4-20-2020

GW Covid-19 Intelligence Reports: April 20, 2020

George Washington University

GW Covid-19 Intelligence Report

April 13 through April 20

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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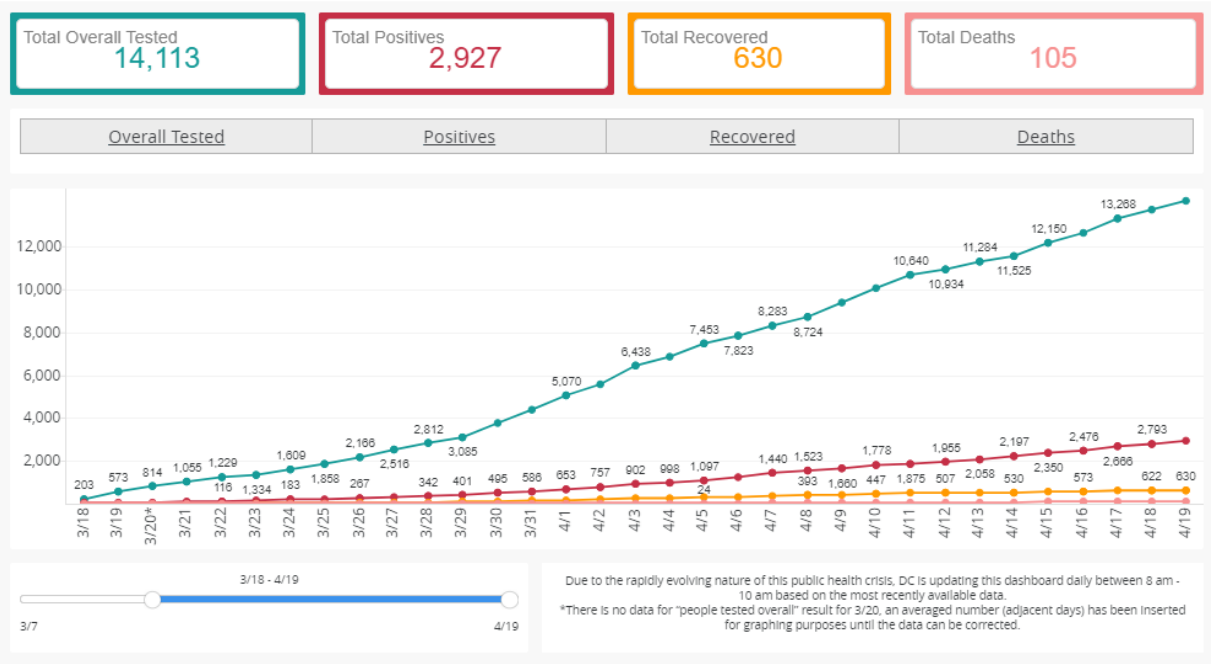
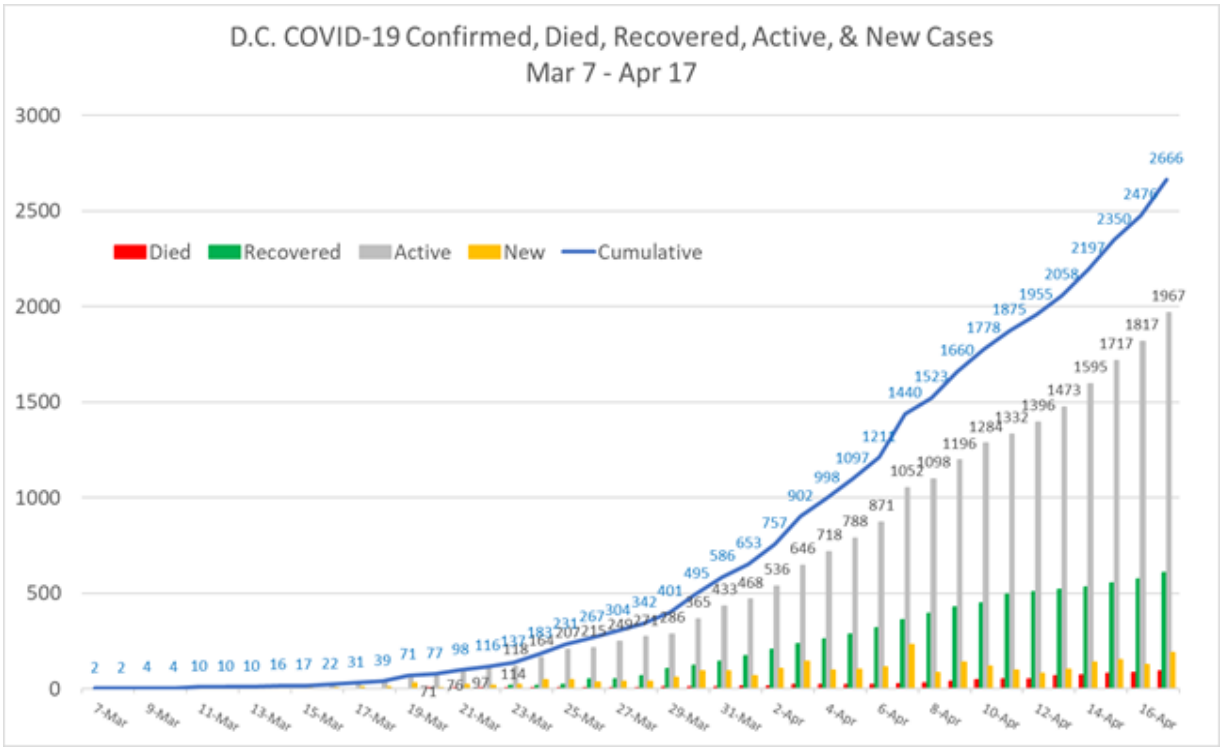
DC COVID-19 STATS THROUGH APRIL 19





