Clinical Laboratory COVID-19 Response Call

Monday, November 2nd, 2020 at 3:00 PM ET

- **Welcome**
  - Jasmine Chaitram, CDC Division of Laboratory Systems (DLS)
- **CMS Reimbursement Update**
  - Sarah Harding, Centers for Medicare & Medicaid Services (CMS)
- **College of American Pathologists (CAP) Letter: Caution Must Be Used in Interpreting the Cycle Threshold (Ct) Value**
  - Daniel Rhoads, Cleveland Clinic
- **FDA Update**
  - Sara Brenner and Toby Lowe, U.S. Food and Drug Administration (FDA)

Schedule for Clinical Laboratory COVID-19 Response Calls

The next call will be on **Monday, November 16th** from **3:00 PM to 4:00 PM ET**.

We Want to Hear From You!

Training and Workforce Development

Questions about education and training?

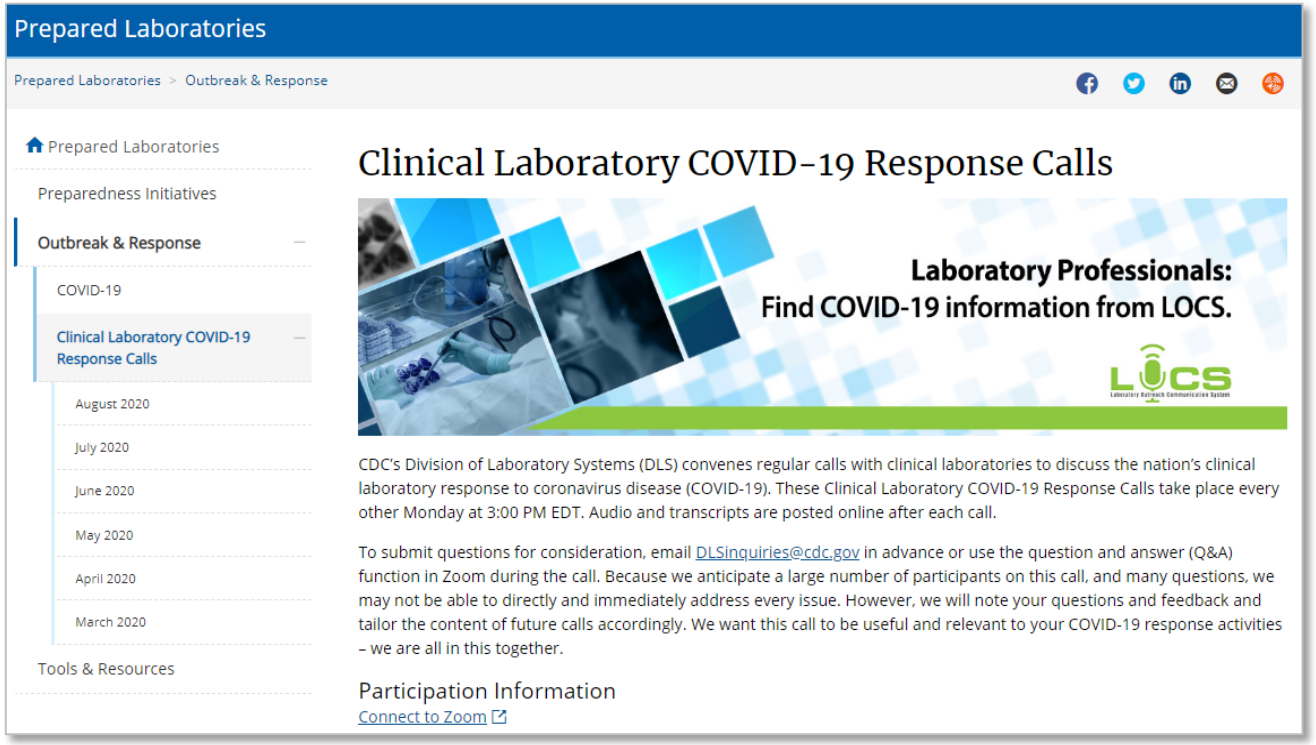
Contact LabTrainingNeeds@cdc.gov

COVID-19 Resources for Laboratories

- **LOINC In-Vitro Diagnostic (LIVD) Test Code Mapping for SARS-CoV-2 Tests**
  https://www.cdc.gov/csels/dls/sars-cov-2-livd-codes.html
- **IVD Industry Connectivity Consortium**
  https://ivdconnectivity.org/livd/
- **Antigen Testing Guidance**
  https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/antigen-tests-guidelines.html
- **Frequently Asked Questions about COVID-19 for Laboratories**
  https://www.cdc.gov/coronavirus/2019-ncov/lab/faqs.html
- **Interim Guidance for Collecting, Handling, and Testing Clinical Specimens**
  https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html
- **Diagnostic Tools and Virus**
  https://www.cdc.gov/coronavirus/2019-ncov/lab/tool-virus-requests.html
- **Emergency Preparedness for Laboratory Personnel**
  https://emergency.cdc.gov/labissues/index.asp
- **CDC Laboratory Outreach Communication System (LOCS)**
  https://www.cdc.gov/csels/dls/locs/

