

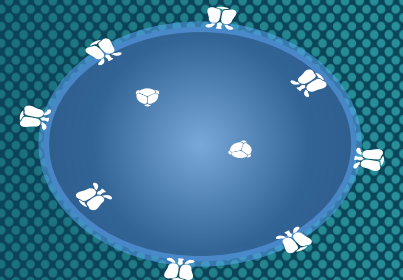


University of Washington
Public Health Capacity Building Center



ITECH Discussion of COVID-19: April 20, 2020

Matthew Golden, MD, MPH
Director, PHSKC HIV/STD Program
Professor of Medicine, University of Washington
Faculty, I-TECH



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I-TECH

International Training and Education Center for Health

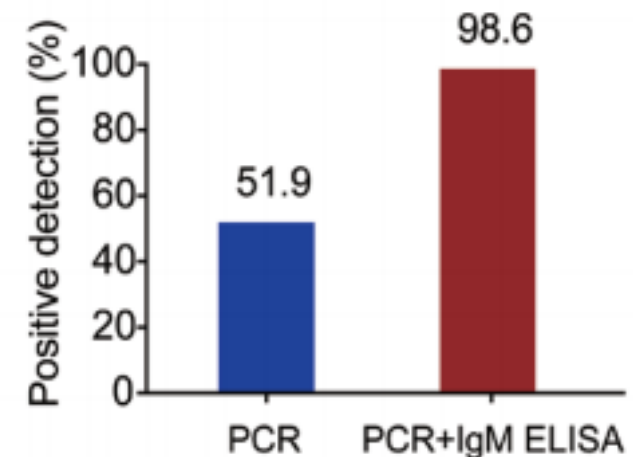
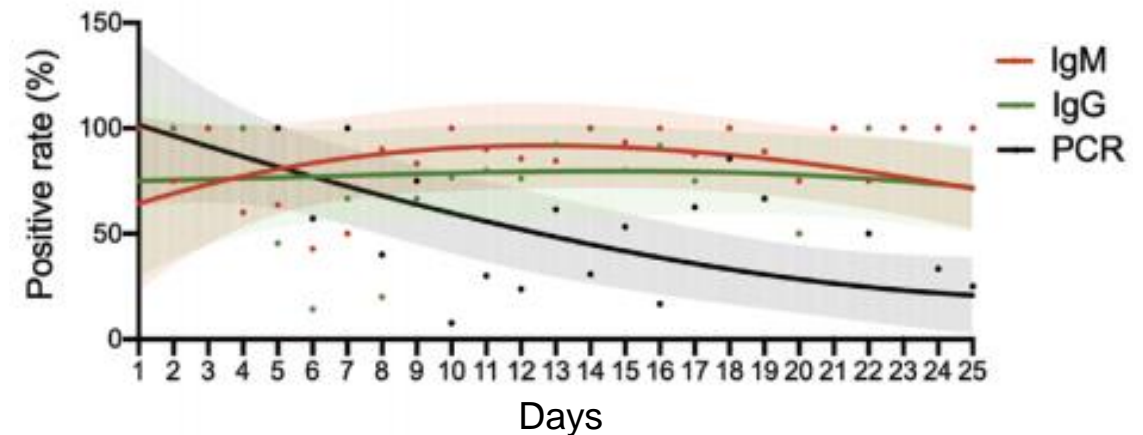
Agenda

- Laboratory testing
- Predicting severe disease
- Household transmission
- COVID19 and HIV

