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7
8 UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
9 (Oakland Division)

10
11 JANICE ALTMAN, et al.,

12 Plaintiffs,

13 v.

14 COUNTY OF SANTA CLARA, et al.,

15 Defendants.

No. 20CV02180JST

**DECLARATION OF GEORGE W.
RUTHERFORD, M.D., IN OPPOSITION TO
PLAINTIFFS' APPLICATION FOR
PRELIMINARY INJUNCTION**

Date: May 20, 2020

Time: 2:00 p.m.

Judge: Honorable Jon S. Tigar

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18 I, GEORGE W. RUTHERFORD, M.D., declare as follows:

19 1. I have personal knowledge of the facts set forth in this declaration. If called as a
20 witness, I could and would testify competently to the matters set forth herein.

21 2. I graduated from Stanford University, where I received Bachelor's Degrees in Classics
22 and Chemistry and a Master's Degree in History. I received my Doctor of Medicine from Duke
23 University School of Medicine. I completed a residency in Pediatrics at the University of California,
24 San Diego and the Hospital for Sick Children in Toronto, Ontario, Canada. Following training in
25 epidemiology in the Centers for Disease Control's Epidemic Intelligence Service, I spent the first ten
26 years of my professional career in public health practice and subsequently teaching and conducting
27 research in public health, with a primary emphasis on the epidemiology and control of
28 communicable diseases.

1 3. I currently serve as a Professor in the Department of Epidemiology and Biostatistics at
2 the University of California, San Francisco School of Medicine. I am the Salvatore Pablo Lucia
3 Professor of Epidemiology, Preventive Medicine, Pediatrics, and History. I am also the Head of the
4 Division of Infectious Disease and Global Epidemiology in the Department of Epidemiology and
5 Biostatistics. Additionally, I am a Professor in the Department of Pediatrics, the Department of
6 Family and Community Medicine, and the Department of Anthropology, History, and Social
7 Medicine. I am an Adjunct Professor in the University of California, Berkeley School of Public
8 Health. Further, I am the Director of the Prevention and Public Health Group and the Director of
9 Global Strategic Information Group at the Institute for Global Health Sciences. I am Board Certified
10 in Pediatrics and in General Preventive Medicine and Public Health.

11 4. My primary research interest is in the epidemiology and control of infectious diseases,
12 with a particular emphasis on HIV/AIDS in low- and middle-income countries; the prevention of
13 coccidioidomycosis (Valley Fever); sexually transmitted disease control in California; pediatric
14 vaccination policy; the role of public health in managed care; evidence-based public health practice;
15 the epidemiology and control of tuberculosis in California; and emerging infectious diseases.

16 5. The current novel coronavirus pandemic requires extraordinary measures to protect the
17 population because the virus (SARS CoV-2) is extremely easy to transmit, can be transmitted by
18 infected people who show no symptoms, has no cure, and the population has not developed herd
19 immunity. The disease that is caused by the novel coronavirus, COVID-19, is fatal to up to eighty
20 percent of patients who go into intensive care units in hospitals. Information about the pandemic is
21 still limited and constantly evolving, therefore, I may need to revise my opinions as new information
22 comes to light.

23 6. Right now, shelter-at-home orders are being used worldwide to minimize the potential
24 for people infected with the novel coronavirus to spread it. When restrictions are lifted and normal
25 activities resume, extensive contact tracing (described below) will be needed to prevent new
26 outbreaks. At the request of the San Francisco Department of Public Health, I am currently leading
27 a project to conduct contact tracing in the City and County of San Francisco. Contact tracing
28 involves first interviewing people who are infected with COVID-19, then tracking down everyone

1 who has been near them, and then making decisions to test them and, if they are tested, to isolate (if
2 they test positive) or quarantine (if they test negative). Isolation separates sick people with COVID-
3 19 from people who do not have the disease. Quarantine separates and restricts the movement of
4 people who were exposed to COVID-19 in case they become sick at which point they go into
5 isolation; they may have the disease but show no symptoms. Contact tracing such as the project I
6 am leading in San Francisco would have been insufficient without the narrow shelter-in-place orders
7 as a first step. Contact tracing becomes significantly more complex and difficult when there are
8 increased numbers of in-person interactions, as the tracing process is labor intensive and time
9 consuming.

