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2020-04-24 DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

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DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

April 24, 2020

Executive Summary

NYT praises NM. NM Governor update. NM cases. NM antibody tests. State hiring freeze. Navajo Nation sues. Navajo Nation CA doctors. Mental health funding. Balloon Fiesta proceeding. Trump Lysol remarks. \$484B business relief. 50k US deaths. US no to WHO initiatives. US crime reductions. Moscow 10% infections. Quebec elderly deaths. Italy psychiatric sequelae. Global vaccines summit. French nicotine sales restrictions. Adaptive cyclic exit strategies. Mask reuse techniques. Mask steaming method. Legionnaire's reopening risks. Youth mental health. US disease models. Covid phobia treatment avoidance. Nursing home testing. Home nursing demand. CDC home cleaning. Guidelines on: convalescent plasma transfusion, H₂O₂ nasal use, pre-op testing, respiratory distress, ophthalmological practice, GI department reopening. FDA hydroxychloroquine cautions. Chloroquine high-dose mortality. HCQ+azithromycin long-QT. Iron reduction adjuvant. Repurposing prioritization. Pediatric HCQ dosing. HCQ enrollment up. 107 trials registered. PPE skin injuries. LDL and severity. 32 ECMO patients. Worse outcomes older monkeys.

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

- [NY Times on NM: aggressive social distancing, free testing and scientific expertise helped NM avert steep death toll](#)
Despite having fewer hospital beds per capita than nearly every other state, a rapidly aging population, and widespread poverty, New Mexico seems to have staved off disaster — for the moment, at least — with a coronavirus death rate that is lower than neighboring states like Colorado and Oklahoma. New Mexico's series of decisive moves early in the crisis reflects how even states with a dearth of resources can mount a dynamic pandemic response.
- [NM Governor Lujan Grisham presents 4/24 videoconference update](#)
Economic response covered in depth, including paycheck protection program, small business programs and supporting unemployment claims. Coverage of preparatory efforts to reopen the economy including more healthcare.
- [New Mexico reports 6 more COVID-19 deaths and 153 new cases](#)
The total positive cases and total deaths in the state are 2,521 and 84, respectively. As of today, the state has performed 51,510 tests, there are 152 individuals currently hospitalized for COVID-19, and 614 COVID-19 cases have recovered. [New NMDOH portal featuring epidemiologic breakdown of cases](#).
- [NM State plans antibody tests to get clearer picture of COVID-19 spread](#)
New Mexico state is planning antibody tests for New Mexicans to get a better understanding of how far COVID-19 has spread here. TriCore Reference Laboratories will be assisting the state.
- [NM State freezes hiring due to the coronavirus pandemic and falling oil prices](#)
Due to the coronavirus pandemic and falling oil prices, New Mexico state is facing an increasingly dire budget situation. After spending much of the past year trying to fill vacant positions across the New Mexico state government, the state

administration is now putting hiring on ice, with a few exceptions for critical positions.

- [Navajo Nation sues US Treasury for COVID-19 funds](#)

The Navajo Nation has joined 10 other tribal governments suing the U.S. Treasury Department over the distribution of federal COVID-19 emergency dollars, the Navajo Nation Office of the President said in a news release Wednesday. The initial lawsuit was filed by six tribes last week in US District Court. The aid includes \$8 billion in emergency funds for tribal governments to address the pandemic.

- [Doctors from California fly in to assist on Navajo Nation](#)

The team of 21 doctors and nurses from the University of California San Francisco Medical Center will spend the next month on the Navajo Nation to provide help during covid-19 crisis.

- [NM mental health and substance abuse programs get fund while virus cases rise](#)

Members of the state's congressional delegation say a \$2 million grant has been awarded to the state Human Services Department to fund behavioral health services during the pandemic.

- [Balloon Fiesta and State Fair planning moves forward during the COVID-19 outbreak](#)

The Albuquerque International Balloon Fiesta and the New Mexico State Fair are moving forward with plans despite the COVID-19 outbreak. These events attract large crowds, which may be a problem in the face of a COVID-19 pandemic.

