5-31-2020

2020-05-29/30/31 DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

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DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

May 29-31, 2020

Executive Summary

NM Highlights: NM case count. Navajo Nation case update. Largest COVID-19 surge in Taos. ABQ BioPark to reopen. NM public schools reopening plan. NM unemployment claims. Rise in domestic and sexual abuse.

US Highlights: Protests inspire fear of surge. Trump withdraws from WHO. Last aid bill. No new NY patients. ICE detainees sick.

International Highlights: South Korea schools close. Undercounting in Russia. South African overburdened health care system.

Economics, Workforce, Supply Chain, PPE: Reusable protection system. Protective household products. Longterm economic challenges.

Epidemiology Highlights: Estimate virus reproduction numbers. Hypertension & cardiovascular disease impact on mortality. Gastrointestinal manifestations.

Healthcare Policy Recommendations: Immunity passports are bad idea. Evaluation of hand WHO-recommended products. Opioid use-related challenges of COVID-19 management.

Practice Guidelines: NICE guidelines on COVID-19 and acute kidney injury. Example of rapid conversion of an outpatient psychiatric hospital to a virtual telepsychiatry clinic. JAMA recommendations on conducting and reporting COVID-19 clinical research.

Testing: Comparison of 4 antigen tests. Validation of antibody assays.

Drugs, Vaccines, Therapies, Clinical Trials: Encouraging results of Ruxolitinib phase II RCT. Benefits of adjunctive herbal medicine. Potential inhibitors of viral protease screened. Anticoagulation alone is unlikely to protect from COVID-19 related morbidity and mortality. Open access database Covid19db for COVID-19 drugs. 49 new trials registered.

Other Science: COVID-19 collateral damage. Telomere length and COVID-19 outcomes. Wastewater RNA early warning. Neurologic manifestation review. MRI reveals predominant anosmia cases. Self-quarantine weight gain. Immunosuppression vs. cytokine storm. Combatting misinformation.

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 reports 5 more COVID-19 deaths and 69 additional cases on May 31 according to partial report

  As of today (5/31), the total positive cases and total deaths in the state are 7,689 and 356, respectively. The state has performed 199,604 tests, there are 182 individuals currently hospitalized for COVID-19, and 2,853 COVID-19 cases have recovered. NMDOH portal featuring epidemiologic breakdown of cases.

- COVID-19 cases reach 5,145 on Navajo Nation

  With 101 new cases of COVID-19 and three additional deaths on Friday, the total number of confirmed COVID-19 cases for the Navajo Nation has reached 5,145 including 231 deaths.

- Taos medical center reports largest surge in cases on Friday (5/29)

  Holy Cross Medical Center reported 13 new cases of the COVID-19 Friday in Taos County, the largest surge in cases the county has seen since the virus reached New Mexico in mid-March.

- ABQ Botanic Gardens to reopen in phase one

  The Albuquerque BioPark will start phase one of reopening on Tuesday (6/2). In the initial phase, the Botanic Garden will open to BioPark Society members only then will open to the general public a week later, June 9. Face masks will be mandatory at the Botanic Garden. Tingley Beach will also reopen to the public on June 9 for fishing and other activities with a limited number of guests. During this initial phase, the zoo and aquarium will remain closed.

- Task force to develop reopening plan for New Mexico public schools

  A task force of 30 legislators, educators, students, and parents is working on a reopening plan for New Mexico schools. The task force is making contingency plans for fully returning to campus, partially returning to campus, and transitioning between classroom and distance learning in the event of an outbreak.

- Unemployment claims in New Mexico remain steady

  According to the U.S. Department of Labor, 7,347 claims were filed in the week ending May 23 — a small decline from the 7,356 filed the previous week.

- Domestic abuse and sexual violence have risen in New Mexico

  Local agencies that serve victims of domestic abuse and sexual violence say they have seen a rise in demand for services since mid-March when the governor issued her first public health order calling for nonessential businesses to close and residents to stay at home.

