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GW COVID-19 Intelligence Reports

GW Covid-19 Collection

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The national picture for COVID-19 is worsening with widespread and unchecked community spread:

- D.C. is faring slightly better than most of the rest of the U.S., but [trends](#) are upward vs. peaking for cases, hospitalizations, and deaths in the District. Especially in the next few days, beware the [Thanksgiving Mirage](#) which will likely occur due to inconsistent holiday data collection.
- The District remains in Phase II for now but is issuing [modifications](#) on 25NOV which restrict the capacity for gatherings to <10 indoor and <25 outdoors. [Hospital bed occupancy is at ~80%, ICU bed occupancy is at 82%, and ventilator utilization is at ~40% of normal standard of care capacity.](#)
- A national analysis of ED visits by syndrome is showing an [increasing trend](#) in shortness of breath (□2%) and coronavirus-like illness cases (□3%) in the past two months
- A high level of concern is present about the impact that Thanksgiving travel and gatherings may present. The [experience with Canadian Thanksgiving](#) suggests that these fears are well founded.
- A recent publication backing the interactive real-time [COVID-19 Event Risk Assessment Planning Tool](#) website established that the risk of transmission during gatherings is heterogeneous in the U.S. depending on size of gathering and geography. For example, a 10-person gathering this week in some areas of the Midwest has a >90% risk of having at least one COVID-positive person present.

Vaccines are the top news stories this month with foci on their high efficacy in phase III trials, and the extraordinary logistical requirements to effectively distribute and dispense them:

- Unpublished reports from initial phase III analyses for three candidate vaccines (Pfizer, Moderna, and AstraZeneca) are demonstrating up to 95% efficacy, but [full details on safety and efficacy are forthcoming](#). These will likely be reviewed expeditiously for FDA Emergency Use Authorization approval.
- The [cold chain requirements](#) for the Pfizer and Moderna vaccines will present an epic challenge and limit the possibilities for distribution to remote areas. The AstraZeneca product, however, only requires 36-46□ F temperatures for safe storage and will likely be the go-to product for underserved and under-resourced regions of the globe for that reason.
- The social ramifications of mass vaccination will be hotly discussed in the coming weeks as [employers struggle with the decision to make vaccination mandatory, priorities for vaccination](#) are finalized, and great uncertainties remain about the [public uptake of a pandemic vaccine](#).
- It is highly likely that the ~20M healthcare workers in the U.S. will be prioritized for the earliest tranches of vaccinations, along with other higher risk groups such as adults >65 (~50M), other essential workers (~60M), and those with complex medical conditions (>100M)
- If there was any question whether childhood vaccines are the mechanism providing an advantage for children against COVID-19, the answer is likely no, as [no cross-reacting antibodies were detectable in recently immunized pediatric patients](#).
- A [NEJM article](#) discusses using “no-fault compensation [for vaccine injury]” to increase some of the risks for those potential administering the therapy, and to improve equitable access

Additional studies are better defining the epidemiology, risk factors, and morbidity of COVID-19:

- The CDC updated its guidance for Risk Assessment and Work Restrictions for Healthcare Personnel [defining “prolonged close contact”](#) from 15 minutes to any cumulative 15 minutes in a 24-hour period
- [Body Mass Index correlates with the risk of intubation or death](#), up to a relative risk of 1.6 for those with class 3 obesity