https://coronavirus.dc.gov/page/coronavirus-data

* Of note, construction started April 20 to establish a 500-bed facility (supported by federal equipment) at the Washington Convention Center.
https://coronavirus.dc.gov/sites/default/files/dc/sites/coronavirus/page_content/attachments/COVID19-Situational-Update-Presentation_041720.pdf

GWU RESEARCH OPPORTUNITY

Special Intramural Funding Opportunity: COVID-19 Research Fund

GW scholars and researchers are stepping forward to dedicate their efforts and expertise to understanding COVID-19 and mitigating the impacts of the current pandemic. These new projects have the potential to prevent suffering, inform policy and responses to future outbreaks, and strengthen the resiliency of individuals and communities. Discovering and disseminating new knowledge for the public good is at the heart of GW's mission. In support of that mission and our innovative research community, the Office of the Vice President for Research in collaboration with the Milken Institute School of Public Health and the School of Medicine and Health Sciences announces a new special funding opportunity, the COVID-19 Research Fund.

More information can be found through this link: https://research.gwu.edu/covid-19-research-fund

CLINICAL KNOWLEDGE

➢ Diagnostics

Title: Pulmonary and Cardiac Pathology in Covid-19: The First Autopsy Series
Publication: April 10, 2020 (not peer-reviewed)
URL:
https://www.medrxiv.org/content/10.1101/2020.04.06.20050575v1.full.pdf?fbclid=IwAR0CO3WkFwsmfL5GQ85yj4e7qPdWJI8jPH7QfhRlicrW-AvNpzbgNderyCo
Key Takeaway:

- The dominant histopathology was diffuse alveolar damage, with CD4 cells aggregating around blood vessels, resulting in thrombotic microangiopathy, usually restricted to the lungs. There was no indication of lymphocytic infiltrate of the heart, typically seen in viral myocarditis. There were no secondary infections.
- Effective therapy for these patients should not only target the viral pathogen, but also the thrombotic and microangiopathic effects of the virus, and possibly a maladaptive immune response to viral infection.

➢ Therapeutics

Title: Pharmacologic Treatments for Coronavirus Disease 2019 (COVID-19) A Review, JAMA.
Publication: JAMA, April 13, 2020
URL: https://jamanetwork.com/journals/jama/fullarticle/2764727
Key Takeaway: This is a comprehensive review of scientific rationale and current status of pharmacologic treatments currently being studied or considered for treatment for patients with Covid-19 including:

- Chloroquine/hydroxychloroquine
- Antiretrovirals (Kaletra and others)

- Remdesivir and Favipiravir
- Corticosteriods
- ACE inhibitors
- Immune modulators
- Immunoglobulin therapy

Summaries and links to current clinical treatment guidance documents and an FAQ section is included. Bottom line: "No therapies have been shown effective to date."

Title: Infectious Disease Society of America (IDSA) Guidelines on the Treatment and Management of Patients with COVID-19 Infection
Publication: IDSA, April 12, 2020
URL: https://www.idsociety.org/practice-guideline/covid-19-guideline-treatment-and-management/
Key Takeaway: IDSA panel assessment and recommendations on current COVID treatments.

