Till We Have Faces

An Analysis of COVID-19 and Public Policy

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Foreword

There is little doubt that we are currently living in the midst of a transformative time of global upheaval that historians will be critically analyzing for decades to come. The terrorist events of 911 at the beginning of this century sparked dramatic increases in security concerns and responses that we are still reeling from today more than two decades later. However, the threat from a tiny virus identified as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has produced even greater impacts on our societies on a global scale. It has infected over 250 million people, and over 5 million deaths have already been directly attributed to the disease cause by SARS-CoV-2, which has been designated coronavirus disease-19 (COVID-19). Two years into the COVID-19 pandemic, our own country Canada has been plagued with 4 successive major waves of assault with this virus that have garnered even greater restrictive measures imposed by our health authorities and federal and provincial governments than ever before.

Vaccines using novel approaches have been rapidly developed and brought to bear against the SARS-CoV-2 virus, which has continued to undergo mutations to produce even more infectious variants. A concerted world-wide effort to confront and control the virus has revealed much about this virus and those that are most susceptible to its destructive effects. On the one hand, there has been tremendous, unified research efforts to rapidly learn and disseminate information about all things related to COVID-19. This has included the open access in scientific journals that normally have pay walls to freely view the latest scientific discoveries on the SARS-CoV-2 virus and the strategies that have emerged to confront it. On the other hand, the measures taken to combat the SARS-CoV-2 virus have divided countries, provinces and states, cities, friends and even families. Strangers and non-strangers alike are perceived as potential sources of sickness and death. A state of mass psychosis has gripped our societies that has been fueled by mainstream media that thrives when viewers and readers are driven to their platforms by fear and concerns about the virus and its consequences. Politicians have responded to the frightened masses by taking drastic actions that at first blush might seem effective, but are not necessarily supported by sound science and the evidence.

In a time of further enlightenment into the issues of diversity, equity and inclusion, we have seen a new kind of discrimination emerge that has distinguished the vaccinated from the unvaccinated, which has created a medical apartheid. Freedoms that we took for granted just two years ago are now special privileges where submission to vaccination provides a temporary passport for unrestricted access. No one really knows where the COVID-19 pandemic will take our societies in terms of its lasting effects. No doubt, the SARS-CoV-2 virus will no longer be a health threat due to natural and vaccine-induced immunity, and the increasing availabilities of new therapies to reduce its morbidity and mortality. The real question is how effective have our existing regulatory and health authority systems and news outlets been in taking on the threat of a highly infectious and deadly virus. Have the responses of societies to the COVID-19 challenge caused more harm to our populations physiologically, psychologically and economically than can be directly attributed to the virus itself? To address these questions, it is important to critically evaluate the course of events over the past two years dispassionately.

The scholarly and comprehensive essay that follows has been painstakingly researched and written by Dr. Bruce Hindmarsh, who is a professor of spiritual theology and a historian at Regent College in

Vancouver, B.C. The esoteric science and highly technical terminology typically associated with COVID-19 research makes it exceedingly challenging for laypersons to follow. However, Dr. Hindmarsh has done a remarkable job in making this information accessible, and he accurately tracks the unfolding of the COVID-19 pandemic and the consequences of how societies have reacted to this threat so far. In this regard, it is probably better that a non-scientist has crafted such a document. Nevertheless, several members of the Canadian Covid Care Alliance's Scientific and Medical Advisory Committee have carefully vetted this essay to ensure its scientific accuracy and have offered suggestions. Personally, I have found this to be one of the most balanced and informative treatise on this subject that rivals anything that I have seen in scientific books and journals. It seems that much more is yet to be written on this matter as countries are becoming even more receptive to mandatory vaccinations, vaccine passports, terminations of employment, lockdowns, curfews, censorship, and other restrictions of draconian measures that most of us have not seen before in our lifetimes. This essay should serve as a sombre warning of how our human rights and freedoms actually are so fragile in these turbulent times.

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Preface

The following is my very personal attempt to understand COVID-19 and the unprecedented public policy response in Canada and Western nations.[1] The issues involved are complex, fast changing, and touch on questions of science (in multiple fields), ethics and politics, and, ultimately, philosophy and theology. I have set myself the task of analysing the issues as honestly and carefully as I can. This may be beyond me in certain respects, but as a historian, I am accustomed to evaluating the quality of evidence, the soundness of arguments, and the judiciousness by which these are presented. Although I don't work with *p*-values and confidence intervals, I know how important it is to indicate whether claims are certain, probable, possible, or merely speculative. I work mostly in the humanities and chiefly with written texts. I have written a little about Christianity and the history of contagious disease in light of the pandemic.[2] I have done some research and writing in the history of medicine and in social science, but I am very aware that I have no expertise in medical science, statistics, epidemiology, virology, immunology, and other relevant fields.

I turned to analyse the COVID-19 crisis in more detail in part because of a crisis of authority. Whereas there is much that we all normally take on authority, deferring to expertise, this way of operating is disrupted when leading authorities disagree. It became apparent to me in the spring of 2021 that doctors and medical scientists of highest repute disagreed about many reported "facts" about the coronavirus, including the messaging of public health authorities.

I have learned a great deal in the past months in reading scientific papers and have grown in respect for the way such research is conducted, evaluated, and presented.[3] I have learned about the epidemiologist Archibald Cochrane (1909-88) and the origins of evidence-based medicine.[4] I have learned to look for large, representative samples and to distinguish randomized controlled trials from observational studies, preclinical trials, and other kinds of reports or expert opinion. I have learned about systematic reviews and meta-analyses, and I know to look for peer-reviewed studies wherever possible and to take note where a study is a preprint, report, or editorial commentary. I have learned to use PubMed, Cochrane, and other databases. I have learned the value of the evidence hierarchy pyramid, but also come to recognize that it introduces its own problems if it privileges only expensive industry-funded trials with narrow protocols. There is also a danger in this scheme that abstract data analysis can lose touch with expert clinician-based experience. Sometimes experienced critical care doctors can see patterns long before these can be validated at the level of expensive randomized control trials.

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[1] I am grateful for the feedback and criticism of numbers of scientists and other academics, medical doctors and colleagues, but the opinions expressed here are my own. Likewise, I speak for myself and not for the institutions with which I am affiliated.

[2] Bruce Hindmarsh, "Coronavirus and the Communion of the Saints," *The Regent World*, sec. Leading Ideas, 31 March 2020, https://world.regent-college.edu/leading-ideas/coronavirus-and-the-communion-of-the-saints.

[3] The CG Research Team, "How to Read a Scientific Paper," *Collateral Global* (blog), accessed 25 May 2021, https://collateralglobal.org/article/how-to-read-a-scientific-paper/.

[4] A. Stavrou, D. Challoumas, and G. Dimitrakakis, "Archibald Cochrane (1909-1988): The Father of Evidence-Based Medicine," *Interactive CardioVascular and Thoracic Surgery* 18, no. 1 (1 January 2014): 121–24, https://doi.org/10.1093/icvts/ivt451.

So, I have learned much. Yet I know that I may still be missing pieces or making amateur judgements without realizing it. I have benefited from critical feedback from experts to challenge my arguments or contest evidence or point out where I may be reading statistics incorrectly. I continue to welcome such criticism. And the research continues to expand. The sheer quantity of research on COVID-19 has been astonishing. As of August 1, 2021, there were 720,801 unique authors who had published scientific papers in all 174 scientific subfields (including Automotive Design and Engineering).[5] So, even as I have looked for findings on discrete subjects, it is impossible to be comprehensive. One must remain open to new evidence and better research that may appear tomorrow. In addition, my analysis has taken me into areas where I have needed to engage not only with scientific writing, but also with journalism and opinion—of which there is also much. Where I have encountered non-specialist data analysis or hyper-partisan sources, I have tried to be cautious and sceptical. A crooked stick can still sometimes draw a straight line. More often than not, I have used these sources simply to mine other data. As I have found in years of thesis examination, even a bad dissertation often has a good bibliography.[6]

Notwithstanding my respect for science, I want to take into account a sociology of knowledge that operates in science as elsewhere in such a way that, to put it crudely, large numbers of people can be wrong together. One only has to recall the Thalidomide tragedy in the early 1960s and the severe birth defects in thousands of children that resulted from the use of this "completely safe" drug prescribed to treat morning sickness in pregnant women.[7] Something similar happened in the 1960s with chloramphenicol, developed to treat typhoid, but prescribed to some four million people per year for minor conditions and that caused hundreds of deaths from aplastic anemia.[8] There is a danger when we assume that our current state of scientific knowledge is final and complete. Not only does science operate by the development of dominant paradigms that are elaborated, criticized, and then often disrupted fundamentally, but it is possible that "an entire academic discipline can succumb to groupthink, and create professional consensus with a strong tendency to reinforce itself, reject results that question its foundations, and dismiss dissenters," and this "political groupthink *particularly affects those fields with obvious policy implications*."[9] Moreover, scientists operate as human beings with moral intentions, and the distinction between absolute fact (scientific) and relative value (cultural) is a chimera.[10] The collusion of scientists, medical professionals, and politicians in eugenics policies in the

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[5] John P.A. Ioannidis *et al.*, "The Rapid, Massive Growth of COVID-19 Authors in the Scientific Literature," preprint (Scientific Communication and Education, 16 December 2020), https://doi.org/10.1101/2020.12.15.422900.

[6] Wherever possible, I have provided a digital object identifier (DOI) or other hyperlink to my sources for the reader to follow up. Where these links are no longer live, one may always search the internet archive: https://web.archive.org/.

[7] James H. Kim and Anthony R. Scialli, "Thalidomide: The Tragedy of Birth Defects and the Effective Treatment of Disease," *Toxicological Sciences* 122, no. 1 (July 2011): 1–6, https://doi.org/10.1093/toxsci/kfr088.

[8] Ivan Illich, *Limits to Medicine: Medical Nemesis—The Expropriation of Health* (Toronto: McClelland and Stewart, 1976), 65-66.

[9] The classic work on scientific paradigms is Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1996). The quotation above is David Randall and Christopher Wesler, "The Irreproducibility Crisis of Modern Science," National Association of Scholars, accessed 31 May 2021, https://www.nas.org/reports/the-irreproducibility-crisis-of-modern-science/full-report. The italics are mine.

[10] See further, Jens Zimmerman, "Corona Hermeneutics 1: Follow the Science?" *Stead* (blog), 9 January 2021, https://www.steadcenter.com/instead/corona-hermeneutics-1-follow-the-science/.

early twentieth century, including the Sexual Sterilization Acts in Alberta (1928) and British Columbia (1933), reminds us how naïve and dangerous is the myth of self-evident science.[11]

For all these reasons, the analysis of the pandemic calls for great care and vigilance, sorting through the issues, questioning consensus, assessing the evidence, and evaluating public policy critically. This is what I set out to do in the chapters that follow.[12]

[11] These are not remote or far-fetched examples. The US Supreme Court based its precedent-setting compulsory sterilization decision in Buck v. Bell (1927) upon the precedent of prior provision for mandatory vaccination. Nathalie Antonios and Christina Raup, "Buck v. Bell (1927)," The Embryo Project Encyclopedia, 1 January 2012, https://embryo.asu.edu/pages/buck-v-bell-1927.

[12] Nothing in this paper should, of course, be taken as medical advice, and any medical decisions should be made by an individual with his or her doctor on the basis of informed consent.

Chapter 1
The Making of the Pandemic

In December 2019, a number of individuals connected to a seafood and poultry market in Wuhan, China, became ill, and by the end of the month authorities reported that they were treating dozens of cases of a pneumonia-like illness. Soon afterward, a new coronavirus was identified by researchers—only the seventh in the coronavirus family to infect humans—and on January 11, 2020, the Chinese media reported the first death. Confirmed cases outside mainland China appeared in January in Japan, Thailand, South Korea, Taiwan, and the United States.[13] The first presumptive case in Canada was a man who returned to Toronto from Wuhan on January 25.[14]

The origins of what became known as the SARS-CoV-2 virus are still being investigated, but "as far back as late November [2019], U.S. intelligence officials were warning that a contagion was sweeping through China's Wuhan region."[15] Phylogenetic and taxonomic research (a kind of reverse engineering of the evolution of the virus) points to this same period for the emergence of a distinct strain of a SARS-like coronavirus.[16] The theory that the virus escaped from experimental work on coronaviruses being conducted at the Wuhan Institute of Virology ("lab leak hypothesis") was initially discounted by authorities, but in May 2021 the *Wall Street Journal* reported that in November 2019 three researchers from the Wuhan lab were hospitalized with symptoms consistent with COVID-19, and later investigation by U.S. intelligence agencies, though inconclusive, regarded the theory as credible.[17]

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[13] Derrick Bryson Taylor, "A Timeline of the Coronavirus Pandemic," *The New York Times*, 17 March 2021, sec. World, https://www.nytimes.com/article/coronavirus-timeline.html.

[14] Xavier Marchand-Senécal *et al.*, "Diagnosis and Management of First Case of COVID-19 in Canada: Lessons Applied From SARS-CoV-1," *Clinical Infectious Diseases* 71, no. 16 (19 November 2020): 2207–10, https://doi.org/10.1093/cid/ciaa227.

[15] Josh Margolin and James Gordon Meek, "Intelligence Report Warned of Coronavirus Crisis as Early as November: Sources," ABC News, 8 April 2020, https://abcnews.go.com/Politics/intelligence-report-warned-coronavirus-crisis-early-november-sources/story?id=70031273. See also Robert Mendick, "Covid "Was Spreading Virulently in Wuhan" as Early as Summer 2019, Report Suggests," *The Telegraph*, 4 October 2021, https://www.telegraph.co.uk/world-news/2021/10/04/covid-spreading-virulently-wuhan-summer-2019-claims-report/.

[16] Trevor Bedford *et al.*, "Genomic Analysis of NCoV Spread. Situation Report 2020-01-30," Narrative: Genomic analysis of nCoV spread., 30 January 2020, https://nextstrain.org/narratives/ncov/sit-rep/2020-01-30. Huihui Wang *et al.*, "The Genetic Sequence, Origin, and Diagnosis of SARS-CoV-2," *European Journal of Clinical Microbiology & Infectious Diseases* 39, no. 9 (September 2020): 1629–35, https://doi.org/10.1007/s10096-020-03899-4.

[17] Michael R. Gordon Hinshaw Warren P. Strobel and Drew, "WSJ News Exclusive | Intelligence on Sick Staff at Wuhan Lab Fuels Debate on COVID-19 Origin," *Wall Street Journal*, 23 May 2021, sec. World, https://www.wsj.com/articles/intelligence-on-sick-staff-at-wuhan-lab-fuels-debate-on-COVID-19-origin-11621796228; Natasha Bertrand *et al.*, "Senior Biden Officials Finding That Covid Lab Leak Theory as Credible as Natural Origins Explanation," CNN, 16 July 2021, https://www.cnn.com/2021/07/16/politics/biden-intel-review-covid-origins/index.html; Michael R. Gordon and Warren P. Strobel, "New U.S. Intelligence Report Doesn't Provide Definitive Conclusion on COVID-19 Origins," *Wall Street Journal*, 25 August 2021, sec. Politics, https://www.wsj.com/articles/biden-to-receive-report-on-coronavirus-origins-but-challenges-persist-in-how-to-deal-with-china-11629825758. See also Sarah Knapton, "Wuhan Scientists Planned to Release Coronavirus Particles into Cave Bats, Leaked Papers Reveal," *The Telegraph*, 21 September 2021, https://www.telegraph.co.uk/news/2021/09/21/wuhan-scientists-planned-releaseskin-penetrating-nanoparticles/.

Public attention to the virus increased in January 2020. On January 23, Wuhan was sealed off and shut down by Chinese authorities, and a week later the WHO declared a "public health emergency of international concern."[18] Soon, the whole world was looking at frightening headlines from China and videos of panic in the streets. *The Sun* newspaper in Britain showed footage that went viral (an ironic phrase) and led with the headline, "Disaster Zone: Wuhan a 'zombieland' with people collapsing in streets and medics patrolling in hazmat suits."[19]

In mid-February the disease caused by the virus was named COVID-19, and by the end of the month, attention shifted to the first major outbreak in Europe as reported cases mounted in Italy and towns were shut down in Lombardy. Again, as with Wuhan, images from Bergamo in Italy were terrifying: army trucks brought in to transport dead bodies were seen around the world.[20] Iran also saw an outbreak, and there were aerial photographs of mass burial sites.[21] On March 11, the WHO declared a pandemic. Soon, nations worldwide began tracking and reporting case numbers, closing their borders, and imposing various emergency measures.

Thus, it was in March 2020, in this atmosphere of uncertainty and fear, that pre-existing, conventional strategy for pandemic management was abandoned by governments in response to the threat of COVID-19. Earlier, in October 2019, just months before a lockdown was first imposed in Hubei, the WHO published a report recommending the best way to manage an influenza pandemic. It included ventilating indoor spaces, limiting mass gatherings, and isolating symptomatic individuals. But the general population of exposed individuals were not to be quarantined "in any circumstance," since "there is no obvious rationale for this measure."[22] This was the accepted, worldwide public health strategy prior to COVID-19. The "UK Influenza Pandemic Preparedness Strategy 2011," for example, thought it "a waste of public health resources and capacity" to try to halt the spread of a new pandemic virus, even conceding that as many as 315,000 additional deaths over a 15-week period should be expected and managed.[23] Initially, the British government attempted to follow this strategy. The plans

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[18] Taylor, "A Timeline."

[19] Mark Hodge, "Coronavirus Ground Zero 'Is Now a Zombieland with Dead Lying in Streets,'" The Sun, 24 January 2020, https://www.thesun.co.uk/news/10808633/coronavirus-wuhan-zombieland/. See the analysis of this video in the second chapter of Laura Dodsworth, *A State of Fear: How the UK Government Weaponised Fear during the COVID-19 Pandemic* (London: Pinter & Martin, 2021). Dodsworth questions the veracity of these videos. A documented legal case has been made for Chinese government covert manipulation of the news and policy around the crisis as it unfolded. See Michael P. Senger *et al.*, "Request for Expedited Federal Investigation Into Scientific Fraud in Public Health Policies," 10 January 2021, https://ccpgloballockdownfraud.medium.com/the-chinese-communist-partys-global-lockdown-fraud-88e1a7286c2b.

[20] Dodsworth, 24. As noted below, 70% of the undertakers were in quarantine and the army was called in for a one-time intervention to transport 60 coffins, but the image was frightening.

[21] Ivana Kottasová and Paul P. Murphy, "Satellite Images Show Iran Building Burial Pits for Coronavirus Victims," CNN, 13 March 2020, https://www.cnn.com/2020/03/13/middleeast/iran-coronavirus-mass-graves-intl/index.html.

[22] World Health Organization, "Non-Pharmaceutical Public Health Measures for Mitigating the Risk and Impact of Epidemic and Pandemic Influenza," Global Influenza Programme (World Health Organization, October 2019), 47, http://www.who.int/influenza/publications/public_health_measures/publication/en/.

[23] "UK Influenza Pandemic Preparedness Strategy 2011," (first published 10 November 2011), 17, 28. Published to Department of Health website, in electronic PDF format only: www.gov.uk/government/publications/responding-to-a-uk-flu-pandemic. Thus: "Taking account of this, and the practicality of different levels of response, when planning for excess deaths, local planners should prepare to extend capacity on a precautionary but reasonably practicable basis, and aim to cope with a population mortality rate of up to 210,000 – 315,000 additional deaths, possibly over as little as a 15 week period and perhaps half of these over three weeks at the height of the outbreak" (p. 17).

were similar in the US and Australia.[24] Established planning documents such as these are why Jay Bhattacharya could describe the ideal of focused protection of the vulnerable as something that was formerly known simply as "standard public health practice."[25] This was not, however, the path taken by most nations around the world in response to the threat of COVID-19.[26]

Assumptions about the Novel Coronavirus

The foundation upon which this standard policy was overturned in favour of more severe restrictions for the population as a whole were three fundamental premises that emerged out of the initial narrative of the pandemic: (1) the virus SARS-CoV-2 is a new, extremely deadly pathogen against which we have no protection, and (2) the virus spreads rapidly and asymptomatically (invisibly). And, coming to the fore a little later, in the winter of 2020-21: (3) the virus mutates into more transmissible and virulent forms. Importantly, these three assumptions together established the narrative of SARS-CoV-2 as an unprecedented danger to the human population worldwide.

