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GW Covid-19 Intelligence Reports: May 11, 2020

George Washington University

GW COVID-19 Intelligence Report

May 11-17, 2020

Prepared by the GW COVID-19 Intelligence Unit

Searchable GW 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

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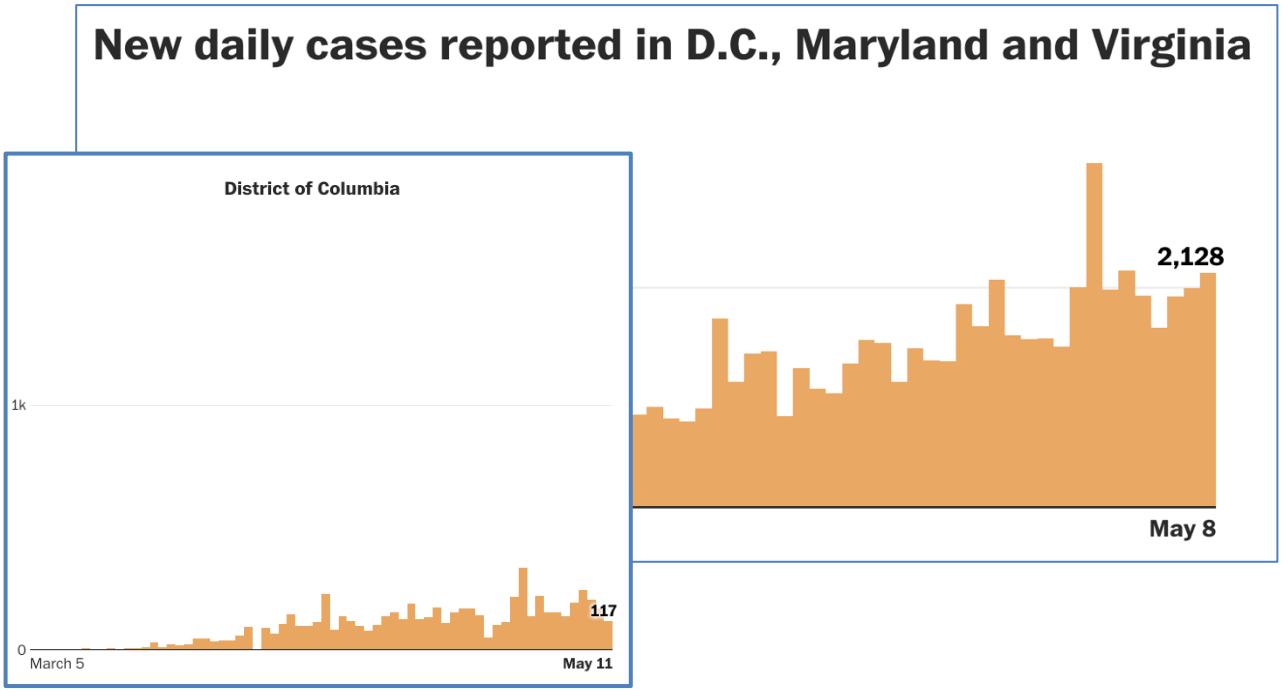

