COVID-19: KEEPING UP WITH A MOVING TARGET
July 15, 2020 UPDATE

Paul Auwaerter, MD, MBA, FIDSA
Clinical Director, Division of Infectious Diseases
Sherrilyn and Ken Fisher Professor of Medicine
Fisher Center for Environmental Infectious Diseases
Johns Hopkins University School of Medicine
Baltimore, Maryland

CME Information

Jointly provided by Postgraduate Institute for Medicine, DKBmed, and the Institute for Johns Hopkins Nursing.

Disclosure of Conflicts of Interest

Postgraduate Institute for Medicine (PIM) requires instructors, planners, managers, and other individuals who are in a position to control the content of this activity to disclose any real or apparent conflict of interest (COI) they may have as related to the content of this activity. All identified COI are thoroughly vetted and resolved according to PIM policy. PIM is committed to providing its learners with high quality activities and related materials that promote improvements or quality in healthcare and not a specific proprietary business interest of a commercial interest.

The faculty reported the following financial relationships or relationships they or their spouse/life partner have with commercial interests related to the content of this continuing education activity:

Name of Faculty or Presenter	Reported Financial Relationship
Paul G. Auwaerter, MD, MBA, FIDSA	Scientific Advisor: DiaSorin, Shionogi Inc. JNJ: Ownership equity

Dr. Auwaerter has indicated that he will be referencing the unlabeled or unapproved use of agents currently being investigated in on-going studies and trials. These include hydroxychloroquine/chloroquine, hydroxychloroquine/chloroquine in combination with azithromycin, lopinavir plus ritonavir, tocilizumab, corticosteroids, and COVID-19 convalescent plasma.

All activity, content, and materials have been developed solely by the activity directors, planning committee members, and faculty presenters, and are free of influence from a commercial entity.

CME Information

To attest for CME/CE/AAPA credit, please visit

COVID19.dkbmed.com

Learning Objectives

- Discuss the current national status of the pandemic
- Describe dermatologic and ocular findings in patients with COVID-19
- Discuss the current status of the mRNA-1273 vaccine

Thank You

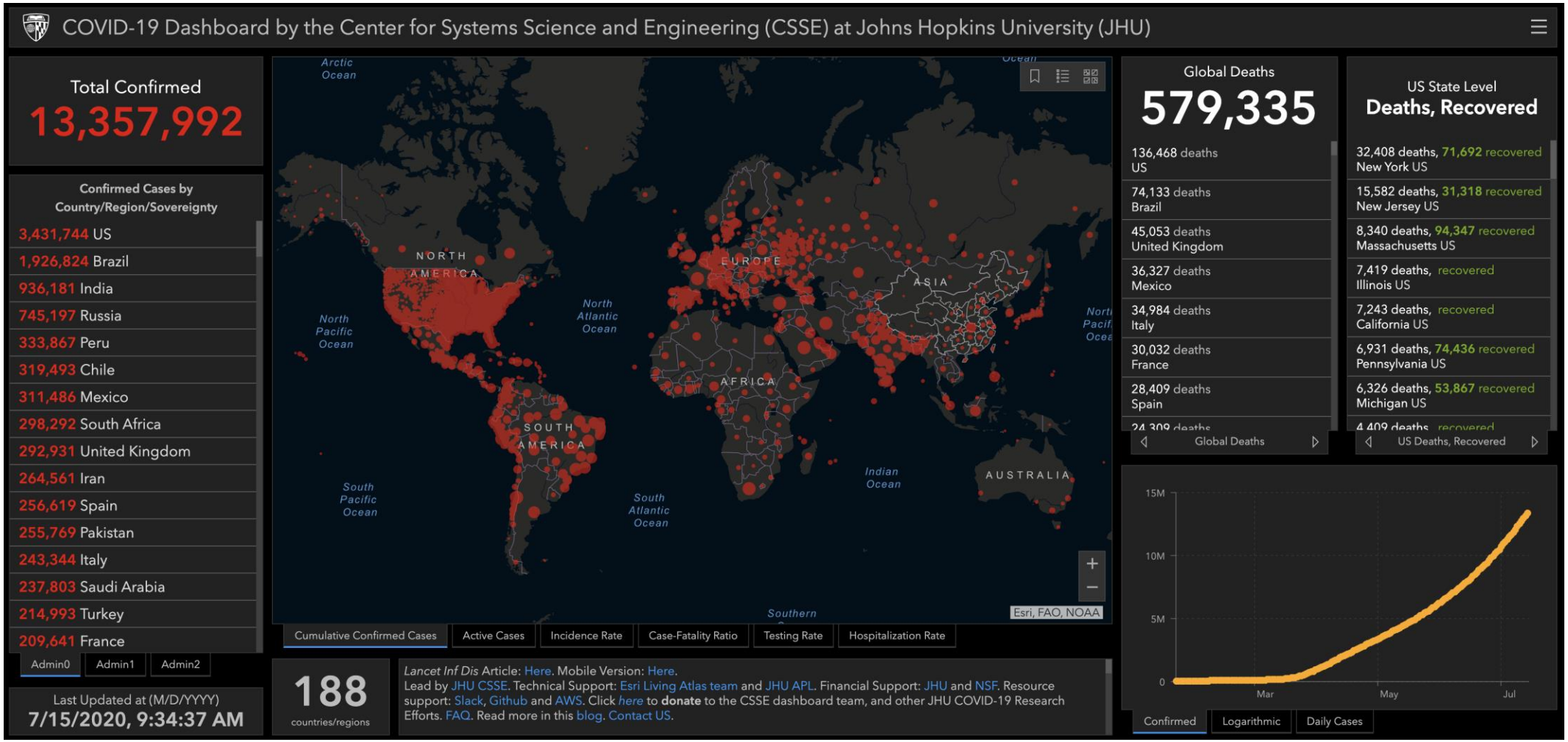
This activity is supported by an educational grant from Pfizer, Inc. and in-kind support by DKBmed, LLC.