US Highlights

- Fears of surge in US coronavirus cases from George Floyd protests

  A Minneapolis police officer killed African American George Floyd during an arrest and has been charged with 3rd degree murder. Outrage over his killing has led to protests and sometimes violent riots in many US cities, and has begun to spread internationally with protests in London and Berlin. Governors, mayors and public health officials across the US are raising fears of a surge in coronavirus cases arising from escalating protests over the death of George Floyd. Images of demonstrators in close proximity, many without masks, have therefore alarmed leaders – to the point where some are pleading with those on the streets to protest “the right way”, in order to better protect themselves.

- Trump terminates U.S. relationship with World Health Organization over virus

  Reuters: According to President Trump, WHO have failed to make the requested reforms, so he is terminating the US relationship with the WHO and redirecting those funds to other worldwide and deserving urgent global public health needs.

- McConnell says next Coronavirus aid bill will be the last

  Senate Majority Leader Mitch McConnell said the bill will be narrowly crafted and will focus on jobs and schools. He said there could be funding for small businesses and health care, but he will not support extending the additional $600 per week in federal unemployment benefits that run out at the end of July.

- NYC hospital has first day without coronavirus death

  For the first time since the new coronavirus hit New York, it claimed no lives in a Montefiore hospital Thursday. Since the pandemic began, an estimated 21,477 New York City dwellers have lost their lives to the virus.

- ICE detainee transfers leading to multiple outbreaks around the country

  Immigration and Customs Enforcement detainee transfers have led to COVID-19 outbreaks in facilities in at least 5 states. Despite limited testing, over 1,400 detainees have tested positive. These transfers, which ICE says were sometimes done to curb the spread of coronavirus, have led to outbreaks in facilities in Texas, Ohio, Florida, Mississippi and Louisiana. Without widespread testing and contact tracing, it is difficult to identify the source of infections inside ICE facilities.

International Highlights

- South Korea closes schools again after biggest spike in weeks

  A total of 251 schools in Bucheon have now been forced to close just days after they reopened and an additional 117 schools in Seoul have also postponed their re-opening. This was due to 79 new cases that were recorded the day after schools reopened, the highest daily figure in two months. Public parks and museums across Seoul and its surrounding cities have also been closed.

- Moscow doubles last month's Coronavirus death toll amid suspicions of undercounting

  NPR: An independent analysis of Moscow's mortality rate showed a nearly 20% increase in overall deaths for April compared to the previous ten years. Russian officials have disputed those suggestions, attributing the country's low mortality rate from COVID-19 to government efforts and a Russian medical practice of certifying a patient's cause of death based on the organ that failed.

- The South African Response to the Pandemic NEMJ Covid-19

  Notes series: South Africa's national Covid-19 response has comprised eight overlapping stages. The country is trying to further scale up testing from the current cumulative rate of 9.6 tests per 1000 people. Covid-19 could add severe strain to the already overburdened health care system, particularly if people with HIV or TB are at higher risk of developing severe Covid-19 illness. The potential for a double whammy looms as South Africa prepares to enter its annual influenza season.

Economics, Workforce, Supply Chain, PPE Highlights

- New protection system for aerosol-generating medical interventions in addition to PPE

  A new mobile and reusable protection system has been established. Medical staff might use it in addition to PPE. The construction is made of aluminum composite panel on swivel castors and a transparent acrylic glass (top). A detailed description is available. Unique features of the system are as follows: protective equipment neither worn by staff nor patients, but is placed on the ground and can be moved around on castors; flexible system for confined spaces, in operating rooms or functional areas; the transparent protective screen with an angled field of vision; and side shields deflect and prevent aerosols to be inhaled by the user. Openings allow personnel to treat patients without significantly reducing the shielding effect. The shielding has been visualized by steam tests.

- Pretreated household materials carry similar protection as surgical masks

  Based on one previous study a salt-based soaking strategy has been reported to enhance the filtration ability of surgical masks. The authors propose a similar soaking process which uses materials widely available in anyone's household. They tested this method of pretreating a variety of materials with a salt-based solution by a droplet test using fluorescently stained nanoparticles similar in size to the COVID-19 virus. This filter significantly reduces the amount of penetration of these particles. This will allow for healthcare workers to create a disposable added layer of protection to their surgical masks, N95s, or homemade masks by using household available products such as paper towels. (Subscription or purchase required.)