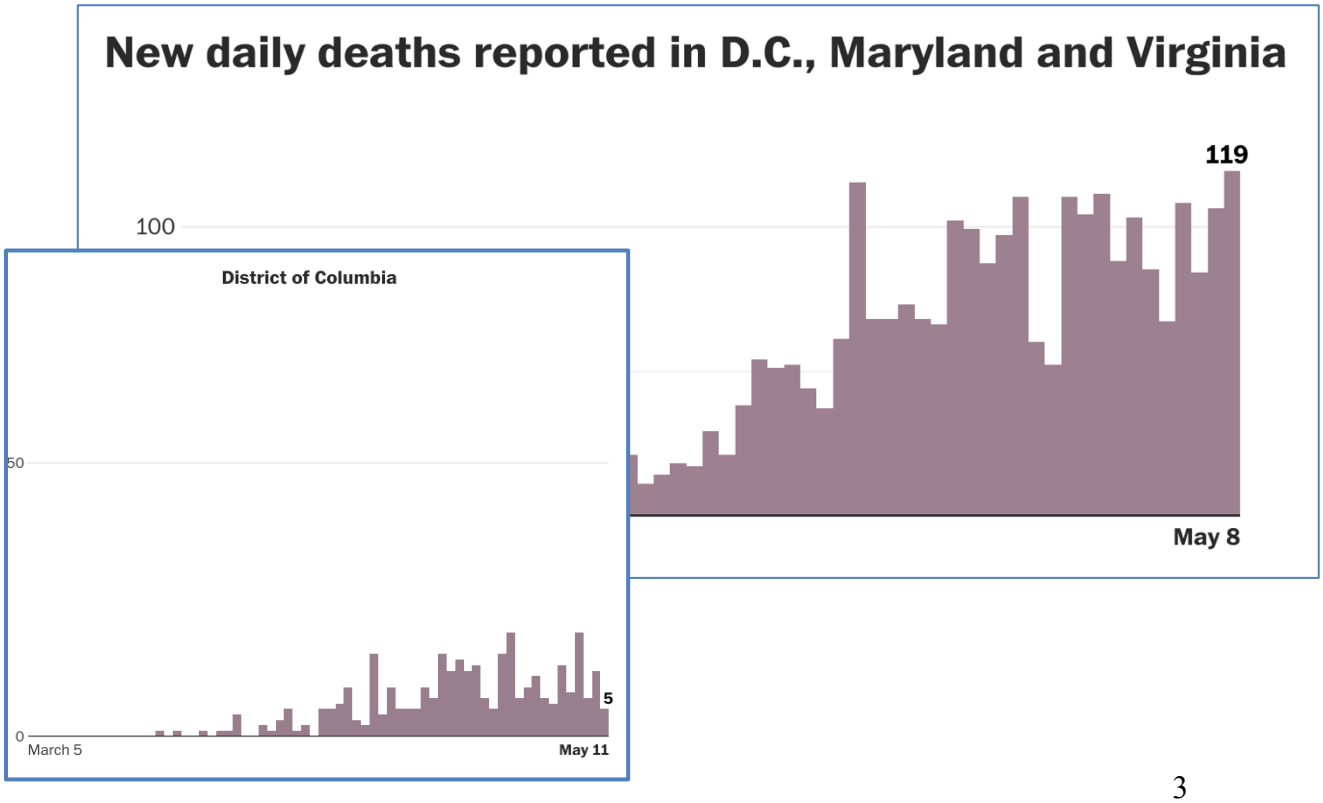

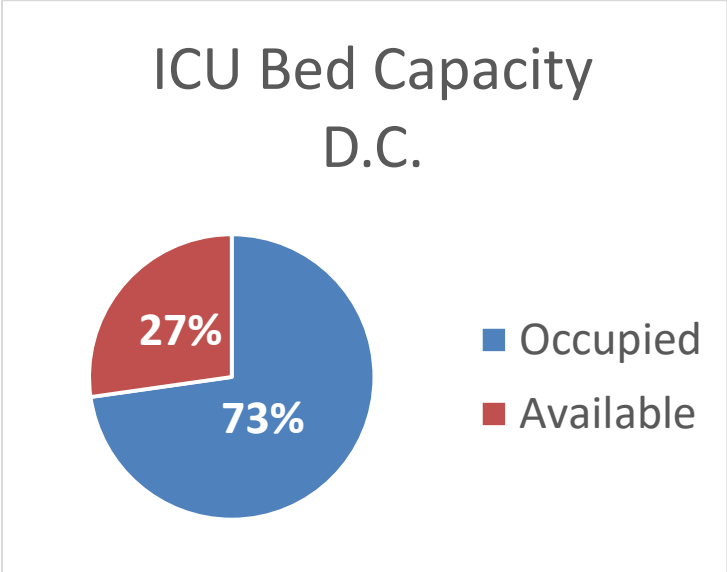

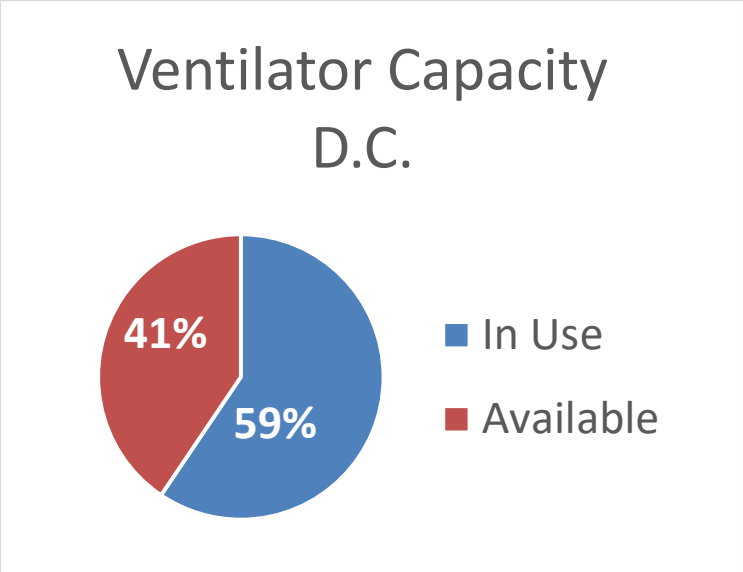

Regional Dashboards and Data Sources:

Washington Post (DC, MD, and VA):
https://www.washingtonpost.com/graphics/local/dc-maryland-virginia-coronavirus-cases/

D.C. Hospital Status Data:
https://coronavirus.dc.gov/page/hospital-status-data

Virginia Hospital and Healthcare Association (VA):
https://www.vhha.com/communications/virginia-hospital-covid-19-data-dashboard/

Maryland Emergency Management Agency (MD):
https://coronavirus.maryland.gov/datasets/md-covid-19-data-dashboard

Johns Hopkins (National):
https://systems.jhu.edu/research/public-health/ncov/

Mass General COVID-19 Symptom Study (National):
https://covid.joinzoe.com/us/data

NPR COVID-19 Daily Testing Rates and Positive Test Ratios (State and National):
https://www.npr.org/sections/health-shots/2020/05/07/851610771/u-s-coronavirus-testing-still-falls-short-hows-your-state-doing

HIGHLIGHTS THIS WEEK

- The great national experiment begins as **most of the states in the Union are taking steps to reopen after many weeks of social distancing**. Some are doing so against the recommendations from the CDC:
    - D.C. and Virginia remain under stay at home order with heavy restrictions in place for business.
    - Maryland schools will remain closed through the end of the academic year and a stay at home order remains in place.
- Knowledge about **clinical care** of patients with Covid-19 disease continue to evolve:
    - **Coagulopathy** seems to be common in ICU patients admitted with COVID-**59% of patients experienced thromboembolism in the first 21 days**.
    - Deep vein thromboses (DVT) were also found in autopsies of COVID patients who did not have signs or symptoms of DVT.
    - In another study, **patients who received anticoagulation therapy fared better than those who did not**.
