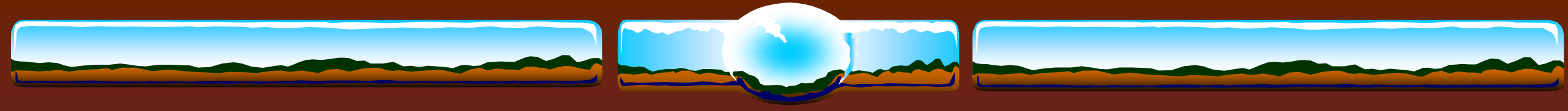




COVID-19 Clinical Update

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Disclosures

Virology: Denmark Cluster 5 Variant

- ❖ WHO Outbreak News November 6, 2020
- ❖ 214 human cases of COVID-19 associated with farmed minks
- ❖ 12 cases had unique “Cluster 5” variant with new mutations not seen before.
- ❖ **Cluster 5 has decreased sensitivity to neutralizing antibodies.** Human impact is being studied.
- ❖ 17 million minks were to be culled

<https://www.who.int/csr/don/06-november-2020-mink-associated-sars-cov2-denmark/en/>





Immunology

- ❖ **Humoral Response to SARS-CoV-2 in Iceland:** (Gudbjartsson et al, NEJM. 10/129/2020)
- ❖ Studied sera from 30,576 people in Iceland with 6 assays:
 - ❖ pan-Ig assays: nucleoprotein and receptor binding domain of spike protein. (IgM, IgG, IgA)
 - ❖ IgG/IgM against N, IgG/IgA against S1 spike protein
- ❖ 1797 patients recovered from COVID-19, 4222 were under quarantine and 23,452 had no exposure
- ❖ 91% of recovered patients still had antibody two months after the diagnosis by PCR and remained positive up to 4 months
- ❖ Risk of death in Iceland was only 0.03%
- ❖ Serology results show and estimated 44% of people with SARS-CoV-2 infection were not diagnosed by PCR



Epidemiology

SARS CoV-2 seroprevalence and transmission risk factors among high-risk close contacts (Ng et al, Lancet 11/2/2020)

- ❖ Retrospective cohort study of all close contacts of COVID cases in Singapore January-April 2020
- ❖ Identified 7770 Close Contacts. (1863 household, 2319 work, 3588 social)
- ❖ Symptom based PCR detected 188 cases of COVID-19
- ❖ The secondary attack rate was 5.9% for household, 1.3% for work and 1.3 % for social contacts
- ❖ Symptom based PCR missed 62% of cases
- ❖ Risk factors for COVID:
 - ❖ Sharing bedroom OR 5.38
 - ❖ Being spoken to for 30 minutes OR 7.86
 - ❖ Sharing a vehicle OR 3.07
- ❖ Indirect contact, meal sharing and lavatory co-usage were not independently associated

[https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30833-1/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30833-1/fulltext)



Clinical Presentation

Please read this paper!

CLINICAL PRACTICE

Caren G. Solomon, M.D., M.P.H., *Editor*

Mild or Moderate Covid-19

Rajesh T. Gandhi, M.D., John B. Lynch, M.D., M.P.H., and Carlos del Rio, M.D.

This Journal feature begins with a case vignette highlighting a common clinical problem. Evidence supporting various strategies is then presented, followed by a review of formal guidelines, when they exist. The article ends with the authors' clinical recommendations.

A 73-year-old man with hypertension and chronic obstructive pulmonary disease reports that he has had fever, cough, and shortness of breath for 2 days. His medications include losartan and inhaled glucocorticoids. He lives alone. How should he be evaluated? If he has coronavirus disease 2019 (Covid-19), the disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), then how should he be treated?

From Massachusetts General Hospital and Harvard Medical School, Boston (R.T.G.); the Department of Medicine, Division of Allergy and Infectious Diseases, University of Washington School of Medicine, Seattle (J.B.L.); and the Department of Medicine, Division of Infectious Diseases, Emory University School of Medicine, and Grady Health System, Atlanta.

<https://www.nejm.org/doi/pdf/10.1056/NEJMcp2009249?articleTools=true>



Testing

Potential for False Positive Results from Antigen Tests

- ❖ FDA letter to clinical laboratory staff and Health Care providers
 - ❖ Alert about false positive results with antigen tests
 - ❖ Including when users do not follow instructions
 - ❖ Alerts initially came from nursing homes and other settings
 - ❖ Recommendations:
 - ❖ Follow the package insert and the FDA EUA instructions
 - ❖ Do not store test cartridge/card open prior to use
 - ❖ Do not read the test too soon or too late
 - ❖ Do not process too many at once or the timing will be off
 - ❖ Don't cross contaminate (clean work-space, disinfect instruments, use PPE).