CDC Preparedness Portal

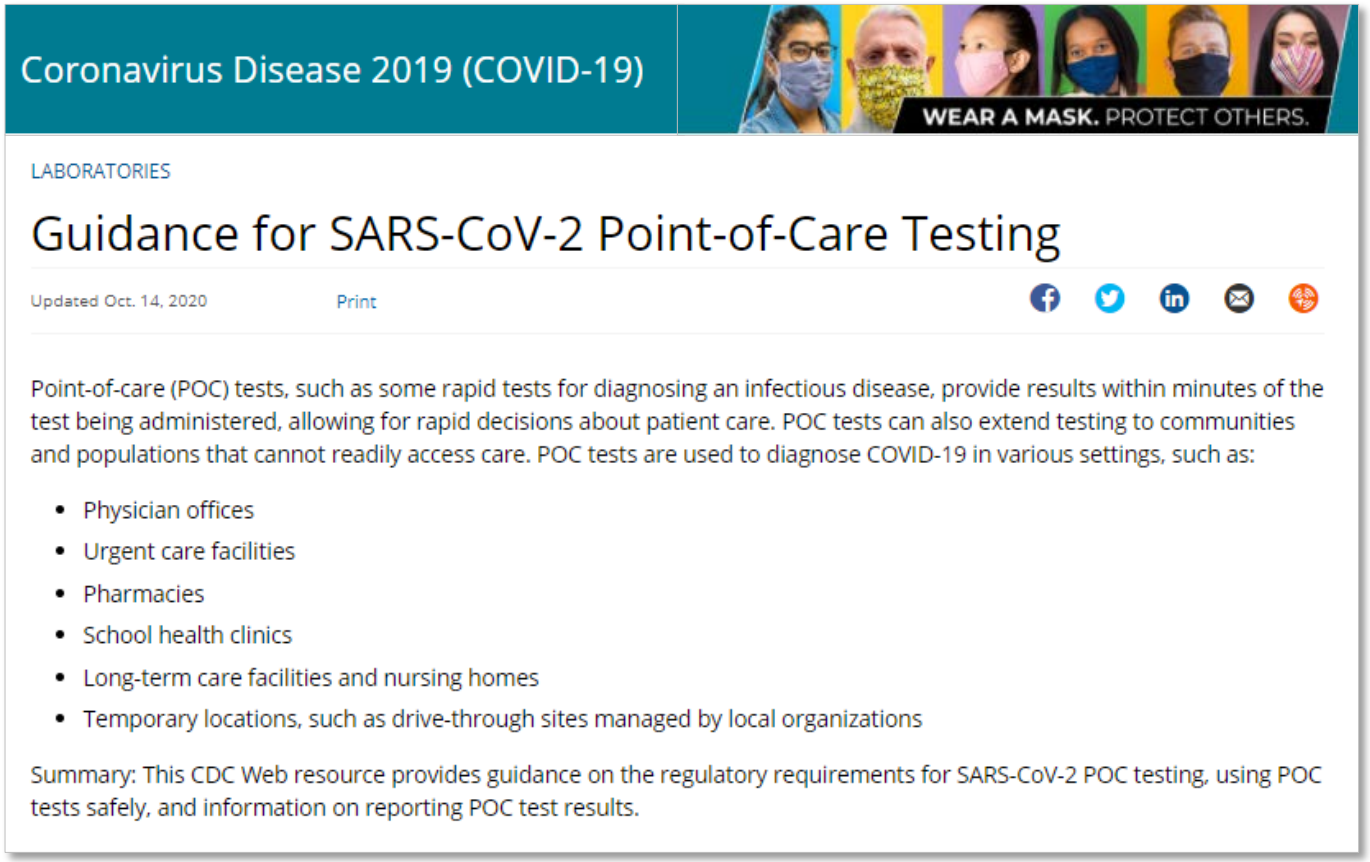
https://www.cdc.gov/csels/dls/preparedlabs/covid-19-clinical-calls.html



Find CLCR call information, transcripts, & audio recordings on the Preparedness Portal

Guidance for SARS-CoV-2 Point-of-Care Testing

https://www.cdc.gov/coronavirus/2019-ncov/lab/point-of-care-testing.html



Coronavirus Disease 2019 (COVID-19)

LABORATORIES

Guidance for SARS-CoV-2 Point-of-Care Testing

Updated Oct. 14, 2020 Print

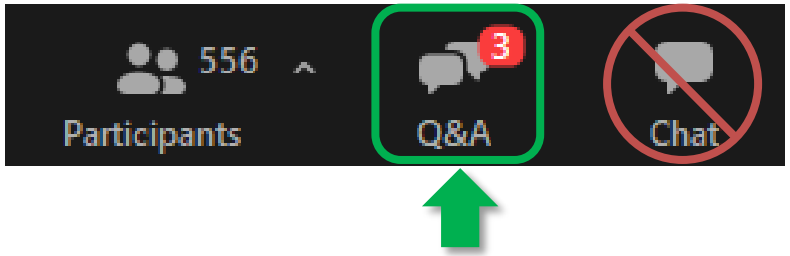
Point-of-care (POC) tests, such as some rapid tests for diagnosing an infectious disease, provide results within minutes of the test being administered, allowing for rapid decisions about patient care. POC tests can also extend testing to communities and populations that cannot readily access care. POC tests are used to diagnose COVID-19 in various settings, such as:

- Physician offices
- Urgent care facilities
- Pharmacies
- School health clinics
- Long-term care facilities and nursing homes
- Temporary locations, such as drive-through sites managed by local organizations

Summary: This CDC Web resource provides guidance on the regulatory requirements for SARS-CoV-2 POC testing, using POC tests safely, and information on reporting POC test results.

How to Ask a Question

- **Using the Zoom Webinar System**
  - Click the **Q&A** button in the Zoom webinar system
  - Type your question in the **Q&A** box and submit it
  - Please do not submit a question using the chat button



- For media questions, please contact CDC Media Relations at media@cdc.gov
- If you are a patient, please direct any questions to your healthcare provider

CMS Reimbursement Update

Sarah Harding
Centers for Medicare & Medicaid Services (CMS)

Centers for Medicare and Medicaid Services (CMS)

- **CLIA Laboratory Guidance During COVID-19 Memo and FAQs**
  https://www.cms.gov/medicareprovider-enrollment-and-certificationsurveycertificationgeninfopolicy-and-memos-states-and/clinical-laboratory-improvement-amendments-clia-laboratory-guidance-during-covid-19-public-health

- **FAQs Only**
  https://www.cms.gov/medicare/quality-safety-oversight-general-information/coronavirus

