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### 2020-05-18 DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

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## DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

May 18, 2020

### Executive Summary

**NM Highlights:** NM COVID safety guidelines. NM case count. Navajo Nation case count. Gadsden school district kitchens closures. ABQ non-COVID patient treatment delay. NM factory shutdowns.

**US Highlights:** Moderna Inc. vaccine shows promise. US cases exceed 1.5 million. US states reopen. NY slowly reopening. Michigan vaccines decrease. CDC antibody study.

**International Highlights:** WHO independent review.

**Economics, Workforce, Supply Chain, PPE Highlights:** Maxillofacial surgeries down. PPE skin damage.

**Epidemiology Highlights:** Infections may overwhelm ICE facilities. High estimated US infections. LA antibody testing results. Super-spreader in church. Hospital staff antibody response. No effect of climate.

**Healthcare Policy Recommendations:** Pairing assistance to alleviate health system failure. Exercise recommendations. CDC funeral guidance.

**Practice Guidelines:** Emergency Dept. Patient isolation triage tool. Gynecology ward rearrangement. Guidelines for nuclear cardiology labs.

**Testing:** PCR without RNA extraction. Comparison of PCR kits. Comparison of IgG assays. Sequencing for screening.

**Drugs, Vaccines, Therapies, Clinical Trials:** Subcutaneous tocilizumab. Five new antivirals. 28 new COVID-19 trials.

**Other Science:** PTSD in healthcare workers. Antibody neutralizes virus. Good pregnancy outcomes. Males at risk. CDC: hospitalization and mortality rates. News makes people sad. African green monkey model. Air is cleaner.

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

- [New Mexico COVID-safe practices for individuals and employers](#)

The document, released by the government on 5/15, details how to live in a COVID-positive New Mexico and what the public and private sectors can do to stay safe. It specifically notes a social contract where the primary takeaways are: be

responsible, be patient, be prepared, be educated, and stay home. Safe practices that are required or are deemed best practice are specified for employers in service, manufacturing, religious, agriculture, construction, automotive and medical industries.

- [NM reports 5 more COVID-19 deaths and 165 additional cases on May 18](#)

As of today (5/18), the total positive cases and total deaths in the state are 6,096 and 270, respectively. The state has performed 137,620 tests, there are 213 individuals currently hospitalized for COVID-19, and 1,796 COVID-19 cases have recovered. [NMDOH portal featuring epidemiologic breakdown of cases.](#)

- [COVID-19 cases rise to 4,002 on Navajo Nation with 140 reported deaths](#)

The total number of confirmed COVID-19 cases for the Navajo Nation has reached 4,002 with 140 deaths. Officials reported that over 24,886 COVID-19 tests have been administered so far and the Navajo Nation is now testing at large-scale.

- [Four Gadsden school district kitchens close over COVID-19 exposure](#)

North Valley (San Miguel), Yucca Heights (Chaparral), Desert View (Sunland Park) and Vado elementary kitchens will close indefinitely after 20 employees between the four schools self-reported possible exposure or symptoms.

- [Non-COVID patients in Albuquerque delaying treatment for serious conditions](#)

The risk of contracting coronavirus and stay-at-home orders are two possible reasons people are avoiding emergency rooms in ABQ. Nationwide, 80% of adults said they are concerned about getting COVID-19 from another person in an emergency room and 29% said they have delayed or avoided medical treatment, according to a late April survey by the American College of Emergency Physicians and Morning Consult.

- [New Mexico exporters hurt by factory shutdowns due to COVID-19 pandemic](#)

Due to the coronavirus outbreak, many companies at the Santa Teresa industrial parks have had to cut hours, announce furloughs or layoffs, or temporarily shut down their plants. Many companies at Santa Teresa's industrial plants are not affected by stay-at-home orders as they are considered essential, but disruptions in global supply chains from Asia to the U.S. to Mexico and decline in demand from U.S. manufacturers are hurting them.