- These areas of the economy 'will not come back' from the coronavirus pandemic

  Market Watch: These include consumer spending levels, many jobs, commercial real estate occupancy, global tourism levels and luxury goods spending. "For many millennials and Gen Z, one mantra will dominate spending habits from now on: 'never

again will I be financially unprepared for a crisis'. Uncertainty will bring caution, caution will bring frugality," said Morilla-Giner.

Epidemiology Highlights

- Estimation of the time-varying reproduction number of COVID-19 outbreak in China

  Three approaches were used to estimate the virus reproduction numbers: Poisson likelihood-based method (ML), exponential growth rate-based method (EGR) and stochastic Susceptible-Infected-Removed dynamic model-based method (SIR). A total of 198 chains of transmission together with dates of symptoms onset and 139 dates of infections were identified among 14,829 confirmed cases. The serial interval had an average of 4.60 days SD 5.55 days, the incubation period had an average of 8.0 days with a SD of 4.75 days and the infectious period had an average of 13.96 days with a SD of 5.20 days. The estimated controlled reproduction numbers, Rc, produced by all three methods in all analyzed regions of China are significantly smaller compared with the basic reproduction numbers R0 from before containment measures were implemented. Thus, the controlled reproduction number in China is much lower than one in all regions of China by now.

- Hypertension can increase the severity and fatality of COVID-19: A meta-analysis

  12 publications with 2389 COVID-19 patients (674 severe cases) were included for the analysis of disease severity. The severity rate of COVID-19 in hypertensive patients was much higher than in non-hypertensive cases (37.58% vs 19.73%, pooled OR: 2.27; 95% CI: 1.80-2.86). Moreover, the pooled ORs of COVID-19 severity for hypertension versus non-hypertension was 2.21 (95%CI: 1.58-3.10) and 2.32 (95% CI: 1.70-3.17) in age < 50 years and ≥50 years patients, respectively. Additionally, six studies with 151 deaths of 2116 COVID-19 cases were included for the analysis of disease fatality. Hypertensive patients carried a nearly 3.48-fold higher risk of dying from COVID-19 (95% CI: 1.72-7.08). Meanwhile, the pooled ORs of COVID-19 fatality for hypertension versus non-hypertension was 6.43 (95% CI: 3.40-12.17) and 2.66 (95% CI:1.27-5.57) in age < 50 years and ≥50 years patients, respectively.

- Cardiovascular disease increases in-hospital mortality in patients with COVID-19

  10 studies were enrolled in this meta-analysis, including eight studies for CVD, seven for hypertension and eight for acute cardiac injury. The presence of CVD and hypertension was associated with higher odds of in-hospital mortality (unadjusted OR 4.85, 95% CI 3.07 to 7.70; I(2)=29%; unadjusted OR 3.67, 95% CI 2.31 to 5.83; I(2)=57%, respectively). Acute cardiac injury was also associated with a higher unadjusted odds of 21.15 (95% CI 10.19 to 43.94; I(2)=71%).

- Meta-analysis of the gastrointestinal manifestations of COVID-19

  Pooled data from 2477 patients with COVID-19 across 17 studies were analyzed. Diarrhea (7.8%) followed by nausea and/or vomiting (5.5 %) were the most common GI symptoms. A meta-analysis showed that there was no significant difference in the incidence of diarrhea (OR=1.32, 95% CI 0.8 to 2.18, Z=1.07, p=0.28, I(2)=17%) or nausea and/or vomiting (OR=0.96, 95% CI 0.42 to 2.19, Z=0.10, p=0.92, I(2)=55%) between severely ill and not severely ill groups. However, there was seven times higher odds of having abdominal pain in patients with severe illness when compared with non-severe patients (OR=7.17, 95% CI 1.95 to 26.34, Z=2.97, p=0.003, I(2)=0%).