SARS-CoV-2 Ct-values

CDC’s Clinical Laboratory COVID-19 Response Call

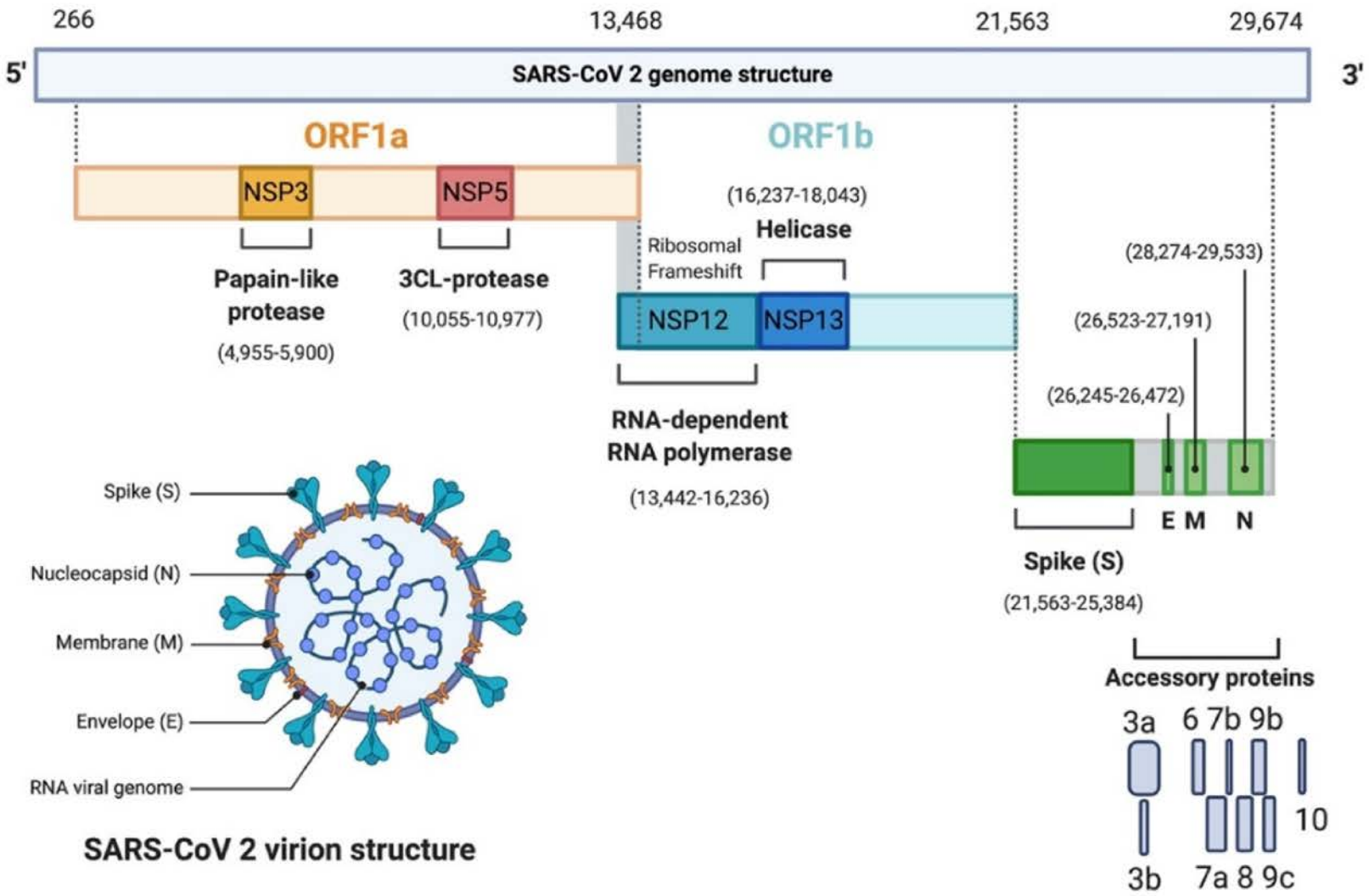
2 November 2020

Daniel D. Rhoads, MD, FCAP, D(ABMM)

