

Data Supplement

Supplemental Table 1. Modified WHO Ordinal Scale

Score	Description
0	No clinical or virologic evidence of infection
1	Not hospitalized, no limitation on activities
2	Not hospitalized, limitation on activities
3	Hospitalized, not requiring supplemental oxygen
4	Hospitalized, requiring supplemental oxygen (<6 liters/minute by nasal cannula or mask)
5	Hospitalized, on non-invasive ventilation or high-flow oxygen devices (≥6 liters/minute by nasal cannula or mask)
6	Hospitalized, on invasive mechanical ventilation
7	Hospitalized, ventilation plus additional organ support-vasopressors, renal replacement therapy or extracorporeal membrane oxygenation
8	Death

Contributing Author List

Laura J. Esserman, MD, University of California San Francisco, San Francisco, CA, USA
Laura.Esserman@ucsf.edu

Carolyn S. Calfee, MD, University of California San Francisco, San Francisco, CA, USA
carolyn.calfee@ucsf.edu

Kathleen D. Liu, MD, PhD, University of California San Francisco, San Francisco, CA, USA
kathleen.liu@ucsf.edu

Melissa H. Coleman, MD, University of California San Francisco, San Francisco, CA, USA
Melissa.Coleman@ucsf.edu

Michael A. Matthay, MD, University of California San Francisco, San Francisco, CA, USA
michael.matthay@ucsf.edu

Jeremy R. Beitler, MD, MPH, Columbia University, Irving Medical Center, New York, NY, USA
jrb2266@cumc.columbia.edu

Aaron M. Mittel, MD, Columbia University, Irving Medical Center, New York, NY, USA
am4656@cumc.columbia.edu

Adam L. Asare, PhD, QuantumLeap Healthcare Collaborative, San Francisco, CA, USA
aasare@quantumleaphealth.org

Albert F. Yen, MD, University of Southern California, Los Angeles, CA, USA
Albertfyen@gmail.com

Alejandra Jauregui, BA, University of California San Francisco, San Francisco, CA, USA
Alejandra.jauregui@ucsf.edu

Alessio Crippa, MSc, Karolinska Institutet, Stockholm, Sweden
alessio.crippa@ki.se

Alexis E. Suarez, CRC, Long Beach Medical Center, Long Beach, CA, USA
asuarez2@memorialcare.org

Alexis L. Serra, MPH, Columbia University, Irving Medical Center, New York, NY, USA
als9220@nyp.org

Alpesh N. Amin, MD, University of California Irvine, Orange, CA, USA
anamin@uci.edu

Amanda Rosen, MD, Columbia University, Irving Medical Center, New York, NY, USA
ar3783@cumc.columbia.edu

Amy L. Dzierba, PharmD, New York Presbyterian Hospital, New York, NY, USA
ald9012@nyp.org

Andrea Discacciati, PhD, Karolinska Institutet, Stockholm, Sweden
andrea.discacciati@ki.se

Angela Haczku, MD, PhD, University of California Davis, Sacramento, CA, USA
haczku@ucdavis.edu

Anna D. Barker, PhD, University of Southern California, Los Angeles, CA, USA
abarker@eitm.org

Ariel R. Weisman, CRC, University of Pennsylvania, Philadelphia, PA, USA
ariel.weisman@pennmedicine.upenn.edu

Brian M. Daniel, RCP, RRT, University of San Francisco, San Francisco, CA, USA
brian.daniel@ucsf.edu

Brian M. Morrissey, MD, University of California Davis, Sacramento, CA, USA
bmmorrissey@ucdavis.edu

Caroline A.G. Ittner, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
caroline.ittner@pennmedicine.upenn.edu

Chayse Jones, BS, University of San Francisco, San Francisco, CA, USA
chayse.jones@ucsf.edu

Christina Creel-Bulos, MD, Emory University, Atlanta, GA, USA
mcreelb@emory.edu

Christina M. Angelucci, BS, Lankenau Institute for Medical Research, Wynnewood, PA, USA
angeluccic@mlhs.org