Healthcare Policy Recommendations

- Nature Commentary: Ten reasons why immunity passports are a bad idea

  Nature: Four huge practical problems and six ethical objections add up to one very bad idea: COVID-19 immunity is a mystery, Serological tests are unreliable, The volume of testing needed is unfeasible, Too few survivors to boost the economy, Monitoring erodes privacy, Marginalized groups will face more scrutiny, Unfair access, Societal stratification, New forms of discrimination, Threats to public health.

- Evaluation of WHO-recommended hand hygiene formulations

  World Health Organization (WHO) alcohol-based hand rub formulations containing ethanol or isopropanol are being produced for hospitals worldwide. Neither WHO formulation meets European Norm 12791, the basis for approval as a surgical hand preparation, nor satisfies European Norm 1500, the basis for approval as a hygienic hand rub. The authors evaluated the efficacy of modified formulations with alcohol concentrations in mass instead of volume percentage and

glycerol concentrations of 0.5% instead of 1.45%. Both modified formulations met standard requirements for a 3-minute surgical hand preparation, the usual duration of surgical hand treatment in most hospitals in Europe. Contrary to the originally proposed WHO hand rub formulations, both modified formulations are appropriate for surgical hand preparation after 3 minutes when alcohol concentrations of 80% wt/wt ethanol or 75% wt/wt isopropanol along with reduced glycerol concentration (0.5%) are used.

- Opioid use increases risk of COVID-19 and its complications

  JAMA research letter: Patients who use opioids are uniquely vulnerable to the virus from a physiological standpoint. Early data from the COVID-19 outbreak suggest comorbidity with respiratory or pulmonary vulnerabilities may put individuals using opioids at elevated risk for serious complications. Because opioids directly affect the brainstem to slow breathing, individuals using opioids may be at increased risk for worsened hypoxemia. When accessing medical care for these complications, triage bias associated with substance use disorder also poses a substantive threat to this population. As scarcity intensifies around resources such as ventilators, so will high-pressure decision-making about which patients would benefit most from COVID-19 treatment. This could leave a door open for discrimination against individuals with OUD if latent clinician stigma is activated in this setting. If treated for COVID-19, this patient population, which has higher rates of homelessness, may not have a safe place to self-isolate after hospitalization. Proactive policy and public health efforts are necessary to ensure equitable treatment of those who become infected and mitigate opioid-associated risk for those who do not.

Practice Guidelines

- COVID-19 and acute kidney injury: summary of NICE guidelines

  The National Institute for Health and Care Excellence (NICE) provided guidelines on COVID-19 and acute kidney injury (AKI) management in hospitals. AKI associated with COVID-19 may be caused by volume depletion, multi-organ failure, viral infection leading directly to kidney tubular injury, thrombotic vascular processes, glomerulonephritis, or rhabdomyolysis. Maintaining optimal fluid status (euvolaemia) is critical in reducing the incidence of AKI. Regular assessments of fluid status and fluid management plans are necessary, and in those who need intravenous fluids the choice of replacement fluid should be based on patients' biochemistry panel results and fluid status. An increased risk of coagulopathy may cause problems with clotting of the extracorporeal circuit during renal replacement therapy.

- Rapid conversion of an outpatient psychiatric clinic to virtual telepsychiatry clinic

  The outpatient psychiatric clinic at UC Davis Health, in which 98% of visits initially occurred in person, was converted to a telepsychiatry clinic, with all visits changed to virtual appointments within 3 business days. The clinic had 73 virtual appointments on its first day after full conversion. This column describes the process, challenges, and lessons learned from this rapid conversion. Patients were generally grateful, providers learned rapidly how to work from home, and the clinic remained financially viable with no immediate losses.

- JAMA viewpoint on clinical research during the COVID-19

  The procedures are discussed that would "ensure the rights, safety and wellbeing of participants," while mitigating risks to trial integrity. If data are collected during the period of severe disruption in a manner different from the approach originally planned, the analysis could stratify the data by method of collection. Trialists should present and interpret the results of clinical trials objectively, explicitly recognizing both the strengths of the analyses and the uncertainties resulting from the pandemic.