## US Highlights

- [Dose-dependent vaccine showed positive protective antibody response in 8 patients](#)

Moderna's COVID-19 vaccine shows promise. Phase 2 will begin with optimizing dosage and longevity of antibody protection. Moderna expects to start phase 3 in July. So far, the most notable side effects reported are "flu-like" symptoms from three participants. It is predicted that a safe and effective vaccine could take 12-18 months to develop.

- [U.S. cases exceed 1.5 million with rise in some southern states](#)

Most states reported a drop in new cases for the week, with only 13 states seeing a rise in infections compared to the previous week. Tennessee had the biggest weekly increase with 33%. Louisiana's new cases rose 25%, and Texas reported 22% more cases. Michigan saw new cases rise 18% after five weeks of initial decline. Nationally, new cases of COVID-19 are down 8% in the last week. CDC recommends a 14-day decrease in daily cases before easing on social distancing.

- [States press on with re-openings](#)

Almost all 50 states are in some stage of reopening this week, but only 14 states have met the recommendation for a 14-day decline in cases before lifting measures. Some southern states and protesters are pushing to reopen more quickly.

- [New York continues to slowly reopen, including Niagara Falls](#)

Niagara Falls to start reopening after meeting criteria for managing hospitalizations and tracing viral spread. Three more counties will reopen on Tuesday, starting with construction and manufacturing and some retail operations. The NY governor encouraged sports teams to resume play and televise games without fans present.

- [Vaccine coverage in children decreased in Michigan during pandemic](#)

Data from the Michigan Care Improvement Registry show vaccine coverage has declined among most children ≤2 in May. The only vaccine coverage which did not decline was birth-dose hepatitis B coverage, which is typically administered in a

hospital setting. CDC advises that vaccines are essential should continue while stay-at-home orders are in place.

- [U.S. CDC plans COVID-19 antibody study in 25 metropolitan areas](#)

The CDC plans a nationwide study of up to 325,000 people to track how COVID-19 is spreading across the country. The study to launch in June and will test samples from blood donors in 25 metropolitan areas for 12 months. A precursor study is currently surveying samples from New York, Seattle, San Francisco, Los Angeles, Boston and Minneapolis. Results will be published on a rolling basis.

## International Highlights

- [WHO to launch independent review of global coronavirus response](#)

The World Health Organization announced that an independent review of the global coronavirus response will begin soon. The organization also received \$2 billion in pledged support from China. This amount compensates for President Trump's freezing of U.S. payments to the WHO worth about \$400 million/year.

## Economics, Workforce, Supply Chain, PPE Highlights

- [Impact of COVID-19 on maxillofacial surgery practice: a worldwide survey](#)

In 82% of the responding centers that had remained open, the maxillofacial sub-specialties had been reorganized. Traumatology was reported as the service that was most maintained, with 13.5% closing this subspecialty. Oral surgery, practiced in 90.4% of centers, decreased activity to 34.6%. Oral surgery remained one of the three most active subspecialties together with traumatology (66.7%) and head and neck tumor surgery (37.2%). The greatest reduction in activity occurred in both orthognathic surgery and temporomandibular joint (TMJ) surgery.

- [Impact of PPE of skin care needs: letter](#)

This letter from dermatologists in Italy highlights their experiences with damage to skin from long-term PPE use. Authors mention that damaged skin is more susceptible to infection (dermatitis and other inflammatory symptoms). Authors prescribed application of moisturizers on intact skin and topical antibiotic ointment on infected skin. Persistent contact dermatitis called for topical steroid use. Sustained dermatosis, worsening of preexisting diseases such as psoriasis or atopic dermatitis or allergic reactions might require more complex assessment and management, including the temporary removal from work for health care personnel.