US Highlights

- [Lysol maker urges people not to inject disinfectants after Trump remarks](#)

"Under no circumstance should our disinfectant products be administered into the human body (through injection, ingestion or any other route)," the company said in response to the President's comments about using UV radiation or disinfectant directly on the body to combat infection.

- [Trump signs fourth coronavirus relief bill into law for small businesses](#)

US President Donald Trump on Friday (4/24) signed a \$484 billion coronavirus relief bill, which will supply aid for small businesses, hospitals, and a national testing strategy. The small business aid program will launch on Monday. He also pushed back against any assistance for the U.S. Postal Service unless it raised prices for its package shipping service, which is used by Amazon.com Inc and other companies.

- [As U.S. death toll tops 50,000, handful of states plan for reopening](#)

Georgia, Oklahoma and a handful of other states took the first reopening steps for many non-essential businesses on Friday, despite the disapproval of the U.S. President and health experts. The Institute for Health Metrics and Evaluation model predicts that hospitalization will reach its peak next week in Georgia.

- [The U.S will not be part of the WHO COVID-19 plan](#)

An initiative was made to work on drugs and vaccines that would be shared globally. President Donald Trump stated that the WHO has been slow with responding to the outbreak and withdrew funding from the organization.

- [U.S. sees reduction in crimes of opportunity](#)

There have been fewer reports of assault and homicide across the states. Some criminologists are concerned about a potential rise in fake alibis and domestic abuse. Big-city police departments are seeing depleted ranks, leading to overworked officers and fewer arrests.

International Highlights

- [Moscow infection rates may be up to 10%](#)

About 1000 antibody tests were conducted in the wider Moscow region. The new testing program saw a rise in infection rates from 3% to 9-10%.

- [63% of Quebec deaths from elderly and disabled long-term care facilities](#)
97% of deaths were in patients >60 years. Publicly funded elder and disable care centers lack staff and PPE. Some consider this an exposure of systemic mistreatment of vulnerable populations. Families/residents considering class action lawsuits.
- [Italy's lockdown is leading to depression, anxiety and panic attacks](#)
Italy's death toll and the strictest and longest lockdown in Europe are creating a mental health emergency. Psychologists are warning that Italy is not equipped to deal with the crisis, and that the rest of Europe must prepare.
- [UK will host a virtual global vaccines summit on June 4](#)
A call to secure broad access to any COVID-19 vaccine is made by a UK foreign minister.
- [France restricts sales of nicotine substitutes after study suggests possible protective effects](#)
France aimed to avoid a shortage of products such as nicotine patches for patients and to prevent the wrong use, and overuse, of substitutes used to fight nicotine dependence.

Economics, Workforce, Supply Chain, PPE Highlights

- [Adaptive cyclic exit strategies from lockdown can suppress COVID-19 and allow economic activity](#)
MedRxiv preprint: Adaptive work-lockdown cycles can provide epidemic control and offer predictability to many economic sectors. Models show that a cyclic schedule of 4-day work and 10-day lockdown or similar variants can in certain conditions suppress the epidemic while providing part-time employment. The cycle reduces the reproduction number R by a combination of reduced exposure time and a resonance effect where those infected during work days reach peak infectiousness during lockdown days. Full epidemiological measures need to continue including hygiene, physical distancing and extensive testing and contact tracing.
- [Overview of published recommendations for mask reuse](#)
A Brazilian research group provides an overview of techniques (vaporous hydrogen peroxide, ultraviolet germicidal irradiation, and moist heat) to extend the use of N95 respirators that have been published by regulatory authorities, surveillance organizations and ministries of health of several countries.
- [Steaming masks for 2 hours allowed for reuse after exposure to avian coronavirus](#)
Both medical masks and N95 masks can be reused for a few days with steam decontamination between use. Avian coronavirus of infectious bronchitis virus was used to mimic SARS-CoV-2 and was inactivated after 5 minutes of steaming. Three brands of medical masks found to block 99% viruses in aerosols.