- [Patients with left ventricular dysfunction are likely at an increased risk](#) of infection or death
- In light of the recent reports of the zoonotic spread of COVID from minks to humans, and given the millions of COVID-19 cases worldwide and ongoing potential for further zoonotic and anthroponotic viral transmission, further research and surveillance activities are needed to definitively determine the [role of animals in community transmission of SARS-CoV-2](#)
- [Persistent fatigue](#) during recovery is common (~52% at 10 weeks) and independent of severity of initial infection
- A [case series](#) of sailors on the U.S.S. Theodore Roosevelt showed that a quarter of the crew of ~5000 became infected, *50% asymptotically*, with 23 hospitalizations, 4 serious (ICU) cases, and 1 fatality
- [One healthcare system's experience](#) showed that of 1648 COVID-19 patients admitted to 38 hospitals, 24% died during hospitalization and 76% survived. Of 1250 patients discharged alive, 78% went home whereas 12.6% were discharged to rehabilitation. By 60 days after discharge, an additional 84 patients (6.7% of hospital survivors and 10.4% of ICU-treated hospital survivors) had died, *bringing the overall mortality rate for the cohort to 29.2%, and 63.5% for the 405 patients who received treatment in an ICU*. Within 60 days of discharge, 189 patients (15.1% of hospital survivors) were rehospitalized.
- Ongoing surveillance for and epidemiologic monitoring of SARS-CoV-2 genetic diversity for significant variants will be important in the coming months. For example, the "[Spike 839Y variant](#)" spread rapidly in April in Portugal and has been detected in dozens of other countries, with yet-unknown impact.
- A case series from MGH in Boston [did not demonstrate increased risk of COVID-19 infection in patients receiving corticosteroid therapy](#), a practice some other researchers had [recommended against](#).
- A study from Wuhan demonstrated the power of [quarantine as a tool to reduce community spread](#) by 99% when it is effectively implemented
- As previously reported, there is a growing body of evidence to suggest the [risk caused by aerosol transmission of COVID-19 is significantly lower than the risk caused by close contact](#), although there is no question that genetic information from SARS-CoV-2 [can be recovered from HVAC systems](#), suggesting that the virus is likely able to travel further than close contact.
- [Temperature and humidity patterns](#) such as diurnal temperatures (India), seasonality (Brazil), and humidity (Europe) may be major contributors to regional COVID-19 transmission
- Not surprisingly, a review of NHANES data in the U.S. found that [74% of the population has at least one risk factor for severe COVID-19](#), such as obesity (41%), HTN (50%), with low-income individuals and those with less education typically having more
- In long-haul COVID-19 patients, [6% still have pulmonary function abnormality 3 months after discharge](#), which did not vary by disease severity during hospitalization, and 86% patients had long-term abnormalities on chest CT
- A non-peer reviewed study suggests the presence of long-term (>6 months) [immunologic memory after infection](#), which is great news for the potential of herd immunity

Pediatric and Obstetric information continues to evolve:

- A study involving 250 urban adolescents from New South Wales quantifies what we're all likely feeling- there are [increased anxiety and depressive symptoms, and decreased life satisfaction due to the governmental restrictions](#)
- The University of Nevada found in a [cross-sectional survey of students](#) that a stay-at-home order correlated with increased levels of depression and decreased levels of physical activity
- Similarly, a Japanese study demonstrated a [high prevalence of anhedonia, depression, and anxiety in pregnant and postpartum women](#)
- A small study from Copenhagen found [no increased fetal risk from low-severity COVID-19](#)

[infections during the first trimester](#) of pregnancy

- JAMA Pediatrics published [best practice for breastfeeding mothers during COVID-19](#)- bottom line the benefits outweigh the risks
- A small retrospective cohort study from Wuhan found that COVID-19 [infection is unlikely to cause sterility or hypogonadism](#) in males. Of interest, a study in Italy found [more new cases of precocious puberty in girls](#), potentially attributable to the environment of isolation, including increased BMI and stress.
- The Children's Hospital Association and the American Academy of Pediatrics published a [summary of aggregated state data for pediatric patients](#) from 49 jurisdictions
- In a case series of children ages 4-12 years old in Europe with the MIS-C syndrome, 65% had evidence of past or current COVID-19 infection (lower than other studies) and [93% had cardiac involvement](#) with elevated inflammatory markers—important to screen for this
- Children appear to have not just have chilblain-like cutaneous manifestations of COVID-19 as we have previously reported, but a [new report describes other skin manifestations](#) such as urticaria and erythema multiforme as well. These skin findings are not limited to children, either, based on a meta-analysis of 86 studies of children and adults that found [chilblain-like lesions \(52%\), erythematous maculopapular rashes \(13%\), and viral exanthems \(8%\) are common findings](#), and may be predictive.
- A study from China conducted a systemic review of 32 publications on the [outcomes of COVID-19 n pregnancy](#). Vertical transmission was extremely low for mothers with COVID-19, however premature birth was common at 36%.