## Epidemiology Highlights

- [COVID-19 infections may overwhelm US ICE detention facilities and ICU beds](#)

A computational model estimated the rate of COVID-19 transmission within 111 Immigration and Customs Enforcement (ICE) detention facilities and then examined impacts on regional hospital ICU capacity. Models considered three scenarios of transmission (optimistic, moderate, pessimistic) over 30-, 60-, and 90-day time horizons across a range of facility sizes. 72% of individuals are expected to be infected by day 90 under the optimistic scenario ( $R_0 = 2.5$ ), while nearly 100% of individuals are expected to be infected by day 90 under a more pessimistic ( $R_0 = 7$ ) scenario. In the most optimistic scenario, outbreaks among a minimum of 65 ICE facilities (59%) would overwhelm ICU beds within a 10-mile radius and outbreaks among a minimum of 8 ICE facilities (7%) would overwhelm local ICU beds within a 50-mile radius over a 90-day period, provided every ICU bed was made available for sick detainees. A recent [press article](#) shows COVID-19 cases among ICE detainees rose steadily from April to mid-May, reaching 943 on May 13, 2020. The agency said 1,788 detainees had been tested out of a reported 29,675 detainees.

- [Estimated infections much higher than actual number of confirmed cases in the U.S.](#)

*MedRxiv* preprint: An analysis estimated the number of COVID-19 infections was 3 to 20 times higher than the number of confirmed cases. 86% of this difference was due to incomplete testing, while 14% was due to imperfect test accuracy. Estimates of COVID-19 infections that transparently account for testing practices and diagnostic accuracy reveal that the pandemic is larger than confirmed case counts suggest.

- [SARS-CoV-2 antibody: 4.7% positive in LA random sample](#)

*JAMA*: A random sample of LA residents was tested for COVID-19 antibodies, April 10-11 (N=865). The fraction that tested positive varied by race/ethnicity, sex, and income. After adjusting for test sensitivity and specificity, the weighted prevalence of SARS-CoV-2 antibodies was 4.65%. Fatality rates based on confirmed cases may be higher than those based on infections.

- [COVID-19 positive person exposes 180 people at church service](#)

A person attended a California religious service on Mother's Day and was diagnosed for COVID-19 two days later exposed 180 other people. People who attended the service have been notified about their exposure and received instructions from health officials to self-quarantine. Officials are working to get testing for everyone who was in attendance.

- [Symptoms and immunoglobulin development in exposed hospital staff](#)

Symptoms and antibody responses in 201 healthcare workers were analyzed following a COVID-19 outbreak at a German children's and women's hospital. 31 healthcare workers were confirmed as cases by RT-PCR SARS-CoV-2 tests. Anosmia and coughing were more frequently reported in patients with a positive test. Approximately 80% of cases developed some specific antibody response (IgG or IgA) about 3 weeks after onset of symptoms. However no significant difference was found between cases with or without antibody responses. The results suggest that COVID-19 infection may not necessarily lead to immunity as approximately 20% of patients did not mount a measurable immune response after symptom onset.

- [Summer weather will not substantially limit pandemic growth](#)

*Science*: A study used a climate-dependent epidemic model to simulate the SARS-CoV-2 pandemic probing different scenarios based on known coronavirus biology. The results show that while variations in weather may be important for endemic infections, during the pandemic stage of an emerging pathogen, the climate drives only modest changes to pandemic size.

## Healthcare Policy Recommendations

- [China adopts nationwide "pairing assistance" to alleviate breakdown of healthcare system](#)

Pairing assistance allows at least one province to provide medical personnel to cities with high COVID burden. Specifically, 29 provinces will be "paired" with cities in Hubei. This attempts to alleviate pressure in severe areas.

- [Exercise recommendations include short active breaks throughout the day](#)

This article summarizes recommendations from major healthcare institutions: ACSM, AHA, COLEF, SEC/FEC, WHO, and SEMED/CGCOM. The general agreement is to take short, active breaks several times a day to avoid long, sedentary periods. Examples include walks around the house, short online exercise videos, and stretching.

- [CDC funeral guidance](#)

CDC recommends modified funeral arrangements with a small number of immediate family and friends at in-person funerals. Face coverings and 6 feet distancing should be enforced. Funeral rituals should be modified to avoid physical contact with the deceased.