    - A May 8th observational study from nearly 1500 patients in NYC in the New England Journal **did not find hydroxychloroquine to be effective in the treatment of ICU patients with COVID**.
    - **Convalescent plasma appears to be safe, clinically effective, and reduced mortality** in five observational studies of COVID patients.
- There is a **growing concern over a rise in cases of Kawasaki Disease-like illness appearing in pediatric patients** that merits close monitoring. We reviewed a health alert from the UK on this topic last week, and this week both NYC and DC have released health advisories to clinicians. The association to COVID is remains unclear at this time.
- A **study on the re-use of N95 mask decontamination found that steam, heat, and UV light impacted mask performance the least**, while alcohol and chlorine treatment caused a significant reduction in filtration. An additional study demonstrated that **in the outpatient setting N95 and surgical masks had equal effectiveness**. Yet another study determined that **UV decontamination of N95 masks left much to be desired,** with incomplete decontamination being the main issue.
- The role of **social determinants of health and their impact on COVID** was highlighted in a study that demonstrated that residents of the Bronx had higher rates of hospitalization than those in Manhattan.

CLINICAL KNOWLEDGE

Diagnostics

Title: Society of Cardiovascular Computed Tomography guidance for use of cardiac computed tomography amidst the COVID-19 pandemic
Author affiliated with GW
Publisher: Journal of Cardiovascular Computed Tomography
Publication Date: 21 March 2020
URL: https://www.journalofcardiovasculart.com/article/S1934-5925(20)30125-8/fulltext
DOI: https://doi.org/10.1016/j.jcct.2020.03.002
Key Takeaways: The Society of Cardiovascular Computed Tomography offers **recommendations for cardiac imaging amidst the COVID-19 pandemic** and information on determining the optimal timing of outpatient and inpatient heart imaging exams.