The first premise was given authorization on March 11, 2020, by the WHO's declaration of a "pandemic" and by the alarming epidemiological model produced by Imperial College, London, five days later, predicting 2.2 million deaths in America and more than half a million in the UK if there were no intervention. And the second premise was publicized in a widely cited paper in the *New England Journal of Medicine* that "seemed to confirm what public health experts feared: that someone who has no symptoms . . . can still transmit it to others."[27] These early reports were hurried and proved in each case to be seriously flawed, but they were effective in establishing the first two key assumptions

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[24] Thomas V. Inglesby *et al.*, "Disease Mitigation Measures in the Control of Pandemic Influenza," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 4, no. 4 (1 December 2006): 366–75, https://doi.org/10.1089/bsp.2006.4.366. CDC, "Interim Pre-Pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States: Early, Targeted, Layered Use of Nonpharmaceutical Interventions" (CDC, February 2007), 12, https://www.cdc.gov/flu/pandemic-resources/pdf/community_mitigation-sm.pdf. Department of Health, "Australian Health Management Plan for Pandemic Influenza" (Commonwealth of Australia, August 2019), 245-62, https://www1.health.gov.au/internet/main/publishing.nsf/Content/519F9392797E2DDCCA257D47001B9948/$File/w-AHMPPI-2019.PDF.

[25] Quoted in David Cayley, "Pandemic Revelations," *davidcayley.com* (blog), 4 December 2020, https://www.davidcayley.com/blog/2020/12/3/pandemic-revelations-1. Cayley is a former documentary producer for the CBC radio program *Ideas*. Battacharya made this remark during an appearance with his two colleagues on Unherd: https://unherd.com/2020/10/COVID-experts-there-is-another-way. See also https://gbdeclaration.org/. The ideal of focused protection is described in Martin Kulldorff, Jay Bhattacharya, and Gupta, Sunetra, "We Should Focus on Protecting the Vulnerable from COVID Infection," *Newsweek*, 30 October 2020, https://www.newsweek.com/we-should-focus-protecting-vulnerable-covid-infection-opinion-1543225.

[26] See the opinion piece, reviewing this departure from "basic principles of public health," by Martin Kulldorff and Jay Bhattacharya, "How Fauci Fooled America," *Newsweek*, 1 November 2021, https://www.newsweek.com/how-fauci-fooled-america-opinion-1643839.

[27] On the changing definition of "pandemic," to remove the words, "with enormous numbers of deaths and illness," see Ron Law, "WHO Changed Definition of Influenza Pandemic," *The British Medical Journal*, 4 June 2010, https://www.bmj.com/rapid-response/2011/11/02/who-changed-definition-influenza-pandemic. The report from the Imperial College, London is Neal Ferguson *et al.*, "Report 9: Impact of Non-Pharmaceutical Interventions (NPIs) to Reduce COVID19 Mortality and Healthcare Demand" (16 March 2020), https://doi.org/10.25561/77482. See the criticism of this report below. The first widely noted concern for asymptomatic spread was Camilla Rothe *et al.*, "Transmission of 2019-NCoV Infection from an Asymptomatic Contact in Germany," *New England Journal of Medicine* 382, no. 10 (5 March 2020): 970–71, https://doi.org/10.1056/NEJMc2001468. Note, however, Kai Kupferschmidt, "Study Claiming New Coronavirus Can Be Transmitted by People without Symptoms Was Flawed," Science | AAAS, 3 February 2020, https://www.sciencemag.org/news/2020/02/paper-non-symptomatic-patient-transmitting-coronavirus-wrong.

of the extreme lethality and hidden transmissibility of COVID-19. This was how the virus was characterized from earliest reports.

On the basis of these fundamental premises, governments acted swiftly to impose extraordinary emergency measures on entire populations, including travel restrictions, quarantine, mask mandates, social distancing, and various forms of lockdown or shelter-in-place orders.[28] The universal sense of panic seemed to demand this. And they implemented standard programs to "test, trace, and isolate" the virus, using chiefly a PCR (Polymerase Chain Reaction) molecular test that was based on nucleic acid sequence data from specimens of the virus as provided by Chinese authorities.[29] With little time for debate or consideration, but with a sense of immediate and unprecedented crisis, politicians took action. The state of emergency represented by COVID-19 seemed to justify moving quickly, abridging multiple constitutional rights including the right to freedom of mobility, association, peaceful assembly, worship, privacy, free speech, and the right to pursue the gaining of a livelihood.[30] As previously in history, the "state of fear" authorized a "state of exception."[31] The expectation was that this was temporary, initially two or three weeks to "flatten the curve." These restrictions were instead prolonged for a year or more in most jurisdictions and in many cases only increased in severity. We will assess the efficacy of these public policies in Chapter 3 below. But it is important to note here that the narrative of deadly fear as a justification for emergency political measures was established early—in the spring of 2020. The sense of danger and uncertainty was widespread.

The third premise of dangerous mutation in the SARS-CoV-2 virus surfaced later in 2020 with the work of virologists to distinguish the appearance and spread of a UK variant in September and South African variant in October. In October 2020, there was news also of an Indian variant, and later, a Brazilian variant. These variants were subsequently renamed with letters from the Greek alphabet, but it was the variant in India that awakened the greatest fears worldwide of the possible dangers from mutation. News from India of the spread of disease, overwhelming of the health system, and reports of high numbers of deaths, with images of mass cremations—all this had a similar effect to the earlier images of coffins from Bergamo in Italy in March.[32] Although the infection fatality rate in India was no greater than elsewhere, the absolute numbers reported from the populous sub-continent were alarming.[33] It was another reason to fear what looked like a deadly threat.

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[28] The precedent for lockdown was China. The Scientific Advisory Group for Emergencies (SAGE) in the UK debated whether this could be done in Britain. As Neal Ferguson reported, "'It's a communist one-party state,' we said. 'We couldn't get away with it in Europe, we thought.' . . . 'And then Italy did it. And we realised we could.'" Tom Whipple, "Interview with Professor Neil Ferguson: People Don't Agree with Lockdown and Try to Undermine the Scientists," 25 December 2020, https://www.thetimes.co.uk/article/people-don-t-agree-with-lockdown-and-try-to-undermine-the-scientists-gnms7mp98.

[29] Center for Devices and Radiological Health, "SARS-CoV-2 Reference Panel Comparative Data," *FDA*, 12 July 2020, https://www.fda.gov/medical-devices/coronavirus-COVID-19-and-medical-devices/sars-cov-2-reference-panel-comparative-data.

[30] The Canadian Charter of Rights and Freedoms, §§2-15.

[31] Giorgio Agamben, *State of Exception* (Chicago: University of Chicago Press, 2005).

[32] Anuron Kumar Mitra and Devjvot Ghoshal, "India's Coronavirus Death Toll Passes 100,000 with No Sign of an End," *Reuters*, 3 October 2020, sec. Health, https://www.reuters.com/article/us-health-coronavirus-india-cases-idINKBN26O03C; Sameer Yasir, "India's COVID-19 Death Toll Passes 100,000," *The New York Times*, 3 October 2020, sec. World, https://www.nytimes.com/2020/10/03/world/asia/india-coronavirus-deaths.html.

[33] Soumik Purkayastha *et al.*, "Estimating the Wave 1 and Wave 2 Infection Fatality Rates from SARS-CoV-2 in India," *BMC Research Notes* 14 (8 July 2021): 262, https://doi.org/10.1186/s13104-021-05652-2.

In sum, then, there were three premises established very early in the history of the pandemic: the virus is lethal, the virus spreads, and the virus mutates. This was and has remained the dominant narrative of the pandemic. And it has aroused very deep fears. As David Cayley observed, "A *National Pos*t headline encapsulated the reaction: "PANIC," it simply said, in a font so big and bold that it occupied a good part of the front page."[34]

Fear and the New Health Security State

A new health security state arose from these premises, as governments responded to the threat of the virus by declaring states of emergency and enacting extraordinary measures. The precise nature of the articulated danger has varied over time and the goal of public policy has shifted, but the narrative of a deadly, mutating threat that spreads silently has been sustained. Emergency measures were presented as necessary temporarily until the curve of cases is flattened, until the (first, second, third, fourth . . .) wave recedes, until a vaccination program can be implemented, until the population is fully vaccinated (70%, 80% , 90%, 100% . . . children, pregnant women, etc.), until booster shots can revive immunity, until it is proven that vaccines can control new "variants of concern," until we can eradicate COVID-19 within our borders, or until we can defeat COVID-19 worldwide (zero-Covid). Similarly, the goals have shifted from protecting the health care system from overload (while accepting that the total mortality from the virus would remain the same over time), to protecting the frail elderly and vulnerable from infection arising from uncontrolled community transmission (until vaccines arrive), to preventing illness and death from COVID-19 generally, to reducing the number of headline cases, to ending the pandemic altogether through mass universal vaccination.

All told, the alarming reports in March 2020 brought enormous pressure to bear on politicians to do something decisive to protect their people, and public opinion rewarded or punished them accordingly for the perceived strength or weakness of their actions.[35] Significantly, once restrictive measures were mandated as public policy, the narrative established to support those policies became sacrosanct.[36] It could not be questioned. The metaphors were increasingly of war. On March 15, 2020, the BBC announced the UK to be on a "war footing."[37] On September 21, 2020, the *Globe and* Mail, simply declared, "Canada is at war."[38] In a war, there is little room for dissent, and opinions are

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[34] David Cayley, "The Prognosis," *Literary Review of Canada* (Oct. 2020). Because of such reporting, people generally have vastly overestimated the risk of dying from COVID-19. See, for example, Gabriella Swerling, "UK Public 'Believe Coronavirus Death Toll 100 Times Higher than It Really Is,'" *The Telegraph*, August 20, 2020, https://www.telegraph.co.uk/news/2020/08/20/uk-public-believe-coronavirus-death-toll-100-times-higher-really/.

[35] The psychiatrist David Eberhard argues that people feel less and less secure today despite arguably living in the safest period in human history, and that the pandemic has accelerated the de-risking of society generally. David Eberhard, *The Security Junkie Syndrome; How Pausing the World Leads to Catastrophe,* TEDx Talks, 1 May 2021, https://www.youtube.com/watch?v=43J7hD9I0jY.

[36] See further, Jens Zimmerman, "Corona Hermeneutics 2: Interpretive Frameworks," *Stead* (blog), 2 April 2021, https://www.steadcenter.com/instead/corona-hermeneutics-2-interpretive-frameworks/.

[37] "Newspaper Headlines: UK on 'war Footing' as Elderly Face Isolation," *BBC News*, 15 March 2020, sec. The Papers, https://www.bbc.com/news/blogs-the-papers-51893135.

[38] Cayley, Pandemic Revelations.

categorized simply as patriotic or traitorous. So also, with the war against this novel coronavirus.[39] The enemy must be defeated, and all attention and every resource must be focused on this one concern.[40]

Were we correct, however, in the assumptions we made about the virus? How effective have public policy interventions been? It is surely important to open space to consider these questions. In what follows, I seek first to look at the science and to examine carefully the premises identified above concerning the nature and extent of the danger presented by SARS-CoV-2 (Chap. 2), before assessing the efficacy of public policy interventions (Chaps. 3-4). Then, I turn to sum up and to analyse the balance of harms and the larger ethical and political concerns that have been raised by our shared crisis (Chaps. 5-6). This analysis is meant to build from science to ethics, from questions of "What do we know?" to questions of "How should we think about what we know?" It is not possible or desirable to separate these concerns entirely, for truth and goodness are always intertwined. Yet especially as we turn to the first category of scientific questions, it is important to remind ourselves again that the answers we assert today may need to be revised in light of evidence that may yet be discovered tomorrow.

[39] See the empirical study, Maja Graso, Fan Xuan Chen, and Tania Reynolds, "Moralization of COVID-19 Health Response: Asymmetry in Tolerance for Human Costs," *Journal of Experimental Social Psychology* 93 (March 2021): 104084, https://doi.org/10.1016/j.jesp.2020.104084.

[40] See also, Ioannidis, John P A, "How the Pandemic Is Changing Scientific Norms," Tablet Magazine, 9 September 2021, https://www.tabletmag.com/sections/science/articles/pandemic-science.

Chapter 2
The Nature and Extent of the Danger

The fundamental assumptions driving perception of the novel coronavirus and the threat it represents can be seen clearly in the British Columbia Centre for Disease Control's "communication tool," which came out in 2021 with the roll out of vaccines. It instructs health care professionals to stay on message by acknowledging patient concerns, redirecting them to the correct risks, reinforcing the trustworthiness of the health system, and making a strong recommendation of vaccination for the patient and his or her children. In order to achieve these health policy goals the document begins with "Key Messages for the Public." It says, succinctly, "The virus is a villain!" and this is followed by bullet points: "Easily spread (SPREAD). Potentially kills (KILLS). Can change and adapt (ADAPTS)."[41] This is accompanied by a cartoon image of the virus as an angry, frowning villain. Significantly, these are the same three premises (in a different order) that I traced in the previous chapter as they emerged in 2020. So, again, these three stark "messages" together form the dominant narrative of COVID-19, and they have established an unprecedented level of fear in society. It is of great importance therefore that these assumptions each be examined carefully and critically.

Lethality

The first question is: To what extent is COVID-19 a new, extremely deadly threat against which we are unprotected? What does the evidence tell us?

COVID-19 has not in fact proved anything like as deadly as first predicted in March 2020.[42] Early ascertainment bias (data from people admitted to hospital, tested for active infection, or volunteers) and worst-case scenario extrapolations led to exaggerated claims of an infection fatality rate (the probability of death for a person infected with the virus) as high as 3.4%. Again, this was being reported at the same time that those terrifying images were being broadcast around the world from Northern Italy of army trucks transporting coffins from hospitals to mass burial sites.[43] People were understandably afraid.

Although there is still some debate over infection fatality rates (IFRs), estimates from antibody studies (seroprevalence data) indicate a typical infection fatality rate that is much less than originally projected. A peer-reviewed study published in the *Bulletin of the World Health Organization* in October

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[41] BC Centre for Disease Control and Immunize BC, "COVID-19 Immunization Communication Tool," 2021, 3. http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Immunization/Vaccine%20Safety/bccdc-covid-addendum-screen.pdf.

[42] Phillip W. Magness, "Imperial College Predicted Catastrophe in Every Country on Earth. Then the Models Failed," *American Institute for Economic Research*, 5 May 2021. Magness notes that the Imperial College "forecast of 179,000 deaths in Taiwan, which never locked down, was off by 1,798,000%." https://www.aier.org/article/imperial-college-predicted-catastrophe-in-every-country-on-earth-then-the-models-failed/.

[43] "This would make you think that army trucks were needed because there were so many bodies. In fact, according to the Italian Funeral Industry Federation, 70% of undertakers had to stop work to quarantine at the start of the outbreak, so the army was drafted in for a one-off transport of 60 coffins." Laura Dodsworth, *A State of Fear:* (London: Pinter & Martin, 2021), 25.

2020, based on examining 51 different locations, estimated an infection fatality rate of 0.23% or lower worldwide, though hardest hit areas rose to as high as 1.63%.[44] In February 2021, a further review of systematic evaluations gave a global IFR of 0.15%.[45] This is higher than the average seasonal influenza infection fatality rate of 0.05% to 0.1%, but lower than the more serious influenza outbreaks in 1936, 1951, 1957, and 1968, where the rate was 0.30%.[46] According to this estimate, the "Spanish flu" in 1918 had a rate some ten times higher than COVID-19 (2.0%).[47] Infection fatality rates are not static, however, and they change over time and from place to place, but even so, these averages and comparisons are important for assessing the overall lethality of this virus. It allows us to compare its dangers to others we know.

Crucially, for those under 70 years of age, the infection fatality rates are significantly lower yet for COVID-19. The median infection fatality rate for COVID-19 drops to 0.05%, or 1 out of 2,000.[48] For those under 70, this rate is therefore comparable to the average seasonal influenza. This is not, of course, to say that the symptoms, severity, and course of illness with COVID-19 are the same as with a typical flu, especially for those unfortunate individuals for whom the disease progresses to its acute pulmonary stage, or for those who suffer from long Covid.

At the higher end, a different peer-reviewed seroprevalence study, based on 45 countries and data up to September 2020, estimated a higher population infection fatality rate of 0.79%.[49] (This would be at least 8 times worse than a typical flu season.). However, the focus of this study was not on calculating average IFR but principally on the age gradient for COVID-19. Like other studies, it found a markedly consistent relationship worldwide between age and infection fatality rate on a logarithmic scale. It is one of the crucial, defining features of this virus (noted by all these studies) that *its lethality varies with age*. As another systematic review and meta-analysis in December 2020 found, it is harmless to children (at age 10 an IFR of 0.002%) but increases exponentially in lethality in a regular pattern with age until it becomes deadly to the elderly (at age 85 an IFR of 15%).[50]

In sum, although there is a range of estimates of the infection fatality rate of COVID-19, the lethality of the virus has proved to be both much less than predicted (by orders of magnitude) and more limited in scope (varying by age and location). Again, as a review of studies published in May

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[44] John P A Ioannidis, "Infection Fatality Rate of COVID-19 Inferred from Seroprevalence Data," *Bulletin of the World Health Organization* 99, no. 1 (1 January 2021): 19-33F, https://doi.org/10.2471/BLT.20.265892. See also Justin Fox, "The Great COVID-19 Versus Flu Comparison Revisited," *Bloomberg.com*, 6 August 2020.

[45] John P. A. Ioannidis, "Reconciling Estimates of Global Spread and Infection Fatality Rates of COVID-19: An Overview of Systematic Evaluations," *European Journal of Clinical Investigation* 51, no. 5 (May 2021), https://doi.org/10.1111/eci.13554.

[46] When comparing the IFR of COVID-19 for the unvaccinated population to the average seasonal influenza in the recent past, it is also important to remember that estimated fatality rates for influenza are based in populations where most of the elderly and those at greatest risks are already vaccinated seasonally. The fatality rates would be even higher for influenza otherwise.

[47] "Studies on COVID-19 Lethality," Swiss Policy Research, 11 May 2020, https://swprs.org/studies-on-COVID-19-lethality/.

[48] Ioannidis, "Infection Fatality Rate."

[49] Megan O'Driscoll *et al.*, "Age-Specific Mortality and Immunity Patterns of SARS-CoV-2," *Nature* 590, no. 7844 (4 February 2021): 140–45, https://doi.org/10.1038/s41586-020-2918-0. Another similar study, using different methods across 34 locations, has found a range of infection fatality rates from 0.5% (Geneva) to 1.0% (New York City) to 1.5% (Australia) to 2.7% (Italy). Andrew T. Levin *et al.*, "Assessing the Age Specificity of Infection Fatality Rates for COVID-19: Systematic Review, Meta-Analysis, and Public Policy Implications," *European Journal of Epidemiology* 35, no. 12 (December 2020): 1123–38, https://doi.org/10.1007/s10654-020-00698-1.

[50] Levin, *et al.*, "Assessing the Age Specificity," 1123.

