

Himmelfarb Health Sciences Library, The George Washington University

Health Sciences Research Commons

GW COVID-19 Intelligence Reports

GW Covid-19 Collection

9-28-2020

GW Covid-19 Intelligence Reports: September 28, 2020

George Washington University

Follow this and additional works at: <https://hsrc.himmelfarb.gwu.edu/intelligencereports>

RAISE HIGH&BE PROUD! Here are nearly 100 COVID-19 publications from GW faculty.

Epidemiology/Transmission

An up-to-date review of viral, host, and environmental factors for transmission of SARS-CoV-2 shows respiratory transmission is dominant and fomite transmission is unusual.

Brigham and Women's Hospital released information about a COVID-19 cluster in their institution. Infection Control investigation found that these may be contributing factors:

- Many patients were not masked during clinical care/interactions with staff
- Providers were inconsistent in their use of eye protection during patient encounters
- The first patient who tested positive had received an aerosol generating procedure prior to the positive test result
- A staff member with mild symptoms, consistent with historical seasonal allergies, did not appreciate those symptoms as potentially related to COVID-19 and continued to work
- Lack of physical distancing among staff while unmasked while eating

COVID-19 re-infection has been proven by a phylogenetically distinct SARS-coronavirus-2 strain confirmed by whole genome sequencing. This gives rise to concern that SARS-CoV-2 may continue to circulate among the human populations despite herd immunity due to natural infection or vaccination.

A study evaluating COVID-19 in homeless shelters found symptomatic and asymptomatic cases suggesting the need for routine viral testing outside of clinical settings for homeless populations.

Outbreak of COVID-19 in a nursing home associated with aerosol transmission as a result of inadequate ventilation.

Variolation* could be a welcome, unexpected benefit of universal facial masking.

*_Variolation was a process whereby people who were susceptible to smallpox were inoculated with material taken from a vesicle of a person with smallpox, with the intent of causing a mild infection and subsequent immunity.

COVID-19 transmission to health care providers (HCP) was associated with medical exposures currently considered lower-risk and multiple extra-occupational exposures, while exposures associated with proper use of appropriate PPE were protective.

HCP transmission was associated with non-aerosol-generating contact with COVID-19 patients (OR 1.4) and extra-occupational exposures including gatherings of ten or more, patronizing restaurants or bars, and public transportation (ORs 3.1-16.2). Respirator use during aerosol-generating procedures was associated with lower odds of HCP infection (OR 0.4), as was exposure to intensive care and dedicated COVID units, negative pressure rooms, and personal protective equipment (PPE) observers (ORs 0.4-0.7).

Evaluation of hazardous air pollutant exposure as a contributing factor to COVID-19 mortality in the US found that an increase in the respiratory hazard index is associated with a 9% increase in COVID-19 mortality.

Testing

Evaluation of rapid testing studies needs further evaluation based on clinical outcomes as most reports are based on remnant laboratory samples. Antigen testing was highly variable with average sensitivity of 56.2% and specificity of 99.5%. Rapid molecular assays had an average sensitivity of 95.2% and specificity of 98.9%.

The Rockefeller Foundation [report](#) proposes strategies on the effective use of innovative, large-scale COVID testing with a focus on tailoring to local circumstances and risk tolerances.

A comparison of [saliva and oro-nasopharyngeal swab](#) found saliva samples were acceptable for use in COVID testing. The sensitivity and positive predictive value of saliva samples were 85.2%, specificity and negative predictive value were 89.2%

OBGYN

A study evaluating [COVID-19 in breastmilk](#) found that breast milk may not be a source of infection.

[CDC report](#) of 598 hospitalized pregnant women with COVID-19: 55% were asymptomatic at admission and that severe illness among symptomatic pregnant women resulted in ICU admissions (16%), mechanical ventilation (8%), and death (1%). Pregnancy losses occurred for 2% of pregnancies. Another [CDC report](#) found higher prevalence of pre-pregnancy obesity and gestational diabetes among pregnant women hospitalized for COVID-19–related illness.

Internal Medicine

Massachusetts General Hospital researchers developed the [COVID-19 Acuity Score \(CoVA\)](#), which predicts hospital admission, critical illness or death within seven days.

WHO update [on long-term effects of COVID-19](#) includes data on cardiovascular, pulmonary, brain and nervous system, mental health and musculoskeletal complications.

Evaluation of [SARS-CoV-2 in persons with HIV](#) infection found the risk for poor outcomes was higher in those with comorbidities (older age, chronic lung disease and hypertension) and lower CD4 cell count (<200 cells/mm³).

[Young adults](#) (18 to 34 years) hospitalized with COVID-19 experienced substantial rates of adverse outcomes: 21% required intensive care, 10% required mechanical ventilation, and 2.7% died. Morbid obesity, hypertension, and diabetes were common and associated with greater risks of adverse events. More than half of patients requiring hospitalization were Black or Hispanic.

The risk factors which predict higher overall mortality among patients with [chronic liver disease and COVID-19](#) were alcohol-related liver disease, decompensated cirrhosis, and hepatocellular carcinoma.

[SREBP-2](#) (sterol regulatory element binding protein-2) is a possible indicator for severity diagnosis and potential therapeutic target for preventing cytokine storm and lung damage.

Cardiology

Several studies have documented SARS CoV-2 myocardial damage: [MRIs of recently recovered patients](#) found cardiac involvement in 78% of patients and ongoing myocardial inflammation in 60%, independent of preexisting conditions, severity and overall course of the acute illness.

Another found [infection of iPSC-derived cardiac cells](#) with disruption of structural proteins.