Epidemiology Highlights

- [Re-opening buildings could pose risk for Legionnaire's outbreak from stagnant water sources](#)
Closed buildings with pipes not flushed with chlorinated water are prime breeding grounds for *Legionella pneumophila*. Legionnaire's disease is less deadly than COVID 1-19 but presents similar respiratory problems that could cause panic. Buildings will have to reopen with caution and proper safety.
- [Detrimental effects of COVID-19 on youth mental health](#)
A cross-sectional study was conducted in 584 Chinese youth including cognitive status assessment, the General Health Questionnaire (GHQ-12), the PTSD Checklist-Civilian Version (PCL-C) and the Negative coping styles scale. Nearly 40.4% were found to be prone to psychological problems, and 14.4% had post-traumatic stress disorder (PTSD) symptoms. Mental health was significantly related to being less educated (OR = 8.71, 95%CI:1.97-38.43), being the enterprise employee (OR = 2.36, 95%CI:1.09-5.09), suffering from PTSD symptoms (OR = 1.05, 95%CI:1.03-1.07) and using negative coping styles (OR = 1.03, 95%CI:1.00-1.07). Local governments should develop effective psychological interventions for youth groups.
- [Prediction of COVID-19 evolution in USA with the new model](#)
The modified model is employed to fit current covid-19 outbreak data in USA and to make predictions on the numbers of infected, removed (recovered) and death in the foreseeable future. Excellent fitting curves and regression quality are

obtained, indicating that the model is working and the predictions may be close to reality.

Healthcare Policy Recommendations

- [COVID phobia is keeping people with serious heart symptoms away from ERs](#)
An article published by STAT News provides insight into patients who are electing to delay treatment, including going to the emergency department (ED) for emergent conditions. Some clinicians are reporting that the patients they are treating in the ED have more severe conditions, which could indicate that people are postponing needed care. Some clinicians expressed concern that patients may be dying of these conditions at home rather than risk exposure to the virus at the hospital.
- [Expand testing in nursing homes to asymptomatic persons](#)
A *NEJM* editorial discusses [an article](#) assessing transmission and adequacy of symptom-based screening in a skilled nursing facility in King County, WA. 71% of pre-symptomatic persons in the nursing home had viable virus by culture 1 to 6 days before the development of symptoms with a 26% fatality rate. More than half the residents who had positive tests were asymptomatic at testing, and live coronavirus sheds at high concentrations from the nasal cavity even before symptom development. A new approach that expands testing to include asymptomatic persons residing or working in skilled nursing facilities needs to be implemented now to sufficiently prevent transmission.
- [Recovering COVID cases may require at home nursing](#)
Many patients experience complications of long-term hospital stays in conjunction with recovering from COVID that require long term follow up. May need to increase at home nursing staff. Unsure of what recovering patients are at risk for including rates of readmission.
- [CDC guidelines for household cleaning and sanitizing](#)
The CDC suggests washing surfaces with warm soap and water followed by sanitization with bleach. Bleach to water ratios and cleaning steps for areas and items in the home are outlined.

Practice Guidelines

- [Points to consider before transfusion of convalescent plasma as a treatment option](#)
COVID-19 plasma should be managed as an experimental therapy consistent with ethical and legal safeguards. Even if used empirically it is vital to ensure monitoring of patient clinical and laboratory indicators. Collection and retention of blood specimens from both donors and recipients (pre- and post- treatment) should be performed to permit retrospective determination of the characteristics of an effective product and dosage, and the characteristics of patients most likely to benefit. General information on rationale and approach to use of convalescent plasma in COVID-19 can be found [here](#)
- [Italian researchers advise oral and nasal use of 3% H₂O₂ for reduction of COVID complications](#)
Researchers suggest gargling H₂O₂ thrice daily and nasal washes of H₂O₂ with nebulizer twice daily at onset of symptoms and diagnosis. They also advise 1 drop of iodopovidone (0.5 - 0.6%) in each eye thrice daily. Studies have shown no damage to the mucosa within six months of H₂O₂ use. They hypothesize that H₂O₂'s oxidation, mechanical removal properties, and induction of TLR3 play anti-viral roles. Changes in COVID hospitalizations have yet to be analyzed.
- [The UK recommendations for pre-operative patient testing](#)
The British Journal of Oral and Maxillofacial Surgery issued the following recommendation for pre-op testing (for both PCR and antibody (Ab) tests): after admission in isolation 24-Hr before the surgery, if the patient has PCR- and Ab+ or PCR and Ab-, carry on the surgery; if the patient is PCR+ and Ab-, postpone the surgery until recovery.
- [Management of COVID-19-related respiratory distress](#)
JAMA: An expert discusses acute respiratory-distress syndrome (ARDS) manifestations and management strategy.
- [Indian guidelines on ophthalmological practices during the COVID-19 pandemic](#)
The All India Ophthalmological Society (AIOS) has recently issued practice guidelines to its 22,000+ members found [here](#). An editorial in the Indian Journal of Ophthalmology documented what was known about the COVID-19 disease from an