## Practice Guidelines

- [Emergency department triage tool for identifying patients requiring isolation](#)

MedRxiv preprint: A novel system of patients triaging was implemented at the University College London Hospital. All admitted patients were allocated to one of 4 categories: (A) - low likelihood of COVID-19 but significant comorbidities – they were given the highest priority for single-occupancy rooms; (B and C) - high probability of COVID-19, with category B having significant comorbidities. Category B patients were second priority for single-occupancy rooms. When such rooms were unavailable these patients were cohorted in reduced occupancy multi-bedded bays on wards designated for suspected COVID-19 patients; (C) - minimal comorbidities –cohorted in the same reduced occupancy multi-bedded bays with other category C or B patients; (D)- low probability of COVID-19 and no significant comorbidities - cohorted together on the same ward as suspected COVID-19 patients.

- [European Hernia Society guidelines for hernia management during COVID-19](#)

The European Hernia Society published recommendations on abdominal wall surgery including managing emergency cases, elective surgery, and triage measures. Some of the principles of abdominal wall surgery were clarified a result of recent criticism (mesh, minimally invasive surgery) and adaptation of technique (midline restoration) to minimize raising intra-abdominal pressure. In the absence of suspected strangulated tissue in the hernia, the use of taxis (manual reduction of the incarcerated hernia) under sedation/analgesia followed by observation may allow surgery to be safely delayed for a number of weeks. There is no evidence for contraindication of the laparoscopic approach. There is little-to-no evidence of infection via blood transmission or as a consequence of a pneumoperitoneum per se from patient to healthcare worker. The desufflation of any gas from the pneumoperitoneum through a virus filter is recommended. Trocar wounds should be kept at minimum length to avoid air leaks around the port. In the case of open-access trocars, the use of ports with retention balloon should be considered to minimize inadvertent removal of the port. COVID-19 is found in the stool of a proportion of patients, thus, in any surgery in which the bowel is opened, regardless whether laparo/endoscopic or open, care should be taken because of the presumed risk of virus exposure from the intestinal content.

- [Australian and New Zealand guidelines on management of hematologic malignancies](#)

A consensus between authors from Australia and New Zealand recommends that patients should be informed of their vulnerability to COVID-19. Use telemedicine and non-hospital pathology services, change i.v. preparations to subcutaneous, and use direct-to-home delivery of oral medications. The informed consent process for chemotherapy should include documenting a discussion about the risks of COVID-19 and strategies to avoid infection, as well as the potential risks of reduced hospital capacity to deliver on-time chemotherapy and routine supportive care. If infected with COVID-19 during chemotherapy, the decision to continue or re-initiate chemotherapy needs to be made on a case-by-case basis. Specific recommendations are given on managing each individual type of malignancy.

- [Management of gynecology patients during pandemic: Chinese recommendations](#)

The experts from the Chinese Obstetricians and Gynecologists Association describe basic infection precaution principles, an epidemiological screening tool, prioritization of surgical procedures, and operating room requirements. Using these principles, authors then reviewed management of gynecologic patients during the pandemic in the outpatient and operative and non-operative inpatient settings, as well as in clinical trials.

- [New strategy for gynecological ward rearrangement and zoning management](#)

Wuhan authors share their strategy to effectively minimize nosocomial infections in gynecology department. The strategy included the following measures: screening for COVID-19 before inpatient treatment; education; attention to the mental health of inpatients, their families, and medical personnel; patient redistribution; treatment modifications, use of PPE.

- [Guidance for nuclear cardiology laboratories](#)

American Society of Nuclear Cardiology (ASNC) and Society of Nuclear Medicine and Molecular Imaging (SNMMI) describe steps for protection of healthcare personnel, inpatients, outpatients, and ED patients.

## Testing

- [Comparison of SARS-CoV-2 detection by direct PCR with and without RNA extraction](#)

*Journal of Clinical Virology*: This study compares the direct rRT-PCR method (without RNA extraction) using SeeGene Allplex™ 2019-nCoV rRT-PCR with the RealStar SARS-CoV-2 rRT-PCR kit (Altona Diagnostics). Type of swab specimen storage determines type of PCR: If samples are collected in UTM or molecular water and screened rapidly, PCR without RNA extraction can be used. If samples are in saline water or Hanks medium, then PCR with RNA extraction is used. They found that SeeGene and Altona kits provide similar efficiency.

