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2020-06-24/25 DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

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UNM GLOBAL HEALTH COVID-19 BRIEFING

June 24-25, 2020

Executive Summary

NM Highlights: Governor update. NM schools reopening. Parents split on allowing kids play sports. Santa Fe streets closure. Paid leave for ABQ businesses. 207 cases and 5 deaths.

International Highlights: 9% HCW positive in Italy. Australian lessons.

Economics, Workforce, Supply Chain, PPE: Plan for return to normalcy. Mask cleaning.

Epidemiology Highlights: US years of life lost high. Fever and cough most prevalent symptoms. Hypertension and diabetes most prevalent comorbidities. Hypertension, diabetes and respiratory disease most prevalent in fatal cases.

Practice Guidelines: Brazilian guidelines on thromboembolic complications in COVID-19. Novel design of door handle to touch with a forearm.

Drugs, Vaccines, Therapies, Clinical Trials: Potential dexamethasone shortage. Arbidol potentially effective. Pixatimod promising. In-silico repurposing. 51 new COVID-19 trials.

Other Science: Transmission prior to symptoms. Solar inactivation of coronaviruses. Risk factors for severity. Laboratory tests associated with outcomes.

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

- [NM Governor June 25 update on COVID-19](#)

In this videoconference update, NM is on a 4-day upward trend that is concerning. Current R0 is at 1.12 trending up. There are concerns about neighboring Texas and Arizona having surging cases, including areas bordering NM. Test positivity rate has gone up from 5% to 22% in Arizona, contradicting the notion that increase in cases is due only to more testing. Governor says Phase two reopening will be on hold pending improvement in the numbers. Orders remain in effect to wear face-coverings in public settings, occupancy limits on businesses and houses of worship, 14-day quarantine for out-of-state visitors, and mass congregations being off limits. The plan for education reopening was covered (see next article).

- [New Mexico Public Education Department Reentry Guidance plan released for 2020-2021 school year](#)

All NM schools to open with a combination of online, in-school learning, releasing a 25-page [guidance document](#) that covers a phased approach to reentry. Eight minimum requirements for reentry are described. Instructional models will involve remote learning, a hybrid of remote and in-person learning, followed by full reentry.

- [KRQE survey results: Parents split on allowing kids to play sports](#)

KRQE News 13 received 3,375 responses to the online survey. If fall sports resume, 35% of respondents said they'll allow their kids to play with some restrictions. 26% said they will not allow kids to play, and 23% said they'd let their kids play with no restrictions.

- [Santa Fe Council approves proposal to close downtown streets](#)

Despite pushback from thousands of community members, in a 7-to-2 vote, city councilors voted to approve the resolution that would create a framework for the closure of city streets to vehicles through at least Halloween. The proposal states at least one street bordering the Plaza must be accessible to vehicles at all times.

- [ABQ paid sick leave ordinance raising concerns for small businesses](#)

Albuquerque city councilors, Isaac Benton and Lan Sena want employers to pay pandemic hazard pay and paid sick leave, but small business owners in the city say that they do not have money to afford it. Some believe the ordinance could be the end of small businesses in the city.

- [NM reports 5 more COVID-19 deaths and 207 additional cases on June 25](#)

As of today (6/25), the total positive cases and total deaths in the state are 11,192 and 485, respectively. The state has performed 314,670 tests, there are 135 individuals currently hospitalized for COVID-19, and 5,047 COVID-19 cases have recovered. [NMDOH portal featuring epidemiologic breakdown of cases.](#)

International Highlights

- [Characteristics of 1,573 healthcare workers who underwent swab for SARS-CoV-2 in Italy](#)

Clin Microbiology & Infection: Positive tests were 139 among 1,573 HCWs (8.8%, 95% confidence interval [CI]: 7.5-10.3), with a marked difference between symptomatic (122/503, 24.2%) and asymptomatic (17/1,070, 1.6%) workers ($p < 0.001$). Physicians were the group with the highest frequency of positive tests (61/582, 10.5%), whereas clerical workers and technicians displayed the lowest frequency (5/137, 3.6%). The likelihood of being positive increased with the number of reported symptoms and the strongest predictors were taste and smell alterations (odds ratio [OR]= 76.9) and fever (OR = 9.12). The median time from first positive test to a negative test was 27 days (95% CI: 24-30).

- [5 principles for pandemic preparedness: lessons from the Australian response](#)

Br J General Practice: 1. Protection of vulnerable people. 2. Provision of treatment and support services to affected people. 3. Continuity of regular healthcare services for the whole population. 4. Protection and support of primary healthcare workers and primary care services. 5. Provision of mental health services to the community and the primary healthcare workforce.