ophthalmologist's point of view- - it can be found here. In this paper, a preferred practice pattern is proposed based on consensus discussion between some of the leading ophthalmologists in India, major institutional representatives, and the AIOS leadership. The guidelines are provided for triage, use of PPE, precautions to be taken in the ophthalmologic department and operating room as well as care of various ophthalmic equipment.

- [Resumption of activity in gastroenterology department: Spanish recommendations](#)

A number of practical recommendations are provided by Spanish organizations (SEPD, AEEH, GETECCU and AEG) regarding GI patient management and the stepwise resumption of GI healthcare activity. These recommendations are based on the sparse, changing evidence available, and will be updated in the future.

Drugs, Vaccines, Therapies, Clinical Trials

- [FDA cautions against hydroxychloroquine and chloroquine use outside the hospital or clinical trials](#)

The FDA stated that abnormal heart rhythms and rapid heart rate risks may increase when the medicines are combined with other drugs, such as antibiotic azithromycin, as well as in patients with existing heart and kidney disease. FDA cautioned that careful monitoring is strongly recommended and that use should be limited to clinical trials and inpatient treatment.

- [Higher chloroquine dose associated with higher mortality: RCT results](#)

In this phase IIb trial of 81 COVID19 patients in Brazil randomized to high vs low-dose chloroquine (CQ). The higher dose was associated with higher mortality (39% vs 15%) and QTc interval prolongation (18.9% vs 11.1%)

- [Chart review showed ECG QT prolongation in HCQ +azithromycin \(no control group\)](#)

The charts were reviewed in 84 patients receiving HY and AZ for 5 days. QT prolongation was observed from a baseline average of 435 ± 24 ms to a maximal average of 463 ± 32 ms ($P < 0.001$ (one-sample t-test), which occurred on day 3.6 ± 1.6 . In a subset of nine (11%) of those patients, the QTc was severely prolonged to >500 ms, a known marker of high risk of malignant arrhythmia and sudden cardiac death

- [Depriving iron supply to the virus represents a promising adjuvant therapeutic against viral survival](#)

Iron-containing enzymes are most likely required for coronavirus replication. Limiting iron via chelators (i.e. deferiprone, and deferoxamine) or increasing ferroportin expression has been shown to prolong survival of patients with AIDS. Not much is known about iron regulation in COVID patients, but from other viral infections, we can deduce that iron chelation may be a beneficial in treating COVID.

- [Prioritization of potential anti-SARS-CoV-2 drug repurposing based on pharmacokinetics](#)

In vitro anti-SARS-CoV-2 activity data was digitized from all available publications. EC90 values were then expressed as a ratio to the achievable maximum plasma concentrations (Cmax) reported for each drug after administration of the approved dose to humans (Cmax/EC90 ratio). Hydroxychloroquine, chloroquine, mefloquine, atazanavir (boosted with ritonavir), tipranavir (boosted with ritonavir), ivermectin, azithromycin and lopinavir (boosted with ritonavir) were all predicted to achieve lung concentrations over 10-fold higher than their reported EC50.