All activity content and materials have been developed solely by the activity directors, planning committee members, and faculty presenters, and are free of influence from Pfizer, Inc.

Please see **COVID19.DKBmed.com** for additional resources and educational activities

Paul Auwaerter, MD, MBA, FIDSA
Clinical Director, Division of Infectious Diseases
Sherrilyn and Ken Fisher Professor of Medicine
Fisher Center for Environmental Infectious Diseases
Johns Hopkins University School of Medicine
Baltimore, Maryland

Total Global Cases (7/15/20)

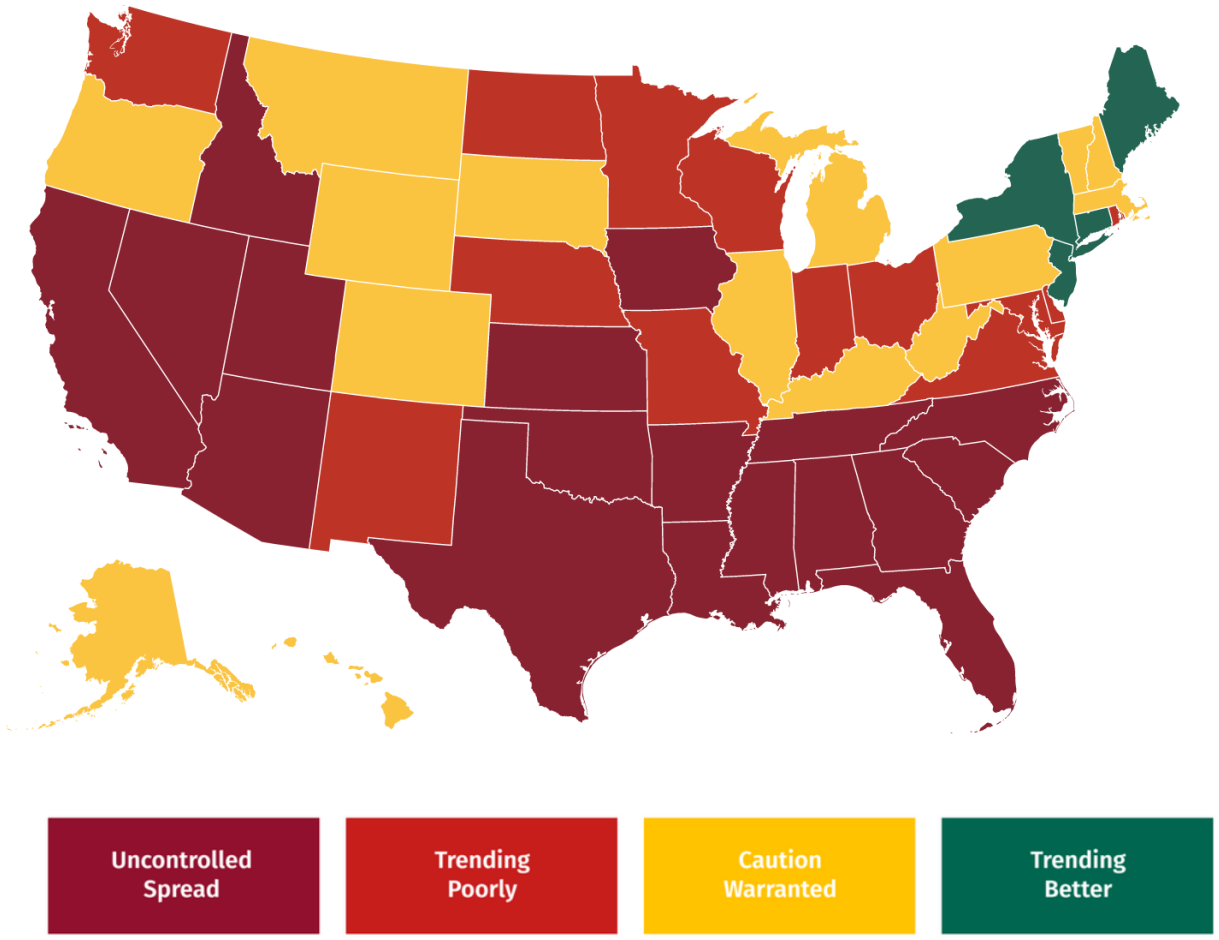


coronavirus.jhu.edu/map.html

dkbmed

COVID-19 KEEPING UP WITH A MOVING TARGET

COVID-19 in the US



- 68,000 single day record in new cases
- More cases now than in early phases of the pandemic

<u>How to turn around</u>?
Likely need to return to Phase 1 at a minimum
Close bars, indoor restaurants, etc.

Emphasize social distancing, mask wear

Testing insufficient in many areas
--contact tracing/self-isolation

Covidexitstrategy.org (7/15/20)

dkbmed

COVID-19 KEEPING UP WITH A MOVING TARGET

Clinical COVID-19
Beyond the Respiratory Tract

Some COVID-19 Dermatologic Manifestations

*Severity calculated based on percentage of patients hospitalized for COVID-19

Int'l Registry, 171 patients
Freeman E, J Am Acad Derm June 2020

The Dermatology of COVID-19

- Range of findings, non-specific and not unique to COVID-19
- Typically cutaneous findings, commiserate with illness onset
  - 12% lesions occurred before other symptoms
- Pernio seen most commonly--painful erythematous-to-violaceous acral lesions
  - aka Chilblains (classically following cold exposure)
  - Note: not lupus pernio aka cutaneous sarcoid

Int'l Registry, 171 patients

Freeman E, J Am Acad Derm June 2020

Ocular Findings in COVID-19

Table 2. Characteristics of 12 Patients With Ocular Manifestations