Section Head of Microbiology

Cleveland, Ohio

Cleveland Clinic



https://www.mdpi.com/2076-0817/9/5/331/htm#

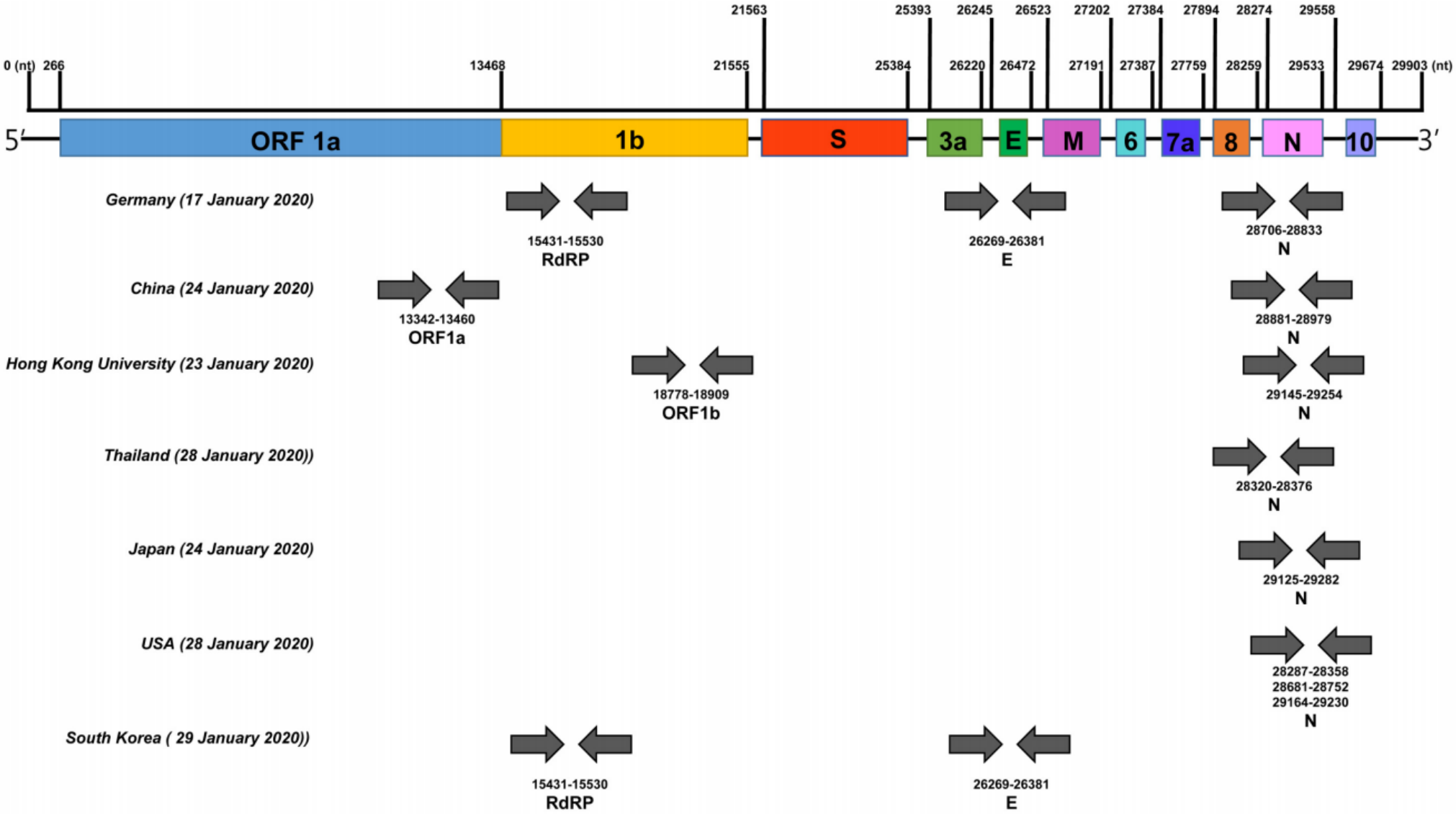
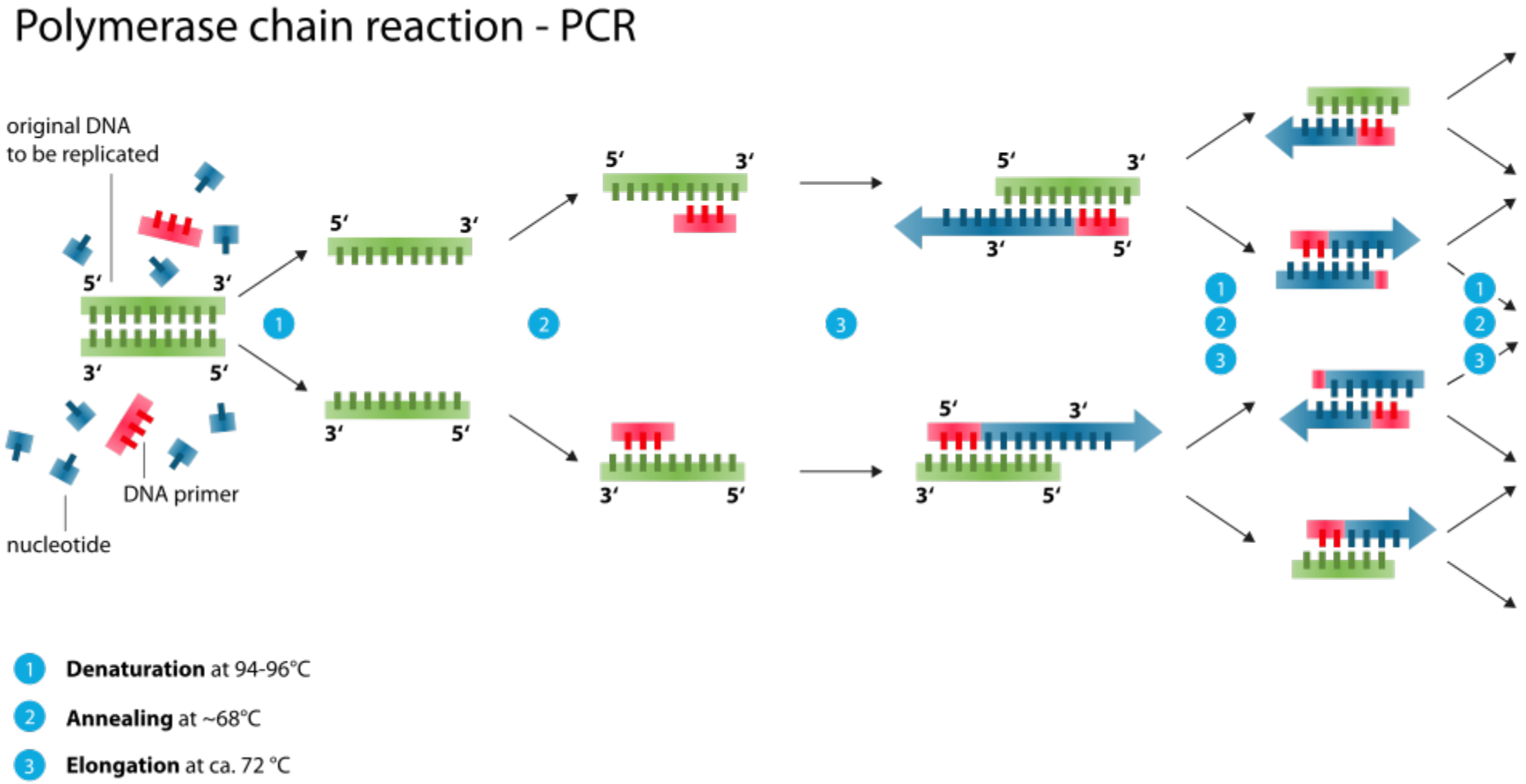


Fig. 5. A representative diagram showing currently available diagnostic primer sets on SARS-CoV-2 genome.
Numbers represent genome positions according to SARS-CoV-2 isolate Wuhan-Hu-1 (GenBank: MN908947.3). Each primer set for the diagnosis was indicated by grey arrows.