Sensitivity of PCR

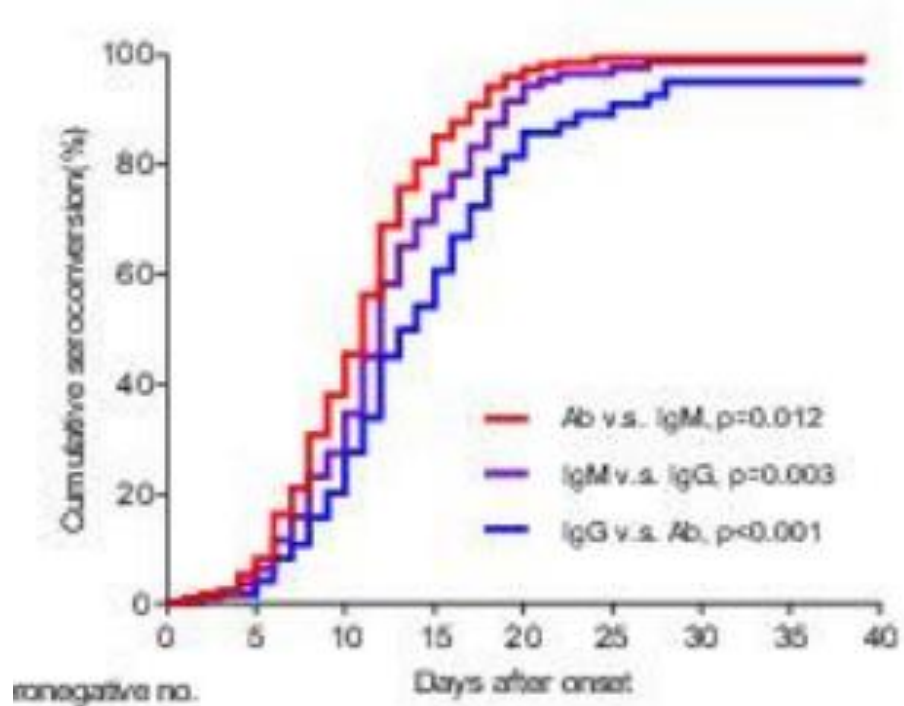
- Wuhan study serological response in 140 cases (Gou L CID 2020)
- Single PCR 52% sensitive
- Serial PCR in Singapore (Lee HL CID 2020)
- 102 suspected cases - all travelers from China with respiratory symptoms
- Tested on admission & at 24 hours
- First PCR 89% sensitive – 2nd PCR ↑ sensitivity to 96%
- PCR & chest CT (Fang Y. Radiology 2020)
- 51 patients in Wuhan – 50 abnormal chest CT
- First PCR 69% sensitive
- 2nd PCR identified additional 29% of cases

PCR & Serological Positivity 1-25 after Symptoms



Antibody to COVID19

- 535 samples from 173 patients in China
- 93% developed IgG and/or IgM - Median time seroconversion 11 days

