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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO

MARCIANO PLATA, et al.,

Plaintiffs,

v.

GAVIN NEWSOM., et al.,

Defendants.

Case No. C01-1351 JST

DECLARATION OF ADAM LAURING, MD, PhD, IN SUPPORT OF PLAINTIFFS' PROPOSED ORDER

DECLARATION OF ADAM LAURING, M.D, Ph.D.

I, Adam Lauring, declare as follows:

1. I am a physician and Associate Professor in the Division of Infectious Diseases and the Department of Microbiology and Immunology at the University of Michigan. I am board certified in infectious diseases and have a PhD in Molecular and Cellular Biology. In 2019, I became a Fellow of the Infectious Diseases Society of America, an honor given to individuals who have demonstrated excellence in the field. In 2020, I was elected to the Governing Council of the American Society for Virology. Attached as Exhibit A is a copy of my curriculum vitae. Further biographical details and qualifications are available at https://medicine.umich.edu/dept/ microbiology-immunology/adam-lauring-md-phd.

2. I specialize in molecular virology and have published extensively on virus transmission and spread. In particular, I study how viruses evolve and spread with a focus on influenza and other respiratory viruses. I am the Principal Investigator on a 5-year, $3.7 million NIH grant on respiratory virus transmission. I have cared for COVID-19 patients and was instrumental in developing and implementing many aspects of the University of Michigan's epidemic response: I developed our diagnostic and testing guidelines, contributed to institutional treatment guidelines, and worked closely with hospital infection control to manage patient flow over the first two weeks of the Michigan epidemic. I also helped to set up our Regional Infection Containment Unit, a dedicated COVID-19 intensive care unit.

3. I am familiar with the scientific literature on the transmission, treatment, and prevention of COVID-19, and I am in frequent contact with experts in the field around the country and the world.

4. I am also familiar with a growing body of scientific literature detailing the particular risks and dangers that COVID-19 presents in correctional settings. I have reviewed the "Urgent Memo" on the COVID-19 outbreak at San Quentin State Prison

from AMEND and the Berkeley School of Public Health, dated June 13, 2020, and attached as Exhibit B. I also note a recent article in the Journal of the American Medical Association finds that "COVID-19 case rates have been substantially higher and escalating much more rapidly in prisons than in the US population," including the finding that people in prison are three times more likely to die and 5.5 times more likely to become infected by the virus. See https://jamanetwork.com/journals/ jama/fullarticle /2768249.

5. Medical isolation and quarantine of known and suspected cases of the virus are absolutely essential tools to prevent massive outbreaks, particularly in confined and congregate care settings such as prisons, where people are indoors nearly all the time and do not have the freedom of movement to practice physical distancing in the way that most of us can accomplish. People with confirmed cases or who have symptoms of the virus must be separated from those in quarantine as suspected cases, and both groups must be separated from people who are asymptomatic and not suspected of infection. Without adequate space to accomplish this separation, minor outbreaks can quickly flare up to a disastrous level, such as we have witnessed at San Quentin.

6. I have carefully reviewed the document entitled "COVID-19 Space Needs for Prevention, Isolation and Quarantine," dated July 11, 2020, and provided to me in its most recent form on July 14 from Plaintiffs' counsel (attached as Exhibit C). Generally speaking, I find this document sets forth a sound strategy on medical isolation and quarantine, and one that comports with the scientific data and literature on prevention of transmission of COVID-19 as well as the experience of COVID-19 in correctional settings. I agree wholeheartedly with the "fundamental underlying tenet of this proposal" that "each institution must have adequate space to allow for the housing, feeding, and programing of all inmates under its care," and that adequate space must include vacant beds to allow for speedy activation of living spaces for medical isolation and quarantine, separated from non-infected patients and from each other.

7. The Receiver's strategy as set forth in this document is to set aside 20% of the beds on each prison facility (or, if larger, the number of beds in the largest living unit) so that they will be readily available for quarantine and medical isolation purposes. There is no current consensus among the scientific community about how to determine exactly how much space is enough in a correctional institution for this purpose; we are simply too early in our experience of COVID-19 to make such precise determinations and predictions. However, the lack of consensus should not prevent action from being taken based on the best estimates from recent experience. I note that the recommendation in the AMEND memo was to reduce San Quentin's population by 50%; my understanding is that this was not done, and there has subsequently been a massive outbreak and significant morbidity and mortality at the institution.

8. My opinion as to how to make these determinations in the correctional environment comports with the Receiver's actions: carefully review the outbreaks already experienced to determine what space, if available in the early stages, would have provided a significant reduction in the risk of spread of the disease throughout the prison.

9. The Receiver's approach is sensible and his resulting strategy sound. A set-aside of 20% of beds will give prison officials significant room to work and provides an essential tool in stemming major outbreaks, based on all the data currently available. I see no other reasonable alternative at this point. Further, I cannot stress strongly enough the critical nature of speedy action. Without adequate space at their disposal to medically isolate and quarantine patients, prison officials will lack an essential, proven tool to fight a major outbreak, and the result could well be deadly. The fact that no one can precisely predict the exact quantity of space needed at this time should not prevent speedy action to ensure that this life-saving tool is used by prison officials. The Receiver's approach is a reasonable one and I endorse it.

10. I also endorse the other principles and strategies outlined by the Receiver. The guidance that he has provided about isolation, quarantine, prevention and

containment are grounded in public health principles and are practiced in various forms all across the country.

Pursuant to 28 U.S.C. 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed this 15th day of July, 2020, in Ann Arbor, Michigan.

Adam Lauring, M.D., Ph.D.

EXHIBIT A

Adam Scott Lauring, MD, PhD

Associate Professor
Division of Infectious Diseases, Department of Internal Medicine
Department of Microbiology and Immunology
Department of Ecology and Evolutionary Biology

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1150 W. Medical Center Dr.
Ann Arbor, MI 48109-5680
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Education and Training:

1990-1994	Yale University	B.S.
1994-2000	University of Washington	Ph.D., Molecular Biology
1994-2002	University of Washington	M.D.
2002-2004	University of California, San Francisco	Resident, Medicine
2004-2008	University of California, San Francisco	Fellow, Infectious Diseases
2007-2009	University of California, San Francisco	Postdoctoral, Virology

Certification and Licensure:

2003	Medical License, Medical Board of California
2005	Internal Medicine, American Board of Internal Medicine
2007	Infectious Diseases, American Board of Internal Medicine
2012	Medical License, State of Michigan

Appointments:

