Clinical Update

SCREENING AT HOME

The FDA approved LabCorp COVID-19 PCR tests for use via in-home screening. FDA Commissioner Stephen M. Hahn, M.D. “The FDA’s around-the-clock work since this outbreak began has resulted in the authorization of more than 50 diagnostic tests and engagement with over 350 test developers.” LabCorp at-home patient sample is considered as accurate as other testing sites. Once a patient self-swabs to collect their nasal sample, they mail their sample in an insulated package to a LabCorp lab for testing. LabCorp intends to make the Pixel by LabCorp COVID-19 Test home collection kits available to consumers in most states, with a doctor’s order, in the coming weeks.

Pulse oximetry may be an additional monitoring method for the onset of silent hypoxemia.

TRANSMISSION

“As we learn more about the transmission of this virus [SARS-CoV-2], it’s very clear that it is at least, if not more, infectious than even what the world experienced in the historic pandemic influenza of 1918. And I’m convinced that this pandemic is following what we experienced in 1918.” Dr. Osterholm is Regents Professor in Public Health, McKnight Presidential Endowed Chair in Public Health, and the director of the Center for Infectious Disease Research and Policy (CIDRAP), via CNN 4/22/2020.

- Informative podcasts from Dr. Osterholm https://www.cidrap.umn.edu/covid-19/podcasts-webinars/episode-5


REINFECTION

There are no current data concerning reinfection with SARS-CoV-2 after recovery from COVID-19. Viral RNA shedding declines with resolution of symptoms, and may continue for days to weeks but does not indicate the person remains contagious. Clinical recovery has been correlated with the detection of IgM and IgG antibodies which signal the development of immunity. To KK, Tsang OT, Leung WS, et al. Temporal profiles of viral load in posterior oropharyngeal saliva samples and serum antibody responses during infection by SARS-CoV-2: an observational cohort study. Lancet Infect Dis. 2020.

Clinical recovery of initial COVID-19 infection should not be misconstrued with immunity. “There is no evidence yet that people who have had COVID-19 will not get a second infection,” WHO said in brief published Friday. It cautions against governments that are considering issuing so-called “immunity passports”, nor any entity assuming recovery indicates travel or return to work is advised under the pretense of immunity. At this point in the pandemic, there is not enough evidence about the effectiveness of antibody-mediated immunity to guarantee this. https://www.who.int/news-room/commentaries/detail/immunity-passports-in-the-context-of-covid-19

CLINICAL PRESENTATION:

Please keep in mind these are evidence based from reported clinical research studies. Of the many genome sequences and variants of CoV-SARS-2, diverse symptom clusters are possible: a study from February reported 48 genomes, with 129 total, and 80 distinct, variants. https://www.researchgate.net/publication/339461351_Variant_analysis_of_COVID-19_genomes

Most common: Fever, Non-productive cough (59-82%), fatigue, headache, anorexia, dyspnea, sputum production (28-33%), myalgia, chills and shaking

Less common: sore throat, diarrhea, dizziness, gastrointestinal issues https://relief.unboundmedicine.com/relief/

ABSENCE OF SYMPTOMS

COVID-19 pneumonia appears as

a silent hypoxia; insidious, hard-to-detect nature. Patients may have mild symptoms, fever, cough, GI upset, or fatigue, or be completely asymptomatic and deny dyspnea until they are alarmingly hypoxic; as low as 50% O2 saturation. Median incubation
TRAUMA & PATIENT DECONTAMINATION

Trauma care: HCWs have to avoid contagion and contamination by COVID-19. Hands are the most common transmission agents of pathogens, including SARS-CoV-2, an important preventive measure is patient hand-washing. Adhikari S.P., Meng S., Wu Y.-J., Mao Y.-P., Ye R.-X., Wang Q.-Z. Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. Infect Dis Poverty. 2020;9:29

Injured patients are not clean. It is unlikely hands were washed immediately before the trauma; after they may be constrained by pain, open wounds, and limitation of movement. Healthcare workers will have regular contact so precautionary measures must be followed in order to avoid transmission. "Trauma patients require decontamination of the hands as soon as possible, ideally before they arrive in the emergency department. If decontamination cannot be performed immediately because of the pain, cover the limb(s) and postpone procedures (if clinically safe to do so) until hands can be decontaminated," De Vitis, R., Passiato, M., Perna, A., Proietti, L., & Taccardo, G. (2020). COVID-19 contagion and contamination through hands of trauma patients: what risks and what precautions?. The Journal of Hospital Infection, S0195-6701(20)30175-4. Advance online publication.https://doi.org/10.1016/j.jhin.2020.03.037

- Use a cleansing biocide pack with a gauze pad soaked in sodium hypochlorite 0.1%, hydrogen peroxide 0.5% or ethanol 62-71% for a minimum of 1 minute. Kampf, G., Todt, D., Pfender, S., & Steinmann, E. (2020). Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. The Journal of Hospital Infection, 104(3), 246-251.
- Friction is encouraged. Additional packing for at least 2 minutes with hydrogen peroxide wipes, followed by washing with at least 1 L of 0.9% saline solution, is used on exposed fractures or dirty wounds to reduce the possibility of bacterial contamination. https://pubmed.ncbi.nlm.nih.gov/32035997/

BLS / ACLS / PALS Interim Guidance

Updated existing AHA CPR recommendations in the context of the COVID-19 pandemic and considered the unique pathophysiology of COVID-19 with reversal of hypoxemia as a central goal. "We sought to balance the competing interests of providing timely and high-quality resuscitation to patients while simultaneously protecting rescuers... applicable to all resuscitations in patients with suspected or confirmed COVID-19 infection" https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.120.047463

Interim Guidance for Basic and Advanced Life Support in Adults, Children, and Neonates With Suspected or Confirmed COVID-19: From Emergency Cardiovascular Care Committee & Get With the Guidelines.

DISEASE PROGRESSION

Hospitalized patients are approximately 20% of total infections: 50% develop hypoxemia by day 8. Severe illness and cytokine release syndrome appear to develop avg 5-10d after symptom onset. Markers of severe infection include regular high fevers (>39°C), RR > 30, worsening oxygen requirements (4-6L nasal cannula), elevated IL-6 levels (> 40-100), CRP (>10x normal), ferritin (> 1000), d-dimer (>1)

Severe illness and cytokine release syndrome appear to develop avg 5-10d after symptom onset. Markers of severe infection include regular high fevers (>39°C), RR > 30, worsening oxygen requirements (4-6L nasal cannula), elevated IL-6 levels (> 40-100), CRP (>10x normal), ferritin (> 1000), d-dimer (>1) 17-30% develop ARDS: 47% require mechanical ventilation, 11% High-flow O2, 2-5% ECMO, 67% required vasopressor.