Economics, Workforce, Supply Chain, PPE Highlights

- [A plan for reconstituting long-term economic security in the US](#)

Frontiers in Public Health: Previous studies indicate that community size and viral population risk groups should be considered in forming an effective targeted social distancing strategy. The resultant delay in the occurrence of infections in order to support vaccine development has been shown to be an effective policy. However, a return to normalcy from the current situation would require policy intervention that transforms the American economy along with continued targeted social distancing and the use of medical science as a tool to facilitate gradual personal interactions of low-risk individuals. The adoption of rapid IgG testing would be best suitable for widespread population-level screening as part of a comprehensive plan for incrementally rebuilding the in-person workforce. This crisis represents an opportunity for the United States to increase automation of the manufacturing sector, shrink supply chains, and create higher-level jobs in order to reduce the dependency on other countries for critical supplies. This economic transition to better utilize technology along with reconstruction of the workforce could improve the standard of living for many Americans as well as better prepare the US for future pandemics.

- [Sandia Labs studies mask cleaning](#)

KOB TV: Sandia Laboratories is working with local hospitals to evaluate with a number of different cleaning protocols, what

the impact was on the efficacy and how well the masks performed after being cleaned. The labs provided the information so that people could make decisions on what is the best kind of cleaning technique that we could utilize.

Epidemiology Highlights

- [Potential Years of Life Lost Due to COVID-19 in the US, Italy, and Germany](#)

Intl J Envir Research and Public Health: There is a critical need to revisit the formula for calculating potential years of life lost (PYLL). Data on age-specific deaths due to COVID-19 in three countries, including the United States (US), Italy, and Germany, were evaluated. New York State, as a significant outlier within the US, was also included. PYLLs in the US were five times as high as those of Italy. Compared with Germany, PYLLs in Italy were 4 times higher, and the rates in the US were 23, 25, and 18 times higher when using upper age limits of 70, 75, and 80, respectively. Standardized PYLLs in New York were 2 times as high as the rates in Italy, and 7 to 9 times as high as PYLLs in Germany. The revised formula of PYLL, using an upper limit of age 80, is recommended to accurately measure premature deaths due to a major disastrous disease such as COVID-19.

- [Prevalence of COVID-19 symptoms: a meta-analysis](#)

PLOS One: Of 851 unique citations, 148 articles were included which comprised 24,410 adults with confirmed COVID-19 from 9 countries. The most prevalent symptom in patients with laboratory confirmed COVID-19 was a fever, experienced by 78% of patients. A cough was the second most prevalent symptom, reported by 57% of test-positive patients. Overall, 19% of hospitalized patients required non-invasive ventilation, 17% required intensive care, 9% required invasive ventilation, and 2% required extra-corporeal membrane oxygenation. The mortality rate was 7%. However, there is a large proportion of infected adults which symptoms-alone do not identify.

- [Prevalence of COVID-19 comorbidities and their association with mortality: a meta-analysis](#)

Diabetes, Obesity & Metabolism: 18 studies with a total of 14 558 individuals were identified. The pooled prevalence for comorbidities in patients with COVID-19 disease was 22.9% for hypertension; 11.5% for diabetes; and 9.7% for cardiovascular disease (CVD). For chronic obstructive pulmonary disease (COPD), chronic kidney disease (CKD), cerebrovascular disease, and cancer, the pooled prevalence's were all less than 4%. With the exception of cerebrovascular disease, all other co-morbidities had a significantly increased risk for having severe COVID-19. In addition, the risk of mortality was significantly increased in individuals with CVD, COPD, CKD, cerebrovascular disease, and cancer.

- [COVID-19 and comorbidities: A systematic review and meta-analysis](#)

Postgraduate Medicine: Thirty-three studies were included for systematic review and twenty-two studies were included for meta-analysis to evaluate the comorbidities associated with severe and fatal cases of COVID-19. Hypertension was more prevalent among severe and fatal cases compared to total cases. Diabetes and respiratory diseases had a higher prevalence in fatal cases compared to total cases.