Therapeutics

Title: Observational Study of Hydroxychloroquine in Hospitalized Patients with COVID-19
Publisher: New England Journal of Medicine
Publication Date: May 8 2020
URL: https://www.nejm.org/doi/full/10.1056/NEJMoa2012410
Key Takeaways: In an observational study, **hydroxychloroquine administration was not associated with either a greatly lowered or an increased risk of the composite end point of intubation or death**.

Title: Association of Treatment Dose Anticoagulation with In-Hospital Survival Among Hospitalized Patients with COVID-19
Publisher: Journal of the American College of Cardiology
Publication Date: May 2020
URL: http://www.onlinejacc.org/content/early/2020/05/05/j.jacc.2020.05.001
Key Takeaways: A case series of 2773 COVID patients at five NYC hospitals were studied to determine if anticoagulation therapy affected survival. The **mortality rate of ICU patients receiving anticoagulation was 29% compared to 63% in those not anticoagulated**. Of those who died, anticoagulated patients survived significantly longer.

Title: How to Prescribe Controlled Substances to Patients During the COVID-19 Public Health Emergency
Publisher: US Drug Enforcement Administration
Publication Date: algorithm May 5 2020; guidelines March 31, 2020
URL: https://nabp.pharmacy/wp-content/uploads/2020/04/DEA-DC-023DEA075Decision_Tree_Final_33120_2007.pdf
See also: https://www.deadiversion.usdoj.gov/coronavirus.html
Key Takeaways: The Drug Enforcement Administration (DEA) has adopted **policies to allow DEA-registered practitioners to prescribe controlled substances without having to interact in-person with their patients**.

Title: Effectiveness of convalescent plasma therapy in severe COVID-19 patients
Publisher: Proceedings of the National Academy of Sciences of the USA
Publication Date: 28 April 2020
URL: https://www.pnas.org/content/117/17/9490
Key Takeaways: The results from 10 severe adult cases showed that **one dose of convalescent plasma was well tolerated and could significantly increase or maintain the neutralizing antibodies at a high level**. Clinical symptoms and paraclinical criteria rapidly improved, and radiological examination showed varying degrees of absorption of lung lesions. These results indicate that CP can serve as a promising rescue option for severe COVID-19, while a randomized trial is warranted.

Title: Recommendations from the CSO-HNS taskforce on performance of tracheotomy during the COVID-19 pandemic
Publisher: Journal of Otolaryngology - Head & Neck Surgery
Publication Date: 27 April 2020
URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7184547/
doi: 10.1186/s40463-020-00414-9
Key Takeaways: Report stated that **extended endotracheal intubation should be the standard of care for the entire duration of ventilation in the vast majority of patients**. Pre-operative COVID-19 testing is highly recommended for any non-emergent procedure.

Hospitalist and Medical Care

Pulmonary
Title: Renin–Angiotensin–Aldosterone System Blockers and the Risk of Covid-19
Publisher: NEJM
Publication Date: 07 May 2020

URL: https://www.nejm.org/doi/pdf/10.1056/NEJMoa2006923
Key Takeaways: As you saw in last week's Intelligence Report, there has been a debate over the association of ACE inhibitors and increased risk of developing COVID or having a more severe disease course. **This large observational study does not support this theory and supports the safety of using ACE inhibitors in COVID patients**.

Critical Care

Title: Impact of Corticosteroid Therapy on Outcomes of Persons With SARS-CoV-2, SARS-CoV, or MERS-CoV Infection: A Systematic Review and Meta-Analysis
Publisher: Leukemia / Nature
Publication Date: May 5, 2020
URL: https://www.nature.com/articles/s41375-020-0848-3
Key Takeaways: Corticosteroid use in subjects with SARS-CoV-2, SARS-CoV, and MERS-CoV infections delayed virus clearing and did not convincingly improve survival, reduce hospitalization duration or ICU admission rate and/or use of mechanical ventilation. There were several adverse effects. Because of a preponderance of observational studies in the dataset and selection and publication biases the conclusions, especially regarding [steroid use in] SARS-CoV-2, confirmation is needed in a randomized clinical trial. The authors suggest caution using corticosteroids in persons with COVID-19.

