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2020-05-07 DAILY UNM GLOBAL HEALTH COVID-19 BRIEFING

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May 7, 2020

Executive Summary

NM cases. Gallup shutdown extended. Gallup hospital crisis. NM assisted living testing. University student financial relief. FDA fraudulent products. Trump/Pence test negative. India displaced repatriated. Use facemasks. Facemasks cause skin damage. PPE protocol. Michigan reopens. Illegal drug prices up. Failing masks from China. Distribution of remdesivir. CDC PPE video. Low German R0. Stay-at-home lowers Rt. Detention facility epidemiology. Saliva transmission. Healthcare informatics shortcomings. Resource allocation ethics. Uninsured drug discounts. Safer food delivery. Bat coronavirus grant axed. Dispelling common misinformation. Recommendations on managing cardiac arrest, cardiac electrotherapy and electrophysiology, hematologic malignancy, ophthalmologic screening and procedures, the use of ACEIs and ARBs. Post-COVID-19 rehabilitation. Hearing problems in children. Resuming orthopedic surgeries. NM prison testing. Qatar 0.07% mortality. Testing manufacturer nontransparency. Understanding RT-PCR vs. ELISA. Influenza infection control surrogate. 24 FDA drugs in vitro activity. *NEJM* hydroxychloroquine observational study. Monoclonal antibody in vitro. Lysosomal SARS-CoV-2 insights. Chloropromazine inhibits replication. Avoid HCQ in schizophrenia. Alkaloid/terpenoid protease inhibitors. Virus vaccine engineering. GSK otilimab trial. 38 new clinical trials. Virus persistence times. Outcomes for sickle cell and cancer patients. High risk thrombosis. Olfactory dysfunction. Pneumonia vs ARDS. Adapting sacubitril/valsartan. Blood thinners. Mouse study sheds light.

All of our past briefings are maintained in a UNM library repository here.

Our continuously curated practice guidelines in the context of COVID-19 can be found here.

Our continuously curated therapeutic evidence is maintained here.

You may submit content for future briefings here.

NM Highlights

- New Mexico reports 3 more COVID-19 deaths and 204 additional cases

  The total positive cases and total deaths in the state are 4,493 and 172, respectively. As of today, the state has performed 89,032 tests, there are 197 individuals currently hospitalized for COVID-19, and 1125 COVID-19 cases have recovered. New NMDOH portal featuring epidemiologic breakdown of cases.

- Gallup emergency shut down order extended through May 10th

  Businesses are to remain shut down from 8pm-5am. Only two people may travel in one car. Gallup residents are to stay at home unless there is an emergency. Roads into Gallup are to remain closed for non-residents until 8pm. Face-covering is mandatory when situated in an essential business, essential nonprofit or government building.

- Staff shortages and non-confidence vote of leadership in Gallup's second largest hospital

  Healthcare providers at Rehoboth McKinley Christian Hospital submitted a declaration of no confidence in the hospital's CEO, David Conejo. Critics say the hospital has been understaffed and nontransparent with use of funds from federal COVID-19 aid, and that lack of properly trained staff has led to lapses in patient care. Many doctors quit after successful transfer of patients to other state hospitals, including the hospital's only critical care doctor.

- Positive cases at any assisted living facility will require increased surveillance of entire facility

In New Mexico, 44 percent of COVID deaths are people living in senior or assisted living facilities. The state is increasing testing and surveillance in those facilities. If a positive case is found in a facility, all residents and staff of the facility will be tested once a week. More than 25 such places have reported positive cases and the list is growing.

- NM universities students could receive federal funding from CAREs Act

  Aid as part of the CAREs Act is offering federal emergency relief to universities. ENMU students meet criteria to receiving potentially $400. UNM students can get around $460-$775. Distributions are determined by universities.

US Highlights

- FDA combats fraudulent COVID-19 medical products

  As part of the FDA's "Operation Quack Hack", the agency has discovered hundreds of unproven medical products including fraudulent drugs, testing kits and personal protective equipment (PPE) sold online with unproven claims to mitigate, prevent, treat, diagnose or cure COVID-19. To date, the FDA has issued 42 warning letters to companies making bogus COVID-19 claims. A seller of fraudulent chlorine dioxide products refused to make corrective action leading a federal court to issue a preliminary injunction requiring the seller to immediately stop distributing its unproven and potentially dangerous product.