Academic

2005-2006	Chief Medical Resident, Department of Medicine, UCSF
2006	Visiting Scholar, Department of Chemistry, UC-Berkeley
2008-2009	Clinical Instructor, Division of Infectious Diseases, UCSF
2009-2012	Assistant Adjunct Professor, Division of Infectious Diseases, UCSF
2012-2018	Assistant Professor, University of Michigan
2018-	Associate Professor with Tenure, University of Michigan

Clinical

2004-2006	Staff Physician, Marin County General Hospital, CA
2006-2008	Staff Physician, Mount Zion Hospital at UCSF
2008-2012	Staff Physician, Alta Bates Summit Medical Center, Berkeley, CA

Research Interests:

1. Molecular Virology
2. Microbial Pathogenesis
3. Population Genetics and Evolution
4. Human Genetics of Infectious Diseases

Grant Support:

Current Grants

Contract 75D30120C07963 Development of a Multi-level Integrated Strategy for Regional Evaluation of Influenza Viruses and Vaccines
CDCP-DHHS-US- Co-I with Effort (Principal Investigator: Martin, Emily)
05/2020-04/2022

The Evolution of Pathogen Virulence and Transmissibility
Burroughs Wellcome Fund- Lauring, Adam, PI
07/2017-06/2022

5 R01 AI118886: Fidelity, robustness, and diversity in RNA virus evolution and pathogenesis
NIH-DHHS-US- Lauring, Adam, PI
01/2016-01/2021

1 R21AI141832: Mutation rates and transmission dynamics of influenza B viruses
NIH-DHHS-US- Lauring, Adam, PI
02/2019-01/2021

U01 IP 000974: US Hospital Vaccine Effectiveness (VE) Network
CDCP-DHHS-US- Co-I with Effort (Principal Investigator: Monto, Arnold and Martin, Emily)
08/2015-07/2020

U01 IP001034: US Influenza Vaccine Effectiveness (VE) Network
CDCP-DHHS-US- Co-I with Effort (Principal Investigator: Monto, Arnold and Martin, Emily)
08/2016-07/2021

NIH CEIRS Program Option: Evaluating the effect of repeated influenza vaccination
NIH-DHHS-US- Co-I with Effort (Principal Investigator: Monto, Arnold and Martin, Emily)
08/2018-08/2020

5 T32 AI007528: Molecular Mechanisms of Microbial Pathogenesis Training Program
NIH-DHHS-US- Co-I without Effort (Principal Investigator: Carruthers, Vernon Bruce)
08/2014-07/2019, renewal pending

Sequencing of SARS-CoV-2 to Define Transmission and Spread
UM COVID-19 Response Innovation Grant - Lauring, Adam PI without effort
04/2020-07/2022

Pending Grants

1 R01 AI148371: Evolution and Transmission of Influenza Virus in Natural Human Infection
NIH-DHHS-US- Lauring, Adam, MPI (with Emily Martin)
07/2020-06/2025 Impact 14, Percentile 1

Past Grants

Poliovirus sequencing from the Matlab study
The Bill and Melinda Gates Foundation- Lauring, Adam Co-PI (with Famulare and Taniuchi)
08/2018-02/2020 (NCE)

Influenza Vaccine Response and Transmission Risk
MCubed Award – Lauring, Adam Co-PI without effort (with Zelner and Petrie)
01/2018-12/2019

Multiscale Investigation of Influenza Transmission and Vaccine Failure
MICHR Accelerating Synergy Award – Lauring, Adam Co-PI
07/2018-06/2019

2 R56 AI097150-05: Household Studies of Influenza and Other Respiratory Viruses
NIH-DHHS-US- Co-I with Effort (Principal Investigator: Monto, Arnold S;Gordon, Aubree)
08/2016-07/2017

Influenza Transmission in a Vaccinated Cohort
University of Michigan Discovery Grant - Lauring, Adam PI
05/2015-04/2017

5U01 P000474: Core Plus A-B Option Influenza Vaccine Effectiveness
CDC Co-I with Effort (Principal Investigator: Monto, Arnold)
07/2014-06/2016

Viral determinants of influenza vaccine failure
Infectious Diseases Society of America- Lauring, Adam, PI
11/2013-10/2015

Viral mutant networks and effective influenza control
Doris Duke Charitable Foundation- Lauring, Adam, PI
07/2013-06/2016

Genomewide Dissection of Host Factors in HAV Associated Liver Failure
UCSF Liver Center- Lauring, Adam PI
04/2011-03/2012

7 K08 AI081754: Population Dynamics and Evolutionary Capacity of Viral Quasispecies NIH-DHHS-US- Lauring, Adam, PI
03/2009-08/2013

Evolvability in Enteroviruses – Implications for Therapy and Vaccines
American Heart Association- Lauring, Adam PI
07/2008-02/2009

Honors and Awards

1993-1994	Mellon Undergraduate Research Fellowship
1994	Distinctive Honors in Biology and in History of Science
1994	Magna Cum Laude, Yale University
1994	Phi Beta Kappa, Yale University
1997-1999	Poncin Graduate Fellowship
2000-2002	Achievement Rewards for College Scientists (ARCS) Fellowship
2000-2002	Paul Allen Foundation Fellowship
2002	Medical Doctor, with Honors, University of Washington
2006	Alpha Omega Alpha, University of California, San Francisco
2006-2008	UCSF Molecular Medicine Fellow
2012	University of Michigan Biological Sciences Scholars Program
2013	Doris Duke Charitable Found. Clinician Scientist Development Award
2013	Pfizer Young Investigator Award in Vaccine Development
2017	Burroughs Wellcome Fund Investigator in the Pathogenesis of Inf. Disease
2019	Fellow of the Infectious Diseases Society of America
2020	Department of Internal Medicine Chair's Impact Award

Membership in Professional Societies:

2005-2007	Infectious Diseases Society of America, Member-in-Training
2010-2011	American Society for Human Genetics, Member
2011-	American Society for Virology, Member
2011-	Infectious Disease Society of America, Member
2011-2013	International Encephalitis Consortium, Member
2012-	American Society for Microbiology, Member

Editorial and Peer Review Service:

2011-	Ad hoc reviewer Journal of Virology; PLoS One; PLoS Pathogens; PLoS Genetics; Molecular Biology and Evolution; eLife; PLoS Biology; Nature Communications; Virus Evolution; Scientific Reports; PNAS; Virology; mSphere; mBio; Philosophical Transactions Royal Society B; Evolutionary Applications; Nature Ecology and Evolution; Trends in Microbiology; Vaccine; Viruses; Science; Genetics; Journal of Medical Virology; Cell Host and Microbe; Nature Microbiology; JAMA
2014-2020	Associate Editor, PLoS Pathogens
2020-	Section Editor, PLoS Pathogens