Daniel C. Files, MD, Wake Forest Baptist Health, Winston-Salem, NC, USA

clark.files@wakehealth.edu

Derek W. Russell, MD, University of Alabama at Birmingham, Hoover, AL, USA

dwrussell@uabmc.edu

Diana Ng, PharmD, University of California San Francisco, San Francisco, CA, USA

diana.ng@ucsf.edu

Ellen L. Burnham, MD, University of Colorado, School of Medicine, Aurora, CO, USA

ellen.burnham@cuanschutz.edu

[Brian Strittmatter, PharmD, Wake Forest School of Medicine](#)

Fady A. Youssef, MD, Long Beach Medical Center, Long Beach, CA, USA

fady.a.youssef@gmail.com

Fredy Chaparro-Rojas, MD, Lankenau Institute for Medical Research, Wynnewood, PA, USA

ChaparroF@mlhs.org

Gavin H. Harris, MD, Emory University, Atlanta, GA, USA

gavin.harris@emory.edu

Harsh V. Barot, MD, Wake Forest Baptist Health, Winston-Salem, NC, USA

hbarot@wakehealth.edu

Heny Su, MD, Long Beach Memorial Center, Long Beach, CA, USA

henrylsu@gmail.com

Ivan Garcia, Columbia University, Irving Medical Center, New York, NY, USA

ig2361@cumc.columbia.edu

Jacqueline B. Sutter, DO, Lankenau Institute for Medical Research, Wynnewood, PA, USA

jsutter30@gmail.com

Jamal Dodin, MD, Sanford USD Medical Center, Sioux Falls, SD, USA

jamaldodin@gmail.com

Jeffrey D. McKeehan, RN, BSN, University of Colorado, Aurora, CO, USA

jeffrey.mckeehan@cuanschutz.edu

Jerry S. Lee, PhD, University of Southern California, Los Angeles, CA, USA

dr.jerry@usc.edu

John Kazianis, MD, Yale School of Medicine, New Haven, CT, USA

john.kazianis@yale.edu

John P. Reilly, MD, MSCE, University of Pennsylvania, Philadelphia, PA, USA

john.reilly@pennmedicine.upenn.edu

Jonathan L. Koff, MD, Yale School of Medicine, New Haven, CT, USA

jon.koff@yale.edu

Joshua F. Detelich, MD, Emory University, Atlanta, GA, USA

joshua.fitzgerald.detelich@emory.edu

Julie E. Lang, MD, Cleveland Clinic, Cleveland, OH, USA

langj2@ccf.org

Justin Muir, PharmD, New York Presbyterian Hospital, New York, NY, USA

jum9081@nyp.org

Karl W. Thomas, MD, Wake Forest Baptist Health, Winston-Salem, NC, USA

kwthomas@wakehealth.edu

Kashif T. Khan, MD, Kaiser Permanente Southern California Physicians Group, Los Angeles, CA, USA

