

# COVID-19 Update SPECIAL EDITION

# Dr Mark Cunningham-Hill Medical Director, NEBGH

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# COVID-19 TESTING: Combatting SARS-CoV-2 spread in the workplace

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## WILL WE CONTINUE TO NEED TESTING?

#### Coronaviruses are seasonal



cases 200,000 100,000 7-day average Mar. 2020 Apr. May Oct. Dec. Jan. 2021 Feb. Aug. Sept. Nov. Jun. 10 year average SARS-CoV-2 for Seasonal **Betacoronavirus** 

New

300,000 cases

## Vaccines are crucial but won't erase need for testing





**TESTING In** 

# TEST CHARACTERISTICS



USUAL PRIORITY ORDER: Centered on Medical Use

#### 1 Sensitivity

- 2 Cost (frequency)
- **3** Speed to get results

## TEST CHARACTERISTICS



#### USUAL PRIORITY ORDER

Sensitivity
 Cost (frequency)
 Speed to get results

#### But is this *correct*?

Fast, Frequent, Inexpensive, Convenient, Accessible

# Tests characteristics needed to keep the economy open

# Example Rapid "paper strip" Antigen Tests

C37464321





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# New Simple Laboratory Quality Molecular Rapid Tests

#### Detect



New Detect Molecular Tests PCR-Quality Fast Scalable At-home / Work / School "Green Light" test

These tests will make "entrance screening" more accurate and effective

www.detectnow.com

## Rapid tests have unique ability to detect contagious virus



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# FREQUENCY MATTERS ANALYTICAL SENSITIVITY IS SECONDARY

Individual infectiousness Removed by testing/isolation Disease Incidence compared to no testing 100% 100% Total infections LOD 10<sup>3</sup> 80% Infectiousness LOD 105 80% self-isolation emoved 60% 60% 40% 40% 20% 20% 0% 0% dailv 3 days weeklv no test 14 davs weekly daily 3 days 14 days no test Frequency of testing Frequency of testing

Frequency of testing is much more important than the sensitivity of the assay. Same results for LOD of 10^6 too.... 1000x less sensitive than PCR

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#### Larremore et al. Science Advances (2020)

High sensitivity Low sensitivity



#### The New York Times

#### Opinion

# A Cheap, Simple Way to Control the Coronavirus

With easy-to-use tests, everyone can check themselves every day. By Laurence J. Kotlikoff and Michael Mina Mr. Kotlikoff is a professor of economics at Boston University and Dr. Mina is an assistant professor of epidemiology at the Harvard T.H. Chan School of Public Health.

#### USUAL PRIORITY ORDER

Sensitivity
 Cost (frequency)
 Speed to get results

#### OPTIMAL PRIORITY ORDER

Cost (frequency)
 Speed to get results
 Sensitivity

In order to rapidly detect and prevent outbreaks:

 It is OK to sacrifice the high sensitivity of a molecular test in exchange for higher frequency and faster results





# CONCLUDING REMARKS

#### TESTS MEANT TO CURB TRANSMISSION AND KEEP WORKPLACES SAFE:

- TESTS SHOULD BE MEASURED BASED ON THEIR INTENDED USE
- FAST, ACCESSIBLE, ABLE TO DETECT INFECTIOUS VIRUS
- NOT ALL RAPID TESTS ARE SAME: RED VS GREEN LIGHT
- MOST CONCERNS ABOUT RAPID TESTS STEM FROM MISUNDERSTANDINGS
- THE VIRUS ISN'T DISAPPEARING BECAUSE OF VACCINES NOR IS TESTING...
- TESTING CAN KEEP WORKPLACES OPEN EVEN AMIDST NEW SURGES

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# Questions

### **Upcoming NEBGH virtual events:**

- Apr. 19: NEBGH Medical Director's Weekly Update: Invite your CHRO, CFO and Others!
- Apr. 22: Prevention and Wellbeing Reboot 2021
- Apr. 27: The Kids are Not OK COVID-19 and Children's Mental Health
- May 5: Benefits Communications: Lessons from a Purpose-Driven Ad Agency