Teaching:

Graduate Students

2013-2016	Matthew Pauly, PIBS Microbiology and Immunology Current, Staff Scientist, CDC Division of Viral Hepatitis
2014-2018	John T. McCrone, PIBS Microbiology and Immunology Current, Postdoctoral Fellow, University of Edinburgh
2016-2020	Daniel Lyons, MSTP and Ecology and Evolutionary Biology
2018-	Andrew Valesano, MSTP and Cell and Molecular Biology
2019-	Yuan Li, PIBS Microbiology and Immunology

Advanced Fellow/Faculty Mentees

2014-2016	Robert Woods, MD, PhD Current, Assistant Professor, University of Michigan Mentor on K08 AI119182
2018-	Joshua Petrie, PhD Current, Research Assistant Professor, University of Michigan Mentor on K01 AI141579
2019-	Daniel Schneider, MD, PhD Current, Assistant Professor, University of Michigan Member of K08 Mentoring Committee

Postdoctoral Fellows

2014-2016	Daniel Jorge, PhD
2014-2016	Kari Debbink, PhD Current, Assistant Professor, Bowie State University
2016-2018	Kayla Peck, PhD
2020-	Emily Bendall, PhD

Other Trainees

2010-2012	Dustin Long, UCSF Medical Student
2012-2014	Eric Hwu, UM Undergraduate
2012-2014	Shawn Whitefield, MPH Student
2013-2014	Mariessa Stademann, Visiting Graduate Student, University of Lubeck
2014-2016	Anna Berezovsky, UM Undergraduate
2015-2016	Emily Mantlo, UM Undergraduate
2018-2019	Candelaria de la Rosa, UM Undergraduate
2018-	Emma James, UM Undergraduate
2019-	Kalee Rumfelt, MPH Student

Preliminary Exam Committees

Alex Smith, PIBS Bioinformatics 2013
Ellyn Schinke, PIBS Microbiology 2014
Dishari Mukherjee, PIBS Microbiology 2014
Nicholas Lesniak, PIBS Microbiology 2016
Danelle Weakland, PIBS Microbiology 2016

Zena Lapp, PIBS Bioinformatics 2018
Amanda Photenhauer, PIBS Microbiology 2018

Dissertation Committees
Daniel Zinder, PIBS Bioinformatics, Defended 2015 (Mercedes Pascual)
Brittany Agius Bailey, Pharmaceutical Sciences, Defended 2015 (Steven Schwenderman)
Jay Lubow, PIBS Microbiology, Defended 2020 (Kathy Collins)
Sukhmani Bedi, PIBS Microbiology and Immunology, Defended March 2019 (Akira Ono)
Yinyin Ye, Environmental Engineering, Defended 2018 (Krista Wiggington)
Michelle Fearon, Ecology and Evolutionary Biology (Elizabeth Tibbetts)
Jillian Myers, Ecology and Evolutionary Biology (Tim James)
Hannah Segaloff, Epidemiology, Defended March 2019 (Emily Martin)
Qingxia Zhang, Ecole Polytechnique Federale de Lausanne, Defended 2017 (Tamar Kohn)
John Kubale, Epidemiology (Aubree Gordon)
Katherine Miller, Epidemiology (Emily Martin)
Judy Chen, PIBS Immunology (Daniel Goldstein)

Classroom Teaching Activities

1994	Small Group Leader, AIDS Education in King County Public Schools
1998	Teaching Assistant, Introduction to Biology, University of Washington
1998-1999	Science Outreach, Vashon Island Public Schools
2004-2006	Lecturer, MS3 Didactic Sessions
2005-2006	Curriculum Development, Internal Medicine Residency
2006	Lecturer, Internal Medicine Housestaff Conference
2006	Presenter, Advances in Internal Medicine CME Course
2006	Small Group Leader, CODA Clinical Skills Course
2008-2010	Lecturer, Infectious Disease Fellows' Curriculum
2008-2010	Small Group Leader, Advances in Medical Sciences Course
2010	Small Group Leader, MS2 Micro and Infectious Disease Curriculum
2013-	Lecturer, Infectious Disease Sequence (INF 500), 2-3 contact hours
2014-	Lecturer, Viral Pathogenesis (Micro 615), 6 contact hours
2014	Course Director, Experimental Genetic Systems (HG 632)
2014	Guest Lecture, LSA Freshman Seminar (UC152)
2015	Course Director, Viral Pathogenesis (Micro 615)
2015-	Course Director, Science in the Clinics (Micro 813)
2017	Guest Lecture, LSA Freshman Seminar (UC154)
2017	Guest Lecture, Experimental Genetic Systems (HG 632)
2018	Lecturer, Foundations of Immunology for MS1, 1 contact hour
2018-2019	Small Group Leader, Research Responsibility and Ethics (PIBS 503)

Clinical Teaching Activities

2005-2006	Small Group Leader, MS3 Bimonthly Physical Diagnosis Rounds
2005-2006	Small Group Leader, Residency Morning Report
2005-2006	Attending Physician, Internal Medicine Service, UCSF
2008-2011	Attending Physician, Infectious Diseases Consult Service, UCSF
2012-	Attending Physician, Infectious Diseases Consult Service, UM

Community Outreach

04/2014	Lecturer, University of Michigan "Mini Med School"
10/2014	Panelist, UM International Institute Forum "Beyond Ebola"
10/2015	Guest, "This Week in Virology, Episode 360" podcast
08/2019	Guest, "Curioscity, A Science Show, Episode 33" podcast
07/2020	Guest Speaker, miRCore Summer Science Camp for High School Students
07/2020	Guest Speaker, Aspirnaut Summer Science Internship Program

Committee, Organizational, and Grant Review Service:

2012	Chair, Host Genetics Subgroup, International Encephalitis Consortium
2013-2014	Graduate Studies, Department of Microbiology and Immunology
2014-	Faculty Search Committee, Division of Infectious Diseases
2014-	Assoc. Director, Molecular Mechanisms of Microbial Pathogenesis (T32)
2014	MICHR Pilot Grant Study Section, Round 17
2014-2015	Appointments, Promotions, Awards, Dept. Microbiology and Immunology
2015-2016	Graduate Studies, Department of Microbiology and Immunology
2016	Abstract Review, ASM Microbe
2016-2017	Grant Review, MICHR Postdoctoral Translational Scholars Program
2016	Ad hoc reviewer, National Science Foundation Career Awards
2016	Ad hoc reviewer, NIAID Special Emphasis Panel on Zika Virus
2016	Ad hoc reviewer, NIGMS K99/R00 Review Panel
2017	Grant Review, ETH Zurich Postdoctoral Fellowship Program
2017-	American Society for Virology Communications Committee
2018	Grant Review, Doris Duke Charitable Foundation CSDA
2018-	University of Michigan Institutional Biosafety Committee
2018	Grant Review, Sir Henry Wellcome Postdoctoral Fellowship Program
2019	Grant Review, Netherlands Organisation for Scientific Research
2019	Grant Review, Singapore Ministry of Health
2019-	UM Biological Sciences Scholars Program Search Committee
2019	Midwest Virology Symposium Scientific Program Committee
2019-	IDSA Research Committee
2020	Ad hoc reviewer, NIH Genetic Variation and Evolution (GVE), Member Conflict SEP, NIH Special Panel for Rapid Investigation of SARS-CoV-2 and COVID-19
2020-	Member of Council, American Society for Virology
2020-	UM Office of Research, COVID19 Research Prioritization Committee
2020-	UM COVID19 Clinical Trials Feasibility Committee
2020-	Division of Infectious Diseases COVID19 Task Force
2020-	Michigan Medicine Ad Hoc Working Group on PPE Decontamination

Industry Relationships and Non-academic Activities

2018	Consultant for Sanofi
2018-	Member of Steering Committee for Roche, CENTERSTONE: a global

	phase IIIb, randomised, double-blind, placebo-controlled clinical efficacy study of baloxavir marboxil for the reduction of direct transmission of influenza from otherwise healthy patients to household contacts
2020-	Expert witness in litigation regarding control of COVID19 in correctional facilities. Review of documents, preparation of declarations/affidavits, and testimony in Federal Court. *Cameron et al. v Bouchard et al.* (Oakland County) *Wayne County Jail Inmates et al. v William Lucas et al.* (Wayne County) *Abrams et al. v Chapman et al.* (Michigan Department of Corrections) *Plata et al. v Newson et al.* (California Department of Corrections)

Seminars and Extramural Invited Presentations:

Intramural Seminars

06/2012	UCSF Liver Center Symposium
11/2012	School of Public Health MAC-EPID Symposium
12/2012	Monthly EEB "Theory Group" Lunch Seminar
12/2012	Evolution, Health, and Adaptation Program Seminar Series
11/2013	Blood and Marrow Transplant Program Research Update Meeting
11/2013	Department of Ecology and Evolutionary Biology Seminar Series
09/2014	Division of Infectious Diseases Grand Rounds
10/2014	Department of Internal Medicine Grand Rounds
10/2014	Speaker, Biological Sciences Scholars Program Retreat
10/2015	Department of Computational Medicine and Bioinformatics
10/2016	University of Michigan M&I, Michigan State MMG Joint Retreat
10/2016	Department of Ecology and Evolutionary Biology Tuesday Seminar
12/2016	Division of Infectious Diseases Grand Rounds
10/2017	Department of Microbiology and Immunology
01/2019	RNA Innovation Seminar Series
09/2019	Division of Infectious Diseases Grand Rounds
05/2020	Department of Internal Medicine Grand Rounds
06/2020	Biosciences Initiative Symposium on SARS-CoV-2 and COVID19

Extramural Invited Presentations

12/2000	Columbia University, Department of Pathology
02/2011	UC-Berkeley, Center for Theoretical and Evolutionary Genomics
03/2011	Blood Systems Research Institute Symposium, San Francisco, CA
04/2011	Columbia University, Division of Infectious Diseases
09/2011	University of Michigan, Division of Infectious Diseases
09/2011	San Francisco State University, Cell and Molecular Seminar Series
11/2011	Stanford University, Division of Infectious Diseases
11/2011	Yale University, Division of Infectious Diseases
01/2014	University of Utah, Microbial Pathogenesis Seminar Series
02/2014	NanoBio Corporation, Michigan
05/2015	University of Toledo, Department of Microbiology and Immunology
05/2015	Vanderbilt University, Division of Infectious Diseases

07/2015	Ecology and Evolution Symposium, American Society for Virology
03/2016	Penn State University, Center for Infectious Disease Dynamics
03/2016	Wayne State University, Department of Immunology and Microbiology
02/2017	Laufer Center for Physical and Quantitative Biology, SUNY Stonybrook
03/2017	Ninth Workshop on Virus Evolution, State College, PA
08/2017	NIAID Workshop on Enteroviruses, Rockville, MD
09/2017	University of Pennsylvania, Department of Microbiology
09/2017	University of Chicago, Committee on Microbiology
10/2017	IDweek 2017 Invited Presentation, San Diego, CA
11/2017	University of Illinois, School of Molecular and Cellular Biology
01/2018	Mt. Sinai, Global Health and Emerging Pathogens Institute
03/2018	University of Chicago Comm. on Genetics, Genomics, and Systems Bio.
04/2018	Emory Department of Pediatrics Research Grand Rounds
04/2018	Emory Population Biology, Ecology, and Evolution Seminar Series
05/2018	NIAID Laboratory of Viral Diseases Seminar Series
07/2018	State of the Art Lecture, American Society for Virology Annual Meeting
08/2018	Fred Hutchinson Cancer Research Center CIDID Seminar
09/2018	Duke University, Department of Microbiology and Molecular Genetics
10/2018	Michigan State University, Department of Micro and Molecular Genetics
11/2018	University of Virginia, Division of Infectious Diseases
01/2019	University of Texas Medical Branch, Department of Biochemistry
03/2019	Center for Communicable Disease Dynamics, Harvard SPH
03/2019	Center for Virus Research, University of California, Irvine
05/2019	University of Rochester, Department of Medicine
07/2019	Israel Ministry of Health, Center for Disease Control
10/2019	Institute for Molecular Virology, University of Wisconsin
10/2019	Global Infectious Diseases Seminar, University of Wisconsin
03/2020	University of Iowa, Department of Internal Medicine

Bibliography:

Google Scholar Summary

Citations	2879	1963 since 2015
h-index	25	20 since 2015
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Peer Reviewed

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3. Rohn JL, Gwynn SR, **Lauring AS**, Linenberger ML, and Overbaugh J (1996) Viral genetic variation, AIDS, and the multistep nature of carcinogenesis: the feline leukemia virus model, *Leukemia*, 10(S1):1067-1069. Review.