- Trump, Pence test negative after White House valet contracts coronavirus

  President Trump and Vice President Pence have tested negative for COVID-19 after a White House valet tested positive. Guests, Secret Service, and others around the President are not routinely wearing masks. White House staff working near the president had been receiving weekly testing but will now be tested daily.

International Highlights

- Thousands of displaced Indians to return home in upcoming week

  India suspended all international travel in March, stranding about 200,000 Indians across the globe. In the current effort, approximately 15,000 Indians from 12 countries will be able to fly home and 1000 people are to be evacuated from the Maldives by the Indian Navy. Passengers and flight crews will be tested prior to boarding. Passengers will have to wear masks and abide by social distancing measures, including a 14 day quarantine upon arrival. The elderly, pregnant women, those requiring medical attention, and those stranded in difficult situations will get priority.

Economics, Workforce, Supply Chain, PPE Highlights

- Face mask use by public offers significant benefit when used consistently

  MedRx Preprint: Systematic review of 14 articles suggests use of face masks in the general population offers significant benefit in preventing the spread of respiratory viruses, but its utility is limited by inconsistent adherence to mask usage. Early initiation of mask usage was more effective. Masks were more effective in viruses that transmit easily from asymptomatic individuals, an issue with the current pandemic.

- Healthcare provider comments on skin damage due to prolonged wear of masks

  A British Medical Journal letter highlights skin damage consistent with grade 2 pressure ulcers due to mask use, particularly at the nasal bridge, seen in both providers and patients. Certain comfort adjustments are not available for FFP3 masks, but other adjustments (padding, moisturizing, etc.) should be considered in those wearing masks for more than 2 hours. Additionally, hydrocolloid dressing can prevent pressure ulcers for patients undergoing noninvasive ventilation.

- Risk stratification protocol helps to reduce consumption of PPE for emergency surgeries

  The Chinese authors conducted a retrospective analysis of the consumption of PPE before (2-8 February 2020) and after (1-7 March 2020) the implementation of a risk stratification protocol. There was a significant reduction in the proportion of high-risk cases requiring full PPE after the introduction of the new protocol (P=0.017, Fisher's exact test). A total of 72 sets of PPE were saved after implementation of our protocol.

- CDC guidance for state re-openings rejected by White House; Michigan factories to reopen

The CDC's 17-page guidance document that aimed to help states safely reopen public spaces was rejected by the White House because it was deemed "overly prescriptive." The President has encouraged states to start reopening due to economic concerns. Michigan factories, which primarily make car parts that are critical for vehicle assembly in many states, will be permitted to open next week.

- Pandemic is pushing up illegal drug prices, U.N. says

  The U.N. Office on Drugs and Crime reported that increased border control, lockdowns, and flight shortages are making illegal drugs more expensive and difficult to obtain around the world. The drug shortage at the retail level has led to price increases and reductions in purity. As such, users have been switching substances and/or seeking drug treatment.

- FDA withdraws approval of some mask makers in China to sell in U.S.

  The U.S. Food and Drug Administration on Thursday announced that it has canceled the approval for some manufacturers in China to sell N95 respirators in the United States, after a number of the respirators failed to demonstrate a minimum particulate filtration efficiency of 95%. FDA notice.

- Doctors want clarification of federal distribution of remdesivir

  The Infectious Disease Society of America called on the Trump Administration to explain how it will ensure equitable distribution of remdesivir to states and hospitals based on case and hospitalization rates, stressing the importance of fair allocation to health facilities in communities disproportionately affected by the coronavirus, including African American and Hispanic populations.

- CDC instructional videos for donning and doffing PPE

  2 brief videos describe how to safely put on and take off recommended PPE. Written guidelines, fact sheets, and posters are also provided.

