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2020-04-15 DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

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DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

April 15, 2020

Executive Summary

Daily NM recap. NM Hospital financial challenges. NM absentee voting. NM dairy farmers impact. 19-20 states open May 1? USA halts WHO funding. More NYC deaths. 250K tests AZ first responders. Global pandemic updates. Imported cases China. Masked South Korea elections. Danish children school return. PPE angiography. NYC cancels healthcare workers. GI shedding endoscopes. Blockade reduces transmission. Fever screening. Viral shedding post seroconversion. Radiology mitigations. Endoscopy units. Tracheostomy reduced transmission. Survivors plasma. Medical Imaging. Useful CTs. Electrophysiology procedures. Renin angiotensin blockers. Hemostasis. Dermatologic surgery. Pediatric gastroenterology. Autoimmune liver disease. Orthopedic surgical care. Updated treatment evidence. Asymptomatic detection. CVD pharmacology. Bleach disinfection. Arbidol beats lopinavir/ritonavir. IV immunoglobulin therapy. No HCQ clinical efficacy. Cepharantine inhibition pangolins. Machine learning antivirals. Eat bitter substances. 59 new trials. Combining RNA and antibody tests. No SARS-CoV-2 in patient ward air. Influenza impact prevention. Encephalitis. Low CD4+ and CD8+ severe. G6PD-deficient issues. Cytokine storm. Biosensor detection. Immunopathogenesis.

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

NM Highlights

- [Daily recap of New Mexico COVID-19 news](#)
Christus St. Vincent Regional Medical Center is putting 300 employees on leave for up to 90 days due to low patient volumes. Two hospitals in Las Cruces are also putting employees on temporary leave. UNM gets \$500,000 grant from the U.S. Air Force to make PPE for health care workers via 3D printers.
- [New Mexico hospitals explain financial impact of COVID- 19](#)
Hundreds of hospital workers in New Mexico are no longer working, as hospitals lose millions and struggle to survive during this pandemic. Hospital officials say the challenge is balancing the resources needed to care for their sickest patients against the economic impact of postponed visits and canceled elective surgeries.
- [NM Supreme Court orders clerks to use absentee voting process for June primaries](#)
A week after Wisconsin proceeded with in-person primary elections in the midst of the COVID-19 pandemic, New Mexico's Supreme court rejected a request by 27 county clerks to conduct the state's June 2 primary elections by mailing ballots to all registered voters. Instead, the court unanimously ruled that county clerks encourage voting by absentee ballot and mail applications only to registered voters that request them, with the consequence that many voters would be forced to vote in person.
- [New Mexico dairy producers suffer from coronavirus pandemic](#)
With no dine-ins at restaurants, NM dairy farmers are left with excess milk. They are having to dump it out because there is no one to buy it. "We are losing money, um in great amounts and at great speed," said Charlie DeGroot, Owner of DeGroot Dairies. Farmers are in the process of drying up portions of their herds.
- [80 new COVID-19 cases and no new deaths reported in New Mexico](#)
The total positive cases and total deaths in the state are 1,484 and 36 respectively. As of today, the state has done 33,394 tests, there are 90 individuals hospitalized for COVID-19, and 353 COVID-19 cases have recovered. [New NMDOH portal featuring epidemiologic breakdown of cases](#)

US Highlights

- [19-20 U.S.A states may be ready to re-open by May 1](#)
CDC director says 19-20 U.S. states may be ready to reopen May 1st.
- [USA to halt funding to WHO over coronavirus, says Trump](#)
US President Trump directed Federal authorities to halt funding to the World Health Organization (WHO) because it has "failed in its basic duty" in its response to the coronavirus outbreak. He accused the UN agency of mismanaging and covering up the spread of the virus after it emerged in China and said it must be held accountable. Worldwide criticism followed.
- [New York City posts sharp spike in coronavirus deaths after untested victims added](#)
New York City, the hardest hit U.S. city in the coronavirus pandemic, revised its official COVID-19 death toll sharply higher to more than 10,000 on Tuesday, to include victims presumed to have perished from the lung disease but never tested.
- [Arizona to test 250,000 first responders, healthcare workers for COVID-19](#)
Arizona on Tuesday (4/14) said it would provide coronavirus antibody tests for 250,000 health-care workers and first responders in the largest such testing in the United States to date.