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5. Anderson MM, **Lauring AS**, Burns CC, and Overbaugh J (2000) Identification of a cellular cofactor required for infection by feline leukemia virus, *Science*, 287(5459):1828-1830.
6. Gwynn SR, Hankenson FC, **Lauring AS,** Rohn JL, and Overbaugh J (2000) Feline leukemia virus sequences that affect T-cell tropism and syncytia formation are not part of known receptor binding domains, *Journal of Virology*, 74 (13):5754-5761.
7. **Lauring AS** and Overbaugh J (2000) Evidence that an IRES within the Notch2 coding region can direct expression of a nuclear form of the protein, *Molecular Cell*, 6(4):939-945.
8. **Lauring AS,** Anderson MM, and Overbaugh J (2001) Specificity in receptor usage by FeLV-T: implications for the in vivo tropism of immunodeficiency-inducing variants, *Journal of Virology*, 75(19):8888-8898.
9. Anderson MM, **Lauring AS**, Robertson S, Dirks C, and Overbaugh J (2001) Feline Pit2 functions as a receptor for subgroup B feline leukemia viruses, *Journal of Virology,* 75(22): 10563-72.
10. **Lauring AS,** Cheng HH, Eiden MV, and Overbaugh J (2002) Genetic and biochemical analyses of Pit1 determinants for FeLV-T suggest a novel mechanism for entry, *Journal of Virology*, 76(16):8069-77.
11. Graber C, **Lauring AS,** Chin-Hong PV (2007) Clinical problem solving: A stitch in time, *The New England Journal of Medicine,* 357(10):65-70. Case Report.
12. Webster DR†, Hekele A†, **Lauring AS**, Fischer K, Li H, Andino R, and DeRisi J (2009) An enhanced single base extension technique for the analysis of complex viral populations, *PLoS ONE*, 4(10):e7453.
13. **Lauring AS**†, Jones JO†, and Andino R (2010) Rationalizing the development of live attenuated virus vaccines, *Nature Biotechnology,* 28(6):573-579. Review.
14. **Lauring AS** and Andino R (2010) Quasispecies theory and the behavior of RNA viruses*, PLoS Pathogens,* 6(7):e1001005. Review.
15. **Lauring AS** and Andino R (2011) Exploring the fitness landscape of an RNA virus by using a universal barcode microarray*, Journal of Virology,* 85(8):3780-3791.
16. **Lauring AS**, Acevedo A, Cooper SB, and Andino R (2012) Codon usage determines the mutational robustness, evolutionary capacity and virulence of an RNA virus, *Cell Host and Microbe,* 12(5):623-632.
17. **Lauring AS***, Lee TH, Martin JN, Hunt PW, Deeks SG, and Busch M (2012) Lack of evidence for mtDNA as a biomarker of innate immune activation in HIV infection, *PLoS ONE*, 7(11):e50486.
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Oxysterol-binding protein is a phosphatidylinositol 4-kinase effector required for HCV replication membrane integrity and cholesterol trafficking, *Gastroenterology,* 146(5):1373-1385.

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22. Bull JJ and **Lauring AS*** (2014) Theory and empiricism in virulence evolution, *PLoS Pathogens,* 10(10):e1004387.
23. Pauly MD and **Lauring AS*** (2015) Effective lethal mutagenesis of influenza virus with three nucleoside analogs, *Journal of Virology,* 89(7):3584. Selected for Spotlight feature by the editors.
24. Jorge DMdM, Mills R, and **Lauring AS*** (2015) CodonShuffle: A tool for generating and analyzing synonymously mutated sequences, *Virus Evolution,* 1(1): vev012.
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EXHIBIT B

AMEND
CHANGING CORRECTIONAL CULTURE

Berkeley Public Health

Urgent Memo

COVID-19 Outbreak: San Quentin Prison

June 13, 2020

San Quentin California State Prison is experiencing a rapidly evolving COVID-19 outbreak with profoundly inadequate resources to keep it from developing into a full-blown local epidemic and health care crisis in the prison and surrounding communities. The combination of San Quentin's antiquated facilities and severe overcrowding places the prison at high risk of significant COVID19-related morbidity and mortality unless the population is quickly reduced by 50% or more, in addition to adoption of the prevention measures outlined below. The urgent resources San Quentin requires range from human capital to environmental risk reduction and rapid testing. Failure to meet these urgent needs will have dire implications for the health of incarcerated people at San Quentin, correctional staff and the healthcare capacity of Bay Area hospitals.

Background

San Quentin arrives at this tenuous moment with several significant assets including a strong Chief Medical Executive (Dr. Alison Pachynski) and a Chief Physician and Surgeon (Dr. Shanon Garrigan) who have spent the past 3.5 months doing everything in their power to prepare for an unavoidable COVID-19 outbreak. However, these two physicians, even with the enormous assistance they have received from many other healthcare staff including a strong public health nurse, a notably excellent partnership with custody leadership (Acting Warden Ronald Broomfield and the recently arrived Chief Executive Clarence Cryer), and additional staffing from the Regional level, is simply not enough to meet the needs of San Quentin given its size and complexity. As a result, there are multiple vulnerabilities that we witnessed at San Quentin which must be urgently addressed to protect the health and safety of thousands of staff, residents and surrounding community members.

Although this memo outlines the urgent needs of San Quentin Prison, it is our belief that most – if not all – of these recommendations are important for all California Prisons that are certain to experience an outbreak if they have not already.

Urgent needs and immediate actions required:

1. **Develop a COVID-Outbreak Emergency Response Team:** At present, the over-reliance on local existing medical and correctional leadership to develop an outbreak response plan means that these leaders are tasked with making multiple acute decisions on a daily basis without enough people on the ground to operationalize a centralized game plan or long term strategy. This

responsibility - overwhelming on its own - is then magnified with the additional responsibility of providing implementation oversight of the ad-hoc plan. Instead, local leadership should have the support needed to step back and see the whole picture with a team of staff who can implement and recommend adjustments to the overarching central COVID-19 control strategy as needed on the local level. There simply do not appear to be sufficient on the ground staff who are not working from home. This daily management of the acute phase of the outbreak has the secondary effect of making the lead physicians also less available to coordinate the care and treatment of patients who become acutely ill in the facility and also increases the vulnerability of San Quentin to small errors with potentially dire consequences. Minimum positions required for such a team are included below. Dr. Pachynski and Dr. Garrigan appear to be personally responsible for all of the tasks described below with insufficient tools to support their success. While there may be some central guidance and support offered, additional human capital is urgently needed to achieve the CCHCS's pandemic response goals.

Minimum Recommended Leadership Team Positions:

- **Environment of Care Leader.** This position would be responsible for evaluating and optimizing the physical plant of the prison for ventilation, sanitation, path of patient flow (for example developing policies and procedures for how infected patients are transferred through the institution) and planning for how to reconfigure and reimagine needed space for quarantine, general population or medical isolation units depending on how the number of affected patients increases or decreases over time. This position would also work with plant operations to ensure that all air vents are cleaned and well functioning and would organize the creation of a field hospital(s) or quarantine tents as needed.