10 7. According to the World Health Organization, worldwide, as of April 29, 2020, there are
11 more 3,024,059 confirmed COVID-19 cases and 208,112 deaths, though the actual numbers are
12 likely higher due to limited testing and incomplete diagnosis, owing to a substantial proportion of
13 infected individuals being asymptomatic or mildly symptomatic.

14 8. The last time our country faced a pandemic of this scale was the influenza pandemic in
15 1918, during which millions of people were infected worldwide. There were about 50 million deaths
16 worldwide, with 675,000 deaths in the United States, when the population of the country at that time
17 was only 103 million. There were clear lessons from the 1918 pandemic that guide public health
18 experts in their response to the current COVID-19 pandemic. One of them is the need to take quick
19 and aggressive action to slow the spread of the virus. The cities that acted quickly and aggressively
20 to contain the spread of the virus fared better than those that took longer. For example, when the
21 virus first spread in St. Louis, health officials responded by closing schools, shuttering movie
22 theaters and pool halls, and banning all public gatherings, including a parade to promote war bonds
23 for World War I. The health officials' actions enabled St. Louis to contain the spread of the virus, or
24 to "flatten the curve." Philadelphia, however, proceeded with its war bond parade even as infection
25 rates were climbing. Days later, Philadelphia's hospitals were overwhelmed. According to a 2007
26 analysis of influenza death records, the peak mortality rate in St. Louis was only one-eighth of
27 Philadelphia's death rate at its worst. Critically, however, St. Louis suffered another wave of
28 influenza cases after it loosened its restrictions, resulting in a rebound of influenza-related deaths.

9. There are similar examples from the current COVID-19 pandemic where later initiation of shelter-in-place orders resulted in more confirmed cases of infection. The province of Lodi, southeast of Milan, Italy was at the center of that country’s coronavirus outbreak when the first locally transmitted case was confirmed on February 21, 2020. Lodi was immediately put under lockdown. The province of Bergamo, northeast of Milan, had its first confirmed case on February 23, 2020, but did not go into lockdown until March 8, 2020. Lodi had one-fifth the number of cases of Bergamo, which is attributable to Lodi’s quick and aggressive shelter-in-place order. The stark contrast between the number of cases in Lodi compared to the number of cases in Bergamo provides empirical evidence as shown in the graph below, that shelter in place is highly effective at reducing the number of COVID-19 cases.

Empirical evidence that social distancing works

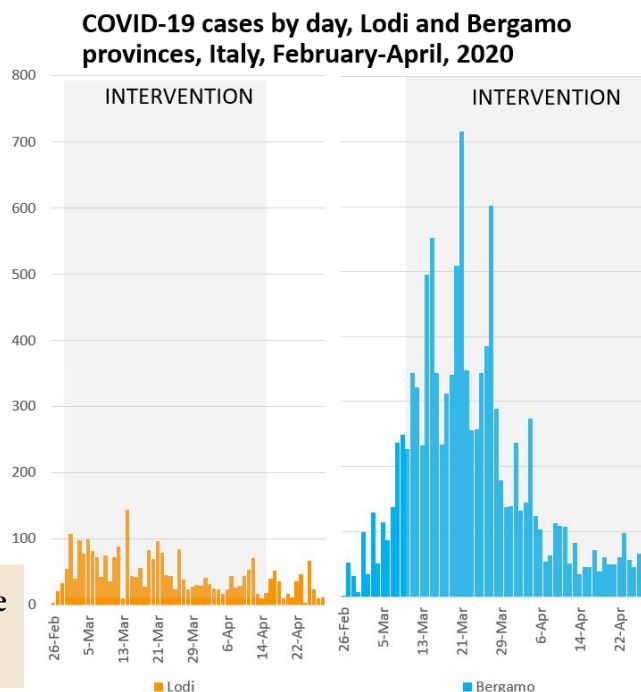
- Two adjacent Italian provinces in Lombardy region
- One (Lodi) began shelter-in-place on 26 February
- Other (Bergamo) began shelter-in-place on 9 March
- Empirical evidence that shelter in place orders can blunt transmission and new disease