<https://www.fda.gov/medical-devices/letters-health-care-providers/potential-false-positive-results-antigen-tests-rapid-detection-sars-cov-2-letter-clinical-laboratory>



Testing

LUCIRA All-In-One

- ❖ **FDA EUA** given for **Lucira Health Covid-19 All-in-One Test kit**
 - ❖ Nasal self-swab at home for age 14 and up, provider swab for <14
 - ❖ SARS-CoV-2 RNA is reverse transcribed to cDNA which is amplified by loop-mediated isothermal amplification (LAMP) in half an hour
 - ❖ 94% positive % agreement with PCR; 98% negative % agreement
 - ❖ Costs about \$50 per NYT



<https://www.lucirahealth.com/>

<https://www.fda.gov/media/143810/download>



Testing alert from CDC:

Considerations for Use of SARS-CoV-02 Ag testing in nursing homes

- ❖ Test sensitivity ranges from 84-97% when used within 5 days of symptom onset
- ❖ Testing may be done on nursing home patients
 - ❖ Symptomatic
 - ❖ Asymptomatic during outbreak response
 - ❖ Testing as required by CMS
 - ❖ **Recommendations:**
 - ❖ If antigen test is positive, confirmation by PCR is not required
 - ❖ If antigen test is presumed negative, perform PCR within 48 hour
 - ❖ Repeat test asymptomatic persons every 3-7 days until no new cases seen in 14 days
 - ❖ If Health Care Personnel test positive, exclude from work until PCR result is back



Treatment

Remdesivir approved October 22, 2020

- ❖ Remdesivir is FDA approved for adults and children > 12yo (>40kg)
 - ❖ EUA approval continues for hospitalized children weight 3.5-40kg or < 12 years old weighing at least 3.5kg
- ❖ Only approved for inpatients
- ❖ Treat 5 days on wards, 10 days for mechanical ventilator/ECMO
- ❖ Not indicated for GFR < 30
- ❖ Stop if ALT > 10 x ULN

<https://www.fda.gov/media/137574/download>



Treatment: What about the SOLIDARITY Trial??

WHO: Repurposed antiviral drugs for COVID-19

- ❖ Studied 11,266 adults at 405 hospitals in 30 countries (Open label)
- ❖ Randomized to RDV, LPV, IFN/LPV, IFN alone or no drug
- ❖ 2750 received Remdesivir
 - ❖ Death rate ratio for remdesivir was $RR = 0.95$ (0.81-1.11)
 - ❖ No drug in study reduced mortality, shortened hospitalization or decreased initiation of ventilation
- ❖ FDA concluded that ACTT-1 was better suited to assess time to recovery and odds of improvement than SOLIDARITY



Treatment

Nebulized interferon beta-1a SNG001 for SARS-CoV-1

- ❖ Monk et al from 9 sites in the UK did phase 2 pilot trial (**Synairgen**)
- ❖ 101 patients with positive PCR age 18 and older admitted to hospital
 - ❖ Randomized to inhaled nebulized interferon beta-1a (SNG001)
 - ❖ 67% were on oxygen supplementation at baseline
- ❖ Results
 - ❖ SNG001 had **greater odds of improvement** on WHO Ordinal Scale for Clinical Improvement (OR = 2.32) at day 15 or 16 and greater odds of improvement to OSCI =1 (OR 2.19)
 - ❖ Three placebo patients died and Zero SNG001 recipients died



Treatment

Efficacy of Tocilizumab in Patients Hospitalized with Covid-19

John H. Stone, M.D., M.P.H., Matthew J. Frigault, M.D., Naomi J. Serling-Boyd, M.D., Ana D. Fernandes, M.A., Liam Harvey, B.S., Andrea S. Foulkes, Ph.D., Nora K. Horick, M.S., Brian C. Healy, Ph.D., Ruta Shah, M.D., Ana Maria Bensaci, M.D., Ann E. Woolley, M.D., Sarah Nikiforow, M.D., Ph.D., et al., for the BACC Bay Tocilizumab Trial
Investigators*

“Tocilizumab was not effective for preventing intubation or death in moderately ill hospitalized patients with COVID-19”



Treatment

Bamlanivimab FDA EUA

- ❖ Monoclonal Spike Protein antibody therapy
 - ❖ Repeat ED visit or hospitalization: 3% with drug vs 10% with placebo
- ❖ EUA granted for an EUA for treatment of mild-moderate COVID-19 patients who are at risk for progression
 - ❖ Not approved for hospitalized patients
 - ❖ Not approved for patients requiring oxygen or an increase in baseline oxygen therapy for COVID-19
- ❖ Requires 1 hour IV infusion of 700 mg for an adult



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Ideas and Opinions | 3 November 2020

Why N95 Should Be the Standard for All COVID-19 Inpatient Care

Nhu Quyen Dau, PharmD, BCCP, Harry Peled, MD , Helen Lau, RN, MHRD, BSN, Julie Lyou, MD, ... [See More](#) 

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<https://doi.org/10.7326/M20-2623>

<https://www.acpjournals.org/doi/pdf/10.7326/M20-2623>



More COVID-19 Training

- ❖ **CDC:** <https://www.cdc.gov/coronavirus/2019-ncov/hcp/index.html>
- ❖ **ACP Physician Handbook:** <https://www.acponline.org/clinical-information/clinical-resources-products/coronavirus-disease-2019-covid-19-information-for-internists>
- ❖ **UW Protocols:** <https://covid-19.uwmedicine.org/Pages/default.aspx>
- **UW IDEA Program:** <https://covid.idea.medicine.uw.edu/>
- **NIH Guidelines:** <https://covid19treatmentguidelines.nih.gov/>
- ❖ **Brigham and Women's Hospital:** covidprotocols.org