International Highlights

- [Latest updates on the spread of the coronavirus around the world](#)
Some of the latest updates related to COVID-19 around the world are here: interactive graphic tracking the global spread, U.S.-focused tracker with state-by-state and county maps.
- [Returning Chinese cause new imported COVID-19 cases](#)
Journal of Infection editorial: As a result of Chinese returning home from the overseas, imported cases from outside of China appeared in early March and began to increase sharply in mid-March. China is now facing increasing pressure in the face of imported cases from overseas, especially in cities that are international travel hubs such as Beijing, Shanghai and Guangzhou.
- [South Korea holds elections in masks and clinics](#)
Voters in South Korea wore masks and stood at least 1m apart, had their temperature taken, disinfected their hands and wore plastic gloves. Only then were they given their voting slip and allowed to head into the booth to cast their ballot. Voting stations were also set up in clinics for patients with mild symptoms.
- [Children up to the age of 11 are returning to schools in Denmark](#)
Denmark was among the first countries in Europe to impose a lockdown, with schools closed on 12 March. Children returned to school in the capital Copenhagen on Wednesday (4/15) as the Danish government becomes the first in Europe to relax coronavirus restrictions on education. Other countries have also moved to relax lockdown measures.

Economics, Workforce, Supply Chain, PPE Highlights

- [PPE protocol for angiography during the COVID-19 crisis](#)
The article is about donning (putting on) and doffing (taking off) of personal protective equipment (PPE) for angiography during the COVID-19 crisis.
- [New York City hospitals cancel temporary workers as coronavirus cases stabilize](#)
Due to the latest trend, coupled with a flattening in the number of New Yorkers hospitalized with coronavirus infection, temporary healthcare workers are no longer needed at hospitals in New York City and other areas hit hard by the coronavirus.

Epidemiology Highlights

- [Most U.S. positive healthcare workers likely infected at work: CDC](#)

New CDC data suggest that more than half of U.S. healthcare personnel infected with Covid were exposed via contact with an infected patient or coworker. Healthcare workers (HCWs) should be screened for fever and respiratory symptoms at the beginning of each shift. HCPs should be given testing priority, provided and trained with proper PPE, and discouraged from working while ill.

- [Clinical characteristics of COVID-19 in China: a systematic review and meta-analysis](#)

The majority of COVID-19 cases are symptomatic with a moderate case-fatality rate (CFR). Patients living in Wuhan, older patients, and those with medical comorbidities tend to have more severe clinical symptoms and higher CFR.

- [Risk GI shedding transmission and the potential role of endoscopes as a vector](#)

Theoretically COVID-19 could be transmitted by endoscopy, due to mucous membranes and body fluid contact. GI endoscopies involve close contact with oral and colonic contents exposing endoscopy staff to respiratory and oropharyngeal secretions. This can increase transmission risk.

- [Blockade of Wuhan reduced transmission of infection by 6%](#)

Although the adopted prevention and control measures were effective, the epidemic continued to spread. Attributable to medical limitations: not all patients could be admitted to hospitals, and close contacts were mainly isolated at home, resulting in family outbreaks. This suggests relaxing controls too early will carry risks.

- [Fever screening system in the only designated hospital for COVID-19 in China](#)

The initiated first fever screening system plays an important role in the prevention and control of hospital infection.

- [Prolonged virus shedding even after seroconversion in a patient with COVID-19](#)

Prolonged virus shedding could be found among COVID-19 patients after clinical symptoms resolved and specific antibody emerged. Viral detection from throat gargling sample could be an alternative diagnostic method for mild COVID-19 patients with scarce sputum. Sputum remained the most sensitive specimen for viral detection after clinical symptoms resolved.

- [NIH begins study to quantify undetected cases of coronavirus infection](#)

A new NIH study has begun recruiting to determine how many US adults without confirmed infection history have SARS-CoV-2. In this "serosurvey," researchers will collect and analyze blood samples from up to 10,000 volunteers to provide critical data for epidemiological models. People interested in joining this study should contact clinicalstudiesunit@nih.gov.

Practice Guidelines

- [Mitigating gaps in radiology department: establishing an isolation zone for patients not fully cleared](#)

The loopholes in infection control and prevention practices against COVID-19 in 2 radiology departments are due to poor understanding of the emerging disease which can be fixed by establishing an isolation zone for patients not completely cleared of SARS-CoV-2 infection.