2021 indicates, "SARS-CoV-2 is widely spread and has lower average IFR than originally feared, and substantial global and local heterogeneity."[51] It has varied, that is, by time and place in lethality, but it did not turn out to spread like a scythe, cutting down three or four people out of every hundred everywhere it went.[52] This is not the public perception. In July 2020 in the UK, researchers found that the public believed the death toll to be one hundred times higher than it really is.[53] Polls have reported the same misperception, by orders of magnitude, in the US.[54]

Data on excess deaths from all causes during the period of the pandemic, when compared with medium and long-term averages, offers another picture of overall lethality for COVID-19 to compare with seroprevalence data. This data, however, is very sensitive to the time frame selected, can mask other causes of death in a given year (including from lockdowns), and must also be adjusted for changes in population. Ideally, one would also use "influenza years" rather than calendar years.[55] One needs to consider falling mortality rates over time too, and the increase or decrease of the average age of the population.[56] But all-cause mortality indicates excess deaths in England and Wales, to take one example, were 10.2 per thousand in 2020, compared with 8.9 per thousand in 2019. Although we do not know how many of these deaths were "from COVID-19" in 2020, the excess death rate certainly spiked in March–April, above average, and rose again with the second wave in December. This is a

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[51] John P. A. Ioannidis, "Reconciling Estimates of Global Spread and Infection Fatality Rates of COVID-19: An Overview of Systematic Evaluations," *European Journal of Clinical Investigation* 51, no. 5 (May 2021), https://doi.org/10.1111/eci.13554.

[52] In many cases the hospital system was clearly not overloaded either. In Saskatchewan in 2020-21, there were fewer ICU visits each month and in aggregate, compared with 2019-20. "Annual Report to the Legislature, 2020-21" (Saskatchewan Health Authority, 31 March 2021), 15, https://www.saskhealthauthority.ca/sites/default/files/2021-07/2021-07-28-CEC-20-21SHAAnnualReport-vFinal.pdf.

[53] Gabriella Swerling, "UK Public 'Believe Coronavirus Death Toll 100 Times Higher than It Really Is,'" *The Telegraph*, August 20, 2020, https://www.telegraph.co.uk/news/2020/08/20/uk-public-believe-coronavirus-death-toll-100-times-higher-really/.

[54] The Gallup-Franklin Templeton poll, for example. See Jordan Davidson, "Study: Majority Of Americans Grossly Overestimated COVID Hospitalization," The Federalist, 22 March 2021, https://thefederalist.com/2021/03/22/study-majority-of-americans-grossly-overestimated-COVID-19-hospitalization-rates/: "The current hospitalization rate for COVID-related illness in the United States hovers between 1 and 5 percent, but 41 percent of Democrats, 28 percent of Republicans, and 35 percent of independents or members of other political parties said there is a 50-plus percent chance that someone with the Wuhan virus will need to be treated at a hospital." See also Jonathan Rothwell and Sonai Desal, "How Misinformation Is Distorting COVID Policies and Behaviors," *Brookings* (blog), 22 December 2020, https://www.brookings.edu/research/how-misinformation-is-distorting-covid-policies-and-behaviors/. The University of Southern California tracked American perceptions of COVID-19 risks, and for those under 40 years of age, the average estimate of the chance of *dying* if you catch COVID-19 was about 10-14%. The chance of getting infected was perceived to be about 20%. (The accurate global IFR estimate is 0.15 – 0.23%.) The chart is available here: "Average Perceived Chance of Getting or Dying from the Coronavirus (under 40)," USC Dornsife - Understanding Coronavirus in America | Understanding America Study, 26 September 2021, https://covid19pulse.usc.edu/. See also, Thiemo Fetzer *et al.*, "Coronavirus Perceptions And Economic Anxiety," *ArXiv:2003.03848 [Econ, q-Fin]*, 4 July 2020, 5-6, http://arxiv.org/abs/2003.03848.

[55] So writes the epidemiologist Eyal Shahar, "Not a Shred of Doubt: Sweden Was Right," Medium, 27 May 2021, https://shahar-26393.medium.com/not-a-shred-of-doubt-sweden-was-right-32e6dab1f47a.

[56] For a series of analyses and charts for the UK, see John Appleby, "UK Deaths in 2020: How Do They Compare with Previous Years?," *BMJ* 373 (13 April 2021): n896, https://doi.org/10.1136/bmj.n896. Also, Ed Conway, "COVID-19: How Mortality Rates in 2020 Compare with Past Decades and Centuries," Sky News, 12 January 2021, https://news.sky.com/story/COVID-19-how-mortality-rates-in-2020-compare-with-past-decades-and-centuries-12185275.

signal that something was taking more lives than usual.[57] In comparison with the 5-year average, the age-adjusted mortality rate in the UK as a whole was 7.2% higher than normal.[58] In absolute terms, however, "the average risk of death to every person in England was actually higher in 2008 and every year preceding it," when compared to 2020. And there were many weeks during the year when the mortality rate dropped. For the week ending April 18, 2021, the UK mortality rate was 12% lower than normal levels.[59] So, again, as with serological surveys, the data is lumpy. It varies by time, as also by place: Denmark, Finland, Iceland, Latvia, and Norway experienced fewer deaths in 2020 than expected, based on 4–5-year averages; others, such as Poland and Chile, were higher than the UK.[60]

A sophisticated analysis of the Canadian mortality data shows the annual and weekly mortality pattern in 2020 to be in line with overall trends, notwithstanding the same spring and winter curves as in England.[61] Another full review of the data from 2010 to 2021 concludes similarly that within this larger context "there is no extraordinary surge in yearly or seasonal mortality in Canada, which can be ascribed to a COVID-19 pandemic."[62]

Data on excess deaths is challenging to interpret. How many of these excess deaths were from COVID-19, and how many from the conditions of lockdown and other measures? In England and Wales 48% of excess deaths in the summer of 2021 were non-COVID related, including an increase in excess death registrations for heart disease and stroke.[63] In Canada, there has been an increase in

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[57] See above, and Ufuk Parildar, Rafael Perara, and Jason Oke, "Excess Mortality across Countries in 2020," The Centre for Evidence-Based Medicine, 3 March 2021, https://www.cebm.net/COVID-19/excess-mortality-across-countries-in-2020/. England and Wales in 2020 compared to the five year average is charted here: https://excessmortality.shinyapps.io/multi-page-stmf/. See also the commentary on excess deaths by the pathologist John Lee, "Unlocked," documentary video, posted on YouTube, 6 May 2021. The Scottish doctor and writer Malcom Kendrick has all but given up tracking the contradictory studies of COVID-19 that have been appearing with such rapidity, but he is willing to look at raw numbers of deaths, since these numbers are more reliable: someone is dead, or they are not. He displays a graph for England and reports, "As you can see, a spike in overall mortality in Spring 2020, A spike in Winter 2020/21. Currently, no excess mortality at all. So, if COVID19 is infecting hundreds of thousands of people each week, it is not showing up as any excess deaths… at all." Dr Malcolm Kendrick, "I Have Not Been Silenced," *Dr. Malcolm Kendrick* (blog), 3 September 2021, https://drmalcolmkendrick.org/2021/09/03/i-have-not-been-silenced/.

[58] "Comparisons of All-Cause Mortality between European Countries and Regions" (Office for National Statistics, 19 March 2021), 19. https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/comparisonsofallcausemortalitybetweeneuropeancountriesandregions/2020#relative-age-standardised-mortality-rates-in-european-countries.

[59] "COVID-19 Quiz," 5 May 2021, HART: Health Advisory and Recovery Team, accessed 22 May 2021, https://www.hartgroup.org/quiz/COVID-19-quiz/.

[60] Parildar, *et al.*, "Excess Mortality." On variations by place and time in Europe, see the report, noted above, from the Office of Statistics in the UK, "Comparisons of All-Cause Mortality between European Countries."

[61] Claus Rinner, "Every Death Counts, Not Just COVID Deaths – GIS2 at Ryerson," 20 May 2021, https://gis.blog.ryerson.ca/2021/05/20/every-death-counts-not-just-covid-deaths/.

[62] Rancourt, Denis, Marine Baudin, and Jérémie Mercier, "2021-08-06 Analysis of All-Cause Mortality by Week in Canada 2010-2021 by Province Age and Sex," 6 August 2021, https://denisrancourt.ca/entries.php?id=104&name=2021_08_06_analysis_of_all_cause_mortality_by_week_in_canada_2010_2021_by_province_age_and_sex_there_was_no_covid_19_pandemic_and_there_is_strong_evidence_of_response_caused_deaths_in_the_most_elderly_and_in_young_males. Note, however, Statistics Canada reported (provisionally) 5.2% more deaths than would be expected, were there no pandemic, during the period from March 2020 to July 2021. See Government of Canada, "Provisional Death Counts and Excess Mortality, January 2020 to August 2021," Statistics Canada: The Daily, 8 November 2021, https://www150.statcan.gc.ca/n1/daily-quotidien/211108/dq211108a-eng.htm.

[63] Sarah Knapton, "Thousands More People than Usual Are Dying ... but It's Not from Covid," *The Telegraph*, 24 September 2021, https://www.telegraph.co.uk/news/2021/09/24/analysis-thousands-usual-dying-not-covid/.

deaths from overdose and alcohol poisoning since the pandemic began.[64] The excess deaths among young people in the US calls for explanation as well, since this is not where we would expect to find deaths from COVID-19.[65]

Indeed, in all this, it is important to emphasize that excess deaths during COVID-19 have been mostly among the frail elderly and in congregant settings. This is what we would expect from the risk stratification in seroprevalence data. In Western countries, the median age of death from COVID-19 is over 80 years of age, and half of deaths have been in long-term care homes. In Canada, for example, 67% of COVID-19 cases which proved fatal were in individuals over 80 years of age.[66] Because of this mortality profile, life expectancy under COVID-19 has remained almost identical to what was pre-COVID-19. For example, at the peak of the epidemic in the UK the risk of catching *and* dying (as distinct from the fatality rate once infected) from COVID-19 was "equivalent to experiencing around 5 weeks extra 'normal' risk for those over 55, decreasing steadily with age, to just 2 extra days for schoolchildren."[67] Life expectancy was very little reduced. The same correlation (of COVID-19 deaths by age and normal life-expectancy) has been demonstrated from the American data.[68] Again, it is the frail elderly who have been most susceptible to death from COVID-19, just as they are to other vulnerabilities. Statistically, most of those who died of COVID-19 in 2020 would not have lived much longer even if there were no pandemic. Every human life and every day of life is unspeakably precious, but it is important to see the lethality of COVID-19 in the context of normal human mortality.[69] One reason for the excess deaths in 2020 in certain countries is the entirely expected epidemiological phenomenon of the survival of the frail elderly through one or more mild flu seasons in immediately prior years, resulting in a larger population of susceptible individuals when a more virulent virus appears.[70]

Although it is more difficult to obtain the location data for where infections originated, it appears that a high percentage of the fatal cases of infection have been in custodial institutions: nosocomial

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[64] Statistics Canada Government of Canada, "The Daily — Provisional Death Counts and Excess Mortality, January 2020 to April 2021," 12 July 2021, https://www150.statcan.gc.ca/n1/daily-quotidien/210712/dq210712b-eng.htm; Denette Wilford, 'More Young Canadians Died from "unintentional Side Effects" of the Pandemic, Not COVID," *Toronto Sun*, 13 July 2021, https://torontosun.com/news/more-young-canadians-died-from-unintentional-side-effects-of-the-pandemic-not-covid.

[65] Manfred Horst, "A Closer Look at US 2020 Mortality Data," *Brownstone Institute* (blog), 2 September 2021, https://brownstone.org/articles/a-closer-look-at-the-us-2020-mortality-data/.

[66] Public Health Agency of Canada, "COVID-19 Daily Epidemiology Update," 7 May 2021, https://health-infobase.canada.ca/COVID-19/epidemiological-summary-COVID-19-cases.html.

[67] David Spiegelhalter, "Use of "Normal" Risk to Improve Understanding of Dangers of COVID-19," *BMJ*, 9 September 2020, m3259, https://doi.org/10.1136/bmj.m3259.

[68] Manfred Horst, "A Closer Look at US 2020 Mortality Data," *Brownstone Institute* (blog), 2 September 2021, https://brownstone.org/articles/a-closer-look-at-the-us-2020-mortality-data/.

[69] Also note the possibility that public policy measures may have increased the dangers to the elderly: "Epidemic theory dictates that a reduction in the force of infection by a pathogen is associated with an increase in the average age at which individuals are exposed. For those pathogens that cause more severe disease among hosts of an older age, interventions that limit transmission can paradoxically increase the burden of disease in a population." Ted Cohen and Marc Lipsitch, "Too Little of a Good Thing: A Paradox of Moderate Infection Control," *Epidemiology* 19, no. 4 (July 2008): 588–89, https://doi.org/10.1097/EDE.0b013e31817734ba.

[70] This is the so-called "dry tinder" effect. See, on Canada, Claus Rinner, "Every Death Counts, Not Just COVID Deaths – GIS2 at Ryerson," 20 May 2021, https://gis.blog.ryerson.ca/2021/05/20/every-death-counts-not-just-covid-deaths/. And on Sweden, Jonas Herby, "Working Paper: Exceptionally Many Vulnerable – "Dry Tinder" – in Sweden Prior to COVID-19," *SSRN Electronic Journal*, 2020, https://doi.org/10.2139/ssrn.3702595.

(acquired in hospital or long-term care) or in prison, and not in the community.[71] Another way to put this is to say that if the population were divided between those in government-controlled institutions in Canada and the rest of the population, we would find that a high percentage of deadly cases of COVID-19 originated in these institutional settings.[72] One is twenty times more likely to die from a case of COVID-19 acquired in long-term care than in the community. It is not just that most individuals died in nosocomial and government-controlled institutional settings: it appears that they also in large numbers *acquired* the infection there. For example, data from Public Health Canada in April 2021 indicates that where there have been local outbreaks (two or more confirmed cases in the same location, epidemiologically linked), 18.5% of cases in long-term care and retirement homes were fatal, and 7.6% in hospitals. This is where vulnerable people are congregated. In schools and childcare, as in restaurants and retail, by comparison, 0.01% of cases were fatal.[73] This has important implications for public policy that have not been adequately considered.

In estimating the lethality of COVID-19, a further serious problem has been the way numbers of COVID-19 deaths are reported, since it has been common practice, as in Germany, to count "any deceased person who was infected with coronavirus as a Covid19 death, whether or not it actually caused death."[74] Reports indicate that this is true also in Australia, the UK, and the U.S.[75] I presume this is also true of provincial public health reporting in Canada. Some scientists have however described COVID-19 not as a pandemic but as a "syndemic," wherein a communicable disease intersects with a noncommunicable disease. Describing COVID-19 as a "syndemic" signals that most deaths have involved comorbidities.[76] In Canada, 90% of COVID-19-involved deaths between March and July 2020 had at least one other cause, condition, or complication reported on the death certificate.[77] In Scotland, between March and August 2021, there were pre-existing conditions indicated for 9,877 COVID-19-involved deaths, and only 732 deaths without such conditions

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[71] The public data has been analysed in detail by Julius Ruechel, "The Lies Exposed by the Numbers: Fear, Misdirection, & Institutional Deaths (An Investigative Report)," 28 May 2021, https://www.juliusruechel.com/2021/05/the-lies-exposed-by-numbers-fear.html. I have reviewed the public data myself (see note below).

[72] See Table 6, "Canada COVID-19 Weekly Epidemiology Report: 18 April to 24 April 2021," COVID-19 in Canada (Public Health Agency of Canada, 30 April 2021), 13. https://web.archive.org/web/20210501003054/https://www.canada.ca/content/dam/phac-aspc/documents/services/diseases/2019-novel-coronavirus-infection/surv-covid19-weekly-epi-update-20210430-eng.pdf.

[73] The data comes from Table 6, "Canada COVID-19 Weekly."

[74] Kit Knightly, "COVID19 Death Figures 'A Substantial Over-Estimate,'" *OffGuardian*, 5 April 2020, https://off-guardian.org/2020/04/05/covid19-death-figures-a-substantial-over-estimate/.

[75] Dr Malcolm Kendrick, "I Have Not Been Silenced," *Dr. Malcolm Kendrick* (blog), 3 September 2021, https://drmalcolmkendrick.org/2021/09/03/i-have-not-been-silenced/; Courtney Hempton and Marc Trabsky, "'Died from' or 'Died with' COVID-19? We Need a Transparent Approach to Counting Coronavirus Deaths," The Conversation, accessed 6 September 2021, http://theconversation.com/died-from-or-died-with-COVID-19-we-need-a-transparent-approach-to-counting-coronavirus-deaths-145438; Tim Harris, "Dr. Birx: Unlike Some Countries, 'If Someone Dies With COVID-19 We Are Counting That As A COVID-19 Death,'" 8 April 2020, https://www.realclearpolitics.com/video/2020/04/08/dr_birx_unlike_some_countries_if_someone_dies_with_COVID-19_we_are_counting_that_as_a_COVID-19_death.html.

[76] Richard Horton, "Offline: COVID-19 Is Not a Pandemic," *The Lancet* 396, no. 10255 (26 September 2020): 874, https://doi.org/10.1016/S0140-6736(20)32000-6; John P. A. Ioannidis, "Over- and Under-Estimation of COVID-19 Deaths," *European Journal of Epidemiology* 36, no. 6 (2021): 581–88, https://doi.org/10.1007/s10654-021-00787-9.

[77] Kathy O'Brien and *et al.*, "COVID-19 Death Comorbidities in Canada," Statistics Canada, 16 November 2020, https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00087-eng.htm.

recorded.[78] In Ireland, *every* non-COVID-19 cause of death dropped in the 1st quarter of 2020, compared to the previous year, and analysis shows this clearly to be a result of reclassification as COVID-19 deaths.[79] The failure to distinguish death *from* COVID-19 and death *with* COVID-19, or to reckon properly any serious co-morbidities, has exaggerated the lethality of the virus in reporting to the public. If someone without symptoms tests positive for COVID-19 in the twenty-eight days before dying in a car accident, his or her cause of death is still registered as COVID-19 in many countries. This confusion leads to distortions in fatality rates and in public perception of lethality, since "deaths from COVID-19" is one of the daily headline statistics regularly reported alongside "cases," and "hospitalizations."[80]

To recapitulate, seroprevalence studies, excess deaths data, the age risk-profile for COVID-19, the location of acquired infection (chiefly nosocomial), and problems in cause-of-death reporting all alike point to a relatively low risk for the general population of healthy individuals of catching and dying of COVID-19, especially outside of hospitals and long-term care homes and under 70 years of age. However, whether institutionalized or in the community, the frail elderly and other vulnerable individuals (such as those with obesity, diabetes, and the immune-compromised) are more seriously at risk of severe illness and death from this virus and in most need of protection.

The first premise in the dominant narrative—that COVID-19 is a new, unprecedented lethal danger against which we have no protection—is in many ways the most important, for it is here that fear is first awakened. The science presented in this initial section should allow us to reckon more proportionately with the danger of COVID-19 by assessing its risks. We have compared the risk of dying from a COVID-19 infection to the seasonal flu. Here is another context for comparison: The odds in the United States in 2018 of dying from accidental injury in a motor vehicle accident, over the course of an entire lifetime, was 1 in 106, or 0.94%.[81] If the average risk of dying from a case of COVID-19 (once infected) is in the range of 0.15%, how fearful should we be? Moreover, if we know the age-stratified risk profile for COVID-19, and if we know other specific risk factors, does this not give us even more confidence and allow us to take appropriate, specific precautions for those most vulnerable?

Asymptomatic Spread

The dominant narrative assumes that the virus is transmitted by people without visible symptoms and at speed. This is frightening, since you never know in any social setting, among seemingly healthy people, whether undetectable but deadly viral transmission might be taking place. Here too, we may examine the evidence critically. To what extent does this new coronavirus spread rapidly and asymptomatically (invisibly), unlike anything we have experienced before?

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[78] Stuart Allan, "COVID-19 Mortality Table, by Age Group and Pre-Existing Condition, Updated to Include August 2021 Data. Deaths without Pre-Existing Conditions in the under 25s, since the Start of the Pandemic, ZERO. Https://T.Co/VH0gkmKTIA," Tweet, @*OutsideAllan* (blog), 24 September 2021, https://twitter.com/OutsideAllan/status/1441435148143190016.