PRONE POSITIONING

We can avoid immediate intubation using patient positioning maneuvers to open up the lower and posterior lungs most affected in COVID-19 pneumonia. Oxygenation and positioning have prevented exacerbation in some cases.

Pathophysiology of Acute Respiratory Distress: ARDS affects the alveoli of the lungs causing collapse. The area, or ‘zone’ of the lungs with the highest concentration of alveoli, and thus the most surface area for gas exchange, is Zone 3. This is the same area which receives the highest compression when a patient is placed in the supine position, causing a V/Q imbalance or mismatch.

These images from Harborview Medical Center in Seattle WA, demonstrate the compression differences to Zone 3 in both the supine and prone position. The left lung, while supine, experienced 7-42%, while prone, was less than 1%. The right reduced from 11-13% in supine to less than 4% while prone. Decreased compression results in clearance of alveolar edema through postural drainage. Prone positioning decreases pulmonary vascular resistance, enhancing blood flow and gas exchange in the alveoli. Increased venous return, coupled with a reduction in right ventricular afterload results in improved right ventricular function. N Engl J Med 372;9:567-75. Other studies have noted as high as 76% ninety day survival rate vs. 59% in supine positioning. "COVID-19 patients tend to have higher rates of refractory hypoxemia, early prone positioning [typically 48 hours] has proven beneficial," Sue Hansen, Trauma Surgery and Critical Care CNS, RN.
There are typical contraindications for prone positioning, but in COVID-19, Hansen says, there are "No absolutes". Pregnancy, sternotomy, increased ICP, tracheostomy <24 hours old, facial / neck trauma, open abdomen, unstable spine would normally give pause to considering prone, however, when weighing these risks against probable respiratory failure: proning is ultimately recommended.

**Adjunctive Therapies:** Inhaled Nitrous oxide. Methylprednisolone. ECMO. Neuromuscular blockade. Awake proning. Flozan.

**COVID-19 Considerations:**
Patients are quite ill and have a high probability to code during the 'proning process'. Prior to turning consider the goals of care for this patient, and if the family is prepared. Do you have a code blue team available? Is there equipment accessible for coding COVID-19 patients?

**PROCEDURAL GUIDANCE**


**COMORBIDITIES**


The comprehensive study revealed:

- a 9.7% death rate overall-21% when excluding those still hospitalized-and an 88.1% death rate among those requiring mechanical ventilation, of patients requiring mechanical ventilation 30% were considered obese.
- disease severity correlated with comorbidities of hypertension, obesity, and diabetes. Among patients who were discharged or died, 14.2% were treated in the intensive care unit, 12.2% received invasive mechanical ventilation, 3.2% were treated with kidney replacement therapy, and 21% died.
- The median post discharge follow-up time was 4.4 days (IQR, 2.2-9.3). A total of 45 patients (2.2%) were readmitted during the study period. The median time to readmission was 3 days (IQR, 1.0-4.5) for readmitted patients. Among the 3066 patients who remained hospitalized at the final study follow-up date (median age, 65 years [IQR, 54-75]), the median follow-up at time of censoring was 4.5 days (IQR, 2.4-8.1).

**Pressure Injury**
Severe pressure ulcer injury from ET tubes, facial areas, ears, shoulders, hips, and knees have occurred. A higher instance of these appear to be due to prone bed frames. Manual proning using the tortoise positioning system, bolstering or double sheets for turning has reduced instances. Hansen encourages micro turns to alleviate high pressure areas.

**Acute Kidney Injury**
SARS-CoV-2 infection contributes to kidney injury by binding with ACE2. which is well expressed in the kidneys, particularly in podocytes and proximal tubular epithelial cells (reported in a preprint Xu et al, Preprints, 2020) which may serve as a binding site and potential injury mechanisms. Pre-existing AKI induced by severe sepsis may be exacerbated by SARS-CoV-2.

Proteinuria has been documented in multiple studies. Of importance, a case series by the Anti-2019-nCoV Volunteers (medRxiv 2020) of 51 selected patients, proteinuria was present in 63%. This was mostly mild proteinuria (half the proteinuria being only T+ on dipstick, and 2+ representing an additional third). In 64% of these patients, the proteinuria was seen on the first day of admission. Only 11 patients developed AKI in the form of elevated creatinine. Of the 27 patients who had a CT scan that included the kidneys, all of them had inflammation and edema of the kidney.

**Intensive Care National Audit and Research Centre** Report:
- one in five critically ill SARS-CoV-2 patients require renal replacement therapy (RRT) for an average of 4 days
- the majority of AKI in patients with COVID-19 appear acute tubular injury (ATI) in multi-organ failure and shock

Patients appear to have a hyper-coagulopathy causing CVVH and CVVHD sets to clot, both before the filter and within the filter, resulting in an inordinate rise in use of dialysis sets.
- Use regional citrate anticoagulation if experienced- only if experienced
- Anecdotal reports suggest argatroban use as an alternative


- Higher blood flows, predilution replacement fluid administration for hemofiltration, dose heparin infusion appropriately.
- consider using a heparin bolus, say 1000 units and start pre-filter heparin at higher than usual rates [typically 500-700 units an hour (5-10 unit/kg/hr)]. Anecdotally suggestions start higher at 1000 units/hour
- Check a PTT before starting as 10-20% have hepatic dysfunction prior to starting CKRT
- Check a PTT 2-4 hours after starting the heparin and target a 5 sec increase: the goal is not to anti-coagulate the patient, just the circuit. If pressures are acceptable consider increasing by 100-200 units/hr, rechecking PTT in 2-4 hours
- Convection doesn't differentiate pro-inflammatory cytokines from anti-inflammatory cytokines. Use convection if that's your standard practice, if not, diffusion should be good enough. If CKRT/PIRRT are not available, intermittent hemodialysis is acceptable. To
**Thrombosis**