Practice Guidelines

- [Brazilian guidance on managing thromboembolic complications in COVID-19](#)

Hematology, Transfusion and Cell Therapy: The analysis of the peripheral blood smear, platelet count, PT, aPTT, fibrinogen and D-dimer are recommended for all hospitalized patients at admission. These parameters should be regularly monitored in critically ill patients. The most adequate time interval between tests is uncertain and testing should be based on clinical indication, assays availability and the local laboratory capacity and facility. Perform venous compression Duplex scan at admission of ICU patients and then on a regular basis, whenever available and at convenient intervals, to detect DVT and to prevent its complications. Maintain vigilance for clinical and echocardiographic signs of PE. The diagnosis of DIC does not indicate anticoagulation, unless a thrombotic event is present anticoagulants in COVID-19 should be restricted to prophylaxis of VTE or the treatment of thrombotic events. All patients hospitalized for suspected or confirmed COVID-19 should receive pharmacologic thromboprophylaxis. Use LMWH at a standard dose for thromboprophylaxis. However, the benefit of this approach has not yet been confirmed and trials are needed to address this question. Prophylaxis for thrombosis should be prescribed during the entire hospitalization period. Maintain prophylaxis after the hospital discharge for patients at high risk of thrombosis or for those with immobility. Acute VTE events should be confirmed by imaging tests. In the case this is not

feasible, presumptive diagnosis of an acute VTE event may be made based on clinical history, combined with physical examination, labs and other available tests. Use LMWH for the treatment of acute VTE. Alternatively, UFH or fondaparinux can be used. Switching DOAC and AV K to LMWH if the patient is admitted to the ICU or is at risk of significant drug–drug interaction.

- [Novel design for the door handle: using forearms instead of hands to reduce contamination](#)

The American Journal of Medicine: The authors describe a device to avoid COVID-19 disease transmission from door handles by augmenting the regular design with an extension. This design allows individuals to pull the door open with their forearms instead of their hands, as forearms are rarely used to touch peoples' faces.

Drugs, Vaccines, Therapies, Clinical Trials

- [Dexamethasone, a drug recently shown to reduce coronavirus death risk could run out, experts warn](#)

Science: Issues of hoarding, manufacturing capacity, and a history of quality problems from one of the two major suppliers of the drug raise questions about whether the drug will be available in needed quantities to treat severe COVID-19 cases. The sickest patients are the ones most likely to benefit from the drug. In the RECOVERY clinical trial, dexamethasone reduced the death risk for patients on a ventilator by one-third, and for those requiring oxygen by one-fifth. Patients with milder disease did not benefit.

- [Effectiveness of arbidol for COVID-19 prevention in health professionals](#)

Frontiers in Public Health: In an observational study, frontline health professionals with COVID-19 in China (N=82) and the same amount of controls (N=82) in the uninfected group were included. 19 (23.2%) patients in the infected group were administered oral arbidol, and 48 (58.5%) in the uninfected group (OR = 0.214, 95% CI 0.109-0.420). The cumulative uninfected rate of health professionals in the arbidol group was significantly higher than that of individuals in the non-arbidol group (log-rank test, $\chi^2(2) = 98.74$; $P < 0.001$). 48 patients (58.5%) in the infection group were hospitalized, with a median age of 39 (31-49) years, of whom 7 (14.6%) were prophylactically administered arbidol. 34 patients (41.5%) with mild symptoms were treated outside the hospital, among which the median age was 34 (30-39) years, and twelve patients (35.3%) took prophylactic oral arbidol. The hospitalization rate was significantly associated with age ($P = 0.024$) and oral arbidol administration (OR = 0.313, 95% CI 0.108-0.909). In the age-matched case-control study, the hospitalization rate was not significantly associated with arbidol administration ($P = 0.091$).

- [Pixatimod \(PG545\) show promise as a potent virus inhibitor](#)

bioRxiv preprint: Pixatimod (PG545), a clinical-stage heparan sulfate mimetic, has demonstrated in laboratory testing to be a potent inhibitor of glycosidase heparanase, and has known anti-cancer, anti-inflammatory and also antiviral properties. Pixatimod inhibits binding of recombinant S1 RBD to Vero cells which express the ACE2 receptor. It effectively inhibits viral infection of Vero cells. Importantly, its potency is well within its safe therapeutic dose range.