In-hospital mortality was more than 3 times higher in [COVID-19 positive ACS patients](#) than in COVID-19 negative ACS patients. Importantly, 75% deceased COVID-19 positive ACS patients had involvement of multiple organ systems in addition to cardiac manifestations, thus indicating a systemic vascular damage.

Neurology

Review of [neurological complications of COVID-19](#).

A literature review of [stroke and COVID-19](#) found large vessel occlusion was twice as frequent (46.9%) as previously reported and was high across all age groups, even in the absence of risk factors or comorbidities.

Case report of 3 patients without previous neurologic or autoimmune disorders who were diagnosed with [myasthenia gravis](#) after the onset of COVID-19 and one report of [acute transverse myelitis in COVID-19](#) infection.

Pediatrics

A [Korean study of COVID-19 in children](#) found symptom screening failed to identify most COVID-19 cases in children, and SARS-CoV-2 RNA in children is detected for a long time (mean of 17.6 days).

CDC report on [SARS-CoV-2 Infections among young children](#) acquired in child care settings found transmission to their household members. Transmission was observed from two of three children with confirmed, asymptomatic COVID-19.

Among 121 SARS-CoV-2–associated deaths among [persons aged <21 years reported to CDC](#) by July 31, 2020, 10% were infants and 70% were aged 10–20 years. Hispanic, non-Hispanic Black and non-Hispanic American Indian/Alaskan Native persons accounted for 78% of these deaths; 33% of deaths occurred outside of a hospital.

Treatment

Updated Infectious Diseases Society of America Guidelines on the Treatment and Management of Patients with COVID-19. Updates include: [new recommendation on the use of remdesivir in patients with more moderate disease](#), revised and new [recommendations for the use of dexamethasone](#) and a revised [recommendation against the routine use of tocilizumab](#).

Evaluation of data synthesized from all RCTs available on [remdesivir](#) found both 10-day and 5-day remdesivir regimens were associated with higher odds of clinical improvement compared with placebo. But a [study of patients hospitalized with moderate COVID-19 pneumonia](#), patients randomized to a 5-day course, but not a 10 day course, of remdesivir had a statistically significant better clinical status compared with standard care.

Administration of [systemic corticosteroids](#) (hydrocortisone, methylprednisolone, or dexamethasone), compared with usual care or placebo, was associated with lower 28-day all-cause mortality in critically ill patients with COVID-19. The WHO published [Corticosteroid guidelines](#).

Studies have looked at sofosbuvir and daclatasvir as a potential treatment. One [randomized controlled trial](#) showed significant decrease in duration of hospital stay (6 days vs. 8 days). Another which looked at [sofosbuvir/daclatasvir plus ribavirin](#), showed no difference in number or deaths but did show higher incidence of recovery. It is important to note that both had a very small patient population and larger studies are needed.

Thymosin drugs had no significant effect on the prevention of COVID-19 before and after exposure for medical staff and had increased adverse drug reactions.

In preliminary findings from a RCT, rhG-CSF treatment for patients with COVID-19 with lymphopenia but no comorbidities did not accelerate clinical improvement, but the number of patients developing critical illness or dying may have been reduced.

In COVID-19 patients with prolonged PCR positivity, no benefit was seen on the duration of viral shedding with the combined treatment of leflunomide and IFN α -2a beyond IFN α -2a alone.

Vaccine/Immunity

Initial reports on the Russian (heterologous rAd26 and rAd5 vector-based) COVID-19 vaccine note a good safety profile. It was also reported to have induced strong humoral and cellular immune responses in participants.

In a phase 1/2 trial, at 35 days, NVX-CoV2373 (Noravax) appeared to be safe (no serious adverse events), and elicited immune responses that exceeded levels in Covid-19 convalescent serum.

In a phase 1 trial, after the second vaccination, the mRNA-1273 vaccine (Moderna) induced anti-SARS-CoV-2 immune responses in all participants, and no trial-limiting safety concerns were identified.

Longitudinal evaluation and decline of antibody response: Neutralizing antibody (nAb) response was detected in >95% of cases. The magnitude of the nAb response was dependent upon the disease severity, but not the kinetics. Declining nAb titers were observed at 3-4 months

Health Systems and Policy

Shift arrangement of medical staff are associated with the mortality of critically ill patients with COVID-19. Recommendations are to change to allow for more sleep and longer continuity of care which were associated with reduction of mortality from 77.8% to 36.7%.

NIH COVID-19 Treatment Guidelines Panel's Statement on the Emergency Use Authorization of Convalescent Plasma for the Treatment of COVID-19.

This report was produced by Sara Feeley, PA-C, Himmelfarb Reference Librarians and the GW Covid-19 Intelligence Unit. If you have a question that the Intelligence Unit can assist you with, or if you would like to provide suggestions or feedback, please email Dr. Lawrence Deyton, lead for the Intelligence at LDeyton@gwu.edu.

NOTE: Intelligence Reports will be issued monthly with Special Intelligence Reports issued on topics of immediate interest on an as needed basis. Interim updates are available – see Dr. Hana Akselrod's Department of Medicine weekly Infectious Disease Update available on the GW Covid-19 Intelligence Reports webpage at <https://guides.himmelfarb.gwu.edu/SituationReport>

Searchable GW Covid-19 resources can be found through the following links:

GW Covid-19 Research Guide: <https://guides.himmelfarb.gwu.edu/covid-19>

GW Covid-19 Intelligence Reports: <https://guides.himmelfarb.gwu.edu/SituationReport>