> **Recommendation 1**. Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends hydroxychloroquine/chloroquine in the context of a clinical trial.
>
> **Recommendation 2.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends hydroxychloroquine/chloroquine plus azithromycin **only** in the context of a clinical trial.
>
> **Recommendation 3.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends the combination of lopinavir/ritonavir **only** in the context of a clinical trial.
>
> **Recommendation 4.** Among patients who have been admitted to the hospital with COVID-19 pneumonia, the IDSA guideline panel suggests **against the use of corticosteroids**. (Conditional recommendation, very low certainty of evidence)
>
> **Recommendation 5**. Among patients who have been admitted to the hospital with ARDS due to COVID-19, the IDSA guideline panel **recommends the use of corticosteroids** in the context of a clinical trial.
>
> **Recommendation 6.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends tocilizumab only in the context of a clinical trial.
>
> **Recommendation 7.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends COVID-19 convalescent plasma in the context of a clinical trial.

Title: Chloroquine diphosphate in two different dosages as adjunctive therapy of hospitalized patients with severe respiratory syndrome in the context of coronavirus (SARS-CoV-2) infection: Preliminary safety results of a randomized, double-blinded, phase IIb clinical trial (CloroCovid-19 Study)
Publication: April 11, 2020 (not peer-reviewed)
URL: https://www.medrxiv.org/content/10.1101/2020.04.07.20056424v1
Key Takeaway: In this Phase IIb double-blinded RCT study conducted in Brazil, the high dose (600 mg) BID chloroquine arm was halted early due to a high rate of cardiac side effects. The high dose CQ arm presented more QTc>500ms (25%), and a trend toward higher lethality (17%) than the lower dosage. Fatality rate was 13.5% (95%CI=6.9-23.0%), overlapping with the CI of historical data from similar patients not using CQ (95%CI=14.5-19.2%). **Study halted as no benefit and significant risk of harm were evident.**

Title: Hydroxychloroquine in patients with COVID-19: an open-label, randomized, controlled trial
Publication: April 14 (not peer-reviewed)
URL: https://www.medrxiv.org/content/10.1101/2020.04.10.20060558v1
Key Takeaway: The administration of HCQ did not result in a higher negative viral conversion rate (positive to negative test) but more alleviation of clinical symptoms than SOC alone in patients hospitalized with COVID-19 without receiving antiviral treatment, possibly through anti-inflammatory effects. Very few patients with severe disease were included. **Adverse events were significantly increased in HCQ recipients but no apparently increase of serious adverse events**.

Title: Virological and Clinical Cure in COVID-19 Patients Treated with Hydroxychloroquine: A Systematic Review and Meta-Analysis
Publication: Journal of Medical Virology, April 16, 2020
Web site: https://www.ncbi.nlm.nih.gov/pubmed/32297988
Key Takeaway: This reports on a systematic review of 16 literature databases out of which seven studies (n=1358) were included to summarize the virologic and clinical use of hydroxycholorquine to treat Covid-19 disease concluding that hydroxychloroquine may decrease risk of radiological progression without increased adverse events when compared to other treatment options, including no treatment at all. Despite the radiologic progression, **no difference was observed in virological cure, death or clinical worsening of disease when compared to the control or conventional treatment.**

➢ General/Hospitalist

Title: COVID-19 Clinical Guidance Repository, Assoc. American Medical Colleges (AAMC)
URL: https://www.aamc.org/covid-19-clinical-guidance-repository?utm_source=sfmc&utm_medium=email&utm_campaign=GIR&utm_content=newsletter
Key Takeaway: Summary of up-to-date management guidelines from leading academic centers.

Title: Absence of 2019 Novel Coronavirus in Semen and Testes of COVID-19 Patients
URL: https://pubmed.ncbi.nlm.nih.gov/32297920/
Publication: Biology of Reproduction, April 16, 2020
Key Takeaway: This small case series demonstrates that the Covid-19 virus is absent from the semen and testes in men infected by COVID-19 at both acute and recovery phases making it highly unlikely that the 2019-nCov can be sexually transmitted by men. However other adjacent activities (e.g. kissing and close contact) can still result in transmission.