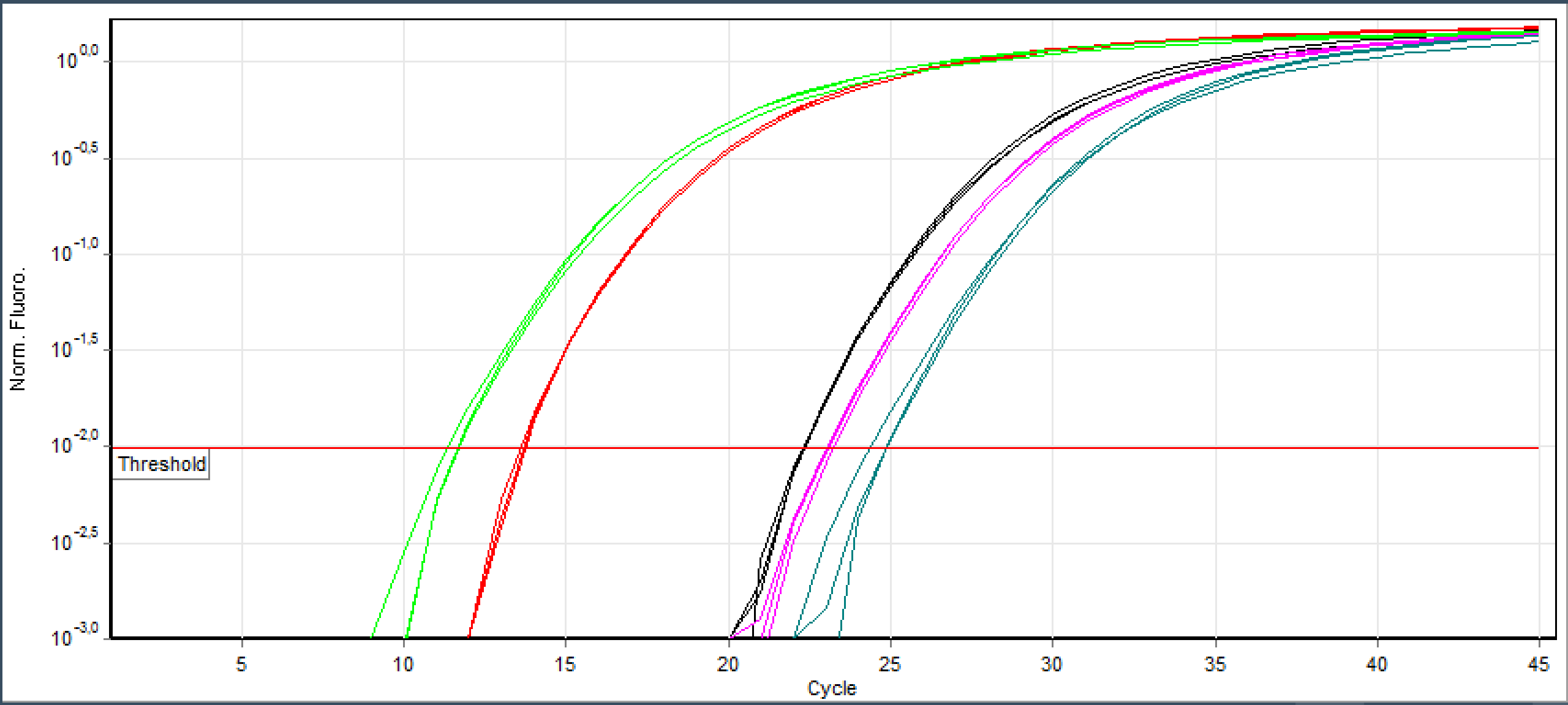
Ahn *et al.* doi: 10.4014/jmb.2003.03011

PCR



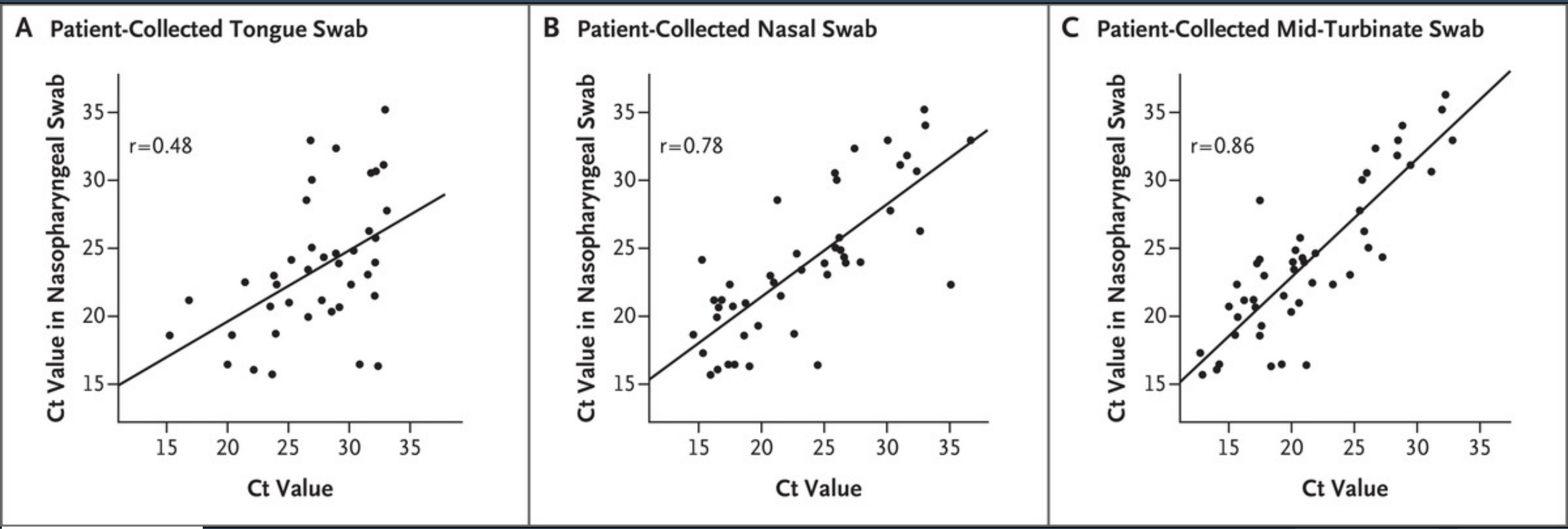
https://commons.wikimedia.org/wiki/File:Polymerase_chain_reaction.svg