[79] "Artificial Re-Attribution of Deaths to COVID-19," Bring Back Normal, 31 August 2021, https://bringbacknormal.ie/artificial-covid-deaths/: "There is a 1 : 100 000 probability that Non-Covid deaths fell to 7,708 in Q1-2021based on a statistical analysis of 2010 to 2021 deaths."

[80] Ioannidis, "Over- and under-Estimation."

[81] "Facts + Statistics: Mortality Risk | III," accessed 6 September 2021, https://www.iii.org/fact-statistic/facts-statistics-mortality-risk.

Much of the evidence for asymptomatic spread of the SARS-CoV-2 virus was, at least initially, uncertain. Governments acted on a precautionary principle, based not on certain evidence but on the dangerous possibility of asymptomatic transmission suggested in various reports, especially from the beginning of the outbreak.[82] It was not clear initially how soon and for how long someone incubating the SARS-CoV-2 could shed virus. At some point it was agreed that the danger period was around 14 days, and this became the standard for quarantine in most countries. Thus, one summary of research stated in September 2020: "Asymptomatic persons seem to account for approximately 40% to 45% of SARS-CoV-2 infections, and they can transmit the virus to others for an extended period, perhaps longer than 14 days."[83] Public policy took this up as a basic assumption.

However, although the available studies indicate asymptomatic and pre-symptomatic patients can test positive for the virus at rates ranging from 18% to 57%, it is not at all clear what a molecular PCR test precisely indicates in terms of actual infection or infectiousness. As one article in the *British Medical Journal* noted in December 2020: "Unusually in disease management, a positive test result is the sole criterion for a COVID-19 case. Normally, a test is a support for clinical diagnosis, not a substitute." The absence of clinical oversight has implications. It means "we know very little about the proportions of people with positive results who are truly asymptomatic throughout the course of their infection and the proportions who are paucisymptomatic (subclinical), presymptomatic (go on to develop symptoms later), or post-infection (with viral RNA fragments still detectable from an earlier infection)."[84] There is also, of course, a significant percentage of false positives in the PCR test and inconsistency in the cycle threshold used for amplifying trace RNA.

It remains uncertain therefore how much, how soon, and how long a non-symptomatic person incubating SARS-CoV-2 sheds virus. In one small study of infector-infectee pairs, viral transmission was estimated to occur two or three days prior to the onset of symptoms in about 44% of patients in a pattern "more similar to seasonal influenza" than to the previous SARS outbreak.[85] But again, quoting the earlier study, it is "unclear to what extent people with no symptoms transmit SARS-CoV-2. The only test for live virus is viral culture. PCR and lateral flow tests do not distinguish live virus. No test of infection or infectiousness is currently available for routine use. As things stand, a person who tests positive with any kind of test may or may not have an active infection with live virus, and may or may not be infectious."[86] More importantly, based on detailed contact tracing, several other careful peer-reviewed studies question whether asymptomatic individuals are really driving the spread

[82] Early reports, as noted above, accentuated this fear. See, e.g., Kai Kupferschmidt and Jon Cohen, "'This Beast Is Moving Very Fast.' Will the New Coronavirus Be Contained—or Go Pandemic?," Science | AAAS, 5 February 2020, https://www.sciencemag.org/news/2020/02/beast-moving-very-fast-will-new-coronavirus-be-contained-or-go-pandemic.

[83] Daniel P. Oran and Eric J. Topol, "Prevalence of Asymptomatic SARS-CoV-2 Infection: A Narrative Review," *Annals of Internal Medicine* 173, no. 5 (September 1, 2020): 362–67, https://doi.org/10.7326/M20-3012.

[84] Allyson M Pollock and James Lancaster, "Asymptomatic Transmission of COVID-19," *BMJ*, 21 December 2020, m4851, https://doi.org/10.1136/bmj.m4851.

[85] Susan Lee *et al.*, "Asymptomatic Carriage and Transmission of SARS-CoV-2: What Do We Know?" *Canadian Journal of Anesthesia/Journal Canadien d'anesthésie* 67, no. 10 (October 2020): 1424–30, https://doi.org/10.1007/s12630-020-01729-x.

[86] Pollock and Lancaster, "Asymptomatic Transmission."

of the virus at all.[87] As one study reported, "The lack of substantial transmission from observed asymptomatic index cases is notable."[88]

If the virus is indeed spreading sub-clinically through the population, it may be doing so largely in a way that is unnoticed, with the majority of individuals showing mild or no symptoms, quietly generating an effective immune response, but not themselves representing a significant vector of continuing infection.[89] Indeed, the prevalence of this transmission *sub rosa* is one reason Jay Bhattacharya and Mikko Packalen consider contact tracing to be futile with COVID-19.[90] Such individuals are not the main drivers of symptomatic illness, as the studies above have indicated. Moreover, there is evidence that some populations started out with a level of protective or partial cross-immunity from prior coronaviruses, providing active T-cell cross-reactivity, and that geographic variations in the severity of COVID-19 may be explained in part therefore by the specific epidemiological history of a location or other endogenous factors (age of population, BMI, population density, state of public health, etc.), rather than by public health management of the pandemic.[91] For example, an antibody study in Vancouver, published in March 2021, looked at a sample of 276 healthy (unvaccinated) adults and filtered out those who might have acquired immunity after a case of COVID-19. Of the remaining group, the authors found that "more than 90% of uninfected adults showed antibody reactivity against the spike protein."[92] A European study published in August 2021 found similar results.[93] The fact that the Diamond Princess cruise ship—a floating petri dish in February 2020, where the virus could spread freely in the air conditioning system—saw only some

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[87] See, e.g., Ming Gao *et al.*, "A Study on Infectivity of Asymptomatic SARS-CoV-2 Carriers," *Respiratory Medicine* 169 (August 2020): 106026, https://doi.org/10.1016/j.rmed.2020.106026, who traced 455 contacts of an asymptomatic carrier of the virus and found none were infected, concluding that some asymptomatic carriers must be non-infectious. And Zachary J. Madewell *et al.*, "Household Transmission of SARS-CoV-2: A Systematic Review and Meta-Analysis," *JAMA Network Open* 3, no. 12 (14 December 2020): e2031756, https://doi.org/10.1001/jamanetworkopen.2020.31756, report that their findings "are consistent with other household studies reporting asymptomatic index cases as having limited role in household transmission." Moreover, among 1174 close contacts of 300 asymptomatic cases in Wuhan, it was found there were no positive tests: Shiyi Cao *et al.*, "Post-Lockdown SARS-CoV-2 Nucleic Acid Screening in Nearly Ten Million Residents of Wuhan, China," *Nature Communications* 11, no. 1 (December 2020): 5917, https://doi.org/10.1038/s41467-020-19802-w. See also Noah Higgins-Dunn and Will Feuer, "Asymptomatic Spread of Coronavirus Is "very Rare," WHO Says," CNBC, 8 June 2020, https://www.cnbc.com/2020/06/08/asymptomatic-coronavirus-patients-arent-spreading-new-infections-who-says.html.

[88] Madewell, *et al.* "Household Transmission."

[89] Johan Giesecke, "The Invisible Pandemic," *The Lancet* 395, no. 10238 (May 2020): e98, https://doi.org/10.1016/S0140-6736(20)31035-7.

[90] Jay Bhattacharya and Mikko Packalen, "On the Futility of Contact Tracing," *Inference: International Review of Science* 5, no. 3 (28 September 2020): 2, https://inference-review.com/article/on-the-futility-of-contact-tracing.

[91] Peter Doshi, "COVID-19: Do Many People Have Pre-Existing Immunity?," *BMJ*, 17 September 2020, m3563, https://doi.org/10.1136/bmj.m3563. A study in Ecuador found that 80% of convalescent COVID-19 patients showed strong T-cell response, but surprisingly so did 44% of unexposed healthy controls "probably because of prior exposure to common cold-causing coronaviruses or other viral or microbial antigens." See Gustavo Echeverría *et al.*, "Pre-Existing T-Cell Immunity to SARS-CoV-2 in Unexposed Healthy Controls in Ecuador, as Detected with a COVID-19 Interferon-Gamma Release Assay," *International Journal of Infectious Diseases* 105 (April 2021): 21–25, https://doi.org/10.1016/j.ijid.2021.02.034.

[92] Abdelilah Majdoubi *et al.*, "A Majority of Uninfected Adults Show Preexisting Antibody Reactivity against SARS-CoV-2," *JCI Insight* 6, no. 8 (22 April 2021): e146316, https://doi.org/10.1172/jci.insight.146316.

[93] Lucie Loyal *et al.*, "Cross-Reactive CD4+ T Cells Enhance SARS-CoV-2 Immune Responses upon Infection and Vaccination," *Science* 0, no. 0 (n.d.): eabh1823, https://doi.org/10.1126/science.abh1823. Pre-existing immunity is discussed by Beda M. Stadler, the former director of the Institute for Immunology at the University of Bern in a blog post: "Why Everyone Was Wrong," WorldHealth, accessed 28 May 2021, https://www.worldhealth.net/news/why-everyone-was-wrong.

20% of its passengers and crew infected was an early clue that there might be some pre-existing immunity that would challenge the mathematical models of infection, morbidity (the incidence of disease in the population) and mortality.[94]

Variations in levels of such pre-existing immunity would go far to explain both the similar bell-shaped viral curve in most countries, regardless of public policy interventions, and the flaring at the same time of specific isolated hot spots: Wuhan, northern Italy, Iran, New York, Brazil, India, and so on. At the most basic level, the evidence for prior T-cell cross immunity at least calls into question the assumption that populations are uniformly susceptible to SARS-CoV-2 as an entirely novel pathogen to which everyone everywhere is equally vulnerable. The human population was not "virgin soil" for the SARS-CoV-2. Most of the modelling has wrongly assumed this. It is one of the dangers of modelling studies, like those of Imperial College, London, early in the pandemic, that they depend upon the accuracy of complex assumptions and are therefore susceptible to enormous distortion when subsequent computational analysis magnifies any errors.[95] Predictions based on modelling studies are also inherently unfalsifiable. There are too many uncontrolled variables.[96] Did public policy intervention prevent a disaster that modelling predicted? Or was there a normal viral curve? Or were the other factors at work?

It was the assumption of virulent asymptomatic spread, however, combined with the assumption that the entire population is vulnerable, that created the unique social situation in which every human being, however apparently healthy, was now to be regarded as a threatening vector of deadly disease. As a result, we all became not only mysophobic (fearing contamination) but also *anthropophobic*—afraid of other people. Explicitly anti-social practices (confinement, isolation, masking, de-socialization, etc.), recommended or mandatory for more than a year, intensified these phobias, even though the first two assumptions about transmission and lethality remain questionable, and we have considerable research now that allows us to be more exact about these matters than in the beginning.

Adaptation

Although the twin assumptions of lethality and asymptomatic spread were fundamental from the start to the sense of danger and to the initial public policy response to SARS-CoV-2, latterly a third premise became prominent in the media and in the messages from public health officials. As the British Columbia Centre for Disease Control states, the danger from the virus is not only that it kills and it spreads, but also that it *adapts*.[97] This third premise renders the first two more frightening. Everything

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[94] Smriti Mallapaty, "What the Cruise-Ship Outbreaks Reveal about COVID-19," *Nature* 580, no. 7801 (26 March 2020): 18–18, https://doi.org/10.1038/d41586-020-00885-w. Cf. Joacim Rocklöv and Paul W. Franks, "Coronavirus: Could It Be Burning out after 20% of a Population Is Infected?," The Conversation, accessed 4 October 2021, http://theconversation.com/coronavirus-could-it-be-burning-out-after-20-of-a-population-is-infected-141584.

[95] Pierce Story, "COVID-19 Predictive Models: What Goes in, Comes Out," accessed 28 August 2021, https://www.linkedin.com/pulse/COVID-19-predictive-models-what-goes-comes-out-story-mhpm-lssbb; Adam Rogers and Megan Molteni, "The Mathematics of Predicting the Course of the Coronavirus," *Wired*, accessed 28 August 2021, https://www.wired.com/story/the-mathematics-of-predicting-the-course-of-the-coronavirus/.

[96] Ian Sample, "Coronavirus Exposes the Problems and Pitfalls of Modelling," *The Guardian*, 25 March 2020, sec. Medical Research, http://www.theguardian.com/science/2020/mar/25/coronavirus-exposes-the-problems-and-pitfalls-of-modelling; John P. A. Ioannidis, Sally Cripps, and Martin A. Tanner, "Forecasting for COVID-19 Has Failed," *International Journal of Forecasting*, 25 August 2020, https://doi.org/10.1016/j.ijforecast.2020.08.004.

[97] BC Centre for Disease Control and Immunize BC, "COVID-19 Immunization Communication Tool," 2021, http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Immunization/Vaccine%20Safety/bccdc-covid-addendum-screen.pdf.

we have learned may be wrong, and all our responses rendered ineffectual, since the pandemic can re-boot itself anytime and anywhere. The concern is that new variants of the virus may prove *more lethal* or *more transmissible* or that these variants may *escape* natural or vaccine-induced immunity. Indeed, these are the three criteria (lethality, transmissibility, and immune escape) by which some variants, among the many produced by the constantly mutating coronavirus, rise to the official status of Variants of Concern (VOC). Scientists are carefully tracing the phylogenetic tree of genetic variation in the virus in various countries, and the WHO has now established a nomenclature for public communication for the major variants of interest (VOI) or variants of concern (VOC), based, as we have noted, on the Greek alphabet (alpha, beta, gamma, delta, etc.).[98]

A major worry in Western countries in the summer of 2021 was that the delta variant would lead to a deadly new wave of infection, and that vaccination programs would not be able to stop it.[99] The delta variant, which first appeared in India in October 2020, overtook the alpha variant as the dominant strain of the coronavirus in the UK and then elsewhere. The delta variant accounted for 90% of new cases in the UK, and spread to 74 countries, as of June 14, 2021.[100] By August 2021, it had spread to 163 countries.[101] In Canada, it emerged in Ontario in April 2021 and became the dominant strain there by July.[102]

Much of the initial research on this variant came from the UK government's internal data and analysis by its public health advisory groups.[103] A cohort study in Scotland from within this circle was published in the *Lancet*, and it reported, "Risk of COVID-19 hospital admission was approximately doubled in those with the Delta VOC [variant of concern] when compared to the Alpha VOC, with risk of admission particularly increased in those with five or more relevant comorbidities."[104] Again, this early report set the tone. What if the coronavirus was changing into a more virulent form? These worries led to a delay in the scheduled plan to reduce nationwide restrictions in the UK on June 21, 2021: "Modelling showed that thousands more people might die unless reopening was pushed

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[98] WHO, "Tracking SARS-CoV-2 Variants," accessed 21 June 2021, https://www.who.int/activities/tracking-SARS-CoV-2-variants. See also Emma Hodcroft, Institute of Social and Preventive Medicine, University of Bern, Switzerland and Swiss Institute of Bioinformatics, "Home Page," CoVariants, accessed 21 June 2021, https://covariants.org/, and the Nextstrain Team (with data from GISAID), "Genomic Epidemiology of Novel Coronavirus - Global Subsampling," Nextstrain, 2 October 2021, https://nextstrain.org/ncov/gisaid/global.

[99] Concern about delta evading the immune response of current vaccines is discussed in the study by Yafei Liu *et al.*, "The SARS-CoV-2 Delta Variant Is Poised to Acquire Complete Resistance to Wild-Type Spike Vaccines," preprint (Microbiology, 23 August 2021), https://doi.org/10.1101/2021.08.22.457114. Also, Nguyen Van Vinh Chau *et al.*, "Transmission of SARS-CoV-2 Delta Variant Among Vaccinated Healthcare Workers, Vietnam," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, 10 August 2021), https://doi.org/10.2139/ssrn.3897733.

[100] "Lineage B.1.617.2," PANGO lineages, accessed 21 June 2021, https://cov-lineages.org/lineages/lineage_B.1.617.2.html.

[101] WHO, "Weekly Epidemiological Update on COVID-19," Edition 54 (World Health Organization, 24 August 2021): 12. https://www.who.int/publications/m/item/weekly-epidemiological-update-on-COVID-19---24-august-2021.

[102] David N. Fisman and Ashleigh R. Tuite, "Progressive Increase in Virulence of Novel SARS-CoV-2 Variants in Ontario, Canada," preprint (Infectious Diseases (except HIV/AIDS), 7 July 2021): 3. https://doi.org/10.1101/2021.07.05.21260050.

[103] These include, for example, the New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) and the Scientific Pandemic Influenza Group on Modelling, Operational sub-group (SPI-M-O) for the Scientific Advisory Group for Emergencies (SAGE). There seems to be a particular penchant in the UK government for naming committees in such a way as to achieve striking acronyms.

[104] Aziz Sheikh *et al.*, "SARS-CoV-2 Delta VOC in Scotland: Demographics, Risk of Hospital Admission, and Vaccine Effectiveness," *The Lancet* 0, no. 0 (14 June 2021), https://doi.org/10.1016/S0140-6736(21)01358-1.

back."[105] Again, this modelling came from the internal government advisory group SPI-M-O, and was informed by the work of Imperial College, London, and others. Initial reporting on the delta variant in Canada largely depended on this data out of the UK.[106]

Are these variants cause for alarm? Oxford epidemiologist Sunetra Gupta, writing well before the appearance of COVID-19, describes the normal pattern of a pathogen after its initial appearance in a population: "The second epidemic will always be smaller, and the third time, smaller still. This is because much of the population will still be immune each time another epidemic occurs. Eventually, an equilibrium is reached where the infectious agent kills a constant number of individuals every year, which is a very small proportion of what it could achieve in 'virgin soil'. At this stage, the disease is said to be 'endemic' rather than epidemic."[107] This is what she expects is most likely with SARS-CoV-2.[108] Unless something interferes with this pattern, this is also what virologists also expect: "Since SARS-CoV-2 has shown such a propensity to mutate, it is reasonable to expect this virus will become endemic."[109]

So, although the threat posed by variation surfaced in the media in the winter of 2020-21 (and alarm about a "double mutant" spread in May 2021),[110] there was nothing here unexpected for scientists. Genetic drift in RNA respiratory viruses is swift, compared with measles, polio, and smallpox. SARS-CoV-2 was not behaving in an unprecedented way by mutating.[111] Quite the contrary. Rapid respiratory viral mutation is why there is a new flu shot every year (although, in relative terms, influenza has a higher capacity for large scale mutations than SARS-CoV-2).

It was not a surprise then that a more transmissible mutation like the delta variant would appear and out-compete other strains of the virus.[112] But what about morbidity and mortality? The report from Scotland that the delta variant could be more virulent was based on limited, preliminary data.[113]

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[105] Alistair Smout, "How UK PM Johnson Decided to Delay COVID Reopening," Reuters, 15 June 2021, https://www.reuters.com/world/uk/how-uk-pm-johnson-decided-delay-covid-reopening-2021-06-15/.

[106] "Much of what we know about the Delta variant is derived from Public Health England." Jason Kindrachuk and Souradet Shaw, "COVID-19 Delta Variant in Canada: FAQ on Origins, Hotspots and Vaccine Protection," *The Conversation*, 17 June 2021, http://theconversation.com/COVID-19-delta-variant-in-canada-faq-on-origins-hotspots-and-vaccine-protection-162653.

[107] Sunetra Gupta, *Pandemics: Our Fears and the Facts*, Kindle, 2013, loc. 58.

[108] Sunetra Gupta, "CG Mini-Lectures: Variants," *Collateral Global*, accessed 27 September 2021, https://collateralglobal.org/article/mini-lecture-variants/.