- [Endoscopy units: A multi-center experience from Italy](#)

A survey investigated the burden of COVID-19 on endoscopic activity in a high-risk area, approaches to evaluating patients, adoption and compliance of HCP with protective measures, and initial possible viral transmission outcomes from endoscopy units within a large, community-based setting in Italy.

- [Novel approach to reduce transmission of COVID-19 during tracheostomy](#)

A novel approach is introduced for better protection and reduced transmission for tracheostomy in a COVID-19 positive patient. This technique is functional, easy to set up, and can be used for additional operations that involve risk of aerosolization or droplet exposure to operating room staff.

- [Survivors can help and should be well-documented](#)

All survivors should be well-documented. Plasma can be used for neutralizing antibodies and stored in blood banks, and distributed across countries so that it can be delivered when need arises. In emergency situations, recovered subjects who are negative for COVID-19 can be considered for voluntary temporary employment at sensitive locations such as hospitals and airport as per their capability and skill set. 50%-66% of the population is required to be immune to achieve herd

immunity.

- [CT imaging useful in diagnosis and rating severity of disease](#)
High-resolution CT imaging discloses specific pattern in COVID-19 pneumonia and is able to differentiate various levels of severity for prognosis and treatment planning.
- [A program for infection control in the medical imaging department](#)
Based on guidelines and protection experience, radiologist-nurse-radiographer interactive emergency management program (RNRIEMP) optimizes the examination process for patients with fever. This program can optimize the examination process of patients with fever, reduce the risk of staff infection, cross-infection, and maximize savings of medical resources.
- [Electrophysiology procedures protocol adaptations implemented for COVID-19](#)
Protocol changes are described for an EP department during the COVID-19 pandemic, including performance of only urgent/emergent procedures, afterhours/7-day per week laboratory operation, single attending-only cases to preserve PPE, appropriate use of PPE, telemedicine and video chat follow-up appointments, and daily conferences.
- [Renin angiotensin blockers and COVID-19: current evidence and recommendations](#)
1. In noninfected patients and patients at risk, there is currently no valid reason to discontinue RAS blockade; 2. In healthy subjects at risk, evidence is not (yet?) sufficient to prophylactically recommend RAS blockade; 3. If apprehension about increased infectivity persists, patients on ACEIs or ARBs could temporarily be switched to a direct renin inhibitor; 4. In COVID-19-positive patients on RAS blockers, the drugs should be continued; 5. In febrile patients with pulmonary symptoms on RAS blockers, close monitoring of blood pressure and renal function is advisable; RAS blockers should be discontinued only as clinically indicated.
- [Italian Society on Thrombosis and Haemostasis recommendations on haemostasis](#)
Italian Society on Thrombosis and Haemostasis provides recommendations, based on expert consensus, for the management of the haemostasis derangement in COVID-19 patients.
- [Recommendations on dermatologic surgery during the COVID-19 pandemic](#)
Where possible, clinics should be triaged so that only urgent patients are reviewed in person, with telehealth employed where appropriate. Elective surgery such as excision of benign lesions and cosmetic procedures should be postponed. This and other recommendations regarding dermatological surgery during COVID-19 pandemic are provided.
- [A guide to rapid implementation of telehealth services for pediatric gastroenterologists](#)
The paper provides a guide to the implementation of telehealth services for pediatric gastroenterologists during the COVID-19 public health emergency and beyond.
- [Management of patients with autoimmune liver disease during COVID-19 pandemic](#)
A brief description of the management protocol is presented which is developed and implemented for patients with AILD in three referral centers in Europe during the present pandemic.
- [Peri-operative urgent surgical care of orthopedic patients](#)
Journal of the American Academy of Orthopedic Surgeons article provides operating rooms protocols and recommendations on personal protective equipment and other approaches to control COVID-19 in orthopedic services.
- [American Society of Health-System Pharmacists updated evidence on current COVID-19 treatments](#)
The American Society of Health-System Pharmacists (ASHP) provides a table of evidence of various treatments in use for COVID-19.
- [Early detection of asymptomatic infections using chest CT](#)
Chest CT discovered 24 out of 25 asymptomatic patients. Of these 16 recovered without any symptoms. Therefore, chest CT is critical in the diagnosis of COVID-19. It is simple and easy to use.
- [Pharmacology of COVID-19 therapies in patients with cardiovascular-related conditions](#)
Cardiovascular risks of various COVID-19 trial therapies are highlighted, as well as their interactions with common drugs for

treating cardiovascular conditions. Several therapies, including remdesivir, hydroxychloroquine and chloroquine, and interleukin (IL)-6 inhibitors, are being used off-label and evaluated in ongoing clinical trials. These therapies are not familiar to cardiovascular clinicians managing such patients.