"COVID-19 may predispose to both venous and arterial thromboembolic disease, due to coagulation activation caused by a combination of excessive inflammation, platelet activation, endothelial dysfunction, and stasis of blood flow as a result of immobility." Studies from China showed an average of 25% with VTE without prophylaxis. Follow up recent studies from 3 facilities in the Netherlands, resulted in 27% VTE with 80% those being pulmonary embolus. All of these patients received pharmacological prophylaxis. Suzanne C Cannegieter, Frederikus A Klok. COVID-19 associated coagulopathy and thromboembolic disease: Commentary on an interim expert guidance ISTH Academy. Cannegieter S. 04/21/2020. doi: 10.1002/rth2.12350

Current guidelines are not that dissimilar from other clinical pathways:

- monitor platelet count, PT, fibrinogen regularly to identify worsening coagulopathy
- prophylactic once daily low-molecular weight heparins (LMWHs), or prophylactic twice daily subcutaneous unfractionated heparin (UFH) in patients with pre-existing conditions, OR,
- intermittent pneumatic compression (mechanical VTE prophylaxis)
- consider echocardiography to assess for worsening right ventricular overload
- use of catheter directed thrombolytic therapy should continue to be limited to the most critical situations as there is limited data showing benefit

Hemostatic abnormalities consistently seen in patients with COVID-19 include mild thrombocytopenia and increased D-dimer levels. The severity of COVID-19 is also linked with abnormalities in commonly assessed anticoagulation parameters, including prolonged prothrombin and thrombin times. Updates will occur as new peer-reviewed scientific literature and authoritative information emerges.

TREATMENT GUIDELINES


- [COVID19treatmentguidelines.nih.gov](http://www.covid19treatmentguidelines.nih.gov)

These guidelines are based on published and preliminary data, and clinical expertise from frontline COVID-19 clinicians. Updates will occur as new peer-reviewed scientific literature and authoritative information emerges.

**Clinical Research Trials**

Convalescent Plasma or Serum / IVIG

Convalescent plasma or serum containing neutralizing antibodies against SARS-CoV-2, are being trialed in a large scale study from Mayo Clinic (among others). The Expanded Access Program provides a means of establishment in facilities which may not otherwise have the resources / facilities to provide this experimental therapy.


**Medicinal Therapeutic Research:** The core protocol for therapeutics against COVID-19 has been published by the WHO R&D Blueprint Working Group. [https://www.who.int/publications-detail/who-working-group-core-protocol-for-therapeutics-against-covid19](https://www.who.int/publications-detail/who-working-group-core-protocol-for-therapeutics-against-covid19)


- Use of Tocilizumab Inconclusive and in progress: an FDA-approved anti-IL6R agent for CAR-T cell cytokine release syndrome. Limited supplies in the United States. Anecdotal reports suggest more efficacy earlier in the disease course (worsening pulmonary status) than ARDS with lung and organ injury more advanced.

- Vitamin D a theoretical article based upon influenza research proposes the supplement as measure to reduce risk to COVID-19. Vitamin D reduces infection mechanisms by inducing cathelicidins and defensins that can lower viral replication rates. This reduces pro-inflammatory cytokine concentrations - those which produce inflammation that injures the lining of the lungs and leads to pneumonia. The article recommends at-risk populations consider taking 10,000 IU/d of vitamin D for a few weeks to rapidly raise 25(OH)D concentrations, followed by 5000 IU/d. The goal should be to raise 25(OH)D concentrations above 40-60 ng/mL (100-150 nmol/L). For treatment of people who become infected with COVID-19, higher vitamin D doses might be useful. *Nutrients* 2020, 12(4), 988; [https://doi.org/10.3390/nu12040988](https://doi.org/10.3390/nu12040988)

- Vitamin C a CRT using Vitamin C infusion for the treatment of severe COVID-19 pneumonia is underway in Wuhan, China. In this trial, the investigators will treat 140 patients with a placebo control or intravenous vitamin C for a week, assess requirements for mechanical ventilation, vasopressor drugs, organ failure scores; ICU length of stay and 28 day mortality. At this time it is not considered an effective treatment: preliminary study of patients with sepsis and ARDS

COVID-19 Patient Mental Health

“What we’re finding in COVID is that there’s a ton of delirium,” E. Wesley Ely, a pulmonologist from Vanderbilt University, “The virus itself is partly to blame.” Ely hypothesizes that the inflammatory process of CoV-SARS-2 limits vascular perfusion to areas of the brain, resulting in possible long term complications. Ely’s team is testing a tablet-based rehabilitation program for people who have cognitive impairment after being hospitalized for a critical illness. He described it as “Sudoku and Scrabble on steroids.” Others are piloting a discharge plan for pneumonia and sepsis patients which includes monitoring via computers or smartphones, and home-health or remote visits. The goal is to prevent readmission.


CELEBRATING DISCHARGE:

Ochsner Health says it’s caring for about one-third of Louisiana’s COVID-19 patients, and that 54 year old Kathleen Bennett’s recovery is an uplifting milestone for New Orleans. Bennett spent 3 ½ weeks in the hospital recovering, half of them on a ventilator. “We are so excited to announce the discharge of our 1,500th COVID-19 patient from Ochsner Medical Center!” WATCH: Trombone player plays behind COVID-19 patient Taking a nod from Labor and Delivery Lullabies at birth, celebratory music is becoming a regular part of the discharge process in hospitals where staff and patients are weary of death. Anthems like “Don’t Stop Believin,” the “Rocky” theme and “Every Breath You Take” have been adopted by hospitals to celebrate each victory in the battle against COVID-19. Lenox Hill Hospital in Manhattan, starts even earlier. Nurses call for a “Code Sun” (Here Comes the Sun, The Beatles) when a patient is removed from a ventilator and successfully breathing on their own; other hospitals may start the music to celebrate a patient leaving intensive care.

Cellular Research and Epidemiology

CELLULAR RESEARCH


Research paper published in Cell, showed the compound camostat mesylate can prevent SARS-CoV-2, from entering human cells. Molecular biologist Stefan Pöhlmann and other researchers of the German Primate Center showed the drug kept SARS-CoV-2 from infecting lung cells.Licensed in Japan and South Korea to treat pancreatitis, enough safety data was available on Camostat mesylate to convince an ethical panel of Danish scientists to greenlight a research trial. Camostat mesylate is one of several candidate drugs that block interactions within human cells, by targeting the host.