- **Healthcare – Custody Coordination Leader.** This position would focus on partnering with Custody (and working closely with the Staff Healthcare Liaison Leader, described below) to review current housing on a daily basis, and to determine the appropriate way to cohort and house residents including developing quarantine areas (in partnership with the Environment of Care Leader). This position would also be responsible for ensuring that appropriate testing is done prior to any transfer of residents to other state facilities or to the community.

- **COVID-19 Testing Leader.** This position would be responsible for coordinating with the testing center (at this moment QUEST Diagnostics) including reaching out through public and private sources and coordinating with the state and local departments of public health to improve testing turnaround time, running the list with medical staff (and the Epidemiologist, described below) on a daily basis to determine who has – and who needs – testing, and coordinating contact tracing in response to testing results and reporting of symptoms throughout the facility.

- **Staff Healthcare Liaison Leader.**This position would work with correctional leadership to cohort staff, develop plans that eradicate staff working at more than one housing facility throughout the day, train and enforce PPE rules, support contact tracing and administrative leave needs among exposed and infected staff, and investigate alternatives to potential

sources of staff-to-staff infections such as shared vanpools. This position would also track daily staff movements in order to assist with contact tracing when needed.

- **Epidemiologist Analyst Leader.** This position would be responsible for maintenance of a line listing of all active cases and for all data analysis and reporting. This position would also be responsible for a "patient tracking process" of the facility including daily review of the COVID Monitoring Registry to provide a close scrutiny of who has tested positive or is in quarantine – where they are currently housed (and were recently housed), and the same for those who have tested negative. In addition, this position would assist the Environment of Care leader and the Healthcare – Custody Coordination Leader to manage patient movement to quickly clear people when they have tested negative and return them to the General Population in order to free up much-needed quarantine cells. This position would also manage testing data (e.g., some inmates in the reception area have been tested 3-4 times and test results are coming in at different times).

2. **Address Unsafe Overcrowding.** Although there are currently 3547 total inmates, approximately ~1400 have at least one COVID risk factor (as do many, unknown, staff members). This means they are at heightened risk of requiring ICU treatment and/or mortality if infected. We detail the units of most immediate concern below. Given the unique architecture and age of San Quentin (built in the late 1800s and early 1900s), there is exceedingly poor ventilation, extraordinary close quarters esacerbated by overcrowding, and inadequate sanitation, **we recommend that the prison population at San Quentin be reduced to 50% of current capacity (even further reduction would be more beneficial) via decarceration**; this will allow every cell in North and West blocks to be single-room occupancy and would allow leadership at San Quentin to prioritize which units to depopulate further including the high-risk reception center and gymnasium environments. It is important to note that we spoke to a number of incarcerated people who were over the age of 60 and had a matter of weeks left on their sentences. It is inconceivable that they are still housed in this dangerous environment. **It is a frightening public health reality that in a matter of days there may be no cells to isolate a potentially infectious COVID-19 patient;** the only way to manage the situation is to significantly reduce the prison population (and it is too risky to move inmates to other facilities).

Housing units of most concern at San Quentin at present time:

- **North Block and West Block** are each open-grill, 5-tier buildings with a capacity of 800 persons each. Ventilation is poor - windows have been welded shut and the fan system does not appear to have been turned on for years; heat on the far side of the building can be stifling. Over 50% of the residents housed in these units have at least 1 COVID risk factor, and an alarming ~300 inmates have 4 or more COVID risk factors. An outbreak in North and West blocks could easily flood – and overwhelm – San Quentin as well as Bay Area hospitals. (For example, see San Francisco hospital capacity: https://data.sfgov.org/stories/s/Hospital-Capacity/qtdt-yqr2/)

- **Reception center** which currently houses ~500 persons. In the reception Center's "Badger Unit" where people from CIM were transferred, the fear and outrage are palpable – people are yelling throughout the housing unit due to discontent about the COVID-19 situation including intake of inmates from CIM and loss of privileges (thereby increasing the risk of COVID-19 spread throughout the tiers via respiratory droplets). It is hard to imagine that violent incidents will not erupt at some point soon further threatening the safety and health of residents and staff alike.

- **The Gymnasium**, which has been converted to a dorm. There is little to no ventilation in the housing unit creating high-risk for a catastrophic super spreader event. At a minimum, the gymnasium beds should be spread out more to ensure additional distance between residents and the second set of doors in the gymnasium dorm must be opened to ensure air turnover which may necessitate a second officer station for security reasons. This unit should be prioritized for closure if sufficient population reduction can be achieved.

- **HVAC - in all units above and in other housing areas** there is an immediate need to clean and turn on all fan and HVAC systems immediately (North Block, Gymnasium, Dorms) in order to maximize air exchange and ventilation as soon as possible – ideally in the next few days. Of note, the exhaust pumps and filters appear dirty on visual inspection, and require clearing and cleaning. Since maximizing ventilation and air exchange decreases COVID-19 transmission, doors and windows should be opened as much as possible (some have been welded shut - and must be remediated). If opening doors makes it difficult for officers to do their jobs then we would recommend that officer stations be rearranged or new ones set up so as to improve air exchange. Note that the important aspect is *air exchange*, not only the movement of air within the room. Fans that blow air around may help cool people, but they don't decrease rebreathing aerosols unless they filter the air or increase air exchange (diluting the aerosol).

3. **Immediately Improve Testing.** It is inconceivable that in the Bay Area the medical leadership at San Quentin is having to manage an outbreak in their massive antediluvian facilities with PCR tests on a 5-6 day turn-around time. We would argue that there is no higher testing priority for around 100 miles and resources need to be shifted immediately to respond or there will be a massive, uncontrollable outbreak (if it is not too late already). In addition (and this certainly goes without saying), transfers between all facilities must halt until medical staff are able to certify that all testing and quarantine procedures can be followed. Our recommendations are as follows:

   - **Liaise with testing laboratory to streamline testing,** including exploring observed self-collection of samples and alternate anatomic sites of testing (e.g. saliva, nares swabs)

   - **Improve testing turnaround time at QUEST or go through other laboratories that will be able to improve turnaround time (5-6 days or more is completely unacceptable).** As an example, CMC was able to respond rapidly to their outbreak with a turnaround testing time of 24 hours at some points in the outbreak. Large-scale testing with rapid receipt of results is essential to allow the medical team to minimize community spread. If tests are sent to

laboratories other than QUEST, support San Quentin in adding these results to the EMR as the current process of scanning and manual entry is overly laborious.

