSV) and influenza A the commonest. Three studies reported fungal co-infections.

- [Emergence of SARS-CoV-2 through recombination and strong purifying selection](#)

Science Advances: Understanding the origin of SARS-CoV-2 may help develop strategies to deter future cross-species transmissions and to establish appropriate animal models. In this paper the authors demonstrate, through localized genomic

analysis, a complex pattern of evolutionary recombination and strong purifying selection between CoVs from distinct host species and that cross-species infections that likely originated SARS-CoV-2.

- [Mortality and pulmonary complications in surgery patients with perioperative SARS-CoV-2 infection](#)

Lancet: The impact of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on postoperative recovery needs to be understood to inform clinical decision-making during and after the COVID-19 pandemic. This study reports 30-day mortality and pulmonary complication rates in patients with perioperative SARS-CoV-2 infection. Postoperative pulmonary complications occur in half of patients with perioperative SARS-CoV-2 infection and are associated with high mortality.

- [Mental health of young physicians in China during COVID-19 outbreak](#)

JAMA: In this prospective study, the authors assessed anxiety, depression, mood, and other established factors associated with mental health problems in a cohort of young physicians in China before and during the outbreak. This study found that physicians in China experienced an increase in mental health symptoms, fear of violence, and a decline in mood after the COVID-19 outbreak.

- [Impact of Coronavirus pandemic on education](#)

Journal of Education and Practice: The study investigates the impact of COVID-19 on education. Data were collected through structured questionnaires administered to 200 respondents that consist of teachers, students, parents, and policy makers selected from different countries. The results show that COVID-19 has adverse effects on education including, learning disruptions, and decreased access to education and research facilities, job losses and increased student debts. Some of the harmful effects are: interrupted learning, poor nutrition, unequal access to digital learning portals, increase pressure on school systems that remain open, and social isolation.

Contributing team members: Christophe G. Lambert, Shawn Stoicu, Ingrid Hendrix, Lori Sloane, Mari Anixter, Anastasiya Nestsiarovich, Praveen Kumar, Nicolas Lauve, Jenny Situ, Alexandra Yingling, Kristine Tollestrup, Orrin Myers, Douglas J. Perkins.

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