- The infamous spike protein attaches to a receptor on the human cell called ACE2. TMPRSS2, cleaves the spike protein, allowing the virus to fuse with the cell and start to replicate inside it.
- Camostat mesylate blocks TMPRSS2; it’s normal role in the human body is unclear, but knocking out the gene in mice seems to leave them unaffected, (Pohlmann).
Patients in the Danish trial will be given two 100-milligram pills of the drug or a placebo three times a day for 5 days, (the maximum dose given to patients with pancreatitis in Japan). Symptoms will be monitored. Ultimately, the Danish researchers plan to include 180 patients, and to analyze results after completion of 108 subjects to include a 1-month follow-up. The team could know whether the drug is effective within 3 months, says Mads Kjølby, a participating researcher at Aarhus University.

The research continues to look for human proteins that COVID-19 exploits. To find these proteins requires a kind of molecular fishing. The researchers attach a molecular handle to proteins from the virus. Then they put these proteins into human cells, using them as lures to pull out any human proteins they stick to and retrieve. The lab started work on 24 January, 2 weeks after the first SARS-CoV-2 genetic sequence became available. A few days later, when it became clear the virus was already spreading in California one researcher, Krogen, pushed for approval. The lab produced the last bits of data a few hours before his university shut down on 18 March.

Contraindications do exist. Host-directed drugs can cause more harm than those which directly target a virus. "Because you're hitting a host target, hitting a host function, there's an increased safety risk." Krogan hopes focusing on drugs already approved for other diseases, such as camostat mesylate, will largely bypass that problem. However, the potential to reduce resistance is a progressive step in formulating a targeted protein therapy. (They are encoded in the human genome and not that of the virus making resistance less likely). The benefit to this is the new treatment could be effective against future coronaviruses as well. Wan, Y., Shang, J., Graham, R., Baric, R. S., & Li, F. (2020). Receptor Recognition by the Novel Coronavirus from Wuhan: an Analysis Based on Decade-Long Structural Studies of SARS Coronavirus. Journal of Virology, 94(7), e00127-20

If any leads look promising in the lab, they could soon enter clinical trials as well. Of the 69 drugs, 27 are already approved, 14 are in clinical trials, and 28 are in preclinical tests. Most of the newly identified drugs will probably hinder the virus, says Stanley Perlman, a coronavirus researcher at the University of Iowa.
SYNDROMIC SURVEILLANCE

Syndromic surveillance refers to methods of detection of clinical case features discernable before confirmed diagnosis. Prior to the laboratory confirmation of an infectious disease, ill persons may exhibit behavioral patterns, symptoms, signs, or laboratory findings that can be tracked through a variety of data sources. Syndromic surveillance systems are being developed locally, regionally, and nationally. The technology is useful for public health, clinical medicine, quality improvement, patient safety, and research and providing an early warning and a tool for monitoring an ongoing crisis (such as a pandemic). These systems note patterns of cases over time and across a region.

Syndromic Surveillance has been successful in South Korea, and other countries, however balancing personal freedom and tracking a public health threat can be challenging. Public health leadership and a coalition of data providers, 'trusted brokers' (non-partisan entities were used in Gesteland PH, Wagner MM, Chapman WW, et al. Rapid deployment of an electronic disease surveillance system in the state of Utah for the 2002 Olympic winter games. Proc AMIA Symp. 2002:285-9) and informatics to interpret and publish the data. The geographic, demographic, and temporal coverage must be sufficient to support anomaly detection. The most valuable sources will be those that are electronically stored, allow robust syndromic grouping, and are available in a timely fashion. Lazars, R., Kleinman, K., Dashewsky, I., Adams, C., Kludt, P., DeMaria, A., Jr, & Platt, R. (2002). Use of automated ambulatory-care encounter records for detection of acute illness clusters, including potential bioterrorism events. Emerging infectious diseases, 8(8), 753-760.

Understanding how common COVID-19 is and how it is spreading are critical to timely and correct responses. Seattle and King county public health department partnered with technical assistance from the Gates foundation and Amazon, launched; Seattle Coronavirus Assessment Network (SCAN). A surveillance platform, SCAN conducts diversified, focused population based testing from samples of communities across the county. The testing allows them to predict the number of asymptomatic cases, and gauge the efficacy of social distancing. The ability to gather population based data provides insight to whom is being affected, and the virus’ severity among the communities. The kits are testing 300 per day initially and support is facilitated by the CDC in Atlanta. https://publichealthinsider.com/2020/03/23/introducing-scan-the-greater-seattle-coronavirus-assessment-network/

Global Situation Report

[Image of COVID-19 dashboard]

Johns Hopkins Global Tracker Report for APRIL 28, 2020 at 0730 CST:
3,057,957 confirmed cases: up 560,000 cases in 1 week (increased rate)
211,894 deaths: up 40,242 in a week (decreased rate: fewer weekly deaths for 2 consecutive weeks!)

Uncontrolled acceleration is erupting in South America, Brazil, Peru, and Chile. Pakistan and Belarus have increased case numbers since early April.

Africa is expediting clinical research trials. National regulatory agencies and ethics review boards in Africa are speeding the review processes for COVID-19 pharmaceuticals and tests. The agreement was formalized in early April under the African Vaccines Regulatory Forum, which was established by the WHO in 2006 to improve regulatory capabilities and oversight for clinical trials. Under the agreement, proposed clinical trials can be reviewed by multiple countries and agencies simultaneously via an online portal, and study sponsors and researchers can respond to countries’ questions or concerns in real time via the same platform.

President Trump's decision to suspend WHO funding wasn't the first time a U.S. president has withheld funds, D.A. Henderson, then Dean of what would become Johns Hopkins Bloomberg School of Public Health, advocated fiercely for the WHO in 1986-1988 by the Reagan administration. In a Baltimore Sun editorial, Henders In warned that the U.S. default was already influencing other countries to do the same and causing foreign allies to question America’s "long-recognized traditions of humanity and moral leadership." By breaking its treaty obligations to WHO and other UN agencies, Henderson said, the U.S. was risking "the charge of being morally bankrupt." Karen Kruse Thomas, PhD, is the Bloomberg School historian. The decision was eventually overturned 18 months later. https://www.jhsphs.edu/covid-19/articles/the-other-time-a-us-president-withheld-who-funds.html

Similar to the Solidarity 1 program, a mega-trial of possible COVID-19 treatments the World Health Organization (WHO) launched last month, Solidarity II begins this week. The new program is an international research pool to facilitate interpretation from multiple countries fueling large-scale antibody studies. This will illuminate CoV-SARS-2 global effect more quickly. A Solidarity III trial is scheduled. It will test possible drugs that health care workers and others at high risk for contracting
WHO, international CDC's, and state public health agencies. It is the national "media aggregation site for the United States" that Where do the numbers come from?