- **The California Department of Public Health** should be compelled to prioritize specimens from San Quentin given the potential for super-spreading in that environment.

- **Testing of symptomatic patients must be done with individual testing. Testing of asymptomatic patients to identify people who are shedding virus can be done with pools of samples. Without additional information, pools of 10 should be used.** This approach can be used for frequent retesting of people at especially high risk of spreading the virus (staff and inmates in large housing units — i.e. almost all of San Quentin).

- **San Quentin requires on-site testing -** including cartridges and well-trained staff to conduct these (currently they have inadequate staffing to conduct mass swabbing). Sample transport just adds time. San Quentin will need high volume testing for many months, perhaps years. They should have testing capacity on-site and available round-the-clock.

- **Of note, because testing time is so slow, little to no contact tracing can happen. Furthermore, patients cannot be appropriately housed based on test results when these results return 6 days later as a patient may have been exposed in the interim.** As a result, *entire units are put on lockdown status for the span of a quarantine*. In the long term, as this pandemic will last at least another year and likely longer, this will threaten long term goodwill between residents and staff and have profound mental health consequences for the population and staff alike.

4. **Develop Additional Medical Isolation and Quarantine Housing.** Those in *Quarantine* (for those with a credible exposure to COVID-19 and are asymptomatic) are housed in Carson. Of note, all who arrived from CIM were housed in the Reception Center's Badger Unit 4th and 5th Tiers. This was beyond usual practice due to volume. Those in *Medical Isolation* (for those who have tested positive for COVID-19 and suspects with symptoms who are awaiting testing) have been housed in the Adjustment Center as this is the only unit at San Quentin that has single cells with solid doors. There are ~102 cells in the Adjustment Center of this type and already ~80 cells are full. At the advice of the local health department, 3 of the CIM buses were placed in this isolation unit once a person from the bus turned positive due to the high-level serious exposure. Therefore, some of these individuals might end up with negative tests and can then be moved out of Medical Isolation.

   However, a massive outbreak at San Quentin will significantly overwhelm the availability of these 102 Medical Isolation cells, and there will quickly be nowhere for infectious cases to be moved. For this reason, we believe that there is a**n urgent need for immediate creation of a field hospital to relieve the imminent overflow problem in the Medical Isolation unit**. In addition, people with COVID-19 are known to experience rapid physical decompensation; this is therefore

not an ideal time for a patient to be behind a solid door in the most secure areas of the prison out of the sight of medical or nursing staff in the case of an emergency.

Some suggestions for additional Quarantine and Medical Isolation space below:

- **Convert nearby chapels (there are 3) into field hospitals.** This field hospital can house all people with confirmed COVID-19 ("Medical Isolation Unit") as there are not substantial risks to housing infected patients together and these patients would then have access to supervising nurses who could regularly check their respiratory status and comfort levels. The chapels are large, well-ventilated rooms conveniently located near the current Medical Isolation Unit and with road access for ambulances and other transport. We recognize the housing plans will become increasingly complex as people of multiple security levels require housing in Quarantine or Medial Isolation housing. This again reinforces the need for a dedicated team leader (the **Healthcare – Custody Coordination Leader)** who oversees the work of partnering with corrections to identify medically appropriate housing solutions.

- **Once a field hospital is created, San Quentin will need another site for Quarantine.** One option is to keep Adjustment Center housing for Quarantine. Due to the incredible fear involved with being moved to the Adjustment Center cells not to mention possible short- and long-term mental health effects, we would strongly recommend that custody immediately develop additional, positive incentives to improve mental health for the 14-day quarantine period for those housed in the Adjustment Center for Quarantine, such as access to personal tablets with movies, increased access to canteen items, personal effects and a certain number of free phone calls, perhaps on state-owned cell phones. While these interventions may seem beyond the normal routine of prisons in California, they are simple, low-cost measures that would go a long way toward building good will and ensuring that inmates who become symptomatic are willing to come forward to medical treatment with their symptoms. Furthermore, they may dampen the growing security risk associated with the aforementioned discontent among inmates. It is also possible that if enough high-security level individuals need medical isolation then they would need to use this unit for them and would require alternate housing options for Quarantine (perhaps the Carson housing unit which is currently being used for quarantine, although ideally the Carson housing unit would be only used for quarantine, further necessitating population reduction to control this epidemic at San Quentin). An mentioned above, in a matter of days/weeks, there may be no reasonable isolation locations for infectious COVID patients.

5. **Improve General Prevention efforts throughout the facility.** In particular, we witnessed suboptimal mask use by staff, and three "medical pass nurses" sitting in a work room without masks. Moreover, custody work stations are not set up to physically distance, no additional workstations appear to have been built yet. As a result, even with the best of efforts, officers wind up clustered near each other around a central podium. An infection control nurse and environmental assessment would go a long way towards identifying opportunities to partially alleviate these problems.

6. **Staffing Cohorting is a necessity.** At present work shift plans are inadequate from a public health perspective. For example, we learned about staff who were working in the Medical Isolation Unit (Adjustment Center) during the shift and were scheduled to work the next shift in the dorms. This is an enormous risk for the spread of COVID-19 between housing units.

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Amend at UCSF is a health-focused correctional culture change program led by experts in medicine, infectious diseases, public health, and correctional health and policy that is providing correctional leaders, policymakers, and advocates the evidence-based tools they need to protect the health and dignity of those who live and work in jails and prisons during the COVID-19 pandemic.

The University of California, Berkeley School of Public Health is working on the leading edge of research, educating the public, and mobilizing to serve California's most vulnerable populations during the COVID-19 pandemic.

For more information:

https://amend.us/covid

EXHIBIT C

COVID-19 SPACE NEEDS FOR PREVENTION, ISOLATION AND QUARANTINE
July 11, 2020

Below is a summary of principles and strategies that guide how the department should manage physical space and prison populations in order to both prevent the introduction of COVID-19 into the prison and to contain the spread of COVID-19 infection once introduced. A fundamental underlying tenet of this proposal is that each institution must have adequate space to allow for the housing, feeding, and programing of all inmates under its care.

The methodology for determining the number of empty beds, including the 20% adjustment noted at the end of this document, was based upon our experience during the pandemic with outbreaks of different sizes. We have experienced four large outbreaks (total positives greater than 500), six medium-sized outbreaks (total positives greater than 100 and less than 500), and fourteen small outbreaks (total positives between 1 and 99). The goal of this analysis and its associated methodology is to ensure to the extent reasonably feasible that each institution has enough beds to handle the beginning phases of an outbreak in order to significantly reduce the risk of it blossoming into a medium-sized or large outbreak.