- [Host transcriptome-guided drug repurposing for COVID-19 treatment: a meta-analysis based approach](#)

PeerJ: In a computational study, the authors adopted a host transcriptome-based drug repurposing strategy utilizing the publicly available high throughput gene expression data on SARS-CoV-2 and other respiratory infection viruses. Based on the consistency in expression status of host factors in different cell types and previous evidence reported in the literature, pro-viral factors of SARS-CoV-2 identified and subject to drug repurposing analysis based on DrugBank and Connectivity Map (CMap) using the web tool, CLUE. The upregulated pro-viral factors such as TYMP, PTGS2, C1S, CFB, IFI44, XAF1, CXCL2, and CXCL3 were identified in early infection models of SARS-CoV-2. By further analysis of the drug-perturbed expression profiles in the connectivity map, 27 drugs that can reverse the expression of pro-viral factors were identified, and importantly, twelve of them reported to have anti-viral activity. The direct inhibition of the PTGS2 gene product can be considered as another therapeutic strategy for SARS-CoV-2 infection and could suggest six approved PTGS2 inhibitor drugs for the treatment of COVID-19. The computational study could propose candidate repurposable drugs against COVID-19, and further experimental studies are required for validation.

- [51 new COVID-19 trials registered June 24-25 at clinicaltrials.gov](#)

Treatment trials: Pulmozyme, Favipiravir, Prexifone®, DUR-928/Placebo, Tocilizumab, GX-19/Saline, Apilimod, Bivalirudin

Injection, Hydroxychloroquine Sulfate Tablets/Ivermectin/Zinc, Prasugrel Hydrochloride, Placebo/Ivermectin/Losartan, Inhaled ILOPROST, Dutasteride/Ivermectin/Azithromycin, Dexamethasone, mavrilimumab/Placebo, Ivermectin, Chloroquine/zinc, Favipiravir, FAVIR 200/AVIGAN 200. At time of writing, a total of [2144](#) were active, [178](#) completed, and [4](#) posted results.

Other Science

- [Evidence for transmission of COVID-19 prior to symptom onset](#)

eLife: The authors collated contact tracing data from COVID-19 clusters in Singapore and Tianjin, China and estimated the extent of pre-symptomatic transmission by estimating incubation periods and serial intervals. The mean incubation periods accounting for intermediate cases were 4.91 days (95%CI 4.35, 5.69) and 7.54 (95%CI 6.76, 8.56) days for Singapore and Tianjin, respectively. The mean serial interval was 4.17 (95%CI 2.44, 5.89) and 4.31 (95%CI 2.91, 5.72) days (Singapore, Tianjin). The serial intervals are shorter than incubation periods, suggesting that pre-symptomatic transmission may occur in a large proportion of transmission events (0.4-0.5 in Singapore and 0.6-0.8 in Tianjin, in our analysis with intermediate cases, and more without intermediates). Given the evidence for pre-symptomatic transmission it is vital that even individuals who appear healthy abide by public health measures to control COVID-19.

- [Estimated inactivation of coronaviruses by solar radiation with special reference to COVID-19](#)

Photochemistry and Photobiology: 90% or more of SARS-CoV-2 virus will be inactivated after being exposed for 11-34 minutes of midday sunlight in most US and world cities during summer. In contrast, the virus will persist infectious for a day or more in winter (December-March), with risk of re-aerosolization and transmission in most of these cities. Although latitude, population size, public health and control measures vastly vary among countries, the viral persistence estimated here for cities at northern latitudes where COVID-19 expanded rapidly during winter 2019-2020 and relatively higher viral inactivation in more southern latitudes receiving high solar radiation during the same period, suggests an environmental role for sunlight in the COVID-19 pandemic.

- [Risk factors associated with critical disease course: systematic review & meta-analysis](#)

Aging: In the review, 20 articles (n=4062) were screened and it was observed that severe patients were more likely to present with fever and dyspnea than non-severe patients. Elderly male patients with a high body mass index, high breathing rate, and a combination of underlying diseases were more likely to develop severe infections. Abnormal laboratory tests were more prevalent in severe patients than in mild cases.

- [Laboratory tests and outcome for patients with COVID-19: a meta-analysis](#)

The Journal of Applied Laboratory Medicine: 45 studies were included, of which 21 publications were used for the meta-analysis. Severe disease was associated with higher white blood cell count (MD 1.28 x 10⁹/L), neutrophil count (MD 1.49 x 10⁹/L), C-reactive protein (MD 49.2 mg/L), lactate dehydrogenase (MD 196 U/L), D-dimer (SMD 0.58), and aspartate aminotransferase (MD 8.5 U/L), all p < 0.001. Furthermore, low lymphocyte count (MD -0.32 x 10⁹/L), platelet count (MD -22.4 x 10⁹/L), and hemoglobin (MD -4.1 g/L), all p < 0.001, were also associated with severe disease. In conclusion, several routine laboratory tests are associated with disease severity in COVID-19.

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