Dr. Hans Henri P. Kluge, WHO Regional Director for Europe, distancing measures. For potential increases in community transmission to become evident in European countries that are beginning to relax social and deaths by 1/3

Nearly 50% of the worldwide COVID-19 cases are in Europe. Between the 2nd and 3rd week of April, cases increased by 25% and deaths by 1/3. Germany has experienced several consecutive weeks of overall declining daily case reports. It may take time for potential increases in community transmission to become evident in European countries that are beginning to relax social distancing measures.

Vice-President Chen Chien-Jen credited his education at Johns Hopkins, "principles and methods I learned not only in epidemiology but also in biostatistics and information science, public health administration, and human health behavior" as being instrumental in his ability to contain and mitigate CoV-SARS-2 within the democracy.

SOCIAL DISTANCING

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Dr. Hans Henri P. Kluge, WHO Regional Director for Europe, "Every signal that the virus is being controlled, managed, mitigated is a good signal. However, my message today remains one of caution, complacency could be our worst enemy at this time. We cannot permit ourselves to believe we are secure and safe. Any steps to ease social and physical distancing measures MUST be carefully considered and gradually undertaken. The public must understand the inherent risks as governments, understandably, try to release the steam building up in societies and pressing our respective economies. This is not an 'exit': there is no fast track to the new normal. The question is not whether there will be a second wave. The question is whether we will take into account the biggest lesson so far, namely to work between waves to strengthen readiness and surge for worst-case scenarios. Any return to the new normal needs to be based on a risk assessment, needs to happen gradually and taking into account the WHO European Transition Framework".[10]

In the United States of America, the Governors of Georgia, South Carolina, Tennessee, and Texas all announced immediate or forthcoming changes to existing physical distancing measures. Each state is taking a different approach to identifying activities that are appropriate to resume, but all note that the efforts are designed to provide relief to economic burdens in the state while mitigating COVID-19 risk.

Available COVID-19 data do not necessarily indicate that these states have exhibited 14 day downward trends in COVID-19 activity as outlined by White House guidance.

"Even if the death rate is lower than feared, it's still very high. With newest findings, it is still many times more deadly than influenza," Caitlin Rivers, an epidemic researcher at Johns Hopkins University. The best current guess is that the death rate for coronavirus is about five times higher than that of seasonal influenza.
Johns Hopkins uses for national data. "...we follow really closely. We take U.S. data from them, and they pull global data from us." Lauren Gardner, co-director of Hopkins's Center for Systems Science and Engineering

17 states reported more than 10,000 cases (1 new), and 27 states (no change) are reporting widespread community transmission. Based on recent daily incidence trends, the United States could reach 1 million cases by the end of April"..... **We Have.**

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**Last week 1,300 people in New York City were tested for coronavirus antibodies- per Governor Cuomo, 21% were positive.**

**Vaccine Rates Drop Dangerously as Parents Avoid Doctor's Visits** *(The New York Times)* Parents are cancelling well-child checkups to avoid coronavirus exposure, and immunization rates are dropping. Public Health departments warn this will put millions of children at risk for measles, whooping cough and other life-threatening illnesses. School closures preventing spread throughout classrooms will deter risk temporarily.

• Health officials in Wisconsin initiated an investigation to monitor transmission potentially linked to in-person voting. The Supreme Court overturned, Governor Tony Evers last minute executive order to post-pone the election. In-person polling locations were closed, yielding long lines and congestion at polling stations. Milwaukee Health Commissioner Jeanette Kowalik confirmed 7 cases of COVID-19-6 voters and 1 poll worker- could be traced to the polls. Local health officials indicated that they have only 30% of the data and that additional cases could be identified as more information becomes available.

• **USS ROOSEVELT OUTBREAK** The US Navy continues to report COVID-19 cases among the Sailors and Marines onboard the **USS Roosevelt** aircraft carrier. A joint investigation between the Navy and the US CDC is ongoing to better understand the transmission of SARS-CoV-2 among the ship's crew. The study will reportedly include broad diagnostic and serological testing of crew members. The outbreak was detected approximately 2 weeks after the ship was in Da Nang, Vietnam; however, it is unclear exactly how the virus was introduced to the ship. The US Air Force constructed a temporary medical facility to provide treatment and isolation capacity for COVID-19 patients. Over 700 sailors have been infected among the ship's crew, which remains in quarantine in Guam. The ship's Commanding Officer, Captain Brett Crozier, was relieved of duty after sending a letter to senior US Navy leadership calling for additional support and response early in the ship's outbreak. Secretary of the Navy Thomas Modly resigned shortly after the incident, an investigation is ongoing.

• Spot the Robot dog is being used as an intake triage specialist at Brigham and Women's Hospital. The robot uses an IPAD to connected to a physician who can then safely screen incoming patients without utilizing PPE until necessary. Spot was developed as a partnership between MIT and Boston Dynamics. [https://www.bostonglobe.com/2020/04/23/business/robot-will-see-you-now/](https://www.bostonglobe.com/2020/04/23/business/robot-will-see-you-now/)

• The house approved $484 billion to back up Federal lending facilities, including $380 billion for small businesses, $75 billion for hospitals, and $25 billion to expand testing capacity in COVID-19 response. The central bank agreed to release the names and details of participants in each of its programs, the amount borrowed and interest rate charged, and overall costs, revenues and fees, to update monthly.

• The past five weeks over 26 million people in the U.S. have filed unemployment. Senator Mitch McConnell, the majority leader, said this week that states, which shared $150 billion from previous pandemic aid, should consider filing for bankruptcy, but there is bipartisan agreement that Congress will need to help more.