Kashif.T.Khan@kp.org

Katarzyna Gosek, PharmD, New York Presbyterian Hospital, New York, NY, USA

kag9142@nyp.org

Katherine L. Nugent, MD, Emory University, Atlanta, GA, USA

knugen@emory.edu

Kevin W. Gibbs, MD, Wake Forest Baptist Health, Winston-Salem, NC, USA

kqibbs@wakehealth.edu

Kimberly Yee, University of California San Francisco, San Francisco, CA, USA

kimberlyjoyyee@gmail.com

Laura G. Rodrigues, CRC, University of Pennsylvania, Philadelphia, PA, USA

LRodrigues@som.geisinger.edu

Laura R. Macias, MSc, Long Beach Memorial Center, Long Beach, CA, USA

lmacias@memorialcare.org

Lindsey A. Orr, MD, Medstar Georgetown University Hospital, Washington DC, USA

lindsey.a.orr@qunet.georgetown.edu

Lindsie L. Boerger, Yale University, New Haven, CT, USA

lindsie.boerger@yale.edu

Lissette Rosario-Remigio, Long Beach Memorial Center, Long Beach, CA, USA

lrosarioremigio@memorialcare.org

Lucia Kufa, RN, MSc, Logan Health Research Institute, Kalispell, MT, USA

lucia.kufa@gmail.com

Luis E. Huerta, MD, Keck School of Medicine, USC, Los Angeles, CA, USA

Luis.huerta@med.usc.edu

Maged Tanios, MD, Long Beach Memorial Center, Long Beach, CA, USA

mtanios@yahoo.com

Maria B. Reyes, PharmD, Long Beach Memorial Center, Long Beach, CA, USA

mbreyes@memorialcare.org

Martin Eklund, PhD, Karolinska Institutet, Stockholm, Sweden

martin.eklund@ki.se

Mary LaRose, RN, Wake Forest Baptist Health, Winston-Salem, NC, USA

mlarose@wakehealth.edu

Max W. Adelman, BA, Emory University, Atlanta, GA, USA

mwadelm@emory.edu

Maya M. Juarez, University of California Davis, Sacramento, CA, USA

mmjuarez@ucdavis.edu

Michelle Jung, PharmD, Long Beach Memorial Center, Long Beach, CA, USA

mjung@memorialcare.org

Michelle Meyers, CNP, Sanford Medical Center, Sioux Falls, SD, USA

m.meyers.dnp@gmail.com

Mitchell P. Sternlieb, MD, Lankenau Institute for Medical Research, Wynnewood, PA, USA

sternlieb@mlhs.org

Nathan K. Cobb, MD, Medstar Georgetown University Hospital, Washington DC, USA

nkc4@georgetown.edu

Neil Aggarwal NEIL.AGGARWAL@cuanschutz.edu

Nilam S. Mangalmurti, MD, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA

nspatel@pennmedicine.upenn.edu

Nuala J. Meyer, MD, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA

nuala.meyer@pennmedicine.upenn.edu

Patrice Jones, Hoag Memorial Hospital Presbyterian, Newport Beach, CA, USA

Patrice.Jones@hoag.org

Paul A. Berger III, MD, Sanford Medical Center, Sioux Falls, SD, USA

paul.berger@sanfordhealth.org

Paul Henderson, PhD, QuantumLeap Healthcare Collaborative, San Francisco, CA, USA

p.henderson@quantumleaphealth.org

Paul L. Saban, PharmD, Logan Health Research Institute, Kalispell, MT, USA

psaban@logan.org

Peter S. Marshall, MD, Keck School of Medicine, USC, Los Angeles, CA, USA

peter.marshall@med.usc.edu

Phillip A. Robinson, MD, Hoag Memorial Hospital Presbyterian, Newport Beach, CA, USA

philip.robinson@hoag.org

Philip Yang, MD, Emory University, Atlanta, GA, USA

philip.yang@emory.edu

Purnema Madahar, MD, Columbia University College of Physicians and Surgeons, New York, NY, USA

pm2766@cumc.columbia.edu

Rahul Nair, MD, Montefiore Medical Center, New York, NY, USA

ranair@montefiore.org

Rajiv Sonti, MD, Medstar Georgetown University Hospital, Washington DC, USA

rajiv.sonti@gunet.georgetown.edu

Richard Anthony Lee, MD, University of California Irvine, Orange, CA, USA

richaral@hs.uci.edu

Richard G. Wunderink, MD, Northwestern University Feinberg School of Medicine, Chicago, IL, USA

r-wunderink@northwestern.edu

Romina Wahab, MD, Columbia University, Irving Medical Center, New York, NY, USA

rmw2126@cumc.columbia.edu

Roxana A. Lupu, MD, Sanford Medical Center, Sioux Falls, SD, USA

Roxana.Lupu@sanfordhealth.org

Ruixiao Lu, PhD, QuantumLeap Healthcare Collaborative, Fremont CA, USA

r.lu@quantumleaphealth.org

Santhi I. Kumar, Keck School of Medicine, USC, Los Angeles, CA, USA

santhi.kumar@med.usc.edu

Sara C. Auld, MD, Emory University, Atlanta, GA, USA

sauld@emory.edu

Scott Fields, PharmD, University of California San Francisco, San Francisco, CA, USA