- [Age-adjusted pediatric chloroquine dose: modeling/simulation-based recommendations](#)

A physiologically based pharmacokinetic (PBPK) model for CHQ was used to simulate exposure in adults and children and verified against published PK data. The authors propose the following total cumulative doses: 35 mg/kg (CHQ base) for children 0-1 month, 47 mg/kg for 1-6 months, 55 mg/kg for 6 months-12 years and 44 mg/kg for adolescents and adults, not to exceed 3300 mg in any patient.

- [Increased numbers in hydroxychloroquine clinical trials following politicians' comments](#)

Nature News: Researchers in multiple countries report that participants are choosing to enroll in clinical trials for hydroxychloroquine over other clinical trials. They believe this is in response to the optimistic comments politicians have made about the drug, despite the "insufficient data to recommend either for or against the use of chloroquine and hydroxychloroquine in people with COVID-19."

- [107 new COVID-19 trials registered today at clinicaltrials.gov](#)

Treatment trials: Levamisole and Isoprinosine, peritoneum, Ruxolitinib, Nitric Oxide, Isotretinoin, Ivermectin and

Nitazoxanide, Hydroxychloroquine and Nitazoxanide, Favipiravir, Azithromycin, Rhu-pGSN, Hydroxychloroquine and Telmisartan and Azithromycin, Allogeneic HB-adMSCs, Lenalidomide, Serum IL-6 and Soluble IL-6 Receptor, Leflunimide, Seraph 100 Microbind Affinity Blood Filter, Colchicine, Corticosteroids, Mycobacterium, Favipiravir, nitazoxanide, Sevoflurane versus Propofol, Tocilizumab Compared to Deferoxamine, Budesonide Therapy, Aviptadil, Baricitinib Therapy, Dexmedetomidine, and Sarilumab. At time of writing, a total of [877](#) were active, [87](#) completed, and [3](#) posted results.

Other Science

- [Skin injuries caused by PPE among medical staff are prevalent and severe](#)

A cross-sectional survey of skin injuries from PPE measured in (N=4,308 respondents). Overall prevalence of skin injuries was 42.8%. Co-skin injuries and multiple locations injuries were 27.4% and 76.8%, respectively. Analysis indicated that sweating (95%CI for OR 87.52-163.11), daily wearing time (95% CI for OR1.61-3.21), male (95% CI for OR 1.11-2.13) and grade 3 PPE (95% CI for OR1.08-2.01) were associated with skin injuries. Only 17.7% respondents took prevention and 45.0% skin injuries were treated.

- [LDL levels found in serum lipids inversely correlated to disease severities](#)

In this retrospective longitudinal study (n=21) the surviving cases (n=17) showed the low-density lipoprotein (LDL) levels remained constant throughout the disease onset and progression (pre-infection: 3.5 (3.0-4.4); on admission: 2.8 (2.3-3.1), $p<.01$; progression: 2.5 (2.3-3.0); discharge: 3.6 (2.7-4.1); median (IQR), in mmol/L). In non-surviving patients, LDL levels showed continuous decrease (1.1 (0.9-1.2), $p=.02$ versus the levels on admission). Increasing odds of lowered LDL levels were associated with disease progression (odds ratio: 4.48, 95% IC: 1.55-12.92, $p=.006$) and in-hospital death (odds ratio: 21.72, 95% IC: 1.40-337.54, $p=.028$).

- [Extracorporeal Membrane Oxygenation \(ECMO\) for severe pulmonary and cardiac compromise](#)

In this pre-print, the authors summarize their clinical experience with 32 patients with COVID-19 treated with ECMO. A multi-institutional registry and database was created and utilized to assess all patients who were supported with ECMO. The results are mostly represented as the descriptive data and suggest that ECMO may play a useful role in salvaging select critically ill patients with COVID-19.

- [More damage from COVID-19 in old vs. young infected monkeys](#)

Rhesus macaques were intratracheally infected with SARS-CoV-2, and then analyzed by clinical signs, viral replication, chest X-ray, histopathological changes and immune response. Monkeys developed typical interstitial pneumonia, notably, old monkeys exhibited diffuse severe interstitial pneumonia. Viral antigens were detected mainly in alveolar epithelial cells and macrophages.

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