- [Diluted bleach recommended for COVID-19 disinfection](#)

With rapidly diminishing availability of commercial cleaning supplies, simple diluted bleach, which is readily available, can effectively disinfect our clinics, homes, and environment to prevent sustained transmission from inanimate objects. As with many disinfects, minimizing long term skin contact and ensuring good ventilation can minimize clinical toxicity.

Promising Drugs, Vaccines, Therapies, Clinical Trials

- [Arbidol monotherapy may be superior to lopinavir/ritonavir in reducing viral load](#)

Journal of Infection: Non-randomized retrospective Chinese study shows 16/16 people had full viral clearance after 2 weeks on arbidol versus 19/34 on lopinavir/ritonavir. We compute 2-sided Fisher's exact test significance of 9.2×10^{-4} . Interpret with caution as there were significant differences among the treatment arms. Arbidol is only approved in China and Russia.

- [Effect of regular intravenous immunoglobulin therapy on prognosis of COVID pneumonia](#)

In this retrospective study, 58 cases were reviewed of severe or critical COVID-19 diagnosed in the intensive care unit of Wuhan Third Hospital from January to February 2020. Initiation of IVIG as adjuvant treatment for COVID-19 pneumonia within 48 hours of admission to the ICU was shown to statistically significantly reduce the use of mechanical ventilation, shorten the hospital length of stay, promote the early recovery of patients, and improve the effective treatment of patients to achieve significant clinical efficacy.

- [No evidence of clinical efficacy of HCQ in COVID-19 pneumonia patients with oxygen therapy](#)

Data from French hospitals on adults with SARS-CoV-2 pneumonia (N = 181). 84 patients received HCQ within 48 hours of admission; 97 did not. Initial severity was balanced between the groups. In the "HCQ" group, 20.2% were transferred to ICU or died within 7 days, vs. 22.1% in the "no-HCQ group" (16 vs 21 events, relative risk [RR] 0.91, 95% CI 0.47-1.80, weighted analysis). 2.8% of the "HCQ" patients died within 7 days vs 4.6% in the no-HCQ group (3 vs 4 events, RR 0.61, 95% CI 0.13-2.89), and 27.4% and 24.1%, respectively, developed acute respiratory distress syndrome within 7 days (24 vs 23 events, RR 1.14, 95% CI 0.65-2.00). Eight patients receiving HCQ (9.5%) experienced electrocardiogram modifications requiring HCQ discontinuation. These results do not support the use of HCQ in patients hospitalized for documented SARS-CoV-2-positive hypoxic pneumonia.

- [Cepharantine is a potent in vivo inhibitor of the pangolin SARS-CoV-2-related infection model](#)

The SARS-CoV-2 related pangolin coronavirus GX_P2V/pangolin/2017/ Guangxi model was used to screen compounds, by first screening 2406 clinical drugs in vitro (Vero E6 cells, GX_P2X virus). Viral yields of RNAs and infectious particles were quantified with qRT-PCR. Cepharanthine (CEP), selamectin and mefloquine completely inhibited cytopathic effects in cell culture at 10 μ M. CEP was the most potent inhibitor of the pangolin GX_P2V infection ($EC_{50} = 0.98 \mu$ M). CEP is a natural product drug, [approved in Japan](#) to treat a variety of conditions, including malaria, "without major side effects".

- [Machine learning suggests commercially available antiviral drugs that may act on the SARS-CoV-2](#)

HIV drug Atazanavir has highest predicted inhibitory potency against the SARS-CoV-2 3C-like proteinase, followed by remdesivir, efavirenz, ritonavir, and dolutegravir.

- [Hypothesis: eat bitter substances and drugs to fight COVID-19](#)

The authors searched currently available drugs that are agonists of TAS2Rs, which are hypothesized to trigger host defense pathways. They identified many cheap, available, and safe medicines, such as diphenidol, quinine, chloroquine, artemisinin, chlorpheniramine, yohimbine, and dextromethorphan, which may target the most common symptoms caused by 2019-nCoV. They hypothesize a cocktail-like recipe of existing bitter drugs may help doctors to fight COVID-19 and the general public may drink or eat bitter substances, such as coffee, tea, or bitter vegetables, to potentially reduce the risk of infection.