Testing

- Comparison of four antigen-based rapid detection tests for the diagnosis respiratory samples

  Immunochromatographic SARS-CoV-2 assays from RapiGEN, Liming bio, Savant, and Bioeasy were evaluated using universal transport medium containing naso-oropharyngeal swabs from suspected cases. The diagnostic accuracy was determined in comparison to SARS-CoV-2 RT-PCR. Evaluation of the Liming bio assay was discontinued due to insufficient performance. The overall sensitivity values of RapiGEN, Liming bio, and Bioeasy tests were 62.0% (CI95% 51.0–71.9), 16.7% (CI95% 10.0–26.5),

and 85.0% (CI95% 75.6–91.2), respectively, with specificities of 100%. Sensitivity was significantly higher in samples with high viral loads (RapiGEN, 84.9%; Bioeasy, 100%).

- Validation and performance comparison of three antibody assays

  One chemiluminescent assay (Abbott COVID-2 IgG) and two lateral flow assays (STANDARD Q [SQ] IgM/IgG Duo and Wondfo Total Antibody Test) were assessed. IgM antibodies were detected as early as post-symptom onset days 3-4. IgG antibodies were first detected post-onset days 5-6 by SQ assays. The detection rates increased gradually, and SQ IgG, Abbott IgG and Wondfo Total detected antibodies from all the PCR-confirmed patients 14 days after symptom onset. Overall agreements between SQ IgM/IgG and Wondfo Total reached 88.5% and 94.6% between SQ IgG and Abbott IgG (Kappa = 0.75, 0.89).

Drugs, Vaccines, Therapies, Clinical Trials

- Ruxolitinib Phase II RCT shows encouraging results in treating COVID-19 cytokine storm

  The Journal of allergy and clinical immunology: A Chinese prospective multicenter, single-blinded randomized controlled phase II trial was performed on patients with severe COVID-19. 20 received Ruxolitinib +standard of care (SoC) and 21 received SoC+ placebo. Treatment with Ruxolitinib +SoC was not associated with significantly accelerated clinical improvement, although Ruxolitinib recipients had a numerically faster clinical improvement (12 [IQR 10 -19] days versus 15 [IQR 10-18] days, log-rank test P = 0.147). 18 (90%) patients from the Ruxolitinib group showed CT improvement at day 14 compared with 13 (61.9%) patients from the control group (P = 0.0495). Three patients in the control group died of respiratory failure, with 14.3% overall mortality at day 28. No patients died in the Ruxolitinib group, but mortality protection failed to reach significance (p=0.089). Ruxolitinib was well tolerated with low toxicities and no new safety signals. Levels of 7 cytokines were significantly decreased in the Ruxolitinib group in comparison to controls. Patients in the Ruxolitinib group had a significantly shorter median time of recovery from lymphopenia (5 [IQR 2-7] days versus 8 [IQR 2-11] days, log-rank test P = 0.033). Small study size was a limitation but are informative for further large-scale trials.

- Benefits of adjunctive herbal medicine for COVID-19: a meta-analysis

  In 7 randomized clinical trials with a total of 855 patients a combined therapy of herbal medicine +Western medicine was compared with Western medicine alone. The combined therapy significantly improved the total effective rate (RR=1.23, 95% CI 1.13 to 1.34, p < 0.001), cough symptom disappearance rate (RR=1.45, 95% CI 1.12 to 1.89, p = 0.005), and sputum production symptom disappearance rate (RR=1.73, 95% CI 1.19 to 2.50, p = 0.004). Beneficial effects of the combined therapy were also seen in traditional Chinese medicine syndrome score of cough (MD -1.18, 95% CI -1.34 to -1.03, p < 0.001), fever (MD -0.62, 95% CI -0.79 to -0.45, p < 0.001), dry and sore throat (MD -0.83, 95% CI -1.45 to -0.20, p = 0.009), and fatigue (MD -0.60, 95% CI -1.04 to -0.17, p = 0.007). The overall risk of bias of the included studies was unclear. No serious adverse events were reported.