Ct-value



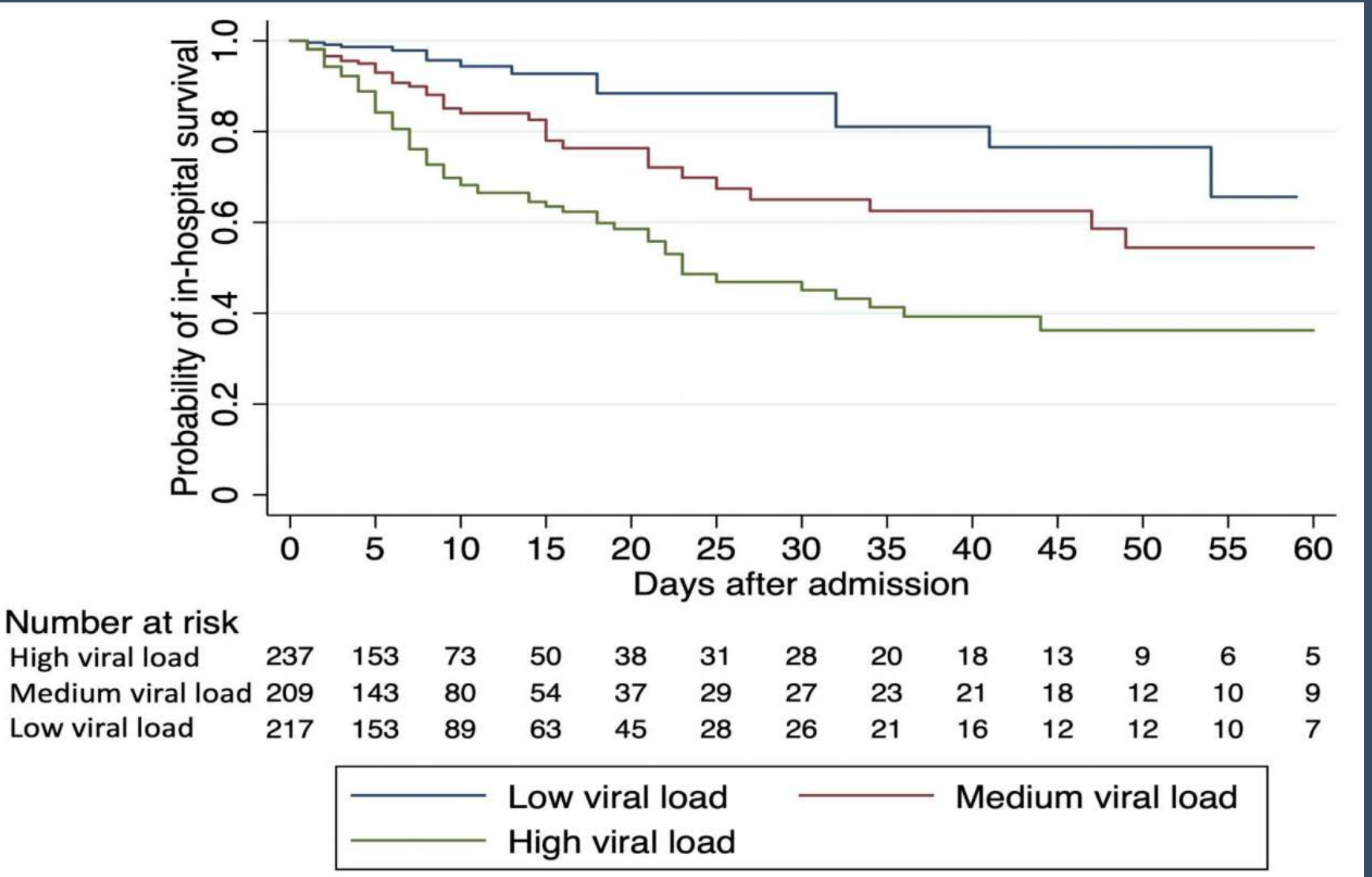
https://upload.wikimedia.org/wikipedia/commons/4/4e/Qpcr-cycling.png

Specimen type & Ct-value



Yuan-Po *et al*. doi: 10.1056/NEJMc2016321.