Title: Nature Article - Temporal dynamics in viral shedding and transmissibility of COVID-19
Publication: Nature, April 15, 2020
URL: https://www.nature.com/articles/s41591-020-0869-5
Key Takeaway: In 94 COVID-19 positive patients, the authors observed the highest viral load in throat swabs at the time of symptom onset, and inferred that infectiousness peaked on or before symptom onset. They estimated that 44% (95% confidence interval, 25–69%) of secondary cases were infected during the index cases' presymptomatic stage. The highest risk was in clustered household settings, and non-compliance with quarantine.

Title: How does Coronavirus Kill? Clinicians trace a ferocious rampage through the body from brain to toes
Publication: Science Magazine, April 17, 2009
URL: https://www.sciencemag.org/news/2020/04/how-does-coronavirus-kill-clinicians-trace-ferocious-rampage-through-body-brain-toes?utm_campaign=news_daily_2020-04-17&et_rid=79789788&et_cid=3290441#
Key Takeaway: This non-technical, "big picture" piece highlights the multi-system implications of clinical disease with novel coronavirus. COVID pathology is not limited to the lungs. While the pulmonary system is certainly ground zero, its reach can extend to many organs including the heart and blood vessels, kidneys, gut, and brain.

➢ Critical Care

Title: Covid-19 Does Not Lead to a "Typical" Acute Respiratory Distress Syndrome
Publication: Journal of American Thoracic Society, March 30, 2020
URL: https://www.atsjournals.org/doi/pdf/10.1164/rccm.202003-0817LE
Key Takeaway:

- Continuous Positive Airway Pressure or Non Invasive Ventilation, presenting with clinical signs of excessive inspiratory efforts, intubation should be prioritized to avoid excessive intrathoracic negative pressures and self-inflicted lung injury.
- High PEEP in a poorly recruitable lung tends to result in severe hemodynamic impairment and fluid retention.
- Prone positioning of patients with relatively high compliance results in a modest benefit at the price of a high demand for stressed human resources.

Title: Fast Literature Assessment and Reviews (FLARE) from Massachusetts General Hospital
URL: https://www.massgeneral.org/news/coronavirus/treatment-guidance/fast-literature-updates
Key Takeaway: A collaborative effort within the Pulmonary and Critical Care Division to review:

- Antibodies in Severe Covid-19 patients
- Update on Remdesivir
- Pots-Extubation Stridor in Covid-19 patients
- Fluid Management in Covid-19 patients
- Viral Load in Covid-19 patients
- Procalcitonin in Covid-19 patients
- Managing PEEP and Recuritment
- Myocarditis in Covid-19 patients
- Coagulatin in Covid-19 patients
- And more topics

Title: Intensive care management of coronavirus disease 2019 (COVID-19): challenges and recommendations
Publication: Lancet, April 6, 2020
URL: http://proxygw.wrlc.org/login?url=https://www.clinicalkey.com/#!/content/playContent/1-s2.0-S2213260020301612?returnurl=null&referrer=null
Key Takeaway: Comprehensive intensive care practice guidelines developed by the Asian Critical Care Clinical Trials Group

Title: COVID-19 pneumonia: different respiratory treatment for different phenotypes?
Publication: Intensive Care Medicine, 2020
URL: https://www.esicm.org/wp-content/uploads/2020/04/684_author-proof.pdf
Key Takeaway: This editorial describes two primary "phenotypes" of Covid-19 related pneumonia:

- Type L, characterized by Low elastance (i.e., high compliance), Low ventilation to perfusion ratio, Low lung weight and Low recruitability. **Treat with low PEEP.**
- Type H, characterized by High elastance, High right-to-left shunt, High lung weight and High recruitability. Type H patients, **should be treated as severe ARDS,** including higher PEEP, if compatible with hemodynamics, prone positioning and extracorporeal support.

Title: Swivel-HEPA-ETT (SHE) Bougie and HEPA-ETT (HE) Methods for Safe Intubation While Managing Patients With COVID-19
Publication: Journal of Emergency Medicine, April 15, 2020
URL: https://www.ncbi.nlm.nih.gov/pubmed/32295770
Key Takeaway: This article reports on methods to reduce aerosolization during intubation. The authors utilized two methods that incorporated HEPA filters (HEPA-ETT and Swivel-HEPA-ETT) that they believe helped to reduce aerosolization during intubation and allow for confirmation of placement without auscultation.