[109] Byram Bridle, Affidavit of Expert Witness, 13 April 2021, submitted to the Ontario Superior Court of Justice in Ontario v. Adamson, Exhibit D, p. 11. https://adamsonbarbecue.us17.list-manage.com/track/click?u=b87c59887e28bf7ecc4cb59b2&id=91a44059db&e=212ff61dfa. See also the discussion of the "Muller's ratchet" effect: Adam Brufsky and Michael T. Lotze, "Ratcheting down the Virulence of SARS-CoV-2 in the COVID-19 Pandemic," *Journal of Medical Virology* 92, no. 11 (2020): 2379–80, https://doi.org/10.1002/jmv.26067.

[110] "Double Mutant Variant," Google Trends, accessed 18 September 2021, https://trends.google.ca/trends/explore?geo=CA&q=double%20mutant%20variant.

[111] The rate of mutation is estimated by John H. Tay *et al.*, "The Emergence of SARS-CoV-2 Variants of Concern Is Driven by Acceleration of the Evolutionary Rate," 31 August 2021, https://doi.org/10.1101/2021.08.29.21262799.

[112] It is important to note the distinction between higher transmission (which could occur for a number of exogenous reasons) and higher transmissibility. This is helpfully analysed by Philippe Lemoine, "Is the Delta Variant Really More than Twice as Transmissible as the Original Strain of the Virus?" *CSPI Center* (blog), 31 August 2021, https://cspicenter.org/blog/waronscience/is-the-delta-variant-really-more-than-twice-as-transmissible-as-the-original-strain-of-the-virus/.

[113] Aziz Sheikh *et al.*, "SARS-CoV-2 Delta VOC in Scotland: Demographics, Risk of Hospital Admission, and Vaccine Effectiveness," *The Lancet* 0, no. 0 (14 June 2021), https://doi.org/10.1016/S0140-6736(21)01358-1; However, note the

In a later technical briefing from the UK government on variants of concern, the data showed the delta variant to be considerably less lethal than the alpha variant. Case fatality rates after 28 days were 1.9% for alpha and 0.3% for delta.[114] In India, the delta variant was the strain of the coronavirus for their first (or perhaps, second wave), and though the overall numbers of cases and fatalities for India were large in April and May, the epidemic curve, infection fatality rate, and deaths per million were comparable to what occurred elsewhere, and decreased rapidly.[115] In other words, even in "virgin soil," the delta variant of SARS-CoV-2 did not appear more deadly, though the reports from India were heartbreaking. (There are possible confounders: The steep drop-off in the epidemic curve in June 2021 also coincided with the more widespread use of Ivermectin as a drug therapy, which I discuss further below.) However, although there are varying reports from cohort studies, there is not yet reason to think that the delta variant is a new, *more* deadly threat that sustains the danger of the pandemic in general at heightened levels.

In the normal course of things, it is entirely expected that there will be ongoing variation and selection (adaptation) of the SARS-CoV-2 virus in the direction of higher transmissibility and lower virulence over time, arriving at endemic equilibrium. In this respect, it would be acting like other coronaviruses. As a recent article on historical epidemiology reminds us, "Every established respiratory pandemic of the last 130 years has caused seasonal waves of infection and has culminated in viral endemicity."[116] A review of the delta variant in Canada, the UK, the US, and Israel, published on August 10, 2021, reported higher transmissibility (about two times greater) but lower virulence. Cases rose, but deaths did not: "The overall conclusions regarding the delta variant in the above countries is that although it is more transmissible, it is less virulent."[117]

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cautions earlier about human factors in transmissibility from the virologist Vincent Racaniello, "New UK Coronavirus Variant Isn't Even Worth a News Headline," *Dryburgh.Com* (blog), 23 December 2020, https://dryburgh.com/vincent-racaniello-coronavirus-variant-voc-202012-01/.

[114] Public Health England, "SARS-CoV-2 Variants of Concern and Variants under Investigation in England: Technical Briefing 17," 24 June 2021, 8 (cf. the data in the table on p. 10 regarding deaths between Feb. and June). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/997418/Variants_of_Concern_VOC_Technical_Briefing_17.pdf.

[115] "India Data, Deaths per Million," Our World in Data, 2 June 2021, https://pbs.twimg.com/media/E29r8ERVUAEyvnq?format=jpg&name=large. The data for India is complex to interpret. See Murad Banaji, "Estimating COVID-19 Fatalities in India," The India Forum, 10 May 2021, https://www.theindiaforum.in/article/estimating-COVID-19-fatalities-india. See also one long-time observer's perspective, Jo Nash, "India's Covid Crisis in Context – An Update," Left Lockdown Sceptics: Socialist Anti-Lockdown News and Analysis, 14 May 2021, https://leftlockdownsceptics.com/2021/05/indias-covid-crisis-in-context-an-update/.

[116] George S. Heriot and Euzebiusz Jamrozik, 'Imagination and Remembrance: What Role Should Historical Epidemiology Play in a World Bewitched by Mathematical Modelling of COVID-19 and Other Epidemics?" *History and Philosophy of the Life Sciences* 43, no. 2 (June 2021): 81, https://doi.org/10.1007/s40656-021-00422-6.

[117] Philip R. Oldfield, "Delta Variant Update – Canadian Covid Care Alliance," 10 August 2021, https://www.canadiancovidcarealliance.org/media-resources/delta-variant-update/. Cf. Jose Gefaell, "Delta Variant vs. Case Fatality Rate in the UK," *Collateral Global* (blog), 16 July 2021, https://collateralglobal.org/article/delta-variant-vs-case-fatality-rate-in-the-uk/. See, however, Katherine A Twohig *et al.*, "Hospital Admission and Emergency Care Attendance Risk for SARS-CoV-2 Delta (B.1.617.2) Compared with Alpha (B.1.1.7) Variants of Concern: A Cohort Study," *The Lancet Infectious Diseases*, August 2021, S1473309921004758, https://doi.org/10.1016/S1473-3099(21)00475-8, who found in their cohort study: "a higher hospital admission or emergency care attendance risk for patients with COVID-19 infected with the delta variant compared with the alpha variant." Detailed data is available from PHE Variant Technical Group, "SARS-CoV-2 Variants of Concern and Variants under Investigation in England" (Public Health England, 17 September 2021), https://t.co/Gr3gvLS167?amp=1. A cohort study in Ontario also: David N. Fisman and Ashleigh R. Tuite, "Progressive Increase in Virulence of Novel SARS-CoV-2 Variants in Ontario, Canada," preprint (Infectious Diseases (except HIV/AIDS), 7 July 2021), https://doi.org/10.1101/2021.07.05.21260050,

Could it be different this time, though? As they say in financial planning, past performance is no guarantee of future results. History stands open to new possibilities, for good or ill. The winter respiratory season for northern countries (2021-22) will show whether the viral curve is more or less deadly. I do not think anyone knows for sure how the virus will evolve.[118]

It is possible, in fact, that vaccines themselves may interfere with the normal path to endemicity by influencing the evolution of SARS-CoV-2. There is increasing evidence of immune escape from vaccine-induced immunity ("leaky" vaccines with "breakthrough" infections), and some have theorized that this is inevitable since the present vaccines have narrowly targeted the spike protein, which is the most changeable element in the coronavirus.[119] The concern is that imperfect vaccines, which do not confer sterilizing immunity, may apply selective pressure on the evolution of the virus toward increased pathogenic virulence.[120] This is a well-known phenomenon, familiar from the evolution of antibiotic-resistant strains of bacteria. In contrast, acquired natural immunity has proven broader and substantially more protective.[121] One sincerely hopes that the combination of vaccines, therapeutic drugs, and natural immunity will over time change this COVID-19 epidemic into something similar to the endemic diseases our society has been accustomed to living with, for the virus will certainly continue to co-evolve with our immune system and with our vaccines.

The survey in this chapter of what we know about lethality, transmission, and variation is no doubt incomplete, but there are sufficient research findings available now to challenge the dominant narrative of the pandemic. At best, it is over simplistic. Moreover, rather than ameliorating public anxiety with more detailed, accurate information as it became available in 2020-21, our leaders and journalists more often reinforced the simplistic fear narrative in ways that we will analyse further below in Chapters 5 and 6. The primal human fear of contagion has been awakened. And it has been sustained by the steady drumbeat of a threefold narrative: it kills, it spreads, it adapts. This is the narrative that allowed an unprecedented public policy response around the world. It is to these public policy interventions we now turn in the following two chapters.

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[118] The theory that SARS-Cov-2 emerged from gain-of-function laboratory research, if proven, would mean that the natural evolution toward a *less* pathogenic strain of the virus was disrupted by intentional splicing of a special gene sequence into the viral genome to create a *more* lethal mutation of the virus from the outset. The theory is explained by Steven Quay and Richard Muller, "The Science Suggests a Wuhan Lab Leak," *Wall Street Journal*, 6 June 2021, sec. Opinion, https://www.wsj.com/articles/the-science-suggests-a-wuhan-lab-leak-11622995184, and the genetic sequence is described by B. Coutard *et al.*, "The Spike Glycoprotein of the New Coronavirus 2019-NCoV Contains a Furin-like Cleavage Site Absent in CoV of the Same Clade," *Antiviral Research* 176 (April 2020): 104742, https://doi.org/10.1016/j.antiviral.2020.104742.

[119] Byram Bridle, Affidavit of Expert Witness, 13 April 2021, submitted to the Ontario Superior Court of Justice in Ontario v. Adamson, Exhibit D, p. 11. https://adamsonbarbecue.us17.list-manage.com/track/click?u=b87c59887e28bf7ecc4cb59b2&id=91a44059db&e=212ff61dfa. Waning vaccine-induced immunity is discussed further below in Chap. 4.

[120] This possibility is well known from previous research: See, e.g., Sylvain Gandon *et al.*, "Imperfect Vaccines and the Evolution of Pathogen Virulence," *Nature* 414, no. 6865 (December 2001): 751–56, https://doi.org/10.1038/414751a. Also, Andrew F. Read *et al.*, "Imperfect Vaccination Can Enhance the Transmission of Highly Virulent Pathogens," *PLOS Biology* 13, no. 7 (27 July 2015): e1002198, https://doi.org/10.1371/journal.pbio.1002198.

[121] Sivan Gazit *et al.*, "Comparing SARS-CoV-2 Natural Immunity to Vaccine-Induced Immunity: Reinfections versus Breakthrough Infections," preprint (Infectious Diseases (except HIV/AIDS), 25 August 2021), https://doi.org/10.1101/2021.08.24.21262415.

Chapter 3
The Efficacy of Public Policy: Restrictive Non-Pharmaceutical Interventions

If the virus kills, spreads, and adapts, then governments must clearly do something to save lives if they can. This was the assumption from the beginning. However, governments almost universally (excepting Sweden) abandoned pre-existing pandemic strategies and chose instead to impose wide-ranging restrictive measures—so-called, "non-pharmaceutical interventions." How effective were these measures?[122] And what were the collateral harms?

Even if one were to accept without dispute all the prevailing assumptions regarding the lethal asymptomatic transmission of an adaptable SARS-CoV-2 virus, one might still question the efficacy of restrictive public health measures introduced in response. Did these measures help? There are a number of real-world studies now that contest the efficacy of most of the measures imposed on a population-wide basis, including mask mandates, social distancing, and lockdowns. Likewise, the effort to contain the virus through management of identified "cases" with test, trace, and isolation procedures (and the resulting mobility restrictions and travel quarantines), has been demonstrably compromised by dependence upon problematic molecular PCR testing. Containment strategies have inevitably proved ineffective for preventing the airborne transmission of a respiratory virus. In a laboratory, containment would necessitate the rigorous level-three biosafety protocols that a level-three pathogen requires.[123] As Australia and New Zealand found, no amount or severity of public policy intervention could achieve this level of containment in society at large.

Mask Mandates

The evidence that mask mandates have been effective in limiting viral transmission is weak. In May 2020, the American Center for Disease Control and Prevention published a study in *Emerging Infectious Diseases* evaluating various protective measures. The authors reviewed ten randomized controlled trials estimating the effectiveness of face masks in reducing laboratory-confirmed influenza virus, concluding: "In pooled analysis, we found no significant reduction in influenza transmission with the use of face masks."[124] A real-world study in Denmark studying the effectiveness of masks in the midst of COVID-19 included more than 6,000 people in a randomized controlled trial (RCT). The authors summarize their findings: "Our results suggest that the recommendation to wear a surgical mask when outside the home among others did not reduce, at conventional levels of statistical significance, the

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[122] Although in scientific discourse, "efficacy" is the term used for results from trials and "effectiveness" for results in real-world settings, I am using these terms interchangeably in my analysis in this chapter and the next, except where I have noted otherwise in discussing vaccine trials.

[123] SARS-CoV-2 is a biosafety level-three pathogen. The protocols for containing level-three pathogens are described in World Health Organization, *Laboratory Safety Manual*, 2nd revised (Geneva: WHO, 2003), 17-18, https://www.who.int/csr/resources/publications/biosafety/Labbiosafety.pdf.

[124] Jingyi Xiao *et al.*, "Nonpharmaceutical Measures for Pandemic Influenza in Nonhealthcare Settings—Personal Protective and Environmental Measures," *Emerging Infectious Diseases* 26, no. 5 (May 2020): 967–75, https://doi.org/10.3201/eid2605.190994.

incidence of SARS-CoV-2 infection in mask wearers."[125] Although there are some observational studies that support the efficacy of face masks, and some mechanical studies, these are not univocal, and there is no large randomized controlled trial that does so.[126] One widely reported RCT from Bangladesh reported a relative risk reduction of symptomatic COVID-19 disease of 5% for cloth masks and 11% for surgical masks, but the confidence interval was wide enough that one cannot not say whether this was statistically significant.[127] A systematic review and meta-analysis from February 2021, looking into the efficacy of masks in preventing viral transmission in the case of respiratory diseases generally, reported: "Eleven RCTs [randomized controlled trials] in a meta-analysis studying other respiratory illnesses found no significant benefit of masks (±hand hygiene) for influenza-like-illness symptoms nor laboratory confirmed viruses. One RCT found a significant benefit of surgical masks compared with cloth masks."[128] The conclusion of epidemiologist Sunetra Gupta about mask mandates during the COVID-19 crisis is unequivocal: "When you look at the data, it is absolutely clear now that mask mandates make no difference."[129]

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[125] Henning Bundgaard *et al.*, "Effectiveness of Adding a Mask Recommendation to Other Public Health Measures to Prevent SARS-CoV-2 Infection in Danish Mask Wearers: A Randomized Controlled Trial," *Annals of Internal Medicine* 174, no. 3 (March 2021): 335–43, https://doi.org/10.7326/M20-6817.

[126] Derek K Chu *et al.*, "Physical Distancing, Face Masks, and Eye Protection to Prevent Person-to-Person Transmission of SARS-CoV-2 and COVID-19: A Systematic Review and Meta-Analysis," *The Lancet* 395, no. 10242 (June 2020): 1973–87, https://doi.org/10.1016/S0140-6736(20)31142-9. This article acknowledges, "Robust randomised trials are needed to better inform the evidence for these interventions." And the flaws in this study are analyzed carefully by Jim Meehan, "An Evidence Based Scientific Analysis of Why Masks Are Ineffective, Unnecessary, and Harmful," 20 November 2020, https://www.meehanmd.com/blog/post/173679.

[127] Jason Abaluck *et al.*, "The Impact of Community Masking on COVID-19: A Cluster-Randomized Trial in Bangladesh," 31 August 2021, https://www.poverty-action.org/publication/impact-communitymasking-COVID-19-cluster-randomized-trial-bangladesh; "New Study Is the First Randomized Trial to Show That Wearing Masks Reduces COVID-19 in a Real-World Setting," Innovations for Poverty Action, 31 August 2021, https://www.poverty-action.org/news/new-study-first-randomized-trial-show-wearing-masks-reduces-COVID-19-real-world-setting. See however, Martin Kulldorff, "The Bangladesh Mask Study Does Not Show a Statistically Significant Difference in the Efficacy of Cloth Masks vs Surgical Masks. Based on the Confidence Intervals, Both Could Be around 0% or Both Could Be around 20%.," Tweet, *@MartinKulldorff* (blog), 8 September 2021, https://twitter.com/MartinKulldorff/status/1435573902789464065 ; Denis Rancourt, "Do Face Masks Reduce COVID-19 Spread in Bangladesh? Are the Abaluck et al Results Reliable," 20 September 2021, https://denisrancourt.ca/entries.php?id=106&utm_source=pocket_mylist. "A much more serious criticism is that the study is not actually a randomised trial of *mask-wearing*. Rather, it is a randomised trial of *mask promotion campaigns*. This means that, even if the intervention did have an effect, that effect was not necessarily brought about by more people wearing masks." Noah Carl, "The Bangladesh Mask Study Is a Missed Opportunity," *The Daily Sceptic* (blog), 3 September 2021, https://dailysceptic.org/2021/09/03/the-bangladesh-mask-study-is-a-missed-opportunity/.

[128] Akriti Nanda *et al.*, "Efficacy of Surgical Masks or Cloth Masks in the Prevention of Viral Transmission: Systematic Review, Meta-Analysis, and Proposal for Future Trial.," *Journal of Evidence-Based Medicine*, 9 February 2021, https://doi.org/10.1111/jebm.12424.

[129] Sunetra Gupta, *Sketch Notes on Professor Sunetra Gupta*, video recording, 2021, https://www.youtube.com/watch?v=bgzT3n4xe_g. See also virologist Byram Bridle, *Do Masks Work? Viral Immunologist Dr. Byram Bridle Performs a Simple Experiment to See.*, video recording, 2021, https://www.youtube.com/watch?v=tIaul0U83d0 and Denis Rancourt, "2021-02-22 Review of Scientific Reports of Harms Caused by Face Masks up to February 2021," 22 February 2021, https://denisrancourt.ca/entries.php?id=15&name=2021_02_22_review_of_scientific_reports_of_harms_caused_by_face_masks_up_to_february_2021. The evidence from mechanical studies against masks as protection against an aerosolized virus is summarized by Emily Burns, "Airborne Transmission 'In' *SHOULD* Mean Masks 'Out,'" The Smile Project, 20 May 2021, https://www.thesmileproject.global/post/airborne-transmission-in-mean-masks-out. That masks may indeed cause harm is examined in Kai Kisielinski *et al.*, "Is a Mask That Covers the Mouth and Nose Free from Undesirable Side Effects in Everyday Use and Free of Potential Hazards?" *International Journal of Environmental Research and Public Health* 18, no. 8 (April 2021), https://doi.org/10.3390/ijerph18084344.

The imposition of face masks as a protective measure has of course become a hotly debated issue and highly political, especially in America. The widespread introduction of mandatory masking in the summer of 2020 represented a complete and sudden reversal of official policy recommendations, and the public were rightly confused. Indeed, a BBC medical correspondent reported on Twitter in July 2020: "We had been told by various sources WHO committee reviewing the evidence had not backed masks but they recommended them due to political lobbying. This point was put to WHO who did not deny."[130] It does not therefore appear that mask mandates were based on anything like "settled scientific consensus." Taken as a whole, the statements of Public Health Officers about masks were equivocal, contradictory, and the subject of ridicule.[131]

The introduction of mask mandates was perhaps the precautionary principle at work again combined with enormous popular pressure on politicians and public health officials to do something. Here was a means by which ordinary people could gain control, fend off helplessness, and feel a little more safe. It is reasonable to expect that there must be some obvious droplet containment with a mask, like coughing into your sleeve. There is also, however, a strong anthropological and semiotic dynamic in a practice that touches our humanity so deeply: to cover up one's face in the presence of another. This is a potent ritual, a public liturgy that communicates a message. It is a way to announce, "I recognize with you that this is happening," and "We are all in this together." In public spaces, this ritual signals danger, provides comfort, offers reassurance, evokes solidarity, recognizes authority, and resists powerlessness.[132] It is a sign of virtuous compliance with the deemed public good. As always, rituals satisfy a psychological and not just a medical need. The ritual nature of wearing a face mask may make it hard for people to stop doing so when the pandemic is declared officially to be over. One member of the Scientific Advisory Group for Emergencies (SAGE) in the UK has argued that mask wearing and social distancing need to be kept up "for the long term . . . forever, to some extent," and used the analogy of how we have got used to wearing seat belts or picking up dog poo in the park.[133] Let's all wear masks forever.