Editor's Note: *This remains a debated topic, and a non-peer reviewed article recently demonstrated conflicting information.*

Pediatrics

Title: Health notice for District of Columbia Health Care Providers: Interim Guidance Regarding Pediatric Multi-System Inflammatory Syndrome Possibly Associated with COVID-19
Publisher: District of Columbia Department of Health
Publication Date: 11 May 2020
URL:
https://content.govdelivery.com/attachments/DCWASH/2020/05/11/file_attachments/1448094/COVID_Peds%20Inflamm%20Disease_5-8-2020_FINAL.PDF
Key Takeaway: There is a growing concern over a number of **children in the United States and United Kingdom who have presented with a systemic**

inflammatory disease similar in many ways to Kawasaki's Disease, and thought to perhaps be associated with COVID infection. Some have required significant intensive care, including the one case in the District. Not all children have tested positive for COVID. A standard case definition has been established. **Suspected cases are a mandatory report in the District of Columbia**.

Title: Chilblains-like Lesions in Children Following Suspected Covid-19 Infection
Publisher: Pediatric Dermatology / Wiley
Publication Date: 06 May 2020
URL: https://onlinelibrary.wiley.com/doi/abs/10.1111/pde.14210

Figure 1- 11 yr old female

Key Takeaways: Chilblains are erythrocyanotic macular or papular skin lesions that are typically associated with cold exposure. This case series highlights four children in Italy who presented with chilblain-like skin findings before or upon developing other any symptoms of COVID. **Pediatric patient presenting with skin lesions such as this may need further evaluation for COVID and its associated thromboembolic complications**.

Cardiology

Also see: Society of Cardiovascular Computed Tomography guidance for use of cardiac computed tomography amidst the COVID-19 pandemic

Gastroenterology

Title: New COVID-19 guidance for gastroenterologists
Publisher: American Gastroenterological Association
Publication Date: 04 May 2020
URL: https://www.gastro.org/news/new-covid-19-guidance-for-gastroenterologists
Key Takeaway: GI symptoms might not be as common as originally thought in COVID. Abnormalities in liver function tests, however, should prompt thorough evaluation.

Behavioral Health

Title: Lessons learned from 9/11: Mental health perspectives on the COVID-19 pandemic
Publisher: Psychiatric Research
Publication Date: 15 April 2020
URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7158831/
Key Takeaway: The **COVID-19 pandemic will likely lead to high rates of PTSD, depression, and substance misuse among survivors, victims' families, medical workers, and other essential personnel**. The mental health response to the 9/11 terrorist attacks, culminating in a federally-funded health program, provides a template for how providers may serve affected individuals. Mental health monitoring, early identification of at-risk individuals, and treatment irrespective of financial barriers are essential for minimizing chronic distress.

HEALTH WORKFORCE

Title: The COVID-19 pandemic and healthcare providers: what does it mean psychologically?
Publisher: Advanced Journal of Emergency Medicine
Publication Date: 04 May 2020
URL: http://ajem.tums.ac.ir/index.php/ajem/article/view/419
Key Takeaway: Medical personnel providing services to patients are exposed to increased levels of mental stress. This review article introduces these symptoms based on the experience of previous pandemics and the data available on COVID-19 pandemic, introducing the underlying and protective factors against mental distress. Evidence suggests that levels of stress, depression and anxiety symptoms increase in health care providers, and that options exist to effectively manage them at the individual and organizational level.

Title: Aerodynamic analysis of SARS-CoV-2 in two Wuhan hospitals
Publisher: Nature
Publication Date: 27 April 2020
URL: https://doi.org/10.1038/s41586-020-2271-3
Key Takeaways: Researchers detected COVID RNA in aerosol and surface sampling in two hospitals and various public places in the city of Wuhan. **Although the paper does not establish the infectivity of the virus RNA detected in these hospital areas, they reasonably propose that SARS-CoV-2 may have the potential to be transmitted via aerosols**.

EPIDEMIOLOGY AND PUBLIC HEALTH

Title: Contact Tracing Assessment of COVID-19 Transmission Dynamics in Taiwan and Risk at Different Exposure Periods Before and After Symptom Onset
Publisher: JAMA
Publication Date: 1 May 2020
URL: https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2765641
doi:10.1001/jamainternmed.2020.2020
Key Takeaways: This is a well conducted epidemiological study quantifying the asymptomatic transmissibility of COVID-19. **High transmissibility of COVID-19 before and immediately after symptom onset suggests that finding and isolating symptomatic patients alone may not suffice to interrupt transmission**, and that more generalized measures might be required, such as social distancing.