- Potential inhibitors for virus protease found by screening of 606 Million compounds

  The authors computationally screened a library of over 606 million compounds for binding at the recently solved crystal structure of the main protease (M(pro)) of SARS-CoV-2. After evaluation of potential off-target binding, they report a list of 12 purchasable compounds, with binding affinity to the target protease that is predicted to be more favorable than that of the cocrystallized peptidomimetic compound. In order to quickly advise ongoing therapeutic intervention for patients, the authors evaluated approved antiviral drugs and other protease inhibitors to provide a list of nine compounds for drug repurposing. Furthermore, they identified the natural compounds (-)-taxifolin and rhamnetin as potential inhibitors of M(pro). Rhamnetin is already commercially available in pharmacies.

- Anticoagulation alone is unlikely to protect from COVID-19 related morbidity and mortality

  In a propensity score-matched cohort study (N=3,772), 241 patients with COVID-19 were receiving anticoagulation (AC), 672 receiving antiplatelet therapy, and 2,859 receiving neither AC nor antiplatelet therapy. Propensity matching yielded 139 patients who received AC and 417 patients who did not receive treatment with balanced variables between the groups. There was no statistically significant difference in survival (p= 0.367) and time to mechanical ventilation (p=0.742) between the two groups. The HRs for all-cause mortality, mechanical ventilation and hospital admission comparing AC versus no AC/antiplatelet groups were 1.208 (95%CI: 0.750-1.946), 0.905 (95%CI: 0.571-1.435), and 1.027 (95%CI: 0.654-1.612), respectively. The same analysis was then performed but comparing patients receiving antiplatelet therapy to those receiving

neither antiplatelet therapy nor AC prior to COVID-19. There was no statistically significant difference in survival (p=0.997) and time to mechanical ventilation (p=0.256) between the two groups. The HRs for all-cause mortality, mechanical ventilation and hospital admission comparing antiplatelet therapy versus no AC/antiplatelet groups were 1.029 (95%CI: 0.723-1.466), 1.239 (95%CI: 0.807-1.901), and 0.989 (95%CI: 0.755-1.296), respectively.

- Open access database of trials of drugs

  A user-friendly, open access, online database of interventional trials of medicinal products is available to monitor and rapidly identify products. The database, Covid19db, was published online. It has a high number of duplicative/overlapping trials, in particular for some repurposed drugs, such as hydroxychloroquine, azithromycin and tocilizumab, substantiating calls for better coordination and better use of trial resources.

- 49 New COVID-19 Trials registered today at clinicaltrials.gov

  Treatment trials: Hydroxychloroquine as post exposure, Ivermectin and Doxycycline, InterLeukin-7, Seroepidemiological study, Ratio of mean platelet volume to platelet count, serology in rheumatoid arthritis, Viusid and Asbrip, Nicotinamide Riboside, Statin Therapy, AKI Biomarkers, Zinc with Vitamin D & b12, Angiotensin II, Favipiravir. At time of writing, a total of 1731 were active, 106 completed, and 3 posted results.

Other Science

- Collateral damage of COVID-19: mass starvation, unvaccinated children, undiagnosed cancers

  Non-COVID-19 deaths could dwarf COVID-19 deaths reports BBC. Scientists predict that in a worst-case scenario, where the use of health services is reduced by up to 50% and malnourishment is boosted by the same amount, over a million children and 56,700 mothers could die as an indirect result of the pandemic, with a possible 300,000 people starving to death per day globally. Numerous cancer screening programs have been paused across the UK since the lockdowns began – meaning the 1,600 cancer cases they would normally uncover each month are currently going undetected. Worldwide, 80 million children under the age of one are now at risk of diptheria, polio and measles due to vaccination disruption.