➢ Cardiology

Title: Triage Considerations for Patients Referred for Structural Heart Disease Intervention During the Coronavirus Disease 2019 (COVID-19) Pandemic: An ACC /SCAI Consensus Statement
Publication: Journal of the American College of Cardiology, Cardiovascular Interventions, April 2020
URL: http://interventions.onlinejacc.org/content/early/2020/04/05/j.jcin.2020.04.001
Key Takeaway: This article provides guidelines as to how to triage patients in need of SHD interventions, including patients in need of trans-catheter aortic valve replacement and percutaneous mitral valve repair, and provide a framework of how to decide when it may be appropriate to proceed with intervention despite the ongoing pandemic.

Title: Description and Proposed Management of the Acute COVID-19 Cardiovascular Syndrome
Publication: Circulation, April 16, 2020
URL: https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.120.047349
Key Takeaway: The authors review data from several hospitals in China that indicate a substantial minority of patients admitted to hospital present with or develop an **Acute Covid-19 Cardiac Syndrome**. They propose clinical characteristics, timing of syndrome, diagnostics and clinical management recommendations.

➢ Ob/Gyn

Title: Universal Screening for SARS-CoV-2 in Women Admitted for Delivery
Publication: New England Journal of Medicine, April 13, 2020
URL: https://www.nejm.org/doi/full/10.1056/NEJMc2009316
Key Takeaway: This letter reports the experience of 215 pregnant women who delivered infants at the New York–Presbyterian Allen Hospital and Columbia University Irving Medical Center. 87.9% of SARS-CoV2 positive women were asymptomatic at presentation. Four women (1.9%) had fever or other symptoms of Covid-19 on admission, and all 4 women tested positive for SARS-CoV-2 (Figure 1). Of the 211 women without symptoms, all were afebrile on admission. Nasopharyngeal swabs were obtained from 210 of the 211 women (99.5%) who did not have symptoms of Covid-19; of these women, 29 (13.7%) were positive for SARS-CoV-2. Thus, 29 of the 33 patients who were positive for SARS-CoV-2 at admission (87.9%) had no symptoms of Covid-19 at presentation.

Title: Joint Statement: Recent Developments Regarding COVID-19 and Pregnant Women
Publication: American College of Obstetricians and Gynecologists, April 6, 2020
URL: https://www.acog.org/-/media/project/acog/acogorg/files/advocacy/letters/joint-statement-recent-developments-regarding-covid-19-and-pregnant-women.pdf
Key Takeaway: ACOG and SMFM statement regarding CDC's removal of pregnant women from the list of those at higher risk of COVID-19 severe illness; recommend precautions to minimize exposure.

➢ Surgery

Title: Surgery in COVID-19 Patients: Operational Directives
Publication: World Journal of Emergency Surgery, April 7, 2020
URL: https://wjes.biomedcentral.com/articles/10.1186/s13017-020-00307-2
Key Takeaway: This is a set of recommendations for assuring safety of patients requiring acute surgical care and the surgical/anesthesia team during a mass casualty event like Covid-19. These recommendations are from a collaboration of the major Italian surgical and anesthesiologist societies.

Title: Medically-Necessary, Time-Sensitive Procedures: A Scoring System to Ethically and Efficiently Manage Resource Scarcity and Provider Risk During the COVID-19 Pandemic
Publication: Journal of the American College of Surgeons, April 7, 2020
URL: https://www.journalacs.org/article/S1072-7515(20)30317-3/pdf
Key Takeaway: This manuscript describes a scoring system that considers factors (resource limitations, COVID-19 transmission risk to providers and patients) when making decisions to proceed with
Medically-Necessary Time-Sensitive (MeNTS) surgical procedures.

HEALTH WORKFORCE

Title: CDC: Characteristics of Health Care Personnel with COVID-19 — United States, February 12–April 9, 2020
Publication: CDC/MMWR, April 14, 2020
URL: https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e6.htm?s_cid=mm6915e6_w
Key Takeaway: Of 9,282 U.S. COVID-19 cases reported among Health Care Providers, median age was 42 years, and 73% were female, reflecting these distributions among the HCP workforce. HCP patients reported contact with COVID-19 patients in health care, household, and community settings. Most HCP patients were not hospitalized; however, severe outcomes, including death, were reported among all age groups. This is likely an underestimation because HCP status was available for only 16% of reported cases nationwide. HCP with mild or asymptomatic infections might also have been less likely to be tested, thus less likely to be reported. Overall, only 3% (9,282 of 315,531) of reported cases were among HCP; however, among states with more complete reporting of HCP status, HCP accounted for 11% (1,689 of 15,194) of reported cases.