Social Distancing

Mask mandates were combined with social distancing. The mandated public separation at a distance of six feet (or two metres) in Canada is an arbitrary number, especially given the complexity of real-world conditions. The WHO and many other countries recommended one metre, a guideline deriving

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[130] Deborah Cohen, BBC medical correspondent, twitter feed, July 12, 2020. https://archive.is/20201205224307/https://twitter.com/deb_cohen/status/1282244773030633473#selection-4233.0-4270.1

[131] There are video mash-ups of the contradictory statements in the media of Public Health Officers, such as, for example, the conflicting statements of British Columbia's Public Health Officer on 11 March 2021 that she had *always* supported wearing masks and her statement on six occasions (6 and 19 March, 11 May, 22 June, 22 July, and 11 September, 2020) that she did *not* recommend that healthy people wear masks. Jay Zimma, *Bonnie vs Bonnie*, 2021, https://www.youtube.com/watch?v=-CefaYs_pFs. This was itself likely inspired by "Fauci vs. Fauci," which has become a meme in itself. See Tim Hains, "Montage: Fauci vs. Fauci On Mask-Wearing," RealClear Politics, 27 July 2021, https://www.realclearpolitics.com/video/2021/07/27/montage_fauci_vs_fauci_on_mask-wearing.html.

[132] See further Taleb Bilal Eli, "The Anthropology of the Face Mask: Rethinking the History of Face Covering Controversies, Bans and COVID-19 Context," *Journal of Xi'an University of Architecture & Technology* 12, no. 5 (2020): 741–51.

[133] This comment was made on Channel 5 News by Professor Susan Michie of University College, London. Channel 5 News, Tweet, @*5_News*, 9 June 2021, https://twitter.com/5_News/status/1402682447586811913.

ultimately from a study in the 1930s of tuberculosis, estimating the distance droplets travel.[134] Other national recommendations have varied widely. As one article sums up the policy of social distancing: "There is an infinite number of scenarios and having one rule that applies to them all is impossible. This means that different countries' rules are, ultimately, best guesses made on the basis of some of the factors described above [respiratory droplets, viral load, infectious dose, and environment]."[135]

With masks and social distancing, it is important to remember the sheer quantity and microscopic size of virus particles exhaled in every breath when someone is actively shedding virus, especially if these are being spread by aerosol transmission (or micro-droplets or nano-droplets) and not just droplets, as is now argued.[136] Even masks in such a situation cannot contain a viral cloud. It has been described as something like using a chain-link fence to stop mosquitos. In this situation of aerosol transmission, the recommended safe distance according to a study of fluid dynamics at MIT is suggested to be something more than 27 feet.[137] And, of course, aerosol transmission means a much longer period for the virus lingering in enclosed spaces.[138] Given all of this, it is debatable whether an arbitrary social distance mandate is as meaningful as simply advising the public about transmission and ventilation, and then letting people use their best judgement in real world conditions, inescapably complex as they are. A rule of thumb might have been better than a mandate.

In any case, the more important question is surely whether healthy human beings ought to be looked upon as assumed vectors of such viral transmission, without exception, or whether taking various precautions makes more sense chiefly for and around the vulnerable or for anyone in the presence of known clinical, symptomatic disease, such as in hospital. Never before has it been public health practice to have an entire non-symptomatic population keep apart from one another like this. The social and human costs of sustaining the practice (and, even more, the attitude) of "social distancing" in society at large is enormous. Conscientious individuals have accepted the official message that this is a way to display altruism, but the longer this is practiced, the greater is the loss of pro-social openness to strangers, conviviality, hospitality, and companionability in society. It is, as the philosopher Georgio Agamben says, the loss of the neighbour. Today, the good Samaritan is the one who walks by on the other side.

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[134] W. F. Wells, "On Air-Borne Infection," *American Journal of Epidemiology* 20, no. 3 (November 1934): 611–18, https://doi.org/10.1093/oxfordjournals.aje.a118097.

[135] Lena Ciric, "One Metre or Two? The Science behind Social Distancing," The Conversation, 18 June 2020, http://theconversation.com/one-metre-or-two-the-science-behind-social-distancing-139929.

[136] Adam Miller, 2020 5:45 PM ET | Last Updated: November 4, and 2020, "Canada Quietly Updates COVID-19 Guidelines on Risk of Airborne Spread | CBC News," *CBC*, November 4, 2020, https://www.cbc.ca/news/health/coronavirus-canada-aerosol-transmission-COVID-19-1.5789906.

[137] Katherine Ellen Foley, "Where Does the Six-Foot Guideline for Social Distancing Come From?," Quartz, accessed 25 May 2021, https://qz.com/1831100/where-does-the-six-feet-social-distancing-guideline-come-from/; Lydia Bourouiba, "Turbulent Gas Clouds and Respiratory Pathogen Emissions: Potential Implications for Reducing Transmission of COVID-19," *JAMA*, 26 March 2020, https://doi.org/10.1001/jama.2020.4756.

[138] Chris Baraniuk, "COVID-19: What Do We Know about Airborne Transmission of SARS-CoV-2?," *BMJ*, 22 April 2021, n1030, https://doi.org/10.1136/bmj.n1030. See also the experiment reported in Neeltje van Doremalen *et al.*, "Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1," *New England Journal of Medicine* 382, no. 16 (16 April 2020): 1564–67, https://doi.org/10.1056/NEJMc2004973, and the further analysis in Matthew Meselson, "Droplets and Aerosols in the Transmission of SARS-CoV-2," *New England Journal of Medicine* 382, no. 21 (21 May 2020): 2063, https://doi.org/10.1056/NEJMc2009324.

Lockdowns

The most restrictive measures by far have been various forms of confinement, lockdown, shelter-in-place, or stay-at-home orders. Pre-COVID-19 pandemic planning recognized the cost of such measures and their limited value: "Experience has shown that communities faced with epidemics or other adverse events respond best and with the least anxiety when the normal social functioning of the community is least disrupted."[139] The social and economic costs, and the human suffering, imposed by confinement orders during the COVID-19 pandemic is something we have only begun to calculate.[140] Research arguing for the efficacy of these measures in reducing incidence of COVID-19 and in saving lives has largely been based on epidemiological, mathematical modelling or uncontrolled observational studies. A WHO-commissioned review of these studies pointed out the problems and limitations of this research: "The current evidence is limited because most studies on Covid-19 are mathematical modelling studies that make different assumptions on important model parameters."[141] Such modelling has been shown repeatedly to be inaccurate, and the WHO itself describes such simulation studies as providing "a low strength of evidence."[142] There are now dozens of real-world studies, based on numbers of cases and deaths, and comparison of regions, that challenge the effectiveness of lockdowns, and that weigh carefully the benefits against the costs.

The aggregating and dissemination of this dissenting research has been done by groups from across the political spectrum, ranging from the free-market American Institute for Economic Research to the UK-based socialist group of Left Lockdown Sceptics.[143] In a highly political environment where it can be very difficult to challenge the dominant narrative, there are also several groups of concerned non-partisan scientists who have carefully collated and posted scientific evidence against lockdowns, such as the group Collateral Global, or the Health Advisory and Recovery Team (HART), or the Canadian Physicians for Science and Truth, as well as private initiatives such as the Pandemics Data

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[139] Thomas V. Inglesby *et al.*, "Disease Mitigation Measures in the Control of Pandemic Influenza," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 4, no. 4 (1 December 2006): 366–75, https://doi.org/10.1089/bsp.2006.4.366.

[140] See the studies on health, the economy, education, culture, inequality, and ethics collected at "CG Database," Collateral Global, accessed 25 May 2021, https://collateralglobal.org/cg-database/.

[141] Note also the authors' caution, "We are uncertain about the evidence we found for several reasons. The observational studies on Covid-19 did not include a comparison group without quarantine. The Covid-19 studies based their models on limited data and made different assumptions about the virus (e.g. how quickly it would spread). The other studies investigated SARS and MERS so they only provide indirect evidence." Barbara Nussbaumer-Streit *et al.*, "Quarantine Alone or in Combination with Other Public Health Measures to Control COVID-19: A Rapid Review," ed. Cochrane Infectious Diseases Group, *Cochrane Database of Systematic Reviews*, 14 September 2020, https://doi.org/10.1002/14651858.CD013574.pub2.

[142] David Richards and Konstantin Boudnik, "Neil Ferguson's Imperial Model Could Be the Most Devastating Software Mistake of All Time," *The Telegraph*, 16 May 2020. World Health Organization, "Non-Pharmaceutical Public Health Measures for Mitigating the Risk and Impact of Epidemic and Pandemic Influenza," Global Influenza Programme (World Health Organization, October 2019), 48. http://www.who.int/influenza/publications/public_health_measures/publication/en/. See the analysis of modelling in Laura Dodsworth, *A State of Fear: How the UK Government Weaponised Fear during the COVID-19 Pandemic*, 1st edition (Pinter & Martin, 2021), 148-63.

[143] AIER, "Lockdowns Do Not Control the Coronavirus: The Evidence – AIER," 19 December 2020, https://www.aier.org/article/lockdowns-do-not-control-the-coronavirus-the-evidence/. "Left Lockdown Sceptics - Socialist Anti-Lockdown News and Analysis," accessed 26 May 2021, https://leftlockdownsceptics.com/.

and Analysis (PANDA) group led by the South African actuary Nick Hudson.[144] There is now a significant body of reputable, evidence-based criticism of confinement as a public health measure during COVID-19. As a headline in *Quillette* put it in March 2021, "Lockdown Scepticism Was Never a 'Fringe' Viewpoint."[145]

For example, while acknowledging the difficulty of cross-country comparisons, a peer-reviewed study in the *European Journal of Clinical Investigation* in December 2020 concluded, "There is no evidence that more restrictive nonpharmaceutical interventions ('lockdowns') contributed substantially to bending the curve of new cases in England, France, Germany, Iran, Italy, the Netherlands, Spain or the United States in early 2020."[146] A peer-reviewed study published in March 2021, comparing mortality rates in 24 European countries, found likewise "no clear association between lockdown policies and mortality development."[147] Based on data from cases and deaths in the United States between February and May 2020, another peer-reviewed study reported, "We find that shelter-in-place orders had no detectable health benefits."[148] A further peer-reviewed paper published in September 2021 by Simon Fraser University economist Douglas Allen surveyed over one hundred COVID-19 studies and concluded that many of these "over-estimated the benefits and under-estimated the costs of lockdown." Moreover, "The most recent research has shown that lockdowns have had, at best, a marginal effect on the number of COVID-19 deaths," and, "the unconditional cumulative COVID-19 deaths per million is not negatively correlated with the stringency of lockdown across countries."[149] The number of studies arguing similarly is now overwhelming.[150]

Of equal importance, confinement orders have caused enormous harms worldwide and these harms have disproportionately affected low-income, vulnerable populations. In July, Oxfam reported that "20 million more people have been pushed to extreme levels of hunger this year" and there has been a sixfold increase in the number of people living in famine-like conditions.[151] In India, "lockdown

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[144] "CG Database," Collateral Global, accessed 25 May 2021, https://collateralglobal.org/cg-database/. "COVID-19: An Overview of the Evidence," HART, 18 March 2021, https://www.hartgroup.org/COVID-19-evidence/. "PANDA - PANDA's Analysis of the Human & Economic Cost of Lockdowns," PANDA, accessed 25 May 2021, https://www.pandata.org/. See also the group behind the "DECLARATION OF CANADIAN PHYSICIANS FOR SCIENCE AND TRUTH," accessed 27 May 2021, https://canadianphysicians.org/.

[145] Noah Carl, "Lockdown Scepticism Was Never a "Fringe" Viewpoint," *Quillette*, 2 March 2021, https://quillette.com/2021/03/02/lockdown-scepticism-was-never-a-fringe-viewpoint/.

[146] Eran Bendavid *et al.*, "Assessing Mandatory Stay-at-home and Business Closure Effects on the Spread of COVID-19," *European Journal of Clinical Investigation* 51, no. 4 (April 2021), https://doi.org/10.1111/eci.13484.

[147] Christian Bjørnskov, "Did Lockdown Work? An Economist's Cross-Country Comparison," *CESifo Economic Studies*, 29 March, 2021, ifab003, https://doi.org/10.1093/cesifo/ifab003.

[148] Christopher R. Berry *et al.*, "Evaluating the Effects of Shelter-in-Place Policies during the COVID-19 Pandemic," *Proceedings of the National Academy of Sciences* 118, no. 15 (13 April 2021): e2019706118, https://doi.org/10.1073/pnas.2019706118.

[149] Douglas W. Allen, "COVID-19 Lockdown Cost/Benefits: A Critical Assessment of the Literature," *International Journal of the Economics of Business*, 29 September 2021, 1–32, https://doi.org/10.1080/13571516.2021.1976051. See also Appendix 2 in Dodsworth, *State of Fear*, 272-80. See also the comparative data with Sweden as the control case: "Cumulative Confirmed COVID-19 Deaths per Million People: Sweden, European Union, United States," Our World in Data, 5 June 2021, https://ourworldindata.org/coronavirus-data-explorer. Eyal Shahar, "Not a Shred of Doubt: Sweden Was Right," Medium, 27 May 2021, https://shahar-26393.medium.com/not-a-shred-of-doubt-sweden-was-right-32e6dab1f47a.

[150] See a review of 38 studies by the Brownstone Institute, "Lockdowns Fail: They Do Not Control the Virus," *Brownstone Institute*, 16 July 2021, https://brownstone.org/articles/lockdowns-fail-they-do-not-control-the-virus/.

[151] "World in the Midst of a "Hunger Pandemic": Conflict, Coronavirus and Climate Crisis Threaten to Push Millions into Starvation," Oxfam International, 21 September 2021, https://www.oxfam.org/en/world-midst-hunger-pandemic-

and restrictions due to COVID-19 have exposed millions of workers and their families to starvation."[152] This is true in other low- and middle-income countries. Jay Bhattacharya has noted that "50 to 80% of pop[ulation] in Bangladesh, Burkina Faso, Colombia, Ghana, Kenya, Rwanda, and Sierra Leone report income losses during COVID-19." This risks "pushing tens of millions of . . . vulnerable into poverty and food insecurity."[153] Lockdowns are directly linked to these harms. In June 2021, a study of 43 countries and all US states reported "that following the implementation of SIP [shelter in place] policies, excess mortality increases."[154] Within wealthy, industrialized nations, the harms have fallen disproportionately on the less affluent, deepening social inequalities.[155] The evidence for the harms imposed by lockdowns is steadily mounting.[156]

In sum, although it is difficult to sift through all the opinion and overstated claims made about restrictive public policy measures, including mask mandates, social distancing, and lockdowns, it is clear that there is now considerable evidence-based research calling into question the efficacy of all three of these measures. Even if the "state of fear" generated by the official narrative were entirely justified—and we have argued in the previous chapter that it is not—there is weak evidence to support the assumption that these highly restrictive public health orders have made much difference in reducing the impact of SARS-CoV-2. On the contrary, they have introduced new, serious harms. No one wants anyone to suffer and to die from COVID-19, but for politicians and public officials to assert a scientific consensus in support of these policies is dubious. It is akin intellectually simply to making a declaration of eminent domain—expropriating territory by decree without regard to other claims.

PCR Testing

Evaluating the efficacy of public policy is further complicated by the dependence upon PCR testing and universal "test, trace, and isolate" procedures. PCR testing has also driven the reporting of headline numbers of daily "cases" as the almost exclusive basis upon which public judgements have been made about whether the severity of danger is increasing or decreasing in the population. This reporting has been done without any consistency in numbers of tests administered, the targeting of these tests (randomized vs. presumed infected), repeat testing, cycle thresholds, or the identification of positive test results ("cases") as symptomatic or not.

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conflict-coronavirus-and-climate-crisis-threaten-push-millions. See also, "UN Report: Pandemic Year Marked by Spike in World Hunger," accessed 12 October 2021, https://www.unicef.org/press-releases/un-report-pandemic-year-marked-spike-world-hunger.

[152] Uzmi Athar, "COVID-19, Lockdown, Economic Slowdown Pushed Millions of Workers of Informal Sector to Appalling Poverty," National Herald, 26 December 2020, https://www.nationalheraldindia.com/india/COVID-19-lockdown-economic-slowdown-pushed-millions-of-workers-of-informal-sector-to-appalling-poverty.

[153] Dennis Egger *et al.*, "Falling Living Standards during the COVID-19 Crisis: Quantitative Evidence from Nine Developing Countries," *Science Advances* 7, no. 6 (n.d.): eabe0997, https://doi.org/10.1126/sciadv.abe0997.

[154] Virat Agrawal *et al.*, "The Impact of the COVID-19 Pandemic and Policy Responses on Excess Mortality" (Cambridge, MA: National Bureau of Economic Research, June 2021), https://doi.org/10.3386/w28930.

[155] Jonathan Rothwell and Richard V. Reeves, "Class and COVID: How the Less Affluent Face Double Risks," *Brookings* (blog), 27 March 2020, https://www.brookings.edu/blog/up-front/2020/03/27/class-and-covid-how-the-less-affluent-face-double-risks/.

[156] See Matthew Ratcliffe, "ESSAY: How Lockdowns Eclipse the Harms They Cause," *Collateral Global* (blog), accessed 2 October 2021, https://collateralglobal.org/article/how-lockdowns-eclipse-the-harms-they-cause/, and the studies posted in the "Studies Archive," Collateral Global, accessed 2 October 2021, https://collateralglobal.org/studies/.

It has been bewildering from the beginning to understand the meaning of bare case numbers, without context. I wrote to several journalists about this and received no satisfactory answer. Imagine the virus was a fish in a lake. More boats in the water: more fish caught. More fishing in prime locations: more fish caught. A finer mesh net let down into the water: more fish caught. Throw all the fish caught back, and fish again: more fish caught. Count everything that comes up in the net as a fish: more fish caught. Despite all the well trained and intelligent personnel working for our public health departments, little help has been given to the public to interpret the crude statistics of cases beyond the daily headlines that "case numbers have gone up." Likewise, rates of hospitalization and death have rarely been placed in a comparative context, relative to other years or flu seasons. Given the demonstrated cynical strategy of public officials to "increase fear" in the UK (see further, Chap. 5 below), it is all the more important to have better reporting to maintain public trust.

The PCR test became the standard for testing because of its reputed sensitivity (the ability of the test to correctly identify those patients with the virus) and specificity (the ability of the test to identify correctly those patients without the virus). However, the accuracy of the test varies greatly depending on the site of the sample (lungs, throat, sputum, etc.), care in administration of the test, and which specific genes (or how many) are targeted by the test.[157] One study in the *British Medical Journal* noted the variation in estimates in systematic reviews but settled on "approximate numbers of 70% for sensitivity and 95% for specificity."[158] As with all tests, there are therefore a number of false positives (which send folks into isolation who don't have the virus) and false negatives (which send folks home who do). Moreover, as a WHO medical notice stated in January, "the cycle threshold (Ct) needed to detect virus is inversely proportional to the patient's viral load."[159] At high cycle thresholds, this means the test will pick up viral debris in an immune person long after any infectious viruses are present. The result in this situation is not a false positive: the test is positive and accurate (having found viral fragments), but the individual is neither ill nor infectious. It is a "cold positive." The higher the threshold, the more likely this is to occur. And, finally, the predictive value of the test varies with the background prevalence of the disease: "WHO reminds [users of the technology] that disease prevalence alters the predictive value of test results; as disease prevalence decreases, the risk of false positive increases. This means that the probability that a person who has a positive result (SARS-CoV-2 detected) is truly infected with SARS-CoV-2 decreases as prevalence decreases, irrespective of the claimed specificity."[160] A meta-analysis in July 2020 claimed that with a 5% prevalence of disease, there

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[157] See Beatriz Böger *et al.*, "Systematic Review with Meta-Analysis of the Accuracy of Diagnostic Tests for COVID-19," *American Journal of Infection Control* 49, no. 1 (January 2021): 21–29, https://doi.org/10.1016/j.ajic.2020.07.011. See also, "Viral Targets: What Makes A Good COVID-19 RT-PCR Test?," ZYMO RESEARCH, accessed 31 May 2021, https://www.zymoresearch.com/blogs/blog/what-makes-a-good-COVID-19-rt-pcr-test.