STATISTICHE SUL CORONAVIRUS

Coronavirus, i dati di Lodi lo dimostrano: le misure di «lockdown» rallentano il contagio

Negli ultimi tre giorni, in particolare dal 6 al 9 marzo, in provincia di Lodi il tasso di diffusione del contagio ha rallentato la sua corsa rispetto alle settimane precedenti

<https://www.ilsole24ore.com/art/coronavirus-dati-lodi-dimostrano-misure-lockdown-rallentano-contagio-ADo675B>



10. Effective containment of the virus requires limiting people’s contact with each other because of the way that the virus is transmitted. The goal of sheltering in place is to reduce the transmission rate enough for a sustained period of time to mitigate the number of people who become sick and ensure that hospitals do not become overwhelmed with patients, as has happened in Italy, Spain, and now the northeastern United States.

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1 11. The effectiveness of containment measures depends not only on how soon they are
2 enacted but how strict they are. Effective sheltering in place requires limiting activities and business
3 as much as possible. Exceptions must be narrowly defined because each exception increases the
4 risks of community transmission. The narrow definition of what is essential, accordingly, should
5 reach only activities and businesses that directly and indirectly meet the basic need of residents, such
6 as to provide food, medicine, and hygiene; and to effectively shelter in place. Thus, businesses such
7 as grocery stores, pharmacies, laundromats/dry cleaners, and hardware stores are deemed essential
8 because they provide for the basic needs of residents for food, medicine, hygiene, and shelter. If
9 people have no opportunity to wash their clothes, they can get fleas and ticks, which can spread
10 other infectious diseases, such as flea-borne (murine) typhus and trench fever. Among homeless
11 people in Los Angeles, there was a recent outbreak of flea-borne (murine) typhus, which is caused
12 by *Rickettsia typhi* and transmitted by infected fleas. Among homeless people in Seattle, there was a
13 previous outbreak of trench fever, which was caused by *Bartonella quintana* and transmitted by body
14 lice. And hardware stores provide supplies needed to maintain shelter, such as heat, indoor
15 plumbing, and refrigeration, that will require maintenance and repair to keep them working.

16 12. Implementing social distancing protocols for non-essential activities and businesses
17 lowers but does not eliminate the increased transmission risks those activities and businesses create.
18 Even with those protocols, people need to leave their houses to engage in these activities, some of
19 which take place in environments (e.g., retail stores) that occur indoors, where the risk of
20 transmission is higher and involve high-touch surfaces such as door handles and countertops. When
21 individuals are in those environments, it is impossible to ensure perfect compliance with social
22 distancing protocols. In order of efficacy, the best way to stop transmission is to shelter in place,
23 then isolation when sick, then quarantine when exposed, then social distancing, then masks, then
24 washing hands frequently, then covering coughs and sneezes.

25 13. Despite shelter-in-place orders, the number of cases has not fallen dramatically in the
26 Bay Area but rather is slowly declining. There are multiple reasons for this. First, much of the late
27 transmission is among people who live in large households (e.g., rooming houses) with multiple
28 generations of spread within residences, much like on cruise ships. Second, essential workers (e.g.,

1 health care providers, public transportation drivers, grocery store clerks, etc.) are acquiring infection
2 at their work sites, despite extensive precautions, and can bring the infection home to their families.
3 Third, people are getting infected or spreading the virus when they go out of their homes for
4 essential services (e.g., grocery shopping). Fourth, people who do not adhere to shelter in place and
5 congregate socially—there were multiple examples of this over Easter weekend—have caused the
6 virus to spread. Fifth, visitors from outside the Bay Area bring the disease with them. That being
7 said, we would have seen significantly more cases if the shelter-in-place orders had not been issued,
8 if they had been issued later than they were, or if they defined essential businesses and activities
9 more broadly than they do.

10 14. On March 4, 2020, California led the nation with 53 laboratory-confirmed COVID-19
11 cases. The San Francisco Bay Area jurisdictions took quick and aggressive action to respond to the
12 public health threat by being the first jurisdictions in the country to issue shelter-in-place orders on
13 March 16, 2020. It was no accident that these orders occurred the day before St. Patrick’s Day,
14 which is a huge social-mixing holiday. The lessons from St. Louis and Philadelphia in 1918 taught
15 public health experts that allowing large celebrations to proceed would result in more infections, an
16 overwhelmed health care system, and ultimately more deaths.