Epidemiology Highlights

- Coronavirus reproduction rate at 0.65 in Germany

  This rate indicates that 100 people contracting the virus will spread it to 65 others. This indicates that the number of infections will decrease.

- Stay-at-home orders lower Rt and increase doubling time

  States with stay-at-home orders have a lower Rt the week following their 500th case and have a longer doubling time from the 500th to the 1000th case. Stay-at-home orders, limitations on mass gatherings, educational facility closures, and non-essential businesses closures are all effective measures at reducing transmission rates. States that plan to scale back such measures should carefully monitor transmission metrics.

- COVID-19 introduced by correctional and detention facility staff, spreads to detainees

  Correctional and detention facilities face challenges in controlling the spread of COVID-19 because of crowded, shared environments and potential introductions by staff members and new intakes. Among 37 jurisdictions reporting to CDC, 32 reported at least one confirmed COVID-19 case among incarcerated or detained persons or staff members, across 420 correctional and detention facilities. As of April 21, 2020, 4,893 cases and 88 deaths among incarcerated and detained persons and 2,778 cases and 15 deaths among staff members have been reported. Prompt identification of persons with COVID-19 and consistent application of prevention measures within correctional and detention facilities are critical.

- Saliva is a non-negligible factor in the spread of COVID-19

  Virus is found in saliva samples. Dental practitioners should be cautious when handling saliva-contaminated droplets and aerosols generated during dental procedures. Saliva-contaminated surfaces could also lead to potential cross-infection. Diligent sanitation measures are encouraged.

Healthcare Policy Recommendations

- Shortcomings in the U.S. healthcare informatics infrastructure

In order to adapt and react to a pandemic optimally changes such as widespread data sharing between different health institutions is necessary to make intelligent, data driven decisions. This paper lists the benefits of real time data sharing between institutions and the infrastructure necessary to achieve that.

- Ethics of creating a resource allocation strategy with a focus on children during COVID-19

  In an ethical context, this preprint discusses the basic principles of disaster planning and resource stewardship, the role of illness severity scoring systems, and resource-intensive interventions. Additionally, historical approaches to scarce resource allocation are described in order to offer analysis and guidance for pediatric clinicians. Children may be profoundly affected by the strain on the healthcare system imposed by the pandemic and should be considered prospectively in resource allocation frameworks.

- Cigna's Express Script offering discounts for generic and branded medications to newly uninsured

  Select brand name prescriptions will be available for purchase at a price cap in an effort to provide individuals with chronic health conditions who are newly unemployed due to COVID with an affordable option to purchase their medications

- OPINION: Reduce the risk of spread by having food deliveries contact-free

  The authors argue that 60% of cases in a public hospital in Hanoi were linked to food delivery by non-clinical staff who were pre-symptomatic or mildly ill at the hospital cafeteria. The authors recommend contactless delivery; the use of masks, gloves, and hand-sanitizer by delivery workers; the use of E-wallet or credit payments; and immediately washing hands and disposing of packaging to reduce transmission risk.

- NIH move to ax bat coronavirus grant draws fire

  The research community is reacting with alarm to a decision by NIH to kill a grant that helped support research in China on how coronaviruses moves from bats to humans. The move occurred shortly after the US president alleged that the pandemic virus had escaped from a Chinese laboratory supported by the NIH grant.

- Dispelling common misinformation on COVID-19

  Drinking alcohol will not rid the body of the virus. There is no scientific basis to screen patients by having them hold their breath for a certain amount of time. Mustard oil is not an effective treatment. There is no evidence that exposing internal organs to disinfectant or UV light will stop the virus.

Practice Guidelines

- Recommendations for emergency departments receiving patients in cardiac arrest

  The Canadian Journal of Emergency Medicine published recommendations to enhance staff and patient safety during COVID-19 by discussing the risk of transmission during certain aerosol generating procedures and suggesting measures for reducing unnecessary exposure for ED staff, paramedics and other ED patients when receiving patients in cardiac arrest.

- Polish updated guidelines on electrotherapy and electrophysiology procedures

  Kardiologia Polska: An updated recommendation of Polish experts (Polish Cardiac Society and others) are presented, including indications and protocols for cardiac electrotherapy and electrophysiology procedures, and the related organizations arrangements.