Ct-value & prognosis

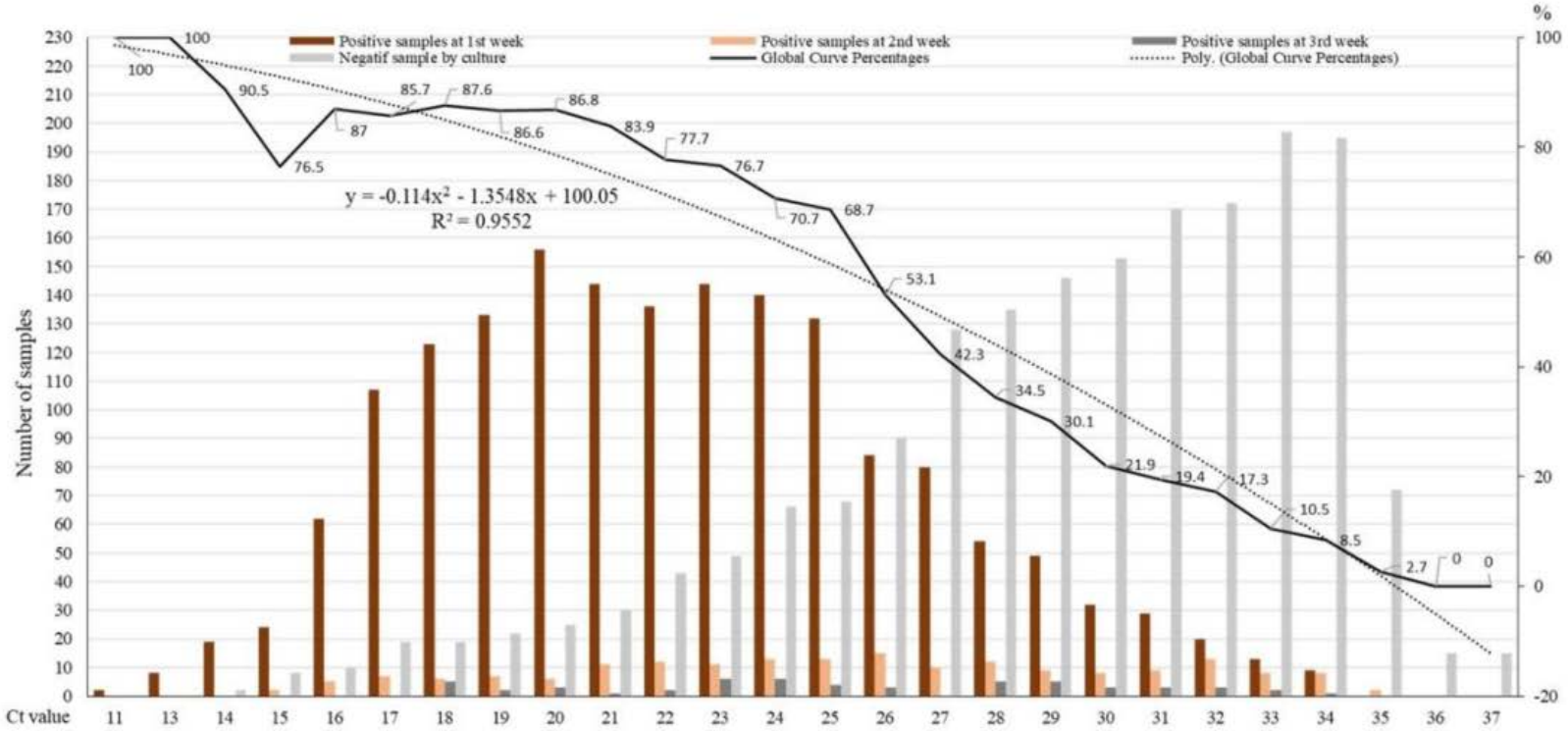


Low load: Ct > 30
Medium load: Ct 25-30
High load: Ct <25

- NP swab
- UTM
- ORF1ab target
- Roche 6800

Magleby *et al*. doi: 10.1093/cid/ciaa851

Ct-value & *in vitro* infectivity



Ct value	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Number of samples (N = 3790)	2	8	21	34	77	133	153	164	190	186	193	210	225	217	192	218	206	209	196	211	208	220	213	74	15	15
Total positive (n = 1941)	2	8	19	26	67	114	134	142	165	156	150	161	159	149	102	90	71	63	43	41	36	23	18	2	0	0
Week 1: number of positive (n = 1700)	2	8	19	24	62	107	123	133	156	144	136	144	140	132	84	80	54	49	32	29	20	13	9	0	0	0
(% by total positive)	(100)	(100)	(100)	(92.3)	(92.5)	(93.9)	(91.8)	(93.7)	(94.5)	(92.3)	(90.7)	(89.4)	(88.1)	(88.6)	(82.4)	(88.9)	(76.1)	(77.8)	(74.4)	(70.7)	(55.6)	(56.5)	(50.0)	(0)	(-)	(-)
Week 2: number of positive (n = 187)	0	0	0	2	5	7	6	7	6	11	12	11	13	13	15	10	12	9	8	9	13	8	8	2	0	0
(% by total positive)	(0)	(0)	(0)	(7.7)	(7.5)	(6.1)	(4.5)	(4.9)	(3.6)	(7.1)	(8.0)	(6.8)	(8.2)	(8.7)	(14.7)	(11.1)	(16.9)	(14.3)	(18.6)	(22.0)	(36.1)	(34.8)	(44.0)	(100)	(-)	(-)
Week 3: number of positive (n = 54)	0	0	0	0	0	0	5	2	3	1	2	6	6	4	3	0	5	5	3	3	3	2	1	0	0	0
(% by total positive)	(0)	(0)	(0)	(0)	(0)	(0)	(3.7)	(1.4)	(1.8)	(0.6)	(1.3)	(3.7)	(3.8)	(2.7)	(2.9)	(0)	(7.0)	(7.9)	(7.0)	(7.3)	(8.3)	(8.7)	(5.6)	(0)	(-)	(-)
Negative cultured (n = 1849)	0	0	2	8	10	19	19	22	25	30	43	49	66	68	90	128	135	146	153	170	172	197	195	72	15	15

Jaafar *et al*. doi: 10.1093/cid/ciaa1491

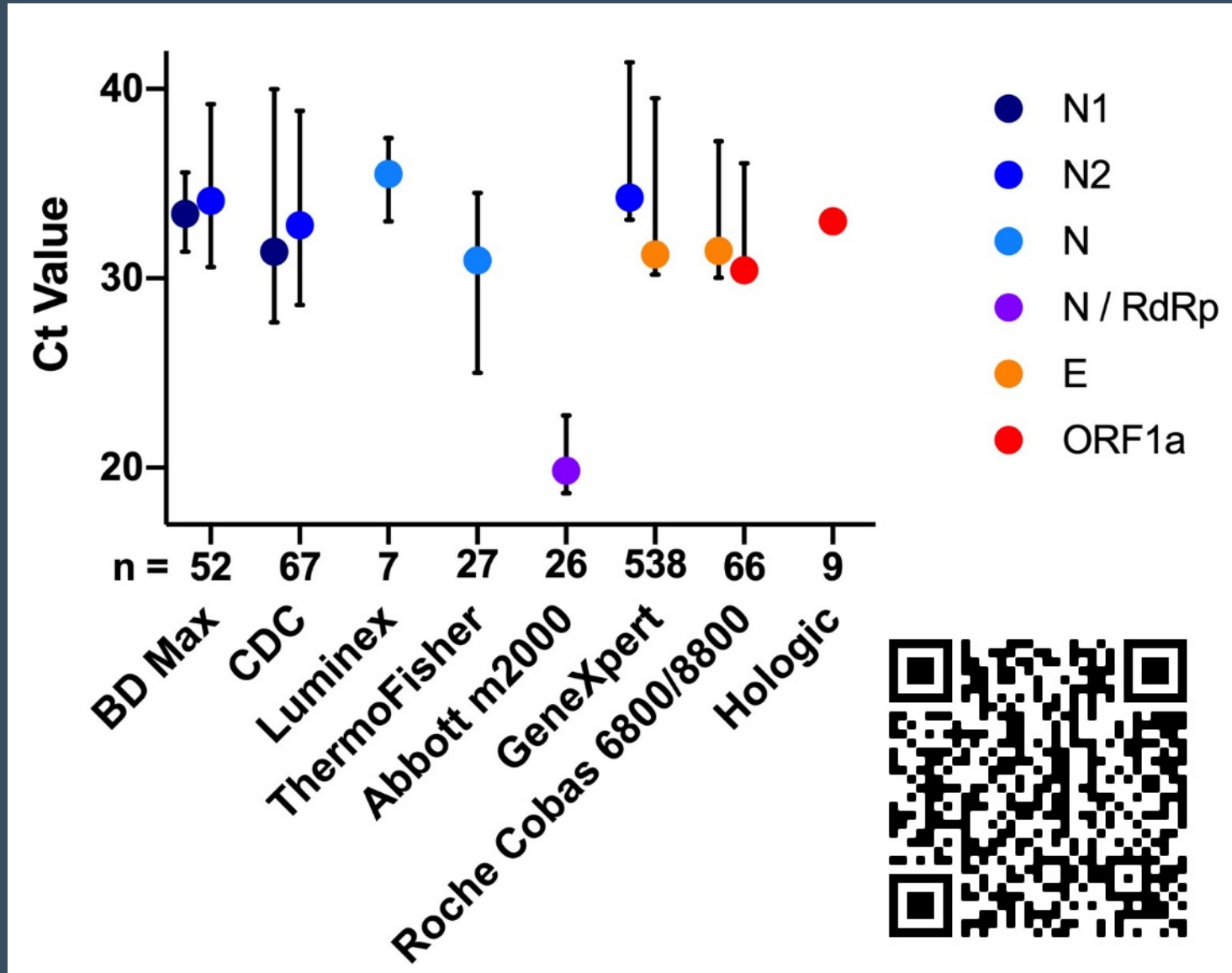
Ct-value limitations

- FDA EUA methods have qualitative interpretations
- No calibrated quantitative test is currently available
- Not all test methods generate a Ct-value
- Specimen collection impacts Ct-value
  - Time from symptom onset to collection
  - Specimen type (NP vs anterior)
  - Transport media (saline vs UTM; 1ml vs 3ml)
- Ct-values vary between test systems, between labs, & between targets

Rhoads *et al*. doi: 10.1093/cid/ciaa1199

Ct-value limitations

- 3.0 cycle difference between targets (Xpert)
- 12 cycle difference between labs (TaqPath)
- 14 cycle difference between test systems (Luminex & m2000)



Rhoads *et al*. doi: 10.1093/cid/ciaa1199

SARS-CoV-2 Ct-values

- Ct-values can correlate with prognosis & infectivity.
- Ct-values are not absolutely predictive of prognosis or infectivity.
- Ct-values are influenced by many pre-analytical and analytical variables.