Patient No./ Sex/Age, y	Temperature at ocular examination, °C	Respiratory symptoms	Clinical type[a]	Ocular manifestations	SARS-CoV-2 RNA test result	
					Nasopharyngeal swab	Conjunctival swab
1/F/80s	38.0	Dyspnea	Severe	Chemosis, epiphora	Positive	Negative
2/M/70s	38.0	Cough, expectorate	Critical	Secretion	Positive	Negative
3/M/50s	39.9	Cough, expectorate	Critical	Conjunctival hyperemia, secretion	Positive	Positive
4/F/80s	39.0	Dyspnea	Severe	Conjunctival hyperemia, chemosis, epiphora, secretion	Positive	Negative
5/F/60s	36.8	Cough	Critical	Chemosis, epiphora	Positive	Positive
6/M/60s	38.7	Cough, expectorate	Critical	Chemosis, epiphora, secretion	Positive	Negative
7/F/80s	36.5	None	Moderate	Chemosis, epiphora, secretion	Positive	Negative
8/F/70s	38.0	Cough	Critical	Chemosis, epiphora, secretion	Positive	Negative
9/M/60s	38.1	None	Critical	Chemosis, secretion	Positive	Negative
10/M/30s	39.6	Chest tightness	Moderate	Chemosis	Positive	Negative
11/M/40s	37.1	Cough	Moderate	Conjunctival hyperemia	Negative	Negative
12/M/70s	36.9	None	Moderate	Epiphora	Positive	Negative

Abbreviations: F, female; M, male; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

[a] Graded by the National Guideline on Prevention and Control of the Novel Coronavirus Pneumonia.[4]

Wu, JAMA Ophth 2020;138(5):575-578

Ocular Findings in COVID-19

- 12 of 38 COVID-19 patients with eye findings
  - Conjunctivitis
  - Chemosis
  - Epiphora
  - Increased secretions
- Typically found in patients with more severe disease

Wu, JAMA Ophth 2020;138(5):575-578

COVID-19: GI Symptoms

- Systematic review of clinical studies
  - Nausea and vomiting
  - Diarrhea in 2 to 50% of cases
    - Overall pooled percentage 10.4%
  - May precede respiratory illness or occur after onset of cough
- Viral RNA in feces, questions whether cause of infection