- Seattle Cancer Center guidelines on managing hematologic malignancy and COVID-19

  Specific guidelines are posted for Non-Hodgkins Lymphoma (NHL), Early Diffuse Large B-Cell Lyphoma (DBCL), Relapsed DLBCL, untreated and relapsed Hodgkin Lymphoma in older and younger patients, Chronic Lymphocytic Leukemia, Peripheral T-Cell Lymphoma, new and relapsed indolent B-Cell NHL, new and relapsed Mantle Cell Lymphoma, Acute Myeloid Leukemia, Myeloproliferative Neoplasms, Myelodysplatic Syndrome, Ph+ and Ph - Acute Lymphoid Leukemia, and Multiple Myeloma.

- UK challenges of managing hematology patients during COVID-19 pandemic

  Oxford researchers note that there has been a 71% fall in the numbers of full blood counts performed from primary care in the four weeks since the lockdown was introduced, 57% fewer patients referred to hematologists, and dramatic decrease of chemotherapy treatments. It is likely that as the first wave of COVID-19 recedes, there will be a corresponding rise in demand on hematology clinics, day units and wards to deliver care not only for the anticipated increased numbers of new patients,

but also to restart deferred treatments for existing patients. The longer the lockdown is imposed, the greater the rebound surge might be expected to be.

- Diabetic retinopathy screening during the COVID-19: Hong Kong experience

  The Hong Kong clinical departments adopted the following measures for managing diabetic retinopathy screening: 1) Screening of all visitors for: fever, history of respiratory symptoms, recent overseas travel, and contact/exposure to COVID-19 cases; 2) Universal face-covering with surgical or N95 masks by staff and all visitors; 3) Protective plastic shields installed on all slit lamps, which are used during eye examinations; 4) Reduced number of scheduled visits.

- Safety measures for intravitreal injection during COVID-19 pandemic

  Intravitreal eye injections in suspected/confirmed COVID-19 cases should be rescheduled unless permanent vision loss is anticipated. When injecting in a patient with suspected/confirmed COVID-19 it is prudent to use full personal protective equipment including gloves, N-95 respirator facemask, gown, and eye-shield/goggles. A summary of other protective measures is provided.

- No need to discontinue Angiotensin-Converting Enzyme inhibitors and Angiotensin II Receptor blockers

  The role of angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers in the setting of the COVID-19 pandemic is hotly debated. In a retrospective study of 18 472 patients who underwent COVID-19 testing, 12.4% were taking either ACEIs or ARBs. Overlap propensity score weighting showed no significant association of ACEI and/or ARB use with COVID-19 test positivity (overlap propensity score–weighted odds ratio, 0.97; 95% CI, 0.81-1.15). The data support current professional society guidelines to not discontinue ACEIs or ARBs in the setting of the COVID-19 pandemic.

- Post-acute rehabilitation for survivors of COVID-19

  A summary of evidence on COVID-19 survivors is presented, including comorbidities, complications from an ICU stay +/- intubation, and the effects of the virus on multiple body systems. The guidelines are suggested on inpatient and outpatient rehabilitation unit organization, as well as on physiotherapy, occupational therapy, and other types of rehabilitation for COVID-19 survivors.

- Essential services for deaf and hard of hearing children during the COVID-19 pandemic

  The authors describe the experience of a quaternary referral pediatric hospital in Seattle, the epicenter of COVID-19, and share strategies for risk minimization employed by Seattle Children's Hospital. One to 2 months' delay in care can have implications for child's language and development. During this time, children may ''fall through the cracks,'' as centers reduce their screening or testing practices. Establishing criteria for ABRs, audiograms, hearing devices, cochlear implantation, or other interventions can help determine what care is essential during the COVID crisis.

- Considerations to be made when resuming elective orthopedic surgeries

  Many elective orthopedic surgeries were postponed in the interest of safety and to preserve resources and supplies. Once COVID-19 stabilizes and elective orthopedic surgeries are considered again, this article suggests employing the use of a standardized algorithm to address challenges.