Cleveland Clinic

Every life deserves world class care.

FDA Update

Sara Brenner and Toby Lowe
U.S. Food and Drug Administration (FDA)

Food and Drug Administration (FDA)

- **COVID-19 Emergency Use Authorization (EUA) Information for Medical Devices**
  https://www.fda.gov/medical-devices/emergency-situations-medical-devices/emergency-use-authorizations
- **COVID-19 In Vitro Diagnostic EUAs**
  https://www.fda.gov/medical-devices/coronavirus-disease-2019-covid-19-emergency-use-authorizations-medical-devices/vitro-diagnostics-euas
- **COVID-19 Frequently Asked Questions**
  https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/coronavirus-disease-2019-covid-19-frequently-asked-questions
- **COVID-19 Updates**
  https://www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#2019-ncov
- **FDA Townhall Meetings**
  https://www.fda.gov/medical-devices/workshops-conferences-medical-devices/virtual-town-hall-series-immediately-effect-guidance-coronavirus-covid-19-diagnostic-tests-06032020
- **Independent Evaluations of COVID-19 Serological Tests**
  https://open.fda.gov/apis/device/covid19serology/

FDA U.S. FOOD & DRUG ADMINISTRATION

Food and Drug Administration (FDA)

COVID-19 Diagnostic Development: CDRH-EUA-Templates@fda.hhs.gov

Spot Shortages of Testing Supplies: 24-Hour Support Available

1. Call 1-888-INFO-FDA (1-888-463-6332)
2. Then press star (*)

U.S. FOOD & DRUG ADMINISTRATION

CDC Social Media

https://www.facebook.com/CDC

https://twitter.com/cdcgov

https://www.linkedin.com/company/cdc

Thank You For Your Time!

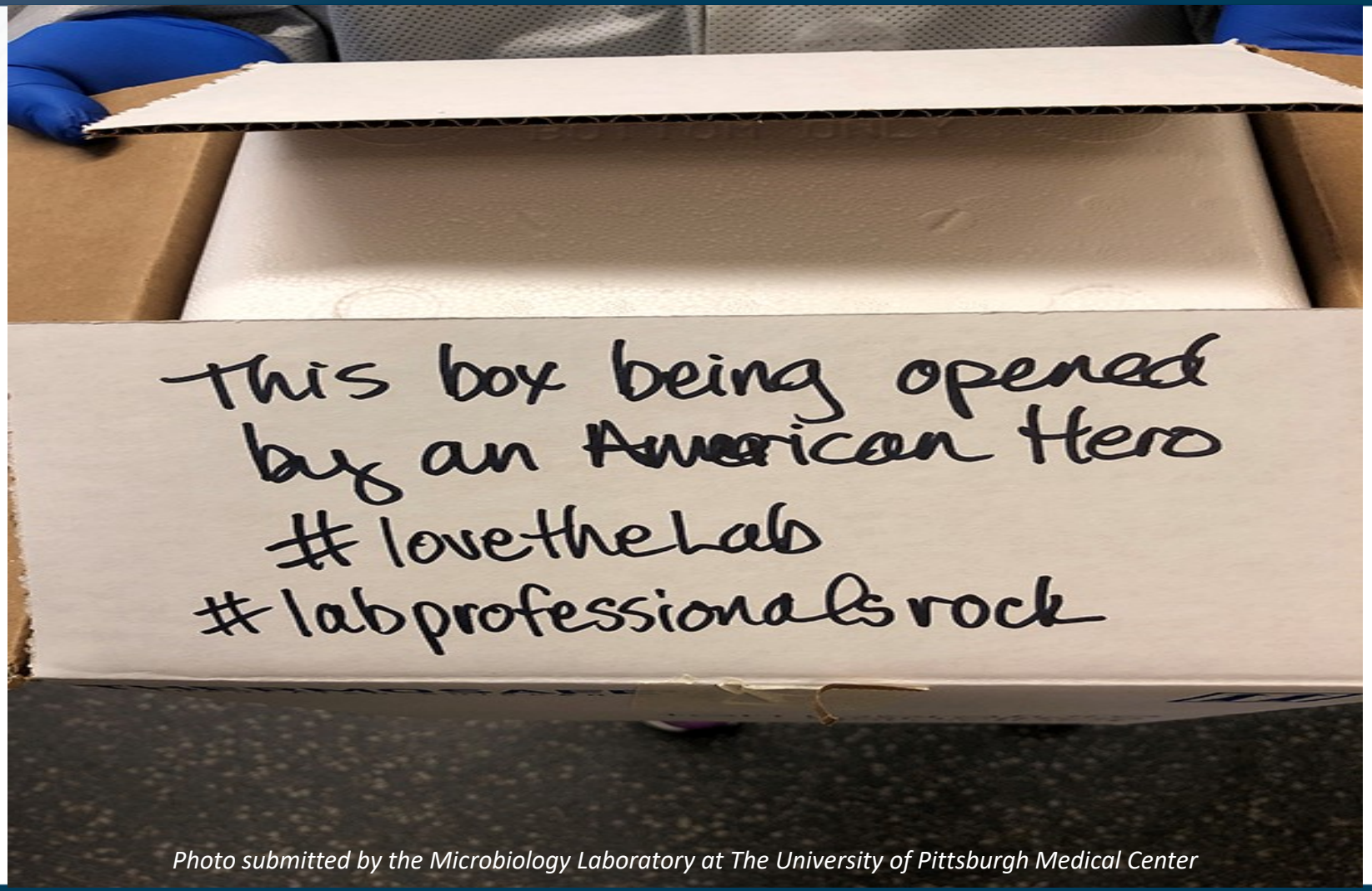


Photo submitted by the Microbiology Laboratory at The University of Pittsburgh Medical Center