Title: Characteristics and Clinical Outcomes of Adult Patients Hospitalized with COVID-19 — Georgia, March 2020
Publisher: Morbidity and Mortality Weekly Report (MMWR) / CDC
Publication Date: 29 April 2020
URL: https://www.cdc.gov/mmwr/volumes/69/wr/mm6918e1.htm
Key Takeaways: In a **cohort of 305 hospitalized adults with COVID-19 in Georgia (primarily metropolitan Atlanta), Black patients were overrepresented, and their clinical outcomes were similar to those of non-Black patients**. Prevention activities should prioritize communities and racial groups most affected by severe COVID-19. Increased awareness of the risk for serious illness among all adults, regardless of underlying medical conditions or age, is needed. Additionally, **one in four hospitalized patients had no identified risk factors for COVID-19**.

Title: Obesity could shift severe COVID-19 disease to younger ages
Publisher: The Lancet
Publication Date: 04 May 2020
URL: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31024-2/fulltext
DOI: https://doi.org/10.1016/S0140-6736(20)31024-2
Key Takeaways: In a dataset of five university hospital ICUs that included 265 COVID-positive patients (58% male), a significant **inverse correlation was observed between age and BMI** - younger individuals admitted to hospital were more likely to be obese.

Title: SARS-COV-2 was already spreading in France in late December 2019
Publisher: International Journal of Microbial Agents (Elsevier)
Publication Date: 3 May 2020
URL: https://www.sciencedirect.com/science/article/pii/S0924857920301643
Doi: https://www.sciencedirect.com/science/article/pii/S0924857920301643
Key Takeaways: Retrospective PCR testing has identified that a hospitalized patient with no travel history has been determined to have likely had COVID-19 illness in France in December, 2019. The authors suggest that **COVID-19 was already spreading in France a month before the official first cases in the country** were otherwise reported.

ETHICS

Title: CPR in the COVID-19 Era — An Ethical Framework
Publisher: NEJM
Publication Date: 06 May 2020
URL: https://www.nejm.org/doi/full/10.1056/NEJMp2010758
Key Takeaways: The authors feel that it is important that **clinicians acknowledge resource constraints when discussing goals of care and DNR status with patients**. It may be appropriate to withhold CPR in certain circumstances: 1) if ventilators or critical care beds are not available or patient is not eligible to them due to fair triage process or 2) if the patient's condition is deteriorating significantly despite provision of critical care, or 3) the institution determines that staffing shortages are so severe that the deployment of a typical code team would jeopardize outcomes for other patients.

HEALTH CARE FACILITIES and SYSTEMS

Title: Can N95 Respirators be Reused after Disinfection? How Many Times?
Publication: ACS Nano
Publication Date: 05 May 2020
URL: https://pubs.acs.org/doi/pdf/10.1021/acsnano.0c03597
Key Takeaways: Heating to 185 deg F at 30% humidity was found to be the most promising, nondestructive methods for various N95 masks, including respirators and those made from "meltblown" fabric. UV was determined to be

the next best option. Steam, alcohol, bleach, and were also assessed and found to be more destructive to the masks. UV was shown in a separate article, however, to potentially miss spots of both viruses and bacteria on masks intentionally contaminated in the laboratory setting and subsequently decontaminated.

Title: Facial Protection for Healthcare Workers During Pandemics: a Scoping Review
Publication: BMJ
Publication Date: 23 April 2020
URL: https://gh.bmj.com/content/bmjgh/5/5/e002553.full.pdf
Key Takeaways: This review of over 5000 articles determined that **compared with surgical masks, N95 respirators perform better in laboratory testing, may provide superior protection in inpatient settings and are equivalent in outpatient settings**; conservation strategies result in inferior protection but include extended use, reuse, decontamination of medical-grade masks or the use of improvised cloth masks, both of which may be combined with a face shield. There is not much evidence on conservation strategies that could help conserve personal protective equipment during emergency shortages

Title: Critical Care Surge Capacity in U.S. Hospitals
Publication: RAND Corporation
Publication Date: May 2020
URL: https://www.rand.org/pubs/research_briefs/RBA164-1.html
Key Takeaways: RAND researchers established a list of strategies to help the U.S. create ICU surge capacity. For hospitals and communities **to effectively respond to the anticipated surge in the critical care needs for COVID-19 patients, the balance between space, staff, and stuff (i.e., resources) needs to be maximized and bottlenecks and shortages identified and mitigated**. The article includes recommendations and suggested assessment and planning tools for hospital administrators as well as government planning officials.