- Recommendations for sinus and anterior skull base surgery: A systematic review

  The highest level of personal protective equipment (PPE) is recommended due to potential aerosolization of the virus, and the use of high-speed powered devices should be avoided. Pre-screening of patients and limiting surgeries to only procedures should be performed. Face-to-face postoperative visits must be limited.

Testing

- State to begin widespread testing in prisons

  25% of inmates and all guards will be tested within a week. New inmates will be subject to a 14-day isolation. The NM Department of Health will oversee measures to prevent the spread of the virus.

- Qatar 0.07% mortality attributed to large testing denominator, young population, high hospital capacity

  In a video interview, Qatar health experts attribute their low death rate to testing 40,000 per million of its population, that the majority of the population is young with few co-morbidities with only 1% of their 16k cases in persons above 65, and that

Qatar has been able to expand healthcare capacity quickly.

- Antibody test manufacturers anonymize testing device data

  In a recently published Oxford study comparing 9 different antibody tests a statement was made that "Individual manufacturers did not approve release of device level data, so device names are anonymized". This statement is currently discussed as it appears that commercial agreements between the UK government and test manufacturers are allowing the latter to control whether evaluation results of their products are made publicly available.

- How to interpret two major diagnostic tests for SARSCoV2: RT-PCR and ELISA

  JAMA publishes a viewpoint describing how to interpret 2 types of diagnostic tests commonly in use for SARS-CoV-2 infections: reverse transcriptase-polymerase chain reaction (RT-PCR) and IgM and IgG enzyme-linked immunosorbent assay (ELISA). Authors present a graphical model of how test sensitivity may vary over time after symptom onset.

- Monitoring for Influenza infections as a surrogate marker for infection control

  Due to a similar transmission pattern, common respiratory infections such as influenza could serve as an effective and pragmatic way to rapidly assess infection control.

Drugs, Vaccines, Therapies, Clinical Trials

- Screening of FDA-approved drugs reveals 24 new candidates against SARS-CoV-2

  3,000 FDA-and IND-approved drug library against SARS-CoV was screened to identify antiviral drug candidates for the treatment of COVID-19. 48 drugs were selected and 24 drugs showed potential antiviral activities against SARS-CoV-2.

- Observational study of hydroxychloroquine in hospitalized patients: no support for use outside RCTs

  This *NEJM* article describing 1446 consecutive patients hospitalized at a hospital in New York City. After 70 who were intubated, died or transferred within 24 hours were excluded, 811 received hydroxychloroquine and 565 did not. Patients who received hydroxychloroquine were more likely reach an endpoint of intubation or death (HR 2.37, 95% CI 1.84-3.02), but outcomes were similar after matching for severity by propensity score (HR 1.04, 95% CI 0.82 to 1.32). They conclude that the risk of intubation or death was not significantly higher or lower among patients who received HCQ, but that their results do not support hydroxychloroquine use outside of randomized clinical trials.

- A human monoclonal antibody blocking SARS-CoV-2 infection

  First report of a human monoclonal antibody that neutralizes SARS-CoV-2 in vitro. Applications may include development of antigen detection tests, serological tests and prevention/treatment of COVID-19.

- Lysosomal storage disease might bring new insights on SARS-CoV-2

  The authors propose that the lysosomotropic effects of HCQ and several other drugs may be responsible for their in vitro antiviral activities against COVID-19. Pharmacological interventions targeting lysosomal function constitute plausible mechanisms that could be used to target COVID-19.

- Antipsychotic medication chlorpromazine inhibits replication of SARS-CoV-2

  The antiviral activity of chlorpromazine (CPZ) is mainly associated to inhibition of clathrin-mediated endocytosis (15–18), via translocation of clathrin and AP2 from the cell surface to intracellular endosomes. This in vitro study of CPZ antiviral activity against SARS-CoV-2 in monkey and human cells supports the repurposing of CPZ.

- Avoid hydroxychloroquine in COVID-19-infected patients with schizophrenia

  HCQ is known to cause a spectrum of psychiatric adverse effects. Treating physician should collaborate with the treating psychiatrist to closely monitor for any exacerbations in psychiatric symptoms and should minimize cardiac risk by switching antipsychotic medication with a high risk of QTc prolongation to a safer agent.