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**CLINICIAN COMMUNICATION & GUIDANCE**

The **Center for Disease Control Clinician (CDC) Outreach Communication Activity (COCA)** provides important clinician information to the healthcare community:

• [https://emergency.cdc.gov/coca/cocadigest/index.asp](https://emergency.cdc.gov/coca/cocadigest/index.asp)

• Webinar updates [https://emergency.cdc.gov/coca/about.asp](https://emergency.cdc.gov/coca/about.asp)

**Serologic antibody test trials**

Antibody tests are crucial to reopening the economy, but public health experts have raised urgent concerns about their quality. A team of 50 scientists evaluated 14 available tests for coronavirus antibodies. They set up lines of laboratory volunteers: medical
residents, postdoctoral students, even experienced veterans of science, each handling a specific task. Only three passed, even these three tests detected antibodies in infected people approximately 90 percent of the time, at best. Each test was evaluated with the same set of blood samples: from 80 people known to be infected with the coronavirus, at different points after infection; 108 samples donated before the pandemic; and 52 samples from people who were positive for other viral infections but had tested negative for SARS-CoV-2. Tests made by Sure Biotech and Wondfo Biotech, along with an in-house Elisa test, produced the fewest false positives. https://covidtestingproject.org/

DIALYSIS SUPPLIES/MACHINES:
Solutions to dialysis supply shortages are dependent upon multiple patient/unit specific factors. Due to the intricate specificities in treatment and individual patient considerations, rather than summarize guidelines we felt it more appropriate to provide a comprehensive reference site of EVP:


VENTILATORS:
US NATIONAL VENTILATOR SHARING PROGRAM
April 14, the American Hospital Association collaborated to reallocate 4,000 ventilators from hospitals experiencing relatively lower levels of demand to those experiencing high demand. The collaborative is called the Dynamic Ventilator Reserve. The White House's Council of Economic Advisors published its analysis of the effect this will have in supporting the surge of COVID-19. Projections claimed using this collaborative, the national supply of ventilators WILL BE sufficient to handle peak demand, but was worded as will "provide enough ventilators for the hospitals participating in the network" by moving surplus ventilators to areas of high demand. It is unknown if this will facilitate transfer to hospitals not within the 'network'.

FACESHIELDS:
Maskshields: request only what you require at this time; healthcare facilities will get priority https://www.atlasied.com/
Capshields: email peoplesprotectiveequipment@gmail.com
WavePad Face Shields: Pay for shipping. Message via Facebook to request.

The AHA is helping connect manufacturers with hospitals in need of PPE. https://www.100millionmasks.org/manufacturers They are also encouraging manufacturers to contact their local hospitals to find out about their immediate needs for PPE and how businesses might assist. Their helpful design specification guide was created to assist manufacturers who don't normally produce PPE.

N95: Emergency preparedness company Preppi is donating N95 masks to healthcare workers in need. Fill out the donation request form on website. https://www.preppi.co/pages/covid-19

N95: Hospital / Medical centers treating COVID-19 patients, email your mailing address, picture of your badge or business card to info@unclenearest.com and Uncle Nearest Premium Whiskey will send N95 ASAP.

SANITIZER:
The Detroit Bus Co. Please email help@thedetroitbus.com the name of your organization, the quantity you need, and reason why you cannot purchase it.

RexPay has partnered with The Wellnus Company to donate sanitizing hand wipes to healthcare providers. They can also help procure other necessary PPE for providers in need. Fill out the form on their webpage to get started. https://rexpay.com/covid19ppe-request

GOWNS: graduation gowns FREE from Gowns 4 Good.

**Vulnerable Populations**

"The COVID-19 pandemic is a public health emergency - but it is far more: it is an economic crisis, a social crisis…and a human crisis that is fast becoming a human rights crisis.” António Guterres is the ninth Secretary-General of the United Nations, who took office on 1st January 2017.

Patients without CoV-SARS-2: when best practice become "second best"
Emergency rooms are experiencing fewer visits. Are individuals avoiding care for urgent nature problems, or, are they also weighing the risk and postponing care of life-threatening events? Likely both. Fewer admissions for common emergencies such as heart attack and stroke reveal the awareness of COVID-19 transmission may be imparting the perception that care is unavailable or unsafe. ~Sheth K., Hospital admissions for strokes appear to have plummeted, a doctor says, a possible sign people are afraid to seek critical help. Washington Post. April 9, 2020

Patients are not alone weighing risk versus benefit. Brian Kolski, director of the structural heart disease program at St. Joseph Hospital in Orange County, California,
The postponement of elective procedures creates additional frustration, "procedures deemed 'elective' are not necessarily elective—two patients whose transthoracic aortic valvular replacements were postponed, died while waiting," Kolski. A sentence which might to some, read like certain forms of socialist medicine US citizens are accustomed to only reading about, but factually, COVID-19 has changed the standard of clinical care for many.


Cancer care often involves outpatient radiation, immunosuppressive therapy, or tumor resection with inpatient treatment, both has been disproportionately affected by Covid-19. Chemotherapy and oncology protocols have been revised to minimize both the frequency and the degree of immunosuppression. Treatment interruptions have occurred due to pauses in clinical trials amid society-wide shutdowns. This is especially difficult for patients with refractory tumors, for whom experimental surgery, or targeted therapy, has a clinical benefit of nearly 20%. Given their high risk of infection and potential need for Intensive Care beds, in some areas of the country patients requiring bone marrow transplants are having to wait. It's a fine balance of risk vs. benefit.


HOMELESS SHELTERS

Hua Qian, Te Miao, Li LIU, Xiaosheng Zheng, Danting Luo, Yuyue Li. Indoor Transmission of SARS-CoV-2 medRxiv 2020.04.04.20053058

1.4 million persons access emergency shelter or transitional housing each year. These settings can pose risks for communicable disease spread. In late March and early April 2020, public health teams responded to clusters (two or more cases in the preceding 2 weeks) of coronavirus disease 2019 (COVID-19) in residents and staff members from five homeless shelters in Boston, Massachusetts (one shelter); San Francisco, California (one); and Seattle, Washington (three) all identified outbreaks of 3 or more cases occurred in an indoor environment, confirming that sharing indoor space is a major risk factor for infection.