[158] Jessica Watson, Penny F Whiting, and John E Brush, "Interpreting a COVID-19 Test Result," *BMJ*, 12 May 2020, m1808, https://doi.org/10.1136/bmj.m1808. Cf. the estimate 86% sensitivity and 96% specificity in Idevaldo Floriano *et al.*, "Accuracy of the Polymerase Chain Reaction (PCR) Test in the Diagnosis of Acute Respiratory Syndrome Due to Coronavirus: A Systematic Review and Meta-Analysis," *Revista Da Associação Médica Brasileira* 66, no. 7 (July 2020): 880–88, https://doi.org/10.1590/1806-9282.66.7.880.

[159] "WHO Information Notice for IVD Users 2020/05," 13 January 2021, https://www.who.int/news/item/20-01-2021-who-information-notice-for-ivd-users-2020-05.

[160] Ibid. See also Jessica Watson, Penny F Whiting, and John E Brush, "Interpreting a COVID-19 Test Result," *BMJ*, 12 May 2020, m1808, https://doi.org/10.1136/bmj.m1808.

is only a 55% post-test probability.[161] A simple way to illustrate this is to imagine that the PCR test was a pregnancy test (with a 95% specificity, as in the *BMJ* report above) and it was given to a random sample of 10,000 males weekly (0% background prevalence): it would still find about 500 each week to be pregnant.[162]

True positive cases identified by a PCR test may not in many instances be infectious. An article in the *Journal of Infection* in May reported that in analyzing PCR tests in Munich, they found that "more than half of individuals with positive PCR test results are unlikely to have been infectious."[163] The Chief Microbiologist and Laboratory Specialist in Manitoba, Dr. Jared Bullard, testified under oath as a witness for the government in a court case that PCR tests "do not verify infectiousness, and were never intended to be used to diagnose respiratory illnesses," and his own study found that only 44% of positive PCR test results would actually grow in the lab. He also testified that non-infectious viral fragments could be detected by the PCR test in the nose for up to 100 days after exposure.[164] In August 2020, the *New York Times* reported, "In three sets of testing data that include cycle thresholds, compiled by officials in Massachusetts, New York and Nevada, up to 90 percent of people testing positive carried barely any virus."[165] Because of this unreliability, courts in Portugal (November 2020), Austria (April 2021), and Germany (April 2021) have deemed the PCR and other COVID-19 tests invalid.[166]

The complexity of interpreting PCR test results is rarely appreciated in the public reporting of "case" numbers.[167] And, as noted above, it is a deviation from standard medical practice to consider positive test results as "cases" without accompanying clinical diagnosis. Again, the WHO warns, "Most PCR assays are indicated as an aid for diagnosis, therefore, health care providers must consider any result in combination with timing of sampling, specimen type, assay specifics, clinical observations,

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[161] Idevaldo Floriano *et al.*, "Accuracy of the Polymerase Chain Reaction (PCR) Test in the Diagnosis of Acute Respiratory Syndrome Due to Coronavirus: A Systematic Review and Meta-Analysis," *Revista Da Associação Médica Brasileira* 66, no. 7 (July 2020): 880–88, https://doi.org/10.1590/1806-9282.66.7.880.

[162] Doctors for Covid Ethics, "The Nonsense RT-PCR Test's Specificity Is 98.6%, i.e. 1.4% False Positives, in the Presence of No Virus, Decreasing to 92.4%, i.e. 7.6% False Positives, in Presence of Other Coronaviruses. The Meaning of This When the Prevalence of SARS-CoV-2 Is 0, as Pregnancies in Men Are . . .," Tweet, *@Drs4CovidEthics* (blog), 1 September 2021, https://twitter.com/Drs4CovidEthics/status/1433129175335030790.

[163] Andreas Stang *et al.*, "The Performance of the SARS-CoV-2 RT-PCR Test as a Tool for Detecting SARS-CoV-2 Infection in the Population," *Journal of Infection*, June 2021, S0163445321002656, https://doi.org/10.1016/j.jinf.2021.05.022.

[164] "Manitoba Chief Microbiologist and Laboratory Specialist: 56% of Positive "Cases" Are Not Infectious," Justice Centre for Constitutional Freedoms, 11 May 2021, https://www.jccf.ca/manitoba-chief-microbiologist-and-laboratory-specialist-56-of-positive-cases-are-not-infectious/.

[165] Apoorva Mandavilli, "Your Coronavirus Test Is Positive. Maybe It Shouldn't Be.," *The New York Times*, 29 August 2020, sec. Health, https://www.nytimes.com/2020/08/29/health/coronavirus-testing.html.

[166] "Judgment of the Lisbon Court of Appeal," 11 November 2020, http://www.dgsi.pt/jtrl.nsf/33182fc732316039802565fa00497eec/79d6ba338dcbe5e28025861f003e7b30. English translation: https://www-dgsi-pt.translate.goog/jtrl.nsf/33182fc732316039802565fa00497eec/79d6ba338dcbe5e28025861f003e7b30?_x_tr_sch=http&_x_tr_sl=pt&_x_tr_tl=en&_x_tr_hl=en-US&_x_tr_pto=nui. "Austrian Court Overturns Judgment: PCR Test Not Suitable for Diagnosis | Medic Debate," accessed 2 October 2021, https://www.medicdebate.org/node/1791. "Sensational Verdict from Weimar Court: No Masks, No Distance, No More Tests for Students," *Rights and Freedoms* (blog), 13 April 2021, https://rightsfreedoms.wordpress.com/2021/04/13/sensational-verdict-from-weimar-court-no-masks-no-distance-no-more-tests-for-students/.

[167] A group of international scientists criticized the key scientific paper on the development of the PCR test for COVID-19. See Borger, Pieter *et al.*, "External Peer Review of the RTPCR Test to Detect SARS-CoV-2 Reveals 10 Major Scientific Flaws at the Molecular and Methodological Level: Consequences for False Positive Results.," 30 November 2020, https://doi.org/10.5281/ZENODO.4298004.

patient history, confirmed status of any contacts, and epidemiological information."[168] In July 2021, the CDC announced the withdrawal of its emergency use authorization of the PCR test, effective the end of the year.[169] The use of molecular test information in patient diagnosis and care is valuable, like other lab tests, but its use on its own in public policy when aggregated and reported as raw case numbers is clearly much more problematic, if not outright misleading.

It follows that the protocol to "test, trace, and isolate" makes best sense with infectious diseases where testing can be confirmed with clear clinical diagnosis, and where transmission is limited to defined chains of immediate contact, such as with smallpox or Ebola. But with a respiratory virus that literally spreads on the air there is too much "leakage," and with only a molecular test and no clinical diagnosis, it is hard to understand how "test, trace, and isolate" is much of a containment strategy.[170] Thus, the WHO recommended against contact tracing in October 2019 in a publication on mitigating the risk and impact of epidemic and pandemic influenza.[171] Identifying and isolating individuals may make some sense where there is symptomatic disease, and especially in a cluster (just as we send children home from school when they are sick), but "test, trace, and isolate" as a routine protocol for asymptomatic individuals, or travellers, is a questionable practice. In the management of "outbreaks" (two or more "cases" that are epidemiologically linked) in long-term care homes and elsewhere, rapid testing and isolation may have helped to prevent ongoing transmission and saved lives. Yet it seems we know too much, and we know too little. We can amp up the cycle threshold and find trace RNA, but we don't know if there is any meaningful infection or infectiousness. Nevertheless, the PCR test, and the reporting derived from it, has been one of the principal ways the dominant narrative has been sustained in the reports of public health officials and in the media. Case numbers have been reported as a proxy for how afraid we should be.

In summary, how do we evaluate the efficacy of the non-pharmaceutical public policies introduced to mitigate COVID-19? There is in fact little evidence that the restrictive health measures (masks, distancing, and lockdowns) have been especially effective in reducing "case" numbers, and the demonstrated limitations of the PCR test call into question the public health communications program (daily headline "case" numbers) and the containment strategies that depend entirely upon it. Moreover, despite all the data on record, the public has not been offered any rigorous cost–benefit analysis or balance of harms assessment of these measures. The Hippocratic commitment "first to do no harm"

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168 "WHO Information Notice," 23 January 2021.

169 CDC, "Lab Alert: Changes to CDC RT-PCR for SARS-CoV-2 Testing," Centers for Disease Conrol and Prevention, 21 July 2021, https://www.cdc.gov/csels/dls/locs/2021/07-21-2021-lab-alert-Changes_CDC_RT-PCR_SARS-CoV-2_Testing_1.html.

170 Jay Bhattacharya and Mikko Packalen make an argument against contact tracing: "We argue first that the epidemic is too widespread for contact tracing to limit disease spread; second, that errors in PCR tests substantially raise the human costs of contact tracing and render it less effective; and finally, that contact tracing creates strong incentives among the public to mislead public health authorities and avoid voluntary testing." They also make the important point that "the presence of so many asymptomatic people spreading the disease sub rosa means that contact tracing cannot work—the strategy will never identify transmission stemming from unidentified, asymptomatic cases." Jay Bhattacharya and Mikko Packalen, "On the Futility of Contact Tracing," *Inference: International Review of Science* 5, no. 3 (28 September 2020), 2, https://inference-review.com/article/on-the-futility-of-contact-tracing. See the critique and the author's response: Emily Gurley *et al.*, "Contact Tracing Is Far from Futile," *Inference: International Review of Science* 6, no. 1 (12 May 2021), https://inference-review.com/letter/contact-tracing-is-far-from-futile.

171 "Active contact tracing is not recommended in general because there is no obvious rationale for it in most Member States." World Health Organization, *Non-Pharmaceutical Public Health Measures for Mitigating the Risk and Impact of Epidemic and Pandemic Influenza* (Geneva: World Health Organization, 2019), 39. https://apps.who.int/iris/handle/10665/329438.

has not been documented. Nor has the Oakes test been applied. The Oakes test established by the Supreme Court of Canada requires that in violating Charter rights "the government must establish that the benefits of a law outweigh its negative impact."[172] Surely the burden of proof and overwhelming preponderance of evidence must be on the side of any democratic government that would wish to abridge the rights of its citizens and introduce policies that cause direct economic and other harms. That the stated dangers (Chap. 2) and public interventions (Chap. 3) are all clearly contestable on scientific grounds should be enough to call into question political dogmatism and the imposition of authoritarian measures.

[172] "Oakes Test," Centre for Constitutional Studies, 4 July 2019, https://www.constitutionalstudies.ca/2019/07/oakes-test/.

Chapter 4
The Efficacy of Public Policy: Pharmaceutical Interventions

Two other areas of public health policy raise questions about whether efficacy has been adequately assessed: vaccine development and administration, and attention to therapeutics. Have political pressures and the financial self-interest of big pharmaceutical companies reduced the level of scrutiny for vaccines and, conversely, led to inexpensive therapeutic treatments being too quickly dismissed? Should the public be concerned that the pharmaceutical companies producing vaccines have been granted blanket legal immunity and cannot be sued in court for vaccine-induced harms for four years?[173] Again, in the present environment, many are charged as being anti-science conspiracy theorists even to ask for due diligence on these questions rather than to trust authority unquestioningly. Yet the recognition of obvious political and profit motives, although it does not falsify policy, surely calls all the more for accountability and demonstration.

Vaccines

It is standard practice to weigh the risk of an adverse reaction to a vaccine against the risk of contracting the disease. And, of course, one's analysis of the danger of COVID-19 generally (Chap. 2 above) will alter fundamentally one's assessment of the risk–benefit ratio for any given vaccine. In initial short-term trials, the major vaccines for COVID-19 showed a high level of short-term efficacy in preventing cases of mild illness, relative to control groups, and they were certainly developed at record speed. A systematic review and meta-analysis of twenty-five randomized controlled trials, published in May 2021, reported a 94.6% efficacy for mRNA vaccines and 80.2% for adenovirus vaccines, and it noted that within a four-week period "only a rare few recipients have experienced extreme adverse effects," such as anaphylactic shock, allergic reactions, or blood-related problems.[174] However, data on thrombosis (emerging as this study concluded) was largely excluded, and the authors

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[173] MacKenzie Sigalos, "You Can't Sue Pfizer or Moderna If You Have Severe Covid Vaccine Side Effects. The Government Likely Won't Compensate You for Damages Either," CNBC, 17 December 2020, https://www.cnbc.com/2020/12/16/covid-vaccine-side-effects-compensation-lawsuit.html. Should the public be likewise concerned that trial protocols were withheld from the public for over a year and only released when pressure became too great to continue? And that the raw data from these studies is to be kept private for years? See Norman Doidge, "Needle Points: Chapter Three - A New Plague Descends," Tablet Magazine, 27 October 2021, https://www.tabletmag.com/sections/science/articles/needle-points-vaccinations-chapter-three.

[174] Ali Pormohammad *et al.*, "Efficacy and Safety of COVID-19 Vaccines: A Systematic Review and Meta-Analysis of Randomized Clinical Trials," *Vaccines* 9, no. 5 (6 May 2021): 467, https://doi.org/10.3390/vaccines9050467. See also Haoyue Cheng *et al.*, "Efficacy and Safety of COVID-19 Vaccines in Phase III Trials: A Meta-Analysis," *Vaccines* 9, no. 6 (June 2021): 582, https://doi.org/10.3390/vaccines9060582. A large, controlled study in the UK evaluated the effectiveness of the Pfizer and AstraZenica vaccines among adults over 70 years of age and concluded, "One dose of either vaccine provides 60-70% protection against symptomatic COVID-19 and about 80% protection against hospital admission." Jamie Lopez Bernal *et al.*, "Effectiveness of the Pfizer-BioNTech and Oxford-AstraZeneca Vaccines on COVID-19 Related Symptoms, Hospital Admissions, and Mortality in Older Adults in England: Test Negative Case-Control Study," *BMJ*, 13 May 2021, n1088, https://doi.org/10.1136/bmj.n1088.

acknowledge that they only looked at *very* short-term impacts of the vaccines. As the vaccine program has advanced, more serious safety concerns have been raised, as we will discuss below.

In evaluating vaccine efficacy more carefully (the probability of benefit), concerns have also been raised about outcome reporting bias. There may, for example, be selection bias, by excluding or minimizing those most vulnerable to COVID-19 from the trials. An article in *Toxicology Reports* in August 2021 raised this concern: "Our impression is that the sickest were excluded from the trials, but were first in line for the inoculants."[175] A whistle-blower from Pfizer reported further problems with data integrity: "A regional director who was employed at the research organisation Ventavia Research Group has told *The BMJ* that the company falsified data, unblinded patients, employed inadequately trained vaccinators, and was slow to follow up on adverse events reported in Pfizer's pivotal phase III trial."[176] The raw data from these studies is also simply unavailable to outside scientists. As Canadian physician and medical writer Norman Doidge reports, "Pfizer data . . . might arrive in January 2025. Moderna said it *may* be available once the trial is complete (sometime in 2022). Other companies were similarly vague. To date, approximately 4 billion people have already got these vaccines—many receiving a first-of-its-kind mRNA genetic formulation, without outside sources reviewing the raw study data."[177]

In addition, in assessing vaccine efficacy in the Pfizer clinical trials, the confirmed COVID-19 positive cases were determined using very high cycle thresholds in the PCR tests employed, leading to the problem, again, of false positives. In this case, high thresholds skew the efficacy findings. An editorial in the peer-reviewed journal *Medicina* in February 2021 raised the further problem of relative vs. absolute risk reduction with respect to the COVID-19 vaccines: "Omitting absolute risk reduction findings in public health and clinical reports of vaccine efficacy . . . ignores unfavorable outcomes and misleads the public's impression and scientific understanding of a treatment's efficacy and benefits."[178] The difference between absolute risk reduction (ARR) and relative risk reduction (RRR) can be confusing for the lay person, however, and usually requires explanation. If two people out of a hundred in a control group experienced an "event" (say, an infection accompanied by mild symptoms), and only one out of a hundred in the vaccinated group experienced the same event, then when we compare the two groups the *relative* risk reduction is 50%. Risk is reduced two to one. However, the *absolute* risk reduction has been only been 1%. You only had a 2% chance of illness without a vaccine; and with the vaccine that risk dropped to 1%. In the case of COVID-19, the numbers for the difference between RRR and ARR are dramatic. Most people likely suspect that a reported 94.6% efficacy means that with vaccination you have reduced your risk of infection and illness by nearly 95%. This is not

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[175] Ronald N. Kostoff *et al.*, "Why Are We Vaccinating Children against COVID-19?," *Toxicology Reports* 8 (29 August 2021): 1665–84, https://doi.org/10.1016/j.toxrep.2021.08.010.

[176] Paul D. Thacker, "Covid-19: Researcher Blows the Whistle on Data Integrity Issues in Pfizer's Vaccine Trial," *BMJ* 375 (2 November 2021): n2635, https://doi.org/10.1136/bmj.n2635.

[177] Doidge is commenting on the report of the *BMJ* associate editor Peter Doshi in the video recording by The BMJ, *Covid19 Known Unknowns: Vaccines*, 2021, https://www.youtube.com/watch?v=irSU3a_pVsA. Norman Doidge, "Needle Points: Chapter Three - A New Plague Descends," Tablet Magazine, 27 October 2021, https://www.tabletmag.com/sections/science/articles/needle-points-vaccinations-chapter-three.

[178] Ronald B. Brown, "Outcome Reporting Bias in COVID-19 MRNA Vaccine Clinical Trials," *Medicina* 57, no. 3 (26 February 2021): 199, https://doi.org/10.3390/medicina57030199. Again, "Reporting relative measures may be sufficient to summarize evidence of a study for comparisons with other studies, but absolute measures are also necessary for applying study findings to specific clinical or public health circumstances."

the case. According to the vaccine trials, you have reduced your risk by 0.7% (Pfizer) or 1.1% (Moderna).

How important is this? Very important, it turns out. The FDA's "Evidence-based User Guide" for communicating risks and benefits says, "Provide absolute risks, not just relative risks. Patients are unduly influenced when risk information is presented using a relative risk approach; this can result in suboptimal decisions. Thus, an absolute risk format should be used."[179] Again, an article in the *Drugs and Therapeutic Bulletin* in 2019 discusses how to communicate evidence to patients, and it states clearly, "Relative risks, then, can exaggerate the perception of difference, and this is especially prominent when the absolute risks are very small. They should never be used alone."[180] Thus, Claus Rinner suggests we ask ourselves, "What would you think if the headlines about the trial successes had read '*Shot Reduces COVID-19 Risk by 0.7%*' instead of 'COVID-19 Shot 95% Effective'?"[181]

Moreover, even this initial efficacy in short-term trials has not been sustained in real-world settings. The data have demonstrated waning efficacy and breakthrough infections following vaccination campaigns in 2021, especially after about five or six months.[182] This waning occurs irrespective of variants.[183] This is clear from the rates of serious illness and hospitalization in those countries that

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[179] Baruch Fischhoff and Julie Suzanne Downs, *Communicating Risks and Benefits: An Evidence-Based User's Guide*, ed. Noel T Brewer (Silver Spring, MA: Food and Drug Administration (FDA), 2011), 60. This quotation also appears in Brown, "Outcome Reporting," 2. Cf. also Edna Schechtman, "Odds Ratio, Relative Risk, Absolute Risk Reduction, and the Number Needed to Treat—Which of These Should We Use?," *Value in Health* 5, no. 5 (September 2002): 431–36, https://doi.org/10.1046/J.1524-4733.2002.55150.x. A graphic is provided here: "Absolute vs Relative Risk Reduction: Understanding the Difference and Why It Matters," Canadian Covid Care Alliance, accessed 2 October 2021, https://www.canadiancovidcarealliance.org/media-resources/absolute-vs-relative-risk-reduction-understanding-the-difference-and-why-it-matters/.