- [Comparison of seven commercial RT-PCR diagnostic kits for COVID-19](#)

*Journal of Clinical Virology*: Many commercial kits have not been independently assessed. This study compares basic analytical and clinical performance of selected RT-PCR kits from seven different manufacturers (Altona Diagnostics, BGI, CerTest Biotec, KH Medical, PrimerDesign, R-Biopharm AG, and Seegene). Researchers ran a panel (n=13) of positive samples for clinical sensitivity. They also used non-corona respiratory infections (n=6) to evaluate specificity. Researchers concluded

that all commercially available RT-PCR kits included in this study can be used for routine diagnostics of symptomatic COVID-19 patients.

- [Comparison of four new commercial serologic assays for determination of SARS-CoV-2 IgG](#)

*Journal of Clinical Virology*: The authors compared four new commercially available assays using 75 sera from patients that tested positive or negative for SARS-CoV-2. The assays are the anti SARS-CoV-2 ELISA (IgG), the EDI New Coronavirus COVID-19 IgG ELISA, the recomWell SARS-CoV-2 IgG ELISA, and the SARS-CoV-2 Virachip IgG. The sensitivities for the assays ranged from 77.3% to 100% while the specificities ranged from 88.7% to 100%. The EDI assay had the highest sensitivity, while the Virachip assay had the highest specificity. The authors conclude that the four assays showed sufficient specificity and sensitivity for identifying individuals with past Covid-19 infection, but combination of two different assays may increase these two measures.

- [REMBRANDT: A high-throughput barcoded sequencing approach for screening](#)

*BioRxiv* preprint: REcombinase Mediated BaRcoding and AmplificatiON Diagnostic Tool (REMBRANDT), a high-throughput Next Generation Sequencing-based approach for the simultaneous screening of over 100,000 samples per day. The protocol includes direct two-barcoded amplification of SARS-CoV-2 and control amplicons using an isothermal reaction, and the downstream library preparation for Illumina sequencing and bioinformatics analysis.

## Drugs, Vaccines, Therapies, Clinical Trials

- [Use of subcutaneous tocilizumab in patients with Covid-19 pneumonia](#)

In a letter to the editor in *Journal of Medical Virology*, Italian authors discuss three cases of patients with Covid-19 pneumonia not requiring mechanical ventilation who were treated with a single dose of Tocilizumab administered, for the first time, subcutaneously. The authors observed favorable clinical outcomes (e.g. decreased fever, weaning of oxygen therapy) and improvements in inflammatory biomarkers, such as IL-6.

- [Five antivirals comparable to remdesivir in vitro](#)

*BioRxiv* preprint: Swiss scientists discuss the identification of 5 antivirals which potently inhibited SARS-CoV-2 replication and displayed equal or even higher antiviral efficacy to remdesivir. Compounds from the antimicrobial "Pandemic Response Box" library were screened for inhibiting properties against SARS-CoV-2. The five candidate compounds identified (chloroquine, NN-DNJ, PDNJ0803, URM-099-C, and Retro-2.1) have previously also been demonstrated to inhibit the replication of other 204 RNA-viruses such as filoviruses, flaviviruses and picornaviruses. These five compounds should be further investigated for their mode of action, safety and efficacy.

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

Treatment trials: [convalescent plasma, anti-CD14, dipyridamole, colchicine with phenolic monoterpenes, cold laser therapy, hyperimmune convalescent plasma, hydroxychloroquine and ivermectin, CytoSorb therapy, hydroxychloroquine sulfate and azithromycin, EIDD-2801, nitazoxanide and ribavirin and ivermectin]. At time of writing, a total of 1474 were active, 80 completed, and 3 posted results.