Some interesting progress has been made with diagnostics and therapeutics:

- A study conducted in New York indicated that [SARS-CoV-2 genomic load \(viral load\) trends with clinical status](#), and may serve as a predictive tool for patient management
- An RCT with almost 500 hospitalized adults [did not support the use of hydroxychloroquine](#) for treatment of COVID-19
- In a preliminary RCT, adult outpatients with symptomatic COVID-19 treated with fluvoxamine, had a [lower likelihood of clinical deterioration](#) over 15 days
- The FDA issued [EUA use guidelines for bamlanivimab](#) for the treatment of COVID-19
- [Point of care ultrasound](#) showed the ability to monitor the evolution of severe COVID-19 pneumonia after discharge, supporting its integration in predictive models of residual lung injury
- As part of the hyper-inflammatory state of some COVID-19 infections, there is likely an [increased susceptibility to systemic thromboembolic complications](#), suggesting a role for thromboembolism prophylaxis. Another study highlighted that [anticoagulation plans should be personalized](#) according to risk and disease course. Lastly, a small Mayo Clinic case-control study of post-mortem COVID-19 patients found COVID-19 patients were [significantly more likely to have fibrin microthrombi](#).
- Also from Mayo, a meta-analysis and consensus report that [anticoagulation provided no mortality benefit over thromboprophylaxis, independent of co-morbidities or disease severity](#). More adverse events were observed with therapeutic AC.
- GW investigators reported a retrospective analysis of 400 hospitalized COVID patients demonstrated that [therapeutic anticoagulation provided no mortality benefit over thromboprophylaxis](#), independent of co-morbidities or disease severity, with greater risk of adverse events
- A very interesting modeling analysis explored the use of the [U.S. Postal Service as an avenue for testing](#). >94% of Americans could travel less than 7 miles to a post office facility for COVID-19 testing in a scenario that would provide consistency and ease of and access to testing
- A retrospective study of 4000 ICU patients in the U.S. revealed an estimated 30-day mortality of 27.5% in [patients treated with tocilizumab](#), compared to 37.1% in patients without tocilizumab, suggesting the

drug's benefit in treatment of critically ill COVID-19 patients. Other studies have found [less convincing results with regard to 30-day mortality](#).

- [Rintatolimod may be useful](#) as a potential therapeutic agent in patients with COVID-19 "long-hauler" post-viral syndrome to reduce lingering brain-fog and fatigue based on phase III research in patient with chronic fatigue syndrome
- [How predictive is RT-PCR testing](#) during the evolution of COVID-19 illness in the symptomatic patient? A 32-study systematic review found the highest rate of virus detection (89%) in the first 4 days, dropping to 54% after 10 days.
- The [discussion on remdesivir continues](#)- this review article describes a better 14-day mortality profile, clinical recovery, and discharge rate on the medication. Overall clinical improvement and clinical recovery were earlier among the treated group, but longer-course therapy showed more adverse outcomes a than 5-day course with no significant benefits
- Duke University produced a [surgical clinical decision support tool](#) which considers urgency of proposed surgical procedures, and the need for ICU space, ventilator support, and recovery in an SNF
- Because you were wondering, [polyester swabs had decreased performance compared to foam](#) swabs during nasal COVID-19 testing

Some additional highlights:

- [Where do all the other sick people go during a pandemic?](#) A recent study at the Stanford and Cornell health care systems analyzed the presentation rates for five emergencies and found decreased incidence of acute myocardial infarction, non-traumatic subarachnoid hemorrhage, and ischemic stroke cases in both centers, a decrease in appendicitis cases in New York, and no changes in ectopic pregnancy cases at either center
- In cold climates, forehead temperatures upon entering a facility where temperature screening takes place may take up to one hour to stabilize. As such, in many geographic regions, [temperature screening is likely of limited value](#). Act surprised.
- A recent academic presentation at the virtual American College of Emergency Physicians conference reported that [N95 masks may start to fail after two shifts](#)
- The WHO has updated its [technical guidelines for PPE use](#) in COVID-19, unfortunately without “track changes or updates” information that would greatly increase the utility of this document
- [Cellphone metadata](#) is useful for tracking the spread of COVID-19, explaining inequities, and informing reopening in a Stanford University report
- Dr. Fauci et al wrote a commentary on the urgent need for [early treatment options](#) for COVID-19
- In an interesting [analysis on the quality of literature](#), a “case control” Swiss study compared 155 COVID-19 related publications in NEJM, Lancet, and JAMA and found that pandemic literature had lower levels of evidence and less favorable quality scores

This edition of the COVID-19 Intelligence Report was produced by [Dr. Andy Garrett](#) with support from the Himmelfarb Librarian team and the entire GW Intelligence Unit led by Dr. Lawrence “Bopper” Deyton.

Feedback and any special requests should go to: ldeyton@gwu.edu. Stay safe and informed. For past editions of the GW Intelligence Report, please visit the [Himmelfarb library site](#).