Title: National Action Plan for Expanding and Adapting the Healthcare System for the Duration of the COVID Pandemic
Publisher: Johns Hopkins Bloomberg School of Public Health: Center for Health Security
Publication Date: 5 May 2020
URL: https://www.centerforhealthsecurity.org/our-work/pubs_archive/pubs-pdfs/2020/200505-healthcare-report.pdf
Key Takeaways: This report offers **recommendations related to several key current challenges being faced at healthcare facilities**, such as: PPE supply

chain, telehealth and resuming traditional healthcare in the future, managing surge staffing, challenges in prehospital care (EMS), **ensuring readiness for the next chapters in the COVID story** and further emerging infectious disease outbreaks.

Title: Ten Ways Healthcare Systems Can Operate Effectively during the COVID-19 Pandemic
Publisher: CDC
Publication Date: May 1, 2020
URL: https://www.cdc.gov/coronavirus/2019-ncov/hcp/ways-operate-effectively.html
Key Takeaways: This **new document from CDC** shares practical approaches that healthcare administrators can use based on the developing best practices from the healthcare community.

EMERGING CONVERSATIONS

This section aims to spread emerging ideas from the professional rumor mill, in an effort to keep decision makers apprised of topics that are brewing. While this information may become part of the COVID pedagogy, it may represent less rigorously scientific and/or non-evidence-based propositions. They may not be peer reviewed. Accordingly, we do not recommend incorporation into clinical guidelines.

Viral Mutations

Title: Spike mutation pipeline reveals the emergence of a more transmissible form of SARS-CoV-2 (Preprint)
Publisher: bioRxiv
Publication Date: 30 April 3030
URL: https://www.biorxiv.org/content/10.1101/2020.04.29.069054v1
doi: https://doi.org/10.1101/2020.04.29.069054
Key Takeaways: The **Spike (S) protein in SARS-CoV-2 mediates the infection of human cells and is the target of most vaccine strategies and antibody-based therapeutics**. A **mutation in this protein has been documented** (along with over a dozen others). It began spreading in Europe in early February, and when introduced to new regions it rapidly becomes the dominant form. The authors also present evidence of recombination between locally circulating strains, indicative of

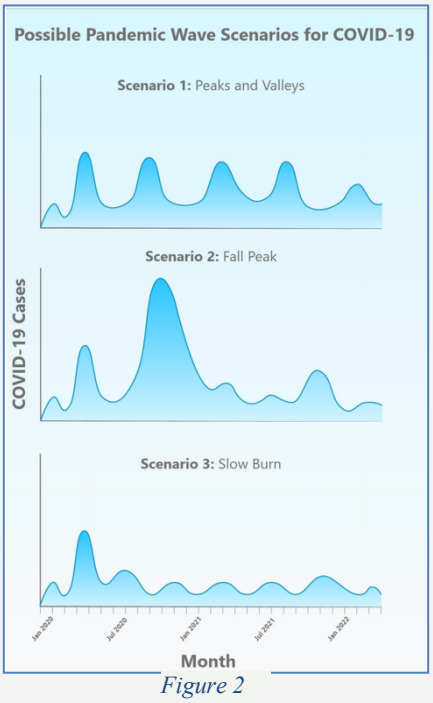

Figure 2

multiple strain infections. There is concern that this mutation has the potential to facilitate a more infectious strain of COVID, although there is no evidence to that effect at this time. The report did gain some mainstream media attention as well as a significant critique of the decision to print the information.

Epidemiology

Title: COVID-19: The CIDRAP Viewpoint
Publisher: Center for Infectious Disease Research and Policy (CIDRAP), University of Minnesota
Publication Date: 30 April 2020
URL: https://www.cidrap.umn.edu/sites/default/files/public/downloads/cidrap-covid19-viewpoint-part1_0.pdf

(An alternative non-PDF link: https://www.cidrap.umn.edu/covid-19/covid-19-cidrap-viewpoint)
Key Takeaways: The report details possible future pandemic wave scenarios for COVID (see figure 2). Officials should **prepare and plan for the worst-case scenario which includes no vaccine availability and little herd immunity**. This includes the need to ensure adequate **protection for the healthcare community during future disease peaks**.