scott.fields@ucsf.edu

Se Fum Wong, MD, Keck School of Medicine, USC, Los Angeles, CA, USA

sefum.wong@med.usc.edu

Sheetal Gandotra, MD, University of Alabama at Birmingham, Birmingham, AL, USA

sgandotra@uabmc.edu

Skyler J. Pearson, University of California Davis, Sacramento, CA, USA

sipearson@ucdavis.edu

Spencer Whealon, DO, Lankenau Institute for Medical Research, Wynnewood, PA, USA

whealons@mlhs.org

Timothy E. Albertson, MD, University of California Davis, Sacramento, CA, USA

tealbertson@ucdavis.edu

Timothy F. Obermiller, MD, Logan Health Research Institute, Kalispell, MT, USA

tobermiller@logan.org

Tony Oliver, MD, Sanford Medical Center, Sioux Falls, SD, USA

tony.oliver@sanfordhealth.org

Anita Darmanian, MD, Columbia University, Irving Medical Center, New York, NY, USA

ad10@cumc.columbia.edu

John Schicchi, MD, Columbia University, Irving Medical Center, New York, NY, USA

jss85@cumc.columbia.edu

Esmeralda Martinez, Hoag Memorial Hospital Presbyterian, Newport Beach, CA, USA

esmeralda.martinez@hoag.org

Farjad Sarafian, MD, Hoag Memorial Hospital Presbyterian, Newport Beach, CA, USA

Farjad.Sarafian@hoag.org

Julie Nguyen, Hoag Memorial Hospital Presbyterian, Newport Beach, CA, USA

julie.nguyen@hoag.org

Bethany Weiler-Lisowski, MD, Logan Health Research Institute, Kalispell, MT, USA

bweiler-lisowski@logan.org

Jaime Wyatt, CCRC, Logan Health Research Institute, Kalispell, MT, USA

jwyatt@logan.org

Daniel Blevins, BS, CCRP, Long Beach Memorial Center, Long Beach, CA, USA

dblevins@memorialcare.org

Marylee Melendrez, CCRP, Long Beach Memorial Center, Long Beach, CA, USA

MMelendrez@memorialcare.org

Brenda Lopez, CRC, Albert Einstein College of Medicine, New York, NY, USA

brenda.lopez@einsteinmed.org

Hiwet Tzehaie, Albert Einstein College of Medicine, New York, NY, USA

hiwet.tzehaie@einsteinmed.org

Omowunmi Amosu, CRC, Albert Einstein College of Medicine, New York, NY, USA

omowunmi.amosu@einsteinmed.org

Austin Simonson, MD, Sanford Medical Center, Sioux Falls, SD, USA

Austin.Simonson@SanfordHealth.org

Chirag Patel, MD, Sanford Medical Center, Sioux Falls, SD, USA

Chirag.Patel@SanfordHealth.org

Joe Levitt, MD, MS, Stanford Healthcare, Stanford, CA, USA

jlevitt@stanford.edu

Erin Hardy, University of California Davis, Sacramento, CA, USA

eehardy@ucdavis.edu

Brett Lindgren, DO, University of Southern California, Los Angeles, CA, USA

brettlin@usc.edu

Gregory Peterfreund, MD, University of Southern California, Los Angeles, CA, USA

Gregory.Peterfreund@med.usc.edu

Leigha Landreth, RN, Wake Forest Baptist Health, Winston-Salem, NC, USA

ldoxlad@wakehealth.edu

Lisa Parks, RN, Wake Forest Baptist Health, Winston-Salem, NC, USA

lwparke@wakehealth.edu

Neil Aggarwal, MD, University of Colorado, School of Medicine, Aurora, CO, USA

neil.aggarwal@cuanschutz.edu