- https://www.cdc.gov/mmwr/volumes/69/wr/mm6917e1.htm#T1_down
- https://www.medrxiv.org/content/10.1101/2020.04.04.20053058v1

Shelters relocating to empty or abandoned hotels / motels are being proactive in protecting their residents. In Las Vegas, the city immediately used parking garages, creating bordered spaces for their homeless populations to practice social distancing. The residents have been adamant in protecting their space. It is logical that a population whom is accustomed to witnessing or experiencing illness via close proximity transmission, would embrace and actively participate in social distancing measures, the rest of society should heed this example.

Long Term Care (LTC) / Skilled Nursing Facilities (SNF)

Up to half of those who have died from COVID-19 in the European Union were residents in long-term care facilities. Though prevented from receiving visits from family and friends, and no longer getting the emotional and physical support that such visits provide, social isolation has not been effective in preventing transmission through these facilities. The use of home-made masks for clinical and operational staff is not an effective measure of protection. With so many asymptomatic infectious individuals, a staff member untrained in wearing a N-95 or home-made mask is a likely vector. Often these facilities do not offer the training for PPE that is an annual 'skill' practiced in acute medical centers. Many staff report not having N95s available, and, if they do, they are not well-versed in don' doff process to prevent cross contamination, or storage guidelines of placing in a paper-sack and removing gloves after touching the exterior mask.

The National Academy of Medicine offers planning advice for facility administrations:

- Provide N95s, PPE, and education in use
- Connect with local health departments- this should start at a STATE level
- PhDs should assign a representative to any LTC/SNF to assist with test procurement and reporting. Check-ins should occur weekly at a Minimum and ‘strike’ teams should be prepared to enter and assist in affected facilities.
- Cohort affected patients
- Establish contracts with staffing agencies to minimize early return to work by affected HCWs
- Screen ALL staff with '1st suspicion (research shows MANY asymptomatic staff transmissions)

Guidance has been published with 'special emphasis' in protecting this population:

- Recommendations for a Metropolitan COVID-19 Response - Special Emphasis Series. A Guidance on Protecting Individuals Residing in Long-Term Care Facilities

This document reflects recommendations for how, through the establishment of a long-term care support team, local municipalities can help support Coronavirus-2019 (COVID-19) pandemic preparedness and response efforts within long-term care facilities (including skilled nursing facilities, nursing homes, and assisted living facilities) in the United States as of April 21, 2020.

REFUGEES / MIGRANT WORKERS

The United Nations and its partners are actively attempting to prevent the pandemic from wreaking havoc on displaced populations who already face humanitarian crises. In cramped camp settings, these people are struggling to implement measures to avoid community transmission of the virus, such as physical distancing and frequent hand-washing, but are responding to the threat proactively. Saidul Haque, is one of 860,000 Rohingya refugees in Cox's Baza Bangladesh, lives with seven members of his family sharing an 8 by 10 foot shelter “Everyone is asking us to maintain social distance, but how can we? It's totally impossible for us."

“Globally, an unprecedented 70.8 million people have been forced from home, including 25.9 million refugees as well as 40.3 million people displaced inside their countries,” UN Refugee Agency.
To prepare for a potential outbreak of the coronavirus in the camps, UNHCR and partners have started constructing isolation and treatment facilities, with the goal of ensuring the availability of 1,900 beds to serve both refugees and host communities in the coming weeks.

Twenty portable handwashing facilities are now accessible for homeless persons in seven locations in the Sudanese capital as part of the International Organization for Migration (IOM) emergency response to COVID-19.

Refugee artisans are stepping up to make masks. Maombi Samil, a 24-year-old refugee from the Democratic Republic of the Congo, runs a fashion design and tailoring business in north-western Kenya’s Kakuma camp, began creating masks. Designer Samir, "I wanted to use my talent and locally available fabric to show that we [refugees] can also contribute to the response to the pandemic and not just rely on assistance." Another designer, Rashid, ran out of elastic bands. "Half the town took part." Rashid was offered funding by the local media to continue but he turned it down, stressing that he did not want any payment. "If we can give something back to Germany, then we are happy."

A fellow refugee spread the word through his spouses’ WhatsApp gardening group, an hour later, Fatima and Rashid’s mailbox was full of elastic bands. "Half the town took part." Rashid was offered funding by the local media to continue but he turned it down, stressing that he did not want any payment. "If we can give something back to Germany, then we are happy."

There are guidelines for infection control in these communities, though non-specific to COVID-19, agencies are using historical information to try to address the challenges they face, to include training some population members as voluntary health aides and public health committees within the camps.

- Training and deployment of lay refugee and internally displaced persons to provide basic health services in camps [https://www.tandfonline.com/doi/full/10.3402/gha.v7.23902](https://www.tandfonline.com/doi/full/10.3402/gha.v7.23902) Citation: Ehiri JE, Gunn JK, Center KE, Li Y, Rouhani M, Ezeanolue EE

HUMAN RIGHTS
"The Threat is the Virus, not people. We have seen how the virus does not discriminate, but its impacts do- exposing deep weaknesses in the delivery of public services and structural inequalities that impede access to them. We must make sure they are properly addressed in the response. We see the disproportionate effects on certain communities, the rise of hate speech, the targeting of vulnerable groups, and the risks of heavy-handed security responses undermining the health response. Against the background of rising ethno-nationalism, populism, authoritarianism and a pushback against human rights in some countries, the crisis can provide a pretext to adopt repressive measures for purposes unrelated to the pandemic. This is unacceptable... any emergency measures- including states of emergency- are legal, proportionate, necessary and non-discriminatory, have a specific focus and duration, and take the least intrusive approach possible to protect public health. Looking ahead, we need to build back better. The Sustainable Development Goals, which are underpinned by human rights, provide the framework for inclusive and sustainable economies and societies.” ~António Guterres

ADVOCACY

We are asking you to call your senators today so we can pressure each and every one of them to follow through on these demands and protect nurses.

"Hi, my name is ________ I'm a constituent of yours from ________ I'm calling to ask you to stand with nurses by mandating that OSHA enact an emergency temporary infectious diseases standard and mandating that President Trump fully utilize the Defense Production Act. Nurses across the country are reporting that they are still not receiving the personal protective equipment (PPE) they need to safely care for COVID-19 patients. We need you to take action NOW to get nurses the PPE they need to take care of their patients and keep us all safe. If nurses become infected, they won't be there when you and your loved ones need them.