D'Amico, Clin Gastro Hepato 2020;18:1663-72

COVID-19: Loss of Taste and Smell

- In some, first and only symptom
  - Small studies suggest 20-90% of COVID-19 hospitalized patients have some loss of taste/smell
  - 89% in mild disease
- Note: background problems--age > 40 yrs, U.S.
  - 12.4% hyposmia
  - 3.0% anosmia
- Respiratory viral infections may have similar effects
  - Not specific for COVID-19, but appears more common
- Appears most have early recovery

Boscolo-Rizzo, JAMA Oto Head Neck Surg 7/2/20

COVID-19: Neuropsychiatric Complications in Hospitalized Patients

- 125 hospitalized patients in the U.K.
  - CVA 77 (62%), 82% > age 60
  - Altered mental status 39 (31%)
    - 50% < 60 years
    - Presentations
      - Encephalopathy 9
      - Encephalitis 7
      - Psychiatric disorders 23 (59%)
        - Psychosis
        - Neurocognitive syndrome
        - Affective disorders
        - Exacerbated prior mental illness 2

Roy-Byrne, Lancet Psychiatry 2020 Jun 25

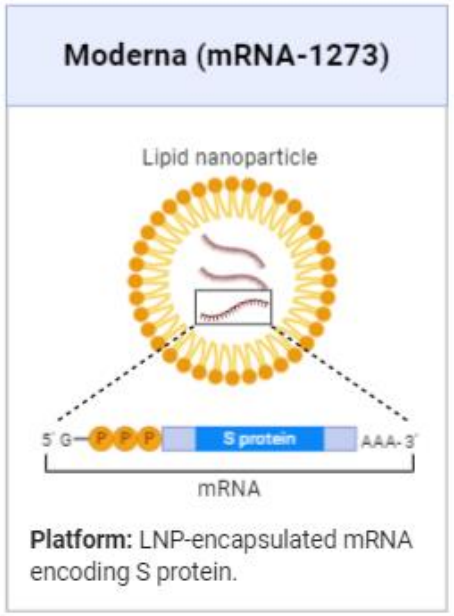
Neuro & COVID-19

- Other neuro series—encephalitis rare
- MRI series
  - White matter hyperintense changes, hemorrhagic and microhemorrhagic changes most commonly in temporal lobe
    - 1 of 37 patients with SARS-CoV-2 RNA in CSF (from blood?).
- Autopsy series
  - 18 patients with neuro findings
    - All had hypoxic changes
    - No findings of encephalitis, virus or virial changes

Kremer, Radiol, June 16, 2020
Solomon, NEJM June 2020

Prevention

Moderna Vaccine



ORIGINAL ARTICLE

An mRNA Vaccine against SARS-CoV-2 — Preliminary Report

Lisa A. Jackson, M.D., M.P.H., Evan J. Anderson, M.D., Nadine G. Rouphael, M.D., Paul C. Roberts, Ph.D., Mamodikoe Makhene, M.D., M.P.H., Rhea N. Coler, Ph.D., Michele P. McCullough, M.P.H., James D. Chappell, M.D., Ph.D., Mark R. Denison, M.D., Laura J. Stevens, M.S., Andrea J. Pruijssers, Ph.D., Adrian McDermott, Ph.D., et al., for the mRNA-1273 Study Group*

Article Figures/Media Metrics July 14, 2020

Novel mRNA vaccine, potential for rapid manufacturer scaling

Phase 1 trial, 3 doses (dose-finding trial), 45 enrolled

Mild adverse reactions

Antibodies generated against both full-length S-2P & receptor-binding domain by first dose
Neutralizing antibodies needed booster, higher dose (100 ug)

Phase II trial (600 pp) 50 ug 100 ug by end of summer 2020

https://www.nejm.org/doi/full/10.1056/NEJMoa2022483

dkbmed

COVID-19 KEEPING UP WITH A MOVING TARGET

To submit your own question, please email QA@dkbmed.com

Are there any updates on patients who have recovered from COVID-19, can they be considered medically immune? At least for this "season" or a limited duration of time?

Is there any association between the BCG vaccine and risk of COVID-19?

Do you think evidence supports acknowledgement of a larger role of aerosol transmission of the virus?

To receive CME/CE/AAPA credit:

- Complete the evaluation on at COVID19.DKBmed.com
- Upon registering and successfully completing the activity evaluation, you will have immediate access to your certificate.

To access more resources related to COVID-19:

- Access our resource hub at COVID19.DKBmed.com

To ask your own question, email: QA@dkbmed.com