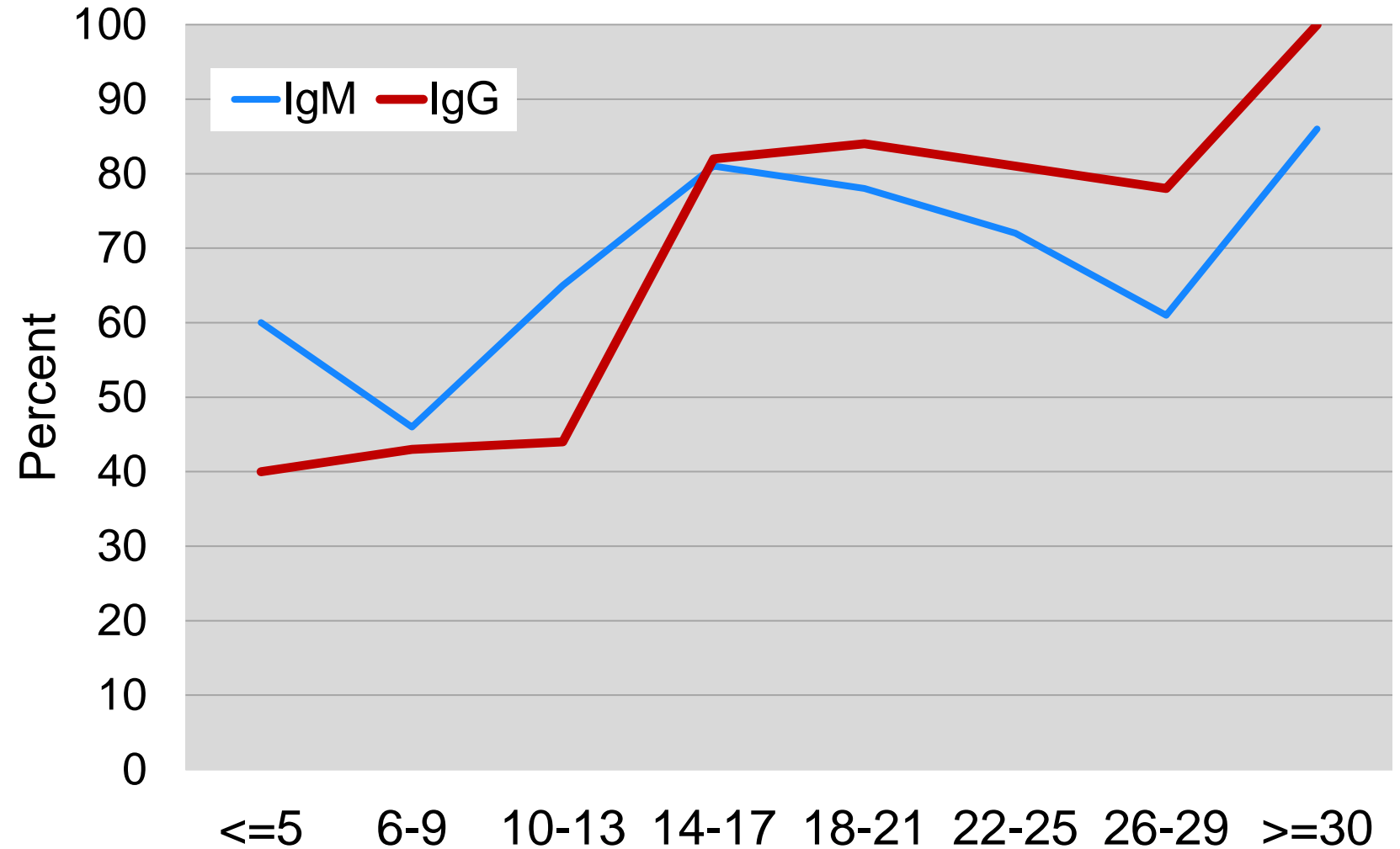


Sensitivity of RNA and Antibody Tests for SARS-CoV-2, by Time Since Onset of Symptoms

Days after onset	Sensitivity RNA	Sensitivity Antibody
1-7 (n=94)	67%	38%
8-14 (n=135)	54%	90%
15-39 (n=90)	45%	100%
Total	67%	93%

Antibody to COVID19

- ELISA IgG/IgM testing
- 216 samples from 85 patients in China
- IgG positive in ~80% at 2 weeks
- IgG a little earlier