A number of caveats apply to use of this document:

1) This product was intended to guide the decision of how many beds are needed to house the residents of an institution, and not to determine where they will go or whether they need to be released.
2) Use of the word “shall” does not result in this document being directive. It is not directive and does not constitute policy or procedure.
3) Realities on the ground might require exceptions to the points noted in these documents.

Although the summary focuses on the inmate populations that need to be separated into different types of isolation and quarantine spaces, the overall public health approach must include all of the following:

1) Routine periodic COVID-19 testing of staff;
2) Management of work assignments to minimize overlap of staff contact between different inmate populations;
3) Consistent and appropriate utilization of personal protective equipment; and
4) Intensified cleaning and disinfection practices of housing and work spaces.

Early data suggests that inadequate ventilation may contribute to the transmission of COVID-19 within congregate living environments. Strong consideration should be given to performance monitoring of and routine preventive maintenance of all components of housing unit ventilation systems (e.g., fans, filters, ducts, supply diffusers, and exhaust grilles) and any air-cleaning devices in use. Performance monitoring should include directional airflow assessment and measurement of supply and exhaust airflows to compare with recommended air change rates.

Isolation and Quarantine basic concepts

There are two major categories of patient populations to consider once a case has been identified: *isolation and quarantine*, and within each of these categories, there are two subcategories.

For the populations requiring isolation space, there are two different populations that shall not be cohorted together:

1) Persons who have confirmed COVID-19 infection; and
2) Those who are symptomatic but do not have confirmed infection.

For populations requiring quarantine space, there are two groups that shall not be cohorted together and who require different levels of clinical monitoring to identify persons who become symptomatic:

1) Persons with known exposure to COVID-19 who are asymptomatic; and
2) Those who are asymptomatic but have a higher risk of infection due to their movement history or having been in crowded conditions without public health precautions.

In planning for effective isolation and quarantine space, each institution must also take into account unique patient factors that may impact upon where a patient can be housed. Examples include Clark, Coleman, and Armstrong factors as well as restricted housing needs.

Prevention In the absence of cases

Cohorts, or household units, should be as small as possible (1-8 persons) to minimize spread once the virus is introduced. Inmates and staff should be cohorted in housing areas with minimal contact between household units.

Wherever possible, rooms must be arranged to have as few inmates as possible and to allow as much physical distancing as possible. If cells have bars rather than walls, or are porous rather than solid closed doors, ideally one would leave an empty cell on each side of an occupied cell to maintain distancing.

Transfers of inmates shall be limited to those which are necessary for clinical care, medical isolation or quarantine, reduction of overcrowding, and serious custody concerns. If transfer must take place, pre and post transfer quarantine and COVID-19 testing is required. Inmates shall wear face coverings during transfer, and staff shall wear appropriate PPE and utilize disinfected transportation vehicles.

Containment once a case is identified

Patients who are placed in either isolation or quarantine shall move outside of the isolation or quarantine space as little as possible. Medical care should be provided and meals should be served within the space, isolated persons should be assigned a dedicated bathroom, quarantined persons should be assigned a separate dedicated bathroom, and group activities should be postponed.

1. *Isolation: Persons who are CONFIRMED to have COVID-19:*
   - Isolation is necessary.
   - For individual cases, the preference is for isolation in a negative pressure room.
   - The second choice is isolation in a private room with a solid, closed door.
   - Multiple confirmed COVID-19 positive cases can be housed together.
   - Confirmed positive patients shall not be housed in the same unit with those who are not known to have COVID-19.
   - If there are no other options and these patients must be housed in the same building with non-infected patients, they must be physically separated from patients who do not have COVID-19. Physical separation requires solid walls and solid doors.
   - Patients confirmed to have COVID-19 shall not be housed in dorms with those who are not confirmed to have COVID-19.
   - Daily healthcare monitoring shall be conducted for patients diagnosed with COVID-19.

2. *Isolation: Persons who are SYMPTOMATIC but not confirmed to have COVID-19 (tests are pending or refused):*
   - Isolation is necessary.
   - For individual cases, the preference is for isolation in a negative pressure room.
   - The second choice is isolation in a private room with a solid, closed door.
   - If patients cannot be isolated alone, they can be isolated with other patients who have the same symptoms; however, 6 feet of distancing is necessary between each patient.
   - Daily healthcare monitoring shall be conducted for patients with symptoms of pneumonia.

3. *Quarantine: Persons who have been EXPOSED to COVID-19, but are asymptomatic:*
   - Quarantine is necessary.
   - These patients are at risk of being infected and/or becoming infected as a result of their exposure. Thus, they shall be separated from both the confirmed cases and from the symptomatic but not yet confirmed cases to avoid re-exposure.
   - Quarantine cohorts shall be as small as possible (1-8 persons) to minimize spread.
   - Cohorts with different exposure dates shall be separated. Cohorts with different types of exposures shall also be separated, including those coming in from jails or transferring between institutions.
   - Serial testing and healthcare surveillance is used to identify those infected so that they can be moved to isolation.

4. *Quarantine: Asymptomatic persons who are being prepared to move from one institution to another, and those arriving from another institution:*
   - Quarantine is necessary.
   - Each facility shall maintain sufficient quarantine space to accommodate its historical average volume of transfers in and out.
   - Quarantine cohorts shall be as small as possible (1-8 persons) to minimize spread.
   - Cohorts with different movement dates shall be separated. Cohorts with different types of movement shall also be separated, including those coming in from jails or transferring between institutions.
   - Serial testing and healthcare surveillance is used to identify those infected so that they can be moved to isolation.
   - Except in emergency situations, patients shall not be routinely moved from one institution to another without testing COVID-19 negative.
   - Patients arriving to an institution shall not be released from quarantine until they have sequentially tested negative for COVID-19.

Containment in the setting of a large scale outbreak

To plan for the possibility of a large-scale outbreak of COVID-19, each facility in each prison shall identify space that will allow for rapid isolation and quarantine of impacted patients. Each facility shall identify its largest congregate living space. Each facility shall maintain empty beds equivalent to the capacity of its largest congregate living space or 20% of the current population of the facility, whichever is larger.

Quarantine space

Each facility shall identify sufficient space to allow for the quarantine of all inmates who are arriving or departing from that institution.

Definitions

"Facility" is that portion of a prison designated as a separate functional unit, usually denoted by a letter (e.g., Facility A, Facility B).
The "largest congregate living space" of a facility is the housing unit that has the capacity to house the largest number of people.
The "capacity" of the largest congregate living space shall be determined based on the "Covid Blueprint Capacity": the number of people CDCR/CCHCS have determined may be housed in that living space consistent with physical distancing and other COVID-19 prevention measures currently in place.