- [59 New COVID-19 trials registered today at clinicaltrials.gov](#)

Treatment trials: Bone Marrow-derived Mesenchymal Stem Cell, Whole Genome by NGS, Efficacy and Safety of Leronlimab,

Nasopharyngeal Titers, Safety and Efficacy of Clevudine, Corimuno-19, Efficacy of Nigella Sativa and Natural Honey, Acalabrutinib, Axithromycin-Hydroxychloroquine, Efficacy and Safety of Eculizumab (Soliris), Evaluation of Interleukine 6, Nephritis, Mycobacterium, Vazegepant, Efficacy of Tocilizumab, Tuberculin Test, Telerehabilitation, Anti-Interleukin-8, Oropharyngeal Dysphagia, Dexamethasone, Prophylactic Hydroxychloroquine, Spironolactone, Plasma Therapy, Oral Favipiravir, Mefloquine, Antimalarials. At time of writing, a total of [574](#) were active, [28](#) completed, and [3](#) posted results.

Other Science

- [Combining RNA and antibody detections improves the sensitivity of COVID-19 diagnosis](#)

In 173 patients, the seroconversion rate for Ab, IgM and IgG was 93.1%, 82.7% and 64.7%, respectively. The median seroconversion time for Ab, IgM and then IgG were day-11, day-12 and day-14, separately. Combining RNA and antibody detections significantly improved the sensitivity of pathogenic diagnosis for COVID-19 ($p < 0.001$), even in early phase of 1-week since onset ($p = 0.007$). Moreover, a higher titer of Ab was independently associated with a worse clinical classification ($p = 0.006$).

- [Indoor air measurement of SARS-CoV-2 in the patient ward: all 10 samples negative](#)

The air of patient rooms with confirmed COVID-19 in the largest hospital in Iran was investigated. Despite all air samples were negative, it is suggested that further in vivo experiments should be conducted using actual patient cough, sneeze and breath aerosols in order to show the possibility of generation of the airborne size carrier aerosols and the viability fraction of the embedded virus in those carrier aerosols.

- [COVID-19 control measures impact on influenza prevention](#)

Influenza virus and SARS-CoV-2 share the same transmission routes. The article alerts clinicians of the presence of co-infection with these two viruses. In addition, it describes the positive effect of the measures taken to fight COVID-19 on influenza prevention and control.

- [Encephalitis as a clinical manifestation of COVID-19](#)

This letter provides clinical evidence showing the central nervous system (CNS) involvement for SARS-CoV-2. It describes a COVID-19 case who presented as encephalitis. Fortunately, encephalitic associate with SARS-CoV-2 is self-limited.

- [Low CD4+ and CD8+ T cell counts associated with more severe infection](#)

A retrospective study enrolled 39 RT-PCR-confirmed COVID-19 patients. Lymphocyte subset (CD4+ and CD8+ T cell counts reflected the disease severity. Patients have relatively low counts of CD4+ and CD8+ T cell on admission may be at higher risk of severe infection. These patients should gain more attention to the change of their illness severity.

- [Viral replication in G6PD-deficient cells 3-fold higher than normal cells](#)

Human lung epithelial A549 cells treated with G6PD RNAi to lower G6PD activity displayed augmented (12-fold) viral production in comparison to normal counterparts.

- [Severe deterioration of some patients associated with cytokine storm in circulation](#)

Cytokine storm causes ARDS or multiple-organ dysfunction, which leads to physiological deterioration and death. Analysis of virus-induced inflammatory storm will help provide valuable medication guidance for clinical treatment.

- [Dual-functional plasmonic photothermal biosensors for highly accurate SARS detection](#)

The dual-functional localized surface plasmon resonance (LSPR) biosensor exhibits a high sensitivity toward the selected SARS-CoV-2 sequences with a lower detection limit down to the concentration of 0.22 pM and allows precise detection of the specific target in a multigene mixture. This study gains insight into the thermoplasmonic enhancement and its applicability in the nucleic acid tests and viral disease diagnosis.

- [Immune pathogenesis critical for diagnosis and treatment](#)

The occurrence and development of SARS-CoV-2 depend on the interaction between the virus and the individual's immune system. Viral factors include virus type, mutation, viral load, viral titer, and viability of the virus in vitro. The individual's immune system factors include genetics (such as HLA genes), age, gender, nutritional status, neuroendocrine-immune regulation, and physical status.

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