- Hypothesis: short telomere length limits COVID-19 immune response, explains many risk factors

  FASEB: Telomere length is shorter, on average, in older people, in men, and in persons with cardiovascular disease (CVD) -- all risk factors for worse COVID-19 outcomes. The hypothesis is that shorter telomere lengths compromise the capacity of the hematopoietic system to respond to rapid infection. The replicative capacity of cells at the bottom of the hematopoietic hierarchy is determined by the average telomere length of the current reservoir. As immune cells divide to respond to infection, telomeres shorten with each replication until senescence, requiring the next level of the hierarchy (recursively) to respond with new cells, with attendant delays. In COVID-19, reduced production and replenishment of lymphocytes to fight infection leads to lymphopenia and worse outcomes, as viral replication outpaces immune response. Each 100 base pairs (bp) of telomere length confers an extra doubling, meaning infants have 2^35 greater replicative capacities than 90-year olds, who lose ~3500bp over the lifespan. The hypothesis explains the poorer prognosis in men (~300bp shorter = 2^3 fewer replications), people with CVD and obesity, as well as the marked mildness of disease in youth, and lymphopenia being one of the strongest predictors of COVID-19 mortality. If valid, this hypothesis could inform on who is most at risk of poor outcomes for COVID-19, and suggest avenues of treatment, for SARS-CoV-2 and rapid infections in general.

- Monitoring of SARS-CoV-2 RNA in wastewater provides warning before cases are reported

  Water Research: The authors investigated SARS-CoV-2 RNA in six wastewater treatments plants (WWTPs) in Spain (in the area with the lowest COVID-19 prevalence within Iberian Peninsula). The environmental surveillance data were compared to declared COVID-19 cases at municipality level, revealing that members of the community were shedding SARS-CoV-2 RNA in their stools even before the first cases were reported by local or national authorities in many of the cities where wastewater had been sampled. This environmental surveillance could be implemented by municipalities to help authorities to coordinate an exit strategy to gradually lift coronavirus lockdowns.

- Review of neuropathogenesis and neurologic manifestations of coronaviruses

  JAMA: This review summarizes available information regarding coronaviruses in the nervous system, identifies potential tissue targets and routes of entry of SARS-CoV-2 into the central nervous system, and describes the range of clinical

neurological complications that have been reported thus far in COVID-19 and their potential pathogenesis. Understanding the range of neurological disorders associated with COVID-19 may lead to improved clinical outcomes and treatment.

- Magnetic resonance imaging alteration of the brain in a patient with COVID-19 and anosmia

  JAMA Neurology: Magnetic resonance imaging (MRI) evidence of in vivo brain alteration, presumably due to SARS-CoV-2, demonstrates that anosmia can represent the predominant symptom in COVID-19.

- Self-quarantine and weight gain risk factors during the COVID-19 pandemic

  A Survey Monkey survey via Facebook showed that 91% of respondents stated they spend more time at home now than before COVID-19. 22% stated they gained 5-10 pounds. Within those who gained 5-10 pounds, there was a significantly higher percentage of the total sample who reported they increased eating in response to sight and smell ($p = .048$), eating in response to stress ($p = .041$), and snacking after dinner ($p = .016$) compared to those who stated they did not change those behaviors at all. There were significant relationships between predictor variables hours of sleep per night and physical activity time on reported weight gain ($r = -.195$, $p = .021$, $r = -.155$, $p = .034$, respectively). Thus, risk factors for weight gain during self-quarantine are inadequate sleep, snacking after dinner, lack of dietary restraint, eating in response to stress, and reduced physical activity.

- Immunosuppression instead of cytokine storm distinguishes COVID-19 from influenza

  MedRxiv preprint: Influenza and COVID-19 patients could be distinguished statistically based on cytokine module expression, particularly after controlling for the significant effects of age. Lower levels of most cytokines were observed in COVID-19 subjects. The majority of COVID-19 patients with acute respiratory failure do not have a cytokine storm phenotype but instead exhibit profound type I and type II IFN immunosuppression when compared to patients with acute influenza. Upregulation of a small number of inflammatory mediators, including IL-6, predicts acute respiratory failure in both COVID-19 and influenza patients.

- The epic battle against coronavirus misinformation and conspiracy theories

  Nature: Analysts are tracking false rumors about COVID-19 in hopes of curbing their spread. By studying the sources and spread of false information about COVID-19, researchers hope to understand where such information comes from, how it grows and — they hope — how to elevate facts over falsehood.

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