- Plant-derived alkaloids and terpenoids as potential protease inhibitors

  Using silico/computational approach, twenty African plant-derived alkaloids and terpenoids were identified with high binding affinities to the SARS-CoV-2 and SARS-CoV 3-chymotrypsin-like protease.

- Useful output from respiratory syncytial virus vaccine engineering

A stabilized form of the respiratory syncytial virus (RSV) fusion (F) protein has been explored as a vaccine to prevent viral infection because it presents several potent neutralizing epitopes. This method could be used to optimize interventions for COVID19.

- GSK to begin a trial with experimental drug to treat pneumonia related to COVID-19

  GlaxoSmithKline found that otilimab, an experimental rheumatoid arthritis drug, could possibly ease the devastating effect of the virus on the lungs but not suppress it directly. The randomized trial will enroll 800 people.

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

  Treatment trials: Immunophenotyping assessment; Vagus nerve stimulation ARDS prevention; Evaluation of clinical parameters with ACE-I and CCB; IMU-838 as additional choice; Dialyzable leukocyte extract effects; BCG vaccination for health-professionals; Pregnant Population Risk; Volatile organic compounds; Geriatric Population; National survey of nonaffected carriers (CON-VINCE); Dialysis in ESKD; Effector and regulator TCRs; Hydroxychloroquine v placebo; Interleukin-7 (CYT107) in lymphopenic patients; ICU-acquired MDR bacteria; Behavioral nudges to hand hygiene; LEAF-4L6715/LEAF-4L7520 Trans Crocetin; Enoxaparin anticoagulation; ICU risk factor characterization; Social media survey; Low-dose Chest CT; Cardiac and Lung Ultrasound; Online Support group for anxiety; Platelet count, platelet, mean platelet volume, platelet distribution width; DeltaRex-G Gene Therapy; Hydrogen oxygen generator with Nebulizer; Rintatolimod and IFN Alfa-2b; Psycho-social Impact (COM-COVID) survey; Mortality and morbidity in critically ill; Food insecurity Austin, TX; Pediatric neurologic manifestations; Robot assisted percutaneous cardiovascular intervention; Polypharmacy adverse events simulation in adults; Infection in HIV and/or PrEP patients; Pre-Operation screening with RT-PCR and Chest CT; Therapist guided E-Therapy efficacy on psychological distress; Mindfulness Training for seniors; Longitudinal psychological distress survey in Canada. At time of writing, a total of 1242 were active, 61 completed, and 3 posted results.

Other Science

- Virus can persist on surfaces up to 1 month, stays in unventilated spaces for 30 minutes

  A literature review showed that persistence time of the virus on inanimate surfaces varied from minutes to up to one month. SARS-CoV-2 can be sustained in air in closed unventilated buses for at least 30 min without losing infectivity. Viruses in respiratory or fecal specimens can maintain infectivity for extended time in ambient conditions. Absorbent materials like cotton are safer than unabsorbent materials for protection. The risk of transmission via touching contaminated paper is low.

- COVID-19 virus can persist on surfaces for at least 3 days

  The literature review showed that the virus can reach surfaces in the form of an aerosol. Therefore, with nebulization happening (sneezing or coughing) or electromedical machinery, infection via surfaces should be considered. Different coronaviruses persist in an infectious state on surfaces for several days, even up to nine. Surface disinfection could be performed with 0.1% sodium hypochlorite or 62%–71% ethanol for 1 minute. Copper was shown to have antiviral properties against SARS-CoV-2.

- Sickle cell patients without co-morbidities recover from COVID-19

  A cohort study of 10 sickle cell patients that tested positive for the virus showed presenting features included vaso-occlusive crises, fever, dry cough, and hypoxaemia. Patients did not develop coagulopathy or thrombocytopenia. No patient required ICU admission, mechanical ventilation or non-invasive ventilation. There were no cases of thrombosis or bleeding, superimposed bacterial infection or macrophage activation syndrome.