Title: Joint Commission Statement on Use of Face Masks Brought From Home
URL: https://www.aaem.org/UserFiles/file/public_statement_on_masks_from_home.pdf
Key Takeaway: The Joint Commission supports allowing staff to bring their own standard face masks or respirators to wear at work when their healthcare organizations cannot provide adequate PPE.

EPIDEMIOLOGY AND PUBLIC HEALTH

Title: Projecting the transmission dynamics of SARS-CoV-2 through the postpandemic period
Publication: Science Magazine, April 14, 2020
URL: https://science.sciencemag.org/content/early/2020/04/14/science.abb5793
Key Takeaway: Authors of this article

1) identify viral, environmental, and immunologic factors to determine the dynamics of SARS-CoV-2;
2) integrate findings in a mathematical model to project potential scenarios for SARS-CoV-2 transmission through the pandemic and post-pandemic periods;
3) identify key data still needed to determine which scenarios are likely to play out; and
4) assess the duration and intensity of social distancing measures that might be needed to maintain control of SARS-CoV-2 in the coming months under both existing and expanded critical care capacities.

The authors conclude: recurrent wintertime outbreaks of SARS-CoV-2 will probably occur after the initial, most severe pandemic wave. Absent other interventions, a key metric for the success of social distancing is whether critical care capacities are exceeded. To avoid this, prolonged or intermittent social distancing may be necessary into 2022.

Title: WHO is Investigating Reports of Recovered COVID Patients Testing Positive Again
Publication: Reuters, April 14, 2020
URL: https://www.reuters.com/article/us-health-coronavirus-who/who-says-looking-into-reports-of-some-covid-patients-testing-positive-again-idUSKCN21T0F1?feedType=RSS&feedName=topNews
Key Takeaway: Possibility of re-infection with another strain or reactivation of virus vs. longer period needed before retesting for clearance.

Title: Policy and Public Health Recommendations for Easing COVID-19 Distancing Restrictions
Publication: Infectious Disease Society of America, April 16, 2020
URL: https://www.idsociety.org/contentassets/9ba35522e0964d51a47ae3b22e59fb47/idsa-recommendations-for-reducing-covid-19-distancing_16apr2020_final-.pdf
Key Takeaway: IDSA recommendations for incremental steps to ease physical distancing

GOVERNMENT/POLICY UPDATES

Title: CMS COVID-19 Emergency Declaration Blanket Waivers for Health Care Providers
Publication: April 13, 2020
URL: https://www.cms.gov/files/document/summary-covid-19-emergency-declaration-waivers.pdf
Key Takeaway: CMS has released an extensive list of waivers to requirements of federal programs for hospitals, providers, and other entities that do not require a request or notification.

Title: CMS Recommendations Re-opening Facilities to Provide Non-emergent Non-COVID-19 Healthcare: Phase I
Publication: April 20, 2020
URL: https://www.cms.gov/files/document/covid-flexibility-reopen-essential-non-covid-services.pdf
Key Takeaway: The recommendations update earlier guidance provided by CMS on limiting non-essential surgeries and medical procedures. The new CMS guidelines recommend a gradual transition and encourage health care providers to coordinate with local and state public health officials, and to review the availability of personal protective equipment (PPE) and other supplies, workforce availability, facility readiness, and testing capacity when making the decision to re-start or increase in-person care.

ETHICS

Title: Ethics in the Time of Coronavirus: Recommendations in the COVID-19 Pandemic
Publication: Journal of the American College of Surgeons, April 1, 2020
URL: https://www.journalacs.org/article/S1072-7515(20)30309-4/pdf
Key Takeaway: Recommendations for several of the most pressing ethical challenges of the novel coronavirus (COVID-19) pandemic:

- Professional responsibility vs risk to health care workers
- Patient confidentiality
- Who should be screened and tested
- Allocation of scare resources
- Ethical concerns created by relaxing FDA research rules and relaxing crieteria for certification into the medical field
- End of life care issues

Title: Too many patients…A framework to guide statewide allocation of scarce mechanical ventilation during disasters.
Publication: Chest, April, 2019
URL: https://www.ncbi.nlm.nih.gov/pubmed/30316913
Key Takeaway: How to ration ventilators: This is a multi-year Johns Hopkins study (following Katrina) involving doctors and laymen to create a scoring system using Sequential Organ Failure Assessment (SOFA), severity of comorbidities, and age to determine who gets a ventilator.