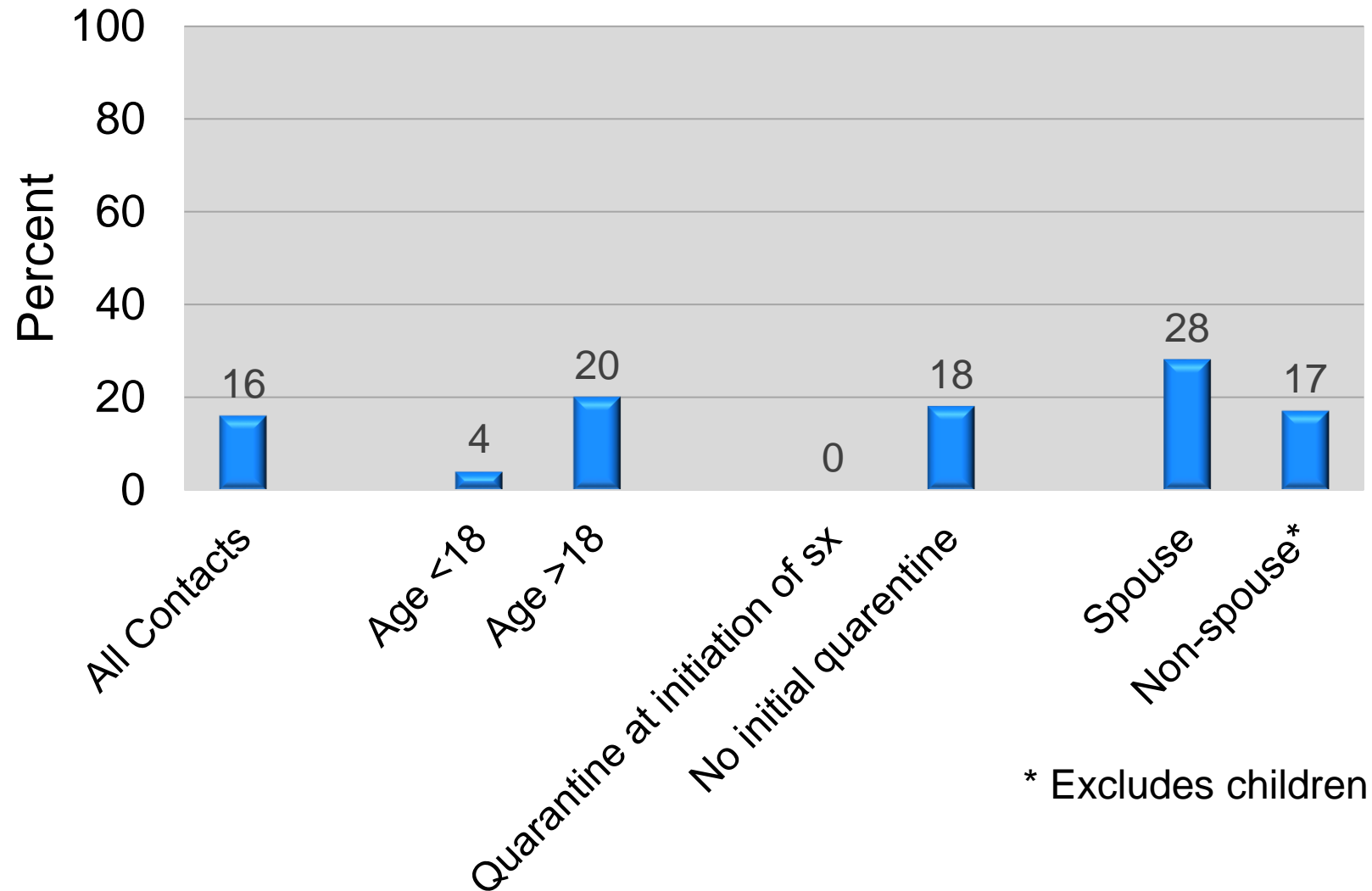


Testing for COVID

- Nasopharyngeal swabs are 50-90% sensitive for COVID-19
 - Retest people at high risk if diagnosis is important
 - A negative test does not rule out infection in a person at high risk – quarantine cannot be discontinued
- Antibody tests typically positive by 2 weeks
 - IgM appears first
 - CAUTION: Not all antibody tests are the same. Hard to know how any marketed test will perform
 - Role of antibody testing uncertain
 - Could help identify healthcare workers who are immune
 - Uncertain if antibody confers immunity