Risk communication for COVID should incorporate the concept that there may be resurgences of disease for the next two years.

THE ROAD AHEAD

This is a new periodic feature of the Intelligence Report that highlights publications focusing on the future as we think about what will be needed in the recovery phase of this pandemic and the changes to our health care system and society that will be catalyzed by Covid-19.

Title: Preparing for a responsible lockdown exit strategy
Authors: Marius Gilbert, Mathias Dewatripont, Eric Muraille, Jean-Philippe Platteau & Michel Goldman
Publisher: Nature Medicine

Publication Date: 14 April 2020
URL: https://www.nature.com/articles/s41591-020-0871-y
Key Takeaways
1. **Social distancing measures should be maintained** to reduce the overall transmission up to a point at which hospitals can cope with the resultant much lower number of patients.
2. **Diagnostic capacity needs to be massively upscaled** both for detection of the virus and for the identification of immune people.
3. The human power, procedures, and logistics needed to **implement systematic tests and contact tracing at scale** need to be put in place.

With data in hand, the authors propose that while at first only immunized but virus-free people may go back to their normal lives, when the pandemic subsides, gradually younger people (with age being a key risk factor) who are virus free but not immunized may be considered too. Priority for testing such low-risk people should be given to those operating in sectors considered essential. Such an approach would slowly build up 'herd immunity', which could reduce the intensity of future waves of the pandemic. **Until a cure or vaccine is announced, the goal should be for everyone to eventually rejoin their normal lives and thereby avoid the stigma of two 'types' of citizens: those who are immunized and risk free, and those who are not**.

Title: COVID 19 and the Long Road to Herd Immunity
Publisher: HUB. Johns Hopkins University.
Publication Date: 30 April 2020
URL: https://hub.jhu.edu/2020/04/30/herd-immunity-covid-19-coronavirus/
Key Takeaways: Herd immunity is still a long way away but may be achievable by: 1) a large proportion of the population either gets infected or gets a protective vaccine. The threshold is likely > 70% of the population need to be immune. There are a few ways that might be achieved. This can be achieved by multiple strategies--at one end of the spectrum is allowing widespread infection to occur over a short period of time with a high impact to the healthcare sector and with potentially higher death rates, or on the other end using a measured approach that protects those at most risk while allowing community immunity to grow non-explosively.

Title: The Ethics of COVID-19 Immunity-Based Licenses ("Immunity Passports")
Authors: Govind Persad, JD; Ezekiel J. Emanuel, MD
Publisher: JAMA
Publication Date: 6 May 2020

URL: https://jamanetwork.com/journals/jama/fullarticle/2765836
Key Takeaway: As mentioned earlier in the report, the potential for splitting society into two cohorts (immune vs. non-immune) has significant ramifications. This **article discusses the use of immunity-based licenses (certificates) that will allow COVID immune individuals to regain some liberty without compromising those who have not been infected**. The article presents the arguments for and against this move and summarizes that the passports do "not violate equal treatment because the factors used to grant a license are not (*editor's comment: should not be*) discriminatory, like race or religion, but instead grounded in relevant evidence."

Title: Projecting the transmission dynamics of SARS-CoV-2 through the postpandemic period
Authors: SM Kissler, C Tedijanto, E Goldstein, et al.
Publication: Science
Publication Date:14 Apr 2020
URL: https://science.sciencemag.org/content/early/2020/04/24/science.abb5793
DOI: 10.1126/science.abb5793
Key Takeaway: Even in the event of apparent elimination, **SARS-CoV-2 surveillance should be maintained since a resurgence in contagion could be possible as late as 2024**.

Title: From Mitigation to Containment of the COVID-19 Pandemic: Putting the SARS-CoV-2 Genie Back in the Bottle
Authors: Walensky RP, del Rio C.
Publisher: JAMA.
Publication Date: 17 April 2020
URL: https://jamanetwork.com/journals/jama/fullarticle/2764956
doi:10.1001/jama.2020.6572
Key Takeaway: Before reopening, the **U.S. must ensure that this period will end with a course-corrected public health strategy that promises widespread testing, resources for those affected**, and a profound appreciation for an impressive, inspired, and tireless health care workforce that helped the US deal with this pandemic.