17 15. In contrast, New Orleans, Louisiana, proceeded with Mardi Gras celebrations on
18 February 25, 2020. It did not issue a shelter-in-place order until March 23, 2020. New Orleans now
19 has one of the highest incidences of COVID-19 cases per capita in the country.

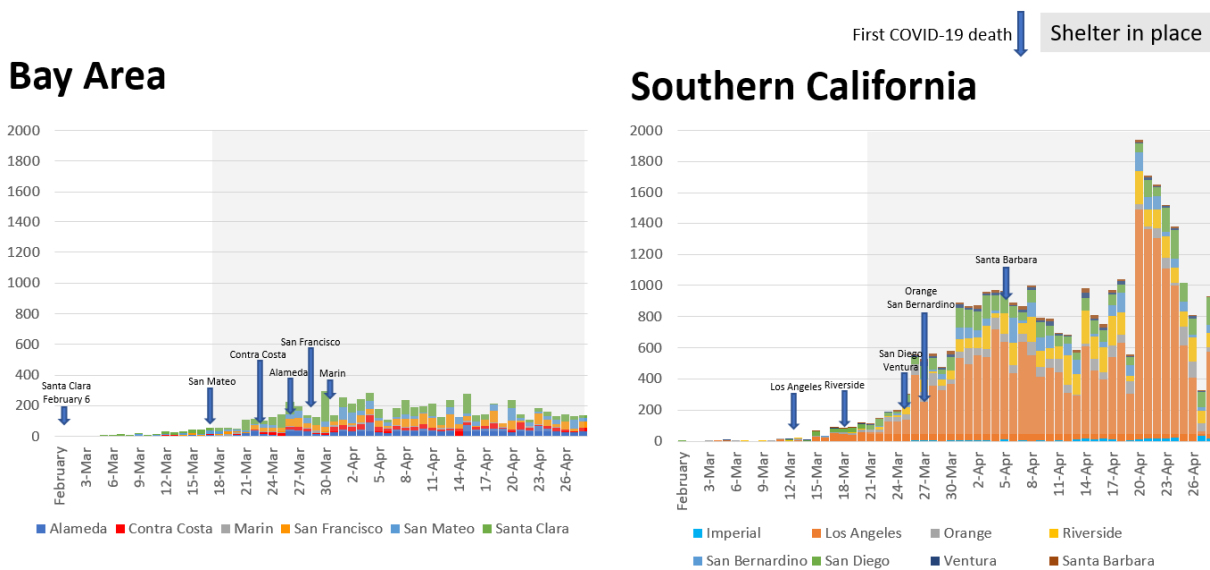
20 16. Because the Bay Area jurisdictions implemented the shelter-in-place orders closer in
21 time to the introduction of the virus in the community—eight days after what was at that time
22 believed to be the first death identified in Santa Clara County¹—there were not as many generations
23 of transmission, resulting in fewer cases per capita in the population.

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27 ¹ On April 21, 2020, the County of Santa Clara Medical Examiner-Coroner identified three individuals who died with
28 COVID-19 in Santa Clara County before March 9, 2020, originally thought to be the date of the first death associated
with COVID-19 in the county. The new data showed that there were two COVID-19-related deaths on February 6, 2020,
and one on February 17, 2020.

1 17. The difference in number of cases in the Bay Area and Southern California
 2 demonstrates that even a few days can make a difference in the number of cases. There were not
 3 shelter-in-place orders in Southern California until the statewide order went into effect three days
 4 after the Bay Area’s order. SARS CoV-2 had probably been circulating in both the Bay Area and
 5 Southern California since early-February. The best explanation for the differences in the number of
 6 cases between the Bay Area and Southern California is the order to shelter in place three days
 7 earlier. If you look at the shape of the curves in the graph below, Southern California’s cases by day
 8 rise for about 10 days before starting to level off, and the Bay Area’s by about nine days. The fact
 9 that the virus was allowed to circulate another three days (and actually more like six or seven given
 10 lax enforcement of the order in Southern California the first weekend) led to one to two more
 11 generations of spread, which equates to about 4 to 16 times more infected people (R_0 of 4.0).