## Other Science

- [Post-traumatic stress symptoms of healthcare workers](#)

The study evaluated healthcare workers (HCWs) (n=337) on sleep quality after one month of stressful events using the Pittsburgh Sleep Quality Index (PSQI) and the DSM-5 PTSD checklist. PTSS was 3.8% in HCWs. Female HCWs were more vulnerable to PTSS. HCWs with higher exposure level also significantly rated more hyper-arousal symptoms. There was a significant difference of sleep quality between participants with and without PTSS (p<0.001) and among different groups with various contact frequency (p=0.026). Researchers conclude that targeted interventions on sleep contribute to the mental recovery of HCWs. (Article behind Wiley paywall)

- [Neutralization of SARS-CoV-2 using SARS-CoV antibody](#)

*Nature* accelerated article: The researchers describe multiple monoclonal antibodies targeting SARS-CoV-2 S using memory B

cells from an individual infected with SARS-CoV in 2003. The S309 antibody neutralizes SARS-CoV-2 and SARS-CoV pseudoviruses by engaging the S receptor-binding domain. A combination of S309 with other antibodies further enhanced SARS-CoV-2 neutralization, potentially limiting the emergence of neutralization-escape mutants.

- [Pregnancy outcomes overall good: systematic review](#)

*MedRxiv* preprint: The review of 164 pregnancies complicated by maternal SARS-CoV-2 infection across 20 studies. 84.5% delivered via Cesarean section, with a 23.9% rate of maternal gestational complications, 20.3% rate of preterm delivery, and a 2.3% rate of stillbirth delivery. Relative to known viral infections, the authors consider the prognosis for pregnant women with SARS-CoV-2 to be good, even in the absence of specific antiviral treatment.

- [Male sex consistent risk factor for severity: systematic review & meta-analysis](#)

*MedRxiv* preprint: The meta-analysis of 31 studies (n=7,556) showed males constitute a significantly higher proportion of those who had adverse clinical outcomes and died. Males accounted for 53% of all cases, males accounted for an increasing proportion of severe cases (56%), critically ill cases (71%), and mortalities (69%) compared to their counterpart. The authors suggest early identification and medical care for males with confirmed cases may substantially change the course of clinical prognosis.

- [CDC reports decline of percent of positive tests and COVID-19 associated mortality](#)

Nationally, visits to outpatient providers and emergency departments for illnesses with symptoms consistent with COVID-19 continued to decline. The overall cumulative COVID-19 associated hospitalization rate is 60.5 per 100,000, with the highest rates in people 65 years of age and older (192.4 per 100,000) and 50-64 years (94.4 per 100,000). The percentage of deaths attributed to pneumonia, influenza or COVID-19 (PIC) decreased from 17.8% during week 18 to 12.8% during the week of May 2-9.

- [Exposure to COVID-19 mainstream news associated with depressive symptoms](#)

This cross-sectional study (n=501) considers the associations between exposure to COVID-19 news, risk perceptions, and depressive symptoms. News exposure and depression was screened using a questionnaire. After controlling for sociodemographic and socio-economic factors, news exposure was positively associated with depressive symptoms (beta=.11, 95% CI). The authors offer recommendations for media–health partnership, practice, and research. (Article behind Wiley paywall)

- [African green monkey as an animal model for SARS-CoV-2](#)

*BioRxiv* preprint: African green monkeys support a high level of SARS-CoV-2 replication and develop pronounced respiratory disease that may be more substantial than reported for other species. The virus was detected in mucosal samples of all animals including feces of several animals as late as 15 days after virus exposure. Virus replication and respiratory disease can be produced in African green monkeys using a low dose.

- [Improved air quality following COVID-19 isolation](#)

Particulate matters (PM2.5) represents air quality of a location. In this short communication, the authors present analysis of PM2.5 of major cities (New York, Los Angeles, Zaragoza, Rome, Dubai, Delhi, Mumbai, Beijing and Shanghai) around the world that have suffered severely with the pandemic. The analysis shows decline in PM2.5 concentration due to lockdown, mainly due to less traffic and travel.

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