Standing six feet apart, a group of NNU union nurses gathered in front of the White House yesterday. They bravely stood their ground to honor the nurses we've lost on the front lines of this crisis and call out the President for failing to give health care workers the protections we need to survive.

During the action, nurses read the names of nurses who have lost their lives fighting this virus while holding up their photos in order to show the human cost of the continued lack of PPE.
STRESS-MANAGEMENT

Stress Management & Resilience for Healthcare Workers:
https://www.ahna.org/Home/Resources/Stress-Management

Evidence-based resources for resilience.

Breathwork for Resilience

Staying Calm and Well in the Midst of the COVID19 Storm-
Evidence-based Tactics that Work! https://u.osu.edu/keepcalmcovid19/schedule/

Headspace - Clinical healthcare professionals are currently receiving complimentary premium memberships.

Meditation Oasis - The Meditation Oasis® Podcast features guided meditations, instructions for meditation, and music for meditation. You can listen to it at iTunes or Google Play or by clicking on the play buttons below. Episodes are listed from the oldest to the most recent.

Mindfulness Coach - This app leads the user through steps to learn how to practice mindfulness. Mindfulness means grounding yourself in the present moment.

Holliblu - Application built for nurses by nurses. Self-care resources to use before, during, and after your shift! https://holliblu.com/

ZEN Meditation Music- https://www.youtube.com/watch?v=WZKW2Hq2fks

Compassion Caravan www.compassioncaravan.com
Listening Circles by AHNA Chapter Leaders - website to get more information

Wellbeing and Resilience for Health Professionals online and self-paced, rolling start dates:
https://www.csh.umn.edu/community/wellbeing-resilience-health-professionals-online-program Use Code "Wellbeing" to get FREE access

Informal hour of meditation and light movement University of Minnesota's Earl E. Bakken Center for Spirituality & Healing Webinar  https://umn-private.zoom.us/webinar/register/WN_ZzePhO9ZTdpWeakplZa

A Guided Meditation to Support the Immune System
(mp3) https://www.healthjourneys.com/partneraccess/indexdisplaytoken/MvMhLbcsEbTBK-AoUk45oXgNhPQr1I0IHY2QjOjDD10HaFGbWQ6Hi9c2MUCNMP94PW-KyVGY4dM0t1Fkzy0USJ72Qpr2v6bEtuQiq90h1IbEETIEy62BDc8IXe6Cp38yWkEbXqg


PODCAST- https://www.integrativepractitioner.com/resources/podcasts?submit=true#play


Social Media- #fixthefrontlines

INFECTION CONTROL & PUBLIC HEALTH

Mission for Masks  missionformasks@gmail.com Include best point of contact for distribution

COVID-19: How to put on and remove personal protective equipment (PPE): This is a guide for health care workers involved in patient care activities in a health care setting. It aims to show the type of personal protective equipment or PPE needed to correctly protect oneself:

CDC TRANSPORT / ARRIVAL recommendations for healthcare professionals preparedness checklist confirmed or possible COVID-19.

Introduction to Go.Data - Field data collection, chains of transmission and contact follow-up: Go.Data is a field data collection platform focusing on case data (including lab, hospitalization and other variables though case investigation form) and contact data (including contact follow-up).

CONTINUING EDUCATION & WEBINARS


Heart Failure Guidelines: New Treatment Options
Refresh your knowledge of current management of HF. Webinar presenter Cheryl A. Westlake, who contributed to development of 2017's "Guideline for the Management of Heart Failure" update focuses on patients with HF with reduced ejection fraction.


Home Care and Hospice- webinar - Impact of COVID19


Emergency Nurses Association- COVID Free webinar https://www.youtube.com/channel/UCV6LMjlCiWUMf7aVpJ5aV6uPA

Pulmonary Care Webinars - Free from American Association of Critical Care Nurses https://www.aacn.org/education/online-courses/covid-19-pulmonary-ards-and-ventilator-resources?sc_camp=D89A5915E9349310A638BAF9931DE4F0&_s=1uTXX&_d=ewR22
Adopting Telemedicine successfully in the Times of COVID-19: 2020 1:30-2:15pm
https://register.gotowebinar.com/register/4949718080132928132?utm_source=hs_email&utm_medium=email&utm_content=85586684&_hsenc=p2ANqtz-J1F_VcQbXELUwkKjDLiWPcWZccAElWuea-Zw8gB2D1KSCcO0XZyEEq2NH511n4ofGofNqQtm57Gr1Puphiluy_ofA&hsmi=85586684

ADVOCACY

Tell your member of Congress to do everything possible to increase PPE prioritization and distribution to nurses and other frontline providers! https://p2a.co/7Xuw9of

AACN Signs Joint Statement on Social Distancing - AACN joined other critical care organizations urging federal, state and local officials to continue or initiate social distancing practices to slow the progress of the COVID-19 pandemic. https://www.aacn.org/policy-and-advocacy-media/06b81d6a72de422f89e11f1ee42289e111f1ee4299538b.ashx

AACN Signs Consensus Statement on Multiple Patients Per Ventilator- sharing mechanical ventilators cannot be done safely with current equipment:https://www.aacn.org/policy-and-advocacy-media/866b160526234730bf77695d04319065.ashx


PRACTICE

OpenWHO.org, a new interactive, web-based, knowledge-transfer platform offering online courses to improve the response to health emergencies from WHO.

COVID-19 in Children: Initial Characterization of the Pediatric Disease - pre-publication article that has been peer-reviewed for publication in Pediatrics.

Primary Care- Q&A Interim protocols for COVID-19 in primary care

- Printable "Symptoms of the Coronavirus" poster from the CDC. Also available in Spanish and simplified Chinese.

CMS guidelines for Medicare/Medicaid,

- CMS Regulatory Changes to Help U.S. Healthcare System Address COVID-19 Patient Surge - provisions include authorizing hospitals to use PAs and NPs to the fullest extent possible.

PUBLIC RESOURCES

iHealth Facts, which is supported by Cochrane Ireland, is a resource where the public can quickly and easily check the reliability of a health claim circulated by social media.

Evidencias COVID-19 is a continuously updated Spanish resource that provides answers to relevant questions about the pandemic. It includes rapid reviews of the literature and critical comments on studies and clinical trials, in addition to Cochrane reviews in Spanish related to COVID-19.

SUPPLY DONATION

FEMA online medical supplies and equipment form

Not an AHNA member? Learn more.