- Clinical characteristics and outcomes of infected cancer patient during the pandemic

  A retrospective study of moderate (n=33) and severe/critical(n=19) cancer patients. Lung cancer was the most frequent cancer type (10, 19.2%). Median levels of D-dimer, C-reactive protein, procalcitonin, lactate dehydrogenase, and interleukin 6 increased significantly in severe/critical patients compared to the mild patients. Complications were observed in 29(55.8%) patients, such as liver injury (19, 36.5%), ARDS (9, 17.3%), sepsis (8, 15.4%), myocardial injury (8, 15.4%), renal insufficiency (4, 7.7%), and multiple organ dysfunction syndrome (MODS) (3, 5.8%).

- High risk of thrombosis in severe patients

  In this study, 64 clinically thrombotic complications were diagnosed in 150 patients. 28/29 patients (96.6%) receiving

continuous renal replacement therapy experienced circuit clotting. Von Willebrand (vWF) activity, vWF antigen and FVIII were considerably increased, and 50/57 tested patients (87.7%) had positive lupus anticoagulant. Comparison of ARDS patients showed that patients who tested positive for the virus (n=77) developed significantly more thrombotic complications than negative patients (n=145) (11.7 vs. 2.1%, $p < 0.008$).

- Olfactory Dysfunction observed in up to 80% of patients with COVID-19: review

  A comprehensive literature review shows olfactory dysfunction (OD) is frequently accompanied by taste dysfunction. Up to 25% of COVID-19 patients may experience sudden-onset OD as the first symptom. A large proportion of cases may resolve after a few weeks. The authors suggest isolated sudden-onset anosmia without nasal congestion or flu-like symptoms may identify up to 25% COVID-19 patients at the earliest clinical stages of the disease and should be used to screen for asymptomatic carriers.

- Differentiating COVID-19 pneumonia from ARDS and high-altitude pulmonary edema

  Unlike in ARDS, patients with COVID-19 often display little breathlessness, despite profound hypoxemia, a presentation euphemistically referred to as “happy hypoxemia”, also, lung compliance is well preserved. Profound hypoxemia is associated with a large intrapulmonary shunt in COVID-19, and the benefits of prone ventilation are larger than for typical ARDS. Recently, HAPE (High Altitude Pulmonary Edema) physiology was proposed to explain the edema and hypoxemia in COVID-19 pneumonia. The differentiation between HAPE and impaired HPV as critical therapeutic implications. The HAPE hypothesis includes a proposal to inhibit HPV using acetazolamide, CCBs or phosphodiesterase-5 inhibitors. However, the authors predict that these drugs would exacerbate hypoxemia in COVID-19 pneumonia.

- Hypothesis: Sacubitril/valsartan in COVID-19 patients can be adapted

  The authors hypothesize the possibility of early adoption of sacubitril/valsartan in patients with COVID-19, to maximize the anti-inflammatory effects of an enhanced natriuretic peptide system and contain the effects of angio-tensin II.

- Blood thinners might boost survival chances of sickest COVID-19 patients

  Journal of the American College of Cardiology: The authors from report the results of a retrospective study to evaluate the effect of treatment-dose systemic anticoagulants (AC) on in-hospital mortality of 2,773 patients hospitalized with laboratory confirmed COVID-19. In patients who required mechanical ventilation (N=395), in-hospital mortality was 29.1% with a median survival of 21 days for those treated with AC as compared to 62.7% with a median survival of 9 days in patients who did not receive AC.

- Mouse model sheds light on antiviral therapeutics, vaccines, and pathogenesis of COVID-19

  Nature: The authors infected transgenic mice bearing human ACE2 with SARS-CoV-2 to study the viral pathogenicity. Weight loss and virus replication in lung were observed in hACE2 mice infected with SARS-CoV-2. Typical histopathology was interstitial pneumonia with macrophage and lymphocyte infiltration into the interstitium and accumulation of macrophages in alveoli. Viral antigens were observed in the bronchial epithelial cells, macrophages and alveolar epithelia. The phenomenon was not found in wild-type mice with SARS-CoV-2 infection.

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