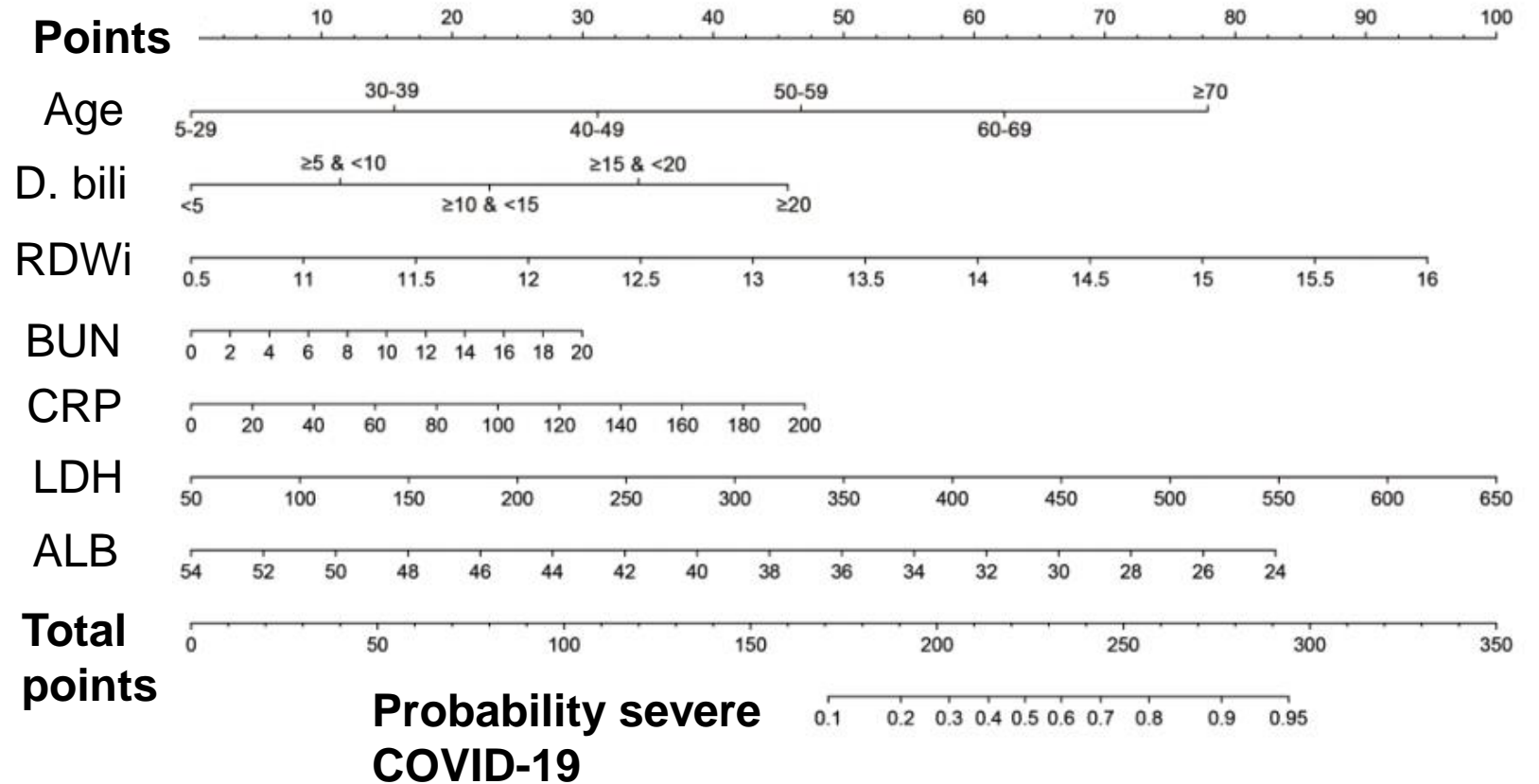
Household Transmission Risk

- 105 index cases exposed in Wuhan, or to people from Wuhan or “high-risk sites”
- 392 household contacts PCR tested at the mid-point of 14 day quarantine
- 16% contacts PCR+
 - Transmission higher than flu or MERS
 - Prior COVID19 reports 3-10% positivity in close contacts
- 9/64 (14%) infected contacts were asymptomatic
- Quarantine worked



Predicting Severe Disease

- 373 patients admitted with non-severe COVID19 in Wuhan
- 19% patients developed severe COVID19
- Cutpoint of 189 points was 78% sensitive and 78% specific in predicting severe COVID19 (AUC 0.853) in validation cohort (n=165)
- Uncertain when labs obtained



DISCUSSION