13 **Is social distancing working in the Bay Area?**
 14 **COVID-19 cases by day, Bay Area and Southern California, March-April 2020**

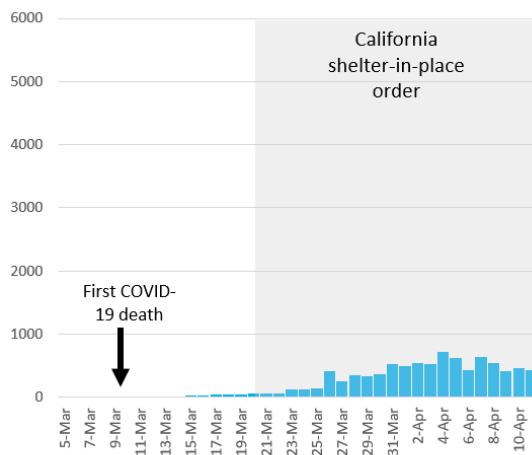


24 18. An early and aggressive response is one of the reasons why there have been fewer
 25 cases, and more lives saved, here in California than in New York. California’s statewide order went
 26 into effect on March 19, 2020; New York’s order—known as Policies Assure Uniform Safety for
 27 Everyone or “PAUSE”—did not go into effect until March 22, 2020. As explained in the previous
 28 paragraph, even a few days can make a significant difference. There is another reason why there

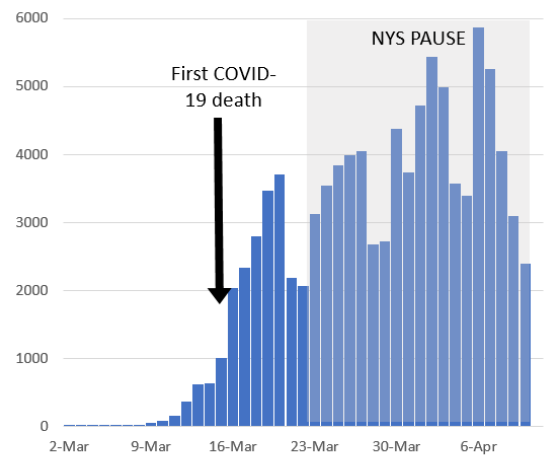
1 have been fewer cases in California than New York. As shown in the graph below, compared to Los
 2 Angeles, New York City already had several thousand diagnosed cases by the time PAUSE was
 3 instituted. These early high numbers can be explained in part by many more importations from
 4 Europe than in California as well as an early super-spreader who infected 113 people. More
 5 importations mean significantly more chains of transmission and thus many more thousands of
 6 people infected by the time shelter in place was ordered in New York. In other words, New York
 7 instituted shelter in place later both in time and chains of transmission. Both factors account for
 8 New York’s higher numbers of confirmed cases and deaths: By April 8, 2020, California had more
 9 than 17,000 cases of COVID-19 and 452 deaths; New York, in contrast, had more than 140,000
 10 cases and more than 5,000 deaths.

COVID-19 cases, Los Angeles and New York City, March-April 2020

COVID-19 cases by date of report, Los Angeles, 2020



COVID-19 cases by date of report, New York City, 2020



19. Data shows that the Bay Area jurisdictions’ shelter-in-place orders are working to
 25 reduce transmission of the virus, thus reducing the number of cases and saving lives. Bay Area
 26 hospitals have not been strained beyond capacity. And the curve in the region is flattening. This is
 27 the result of sheltering in place. The Bay Area jurisdictions’ decision to be the first in the nation to
 28 issue shelter-in-place orders and to draft some of the strictest versions of those orders has effectively

1 reduced transmission of the novel coronavirus and saved between approximately 34,000 and 44,000
2 lives.

3 20. This is not, however, the time, to back away from the measures that are working.
4 Lifting these measures too early could become a direct lesson from the 1918 influenza epidemic.

5 I declare under penalty of perjury under the laws of the Unites States of America that the
6 foregoing is true and correct. Executed at Piedmont, California on April 30, 2020.

7

8 Dated: April 30, 2020

Respectfully submitted,

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/S/ George W. Rutherford

GEORGE W. RUTHERFORD, M.D.

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