[180] Alexandra L. J. Freeman, "How to Communicate Evidence to Patients," *Drug and Therapeutics Bulletin* 57, no. 8 (1 August 2019): 119–24, https://doi.org/10.1136/dtb.2019.000008.

[181] Claus Rinner, "Understanding Risk – Ordered Weighted Averaging and Relative vs Absolute Risk Reduction," *GIS2 at Ryerson* (blog), 12 December 2021, https://gis.blog.ryerson.ca/2020/12/13/understanding-risk-ordered-weighted-averaging-and-relative-vs-absolute-risk-reduction/.

[182] Mehul S. Suthar *et al.*, "Durability of Immune Responses to the BNT162b2 MRNA Vaccine," 30 September 2021, https://doi.org/10.1101/2021.09.30.462488; Petra Mlcochova *et al.*, "SARS-CoV-2 B.1.617.2 Delta Variant Replication and Immune Evasion," *Nature*, 6 September 2021, https://doi.org/10.1038/s41586-021-03944-y. Another study reports: "The actual rise of breakthrough hospitalization (fully vaccinated people with severe SARS-CoV-2 infection) grows with time after mRNA vaccination—meaning the effectiveness of the Pfizer-BioNTech and Moderna vaccine products wanes considerably by month 6. In addition, the increase for risk such as breakthrough infection rises by 2.5X, according to the study." Trial Site Staff, "'Project Salus' Study 5.6m Vaccinated Medicare Beneficiaries—Waning MRNA Vaccine Effectiveness Raises Questions," TrialSiteNews, 2 October 2021, https://trialsitenews.com/project-salus-study-5-6m-vaccinated-medicare-beneficiaries-waning-mrna-vaccine-effectiveness-raises-questions/. See also Nancy Lapid, "Study Suggests Pfizer/BioNTech Antibodies Disappear in Many by Seven Months," *National Post*, 3 October 2021, https://nationalpost.com/news/world/study-suggests-pfizer-biontech-antibodies-disappear-in-many-by-seven-months; Sara Y Tartof *et al.*, "Effectiveness of MRNA BNT162b2 COVID-19 Vaccine up to 6 Months in a Large Integrated Health System in the USA: A Retrospective Cohort Study," *The Lancet*, October 2021, S0140673621021838, https://doi.org/10.1016/S0140-6736(21)02183-8. See also Rossella Tercatin, "Antibody Levels Decrease after Two Doses of Pfizer Vaccine - Study," The Jerusalem Post | JPost.com, 7 October 2021, https://www.jpost.com/health-and-wellness/coronavirus/antibody-levels-decrease-after-two-doses-of-pfizer-vaccine-study-681260.

[183] Jamie Smyth, Nikou Asgari in New York, and Kiran Stacey in Washington, "Pfizer and Moderna Say COVID-19 Vaccine Protection Wanes after Six to Eight Months," *National Post*, 16 September 2021, https://nationalpost.com/health/pfizer-and-moderna-say-COVID-19-vaccine-protection-wanes-after-six-to-eight-months. See also Alisa Odenheimer and Robert Langreth, "Immunity Weakens Faster in Men than Women within Months of Pfizer's Second Shot, Study Finds," *National Post*, 7 October 2021, https://nationalpost.com/news/world/covid-protection-wanes-in-months-after-second-shot-studies-show. The release of this data from Pfizer coincides with a push to introduce booster shots.

have achieved the highest rates of vaccination.[184] Israel is giving a 3rd booster shot and talking about a 4th booster shot, within a year of beginning vaccination, to try to restore failing vaccine-induced immunity.[185] Other jurisdictions are following similarly.[186] There are many reports now of serious outbreaks with breakthrough infections among the fully vaccinated.[187] And the vaccinated are also infectious, shedding the virus, and registering the same peak viral load as those not vaccinated.[188]

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[184] Berkeley Lovelace Jr, "Israel Says Pfizer Covid Vaccine Is Just 39% Effective as Delta Spreads, but Still Prevents Severe Illness," CNBC, 23 July 2021, https://www.cnbc.com/2021/07/23/delta-variant-pfizer-covid-vaccine-39percent-effective-in-israel-prevents-severe-illness.html; Martin Kulldorff, "In Israel, Vaccinated Individuals Had 27 Times Higher Risk of Symptomatic COVID Infection Compared to Those with Natural Immunity from Prior COVID Disease [95%CI:13-57, Adjusted for Time of Vaccine/Disease]. No COVID Deaths in Either Group. Https://T.Co/HopImCD1D0," Tweet, *@MartinKulldorff* (blog), 25 August 2021, https://twitter.com/MartinKulldorff/status/1430660291579105284; John A Allen, "Israeli Doctor Kobi Haviv Told Channel 13 News: '95% of Seriously Ill Patients Are Vaccinated. Fully Vaccinated People Account for 85-90% of Hospitalizations. We Are Opening More and More COVID Branches. The Effectiveness of Vaccines Is Declining or Disappearing.'" Tweet, *@WhiteCrkLumber* (blog), 25 September 2021, https://twitter.com/WhiteCrkLumber/status/1441848679271333895; Craig M. Wax D.O., "We See This, Time and Time Again, Israel, United Kingdom, Singapore, United States… When Will Someone Put Two and Two Together?," Tweet, *@drcraigwax* (blog), 17 September 2021, https://twitter.com/drcraigwax/status/1438693562359627781. Isabella Grullón Paz, "Singapore Hits Record Daily Number of COVID-19 Cases, despite High Vaccination Rate.," *The New York Times*, 3 October 2021, sec. World, https://www.nytimes.com/live/2021/10/03/world/covid-delta-variant-vaccine. Perhaps most significant: S. V. Subramanian and Akhil Kumar, "Increases in COVID-19 Are Unrelated to Levels of Vaccination across 68 Countries and 2947 Counties in the United States," *European Journal of Epidemiology*, 30 September 2021, https://doi.org/10.1007/s10654-021-00808-7. See also the graphs at "Number of COVID-19 Patients in Intensive Care (ICU) per Million People," Our World in Data, accessed 3 October 2021, https://ourworldindata.org/coronavirus-data-explorer. Mongolia's case rateshows the same pattern: PLC, "Two Months Ago, Mongolia Had Fully Vaccinated 90% of All Adults; Today, They Have the Second Highest Covid Case Rate in the World. Https://T.Co/5SLmnXNIgV," Tweet, *@Humble_Analysis* (blog), 1 October 2021, https://twitter.com/Humble_Analysis/status/1444080394400268290.

[185] Alisa Odenheimer, "Israel Is Preparing for Possible Fourth Covid Vaccine Dose," *Bloomberg.Com*, 12 September 2021, https://www.bloomberg.com/news/articles/2021-09-12/israel-preparing-for-possible-fourth-covid-vaccine-dose.

[186] Oriana Gonzalez, "CDC Director: U.S. May Change Definition of "Fully Vaccinated" as Boosters Roll Out," Axios, 22 October 2021, https://www.axios.com/cdc-fully-covid-vaccinated-definition-update-5c2312d9-64f4-4bb7-a289-04c00889a573.html.

[187] Catherine M. Brown *et al.*, "Outbreak of SARS-CoV-2 Infections, Including COVID-19 Vaccine Breakthrough Infections, Associated with Large Public Gatherings — Barnstable County, Massachusetts, July 2021," *MMWR. Morbidity and Mortality Weekly Report* 70, no. 31 (6 August 2021): 1059–62, https://doi.org/10.15585/mmwr.mm7031e2. Sivan Gazit *et al.*, "Comparing SARS-CoV-2 Natural Immunity to Vaccine-Induced Immunity: Reinfections versus Breakthrough Infections," preprint (Infectious Diseases (except HIV/AIDS), 25 August 2021), https://doi.org/10.1101/2021.08.24.21262415. Paul Waldie, "Fully Vaccinated People Still Have High Potential of Spreading COVID-19 Delta Variant, British Study Says," *Globe and Mail*, 18 August 2021, https://www.theglobeandmail.com/world/article-people-who-are-fully-vaccinated-have-high-potential-of-spreading-covid/. Yafei Liu *et al.*, "The SARS-CoV-2 Delta Variant Is Poised to Acquire Complete Resistance to Wild-Type Spike Vaccines," 23 August 2021, https://doi.org/10.1101/2021.08.22.457114. Pnina Shitrit *et al.*, "Nosocomial Outbreak Caused by the SARS-CoV-2 Delta Variant in a Highly Vaccinated Population, Israel, July 2021," *Eurosurveillance* 26, no. 39 (30 September 2021), https://doi.org/10.2807/1560-7917.ES.2021.26.39.2100822.

[188] Kasen K. Riemersma *et al.*, "Shedding of Infectious SARS-CoV-2 Despite Vaccination," preprint (Infectious Diseases (except HIV/AIDS), 31 July 2021), https://doi.org/10.1101/2021.07.31.21261387; Charlotte B. Acharya *et al.*, "No Significant Difference in Viral Load Between Vaccinated and Unvaccinated, Asymptomatic and Symptomatic Groups Infected with SARS-CoV-2 Delta Variant," preprint (Infectious Diseases (except HIV/AIDS), 29 September 2021), https://doi.org/10.1101/2021.09.28.21264262. Anika Singanayagam *et al.,* "Community Transmission and Viral Load Kinetics of the SARS-CoV-2 Delta (B.1.617.2) Variant in Vaccinated and Unvaccinated Individuals in the UK: A Prospective, Longitudinal, Cohort Study," *The Lancet Infectious Diseases* 0, no. 0 (29 October 2021), https://doi.org/10.1016/S1473-3099(21)00648-4: "We found that the secondary attack rate in fully vaccinated household contacts was high at 25%, but this value was lower than that of unvaccinated contacts (38%). Risk of infection increased

These vaccines are not, that is, sterilizing, and one can continue to incubate virus in the upper respiratory tract. At this rate, COVID-19 vaccination could well become an annual or quarterly immunity subscription service. Canadian virologist Byram Bridle thinks this is an indictment of the current vaccines. "As someone who develops vaccines, I can tell you that it is difficult to make a vaccine that will perform as poorly as the current COVID-19 vaccines. Indeed, most vaccines given in childhood never require a booster shot later in life."[189] The poor overall efficacy of the COVID-19 vaccines means that they cannot be the simple answer to ending the pandemic. Whether considered in terms of absolute risk reduction or in terms of waning immunity, these vaccines are "leaky." They over-promise and under-deliver. An important study of rates of vaccination and incidence of COVID-19 across 68 countries and more than 2947 counties in the USA found essentially no correlation between the two.[190] There is no path here to zero-Covid. However, for those individuals in high-risk categories (the elderly, the immunosuppressed, those with diabetes, or those with other risk factors), these vaccines may still provide important protection against serious illness and death. The risk–benefit analysis is necessarily highly individual.

Indeed, for any individual considering a medical procedure, such as a vaccine injection, it is important, in addition to asking what protective benefits might or might not be conferred, to consider also the added risks that come with the procedure.[191] This due consideration of the risks of any medical treatment is a long-established principle of informed consent, and it is included in the instructions for Pre-Vaccine Counselling in the Canadian Immunization Guide. Vaccine providers should "provide information regarding the benefits and risks of receiving or not receiving the vaccine," while also assessing the individual patient's present health, vaccine history, and any contraindications or precautions. And they should discuss "frequently occurring minor adverse events and potential rare severe adverse events," before obtaining informed consent.[192]

Safety is especially paramount with vaccines, for vaccination is a medical procedure provided at scale to an otherwise largely healthy population.[193] Rigorous procedures have therefore been set by

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with time in the 2–3 months since the second dose of vaccine." Also, "Fully vaccinated individuals with breakthrough infections have peak viral load similar to unvaccinated cases and can efficiently transmit infection in household settings, including to fully vaccinated contacts." See also, Venice Servellita *et al*., "Predominance of Antibody-Resistant SARS-CoV-2 Variants in Vaccine Breakthrough Cases from the San Francisco Bay Area, California," 8 October 2021, https://doi.org/10.1101/2021.08.19.21262139: "Our results suggest that vaccine breakthrough infections are overrepresnted by circulating antibody-resistant SARS-CoV-2 variants, and that symptomatic breakthrough infections may potentially transmit COVID-19 as efficiently as unvaccinated infections, regardless of the infecting lineage."

189 Byram Bridle, "An Open Letter to the President of the University of Guelph," 17 September 2021, https://onedrive.live.com/?authkey=%21ADfHk3IuaBrEH34&cid=914431B73799994E&id=914431B73799994E%2176735&parId=914431B73799994E%2173522&o=OneUp.

190 S. V. Subramanian and Akhil Kumar, "Increases in COVID-19 Are Unrelated to Levels of Vaccination across 68 Countries and 2947 Counties in the United States," *European Journal of Epidemiology*, 30 September 2021, https://doi.org/10.1007/s10654-021-00808-7.

191 Risk may be defined as "a measure of the probability of an adverse or untoward outcome occurring and the severity of the resultant harm to health of individuals in a defined population associated with use of a medical technology applied for a given medical problem under specified conditions of use." United States Congress, Office of Technology Assessment, "Assessing the Efficacy and Safety of Medical Technologies" (Washington, DC, September 1978), p. xii, https://digital.library.unt.edu/ark:/67531/metadc39383/.

192 Government of Canada, "Vaccine Administration Practices: Canadian Immunization Guide," Vaccines and Immunization, 2 December 2020, https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-1-key-immunization-information/page-8-vaccine-administration-practices.html.

193 Safety may be defined as "a judgment of the acceptability of relative *risk* in a specified situation." Congress, "Assessing the Efficacy and Safety," p. xii.

government agencies for monitoring the research and development of new vaccines to ensure safety. A typical vaccine development timeline is 5 to 10 years, or longer.[194] The COVID-19 vaccines have been expedited as never before ("operation warp speed"), while also employing innovative mRNA technologies. Thus, although Dr. Supriya Sharma, Chief Medical Advisor at Health Canada, sought to reassure Canadians in May 2021 that the COVID-19 vaccines authorized for use have gone through "exactly the same type of review that any vaccine would," assessing the same amount of data, but just doing it faster, it is reasonable still to ask for substantial reassurance about vaccine safety: we should be given the evidence for this consequential statement.[195]

The emergency use authorization (USA) or interim order (Canada) for COVID-19 vaccines meant that the safety data from phase-three trials was necessarily very short-term, and this was justified by a population-level, risk–benefit assessment peculiar to a "public health emergency" (USA) and "urgent public health needs relating to COVID-19" (Canada).[196] The FDA emergency use authorization (EUA) of the Pfizer vaccine in December 2020, for example, took into account data on safety for a period ending at a median of only two months after the second dose, with a sample size of 36,523.[197] This excluded (among others) pregnant women, lactating women, women of child-bearing age, and immunocompromised individuals, and it could not therefore report safety data for these cases. A phase-three trial (mass testing) normally takes years to complete, and Pfizer's trial is scheduled to continue for another two years.

Overlapping trial stages and rolling reviews allowed COVID-19 vaccines to be approved more quickly than usual, but it also meant they were released with minimal data on adverse reactions. Typically, approval for use would come at the end of a phase-three trial rather than only two months into it. And there would be high standards for pharmacovigilance after initial approval. If there are adverse effects detectable only in a large-scale, long-term analysis of real-world data, these simply cannot be known within the timelines authorized for emergency use. Pandemrix was distributed in Europe during the swine flu in 2009. It took two years of accumulated data collection before a statistically significant correlation was found indicating a fourteen-fold and seven-fold increase in narcolepsy in children and adolescents respectively.[198] The medium- and long-term safety and efficacy

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[194] "Vaccine Research & Development," Johns Hopkins Coronavirus Resource Center, accessed 2 October 2021, https://coronavirus.jhu.edu/vaccines/timeline.

[195] Public Health Agency of Canada Government of Canada, "How Do We Know the COVID-19 Vaccines Are Safe?" 11 May 2021, https://health.canada.ca/en/public-health/services/video/how-COVID-19-vaccines-safe.html?language=en.

[196] "Emergency Use Authorization Declaration," Federal Register, 1 April 2020, https://www.federalregister.gov/documents/2020/04/01/2020-06905/emergency-use-authorization-declaration. Health Canada, "Explanatory Note: Interim Order Respecting the Importation, Sale and Advertising of Drugs for Use in Relation to COVID-19," regulations, 13 September 2020, https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/interim-order-import-sale-advertising-drugs/note.html.

[197] Office of the Commissioner, "FDA Takes Key Action in Fight Against COVID-19 By Issuing Emergency Use Authorization for First COVID-19 Vaccine," FDA (FDA, 14 December 2020), https://www.fda.gov/news-events/press-announcements/fda-takes-key-action-fight-against-COVID-19-issuing-emergency-use-authorization-first-COVID-19.

[198] "Narcolepsy Following 2009 Pandemrix Influenza Vaccination in Europe | Vaccine Safety | CDC," 20 August 2020, https://www.cdc.gov/vaccinesafety/concerns/history/narcolepsy-flu.html. See also the comparison to Pandemrix by the Canadian virologist Byram Bridle, "Vaccines: "I Would Probably Prefer to Have Natural Immunity" — Viral Immunologist," *Dryburgh.Com* (blog), 24 February 2021, https://dryburgh.com/byram-bridle-coronavirus-vaccine-concerns/.

of the present COVID-19 vaccines will not be known until long after the majority of the population in many countries have received the injections.

The associate editor of the *British Medical Journal* wrote with concerns about the phase-three trials already in October 2020: "History shows many examples of serious adverse events from vaccines brought to market in periods of enormous pressure and expectation. There were contaminated polio vaccines in 1955, cases of Guillain-Barré syndrome in recipients of flu vaccines in 1976, and narcolepsy linked to one brand of influenza vaccine in 2009."[199] This same article raised serious questions about the design of the phase-three trials, since they were not set up to prove that these vaccines prevent severe illness or hospitalization nor that they effectively interrupt disease transmission (conferring "sterilizing immunity").[200] They were only set up to show efficacy in preventing cases of mild illness. The "endpoint" was a positive PCR test and a cough. A trial of 30,000 people was not large enough, nor was it continued long enough, to do more than this. According to the CDC, only 3.4% of symptomatic cases of COVID-19 end up in hospital overall. They are relatively rare, that is. Therefore, "Hospital admissions and deaths from COVID-19 are simply too uncommon in the population being studied for an effective vaccine to demonstrate statistically significant differences in a trial of 30 000 people. The same is true of its ability to save lives or prevent transmission: the trials are not designed to find out."[201] A much larger, longer trial would have been required. It was also, of course, not clear from these compressed phase 3 trials how long vaccine-induced immunity would last.

Were shortcuts taken? Were these consequential? In addition to the abridgement of the phase-three trial and the limited data on adverse reactions and efficacy, there is evidence that the FDA and EMA (European Medicines Agency) allowed Pfizer and others to proceed without industry-standard, quality management practices during the early preclinical stage with respect to toxicology studies. This is where vaccines would be tested in rats and nonhuman primates, and data would be gathered on genotoxicity (mutations in the DNA) and reproductive toxicity. FOIA (freedom of information act) requests gained access to some of the reports of the European reviewers. These included the warning: "No traditional pharmacokinetic or biodistribution studies have been performed with the vaccine candidate."[202] Yet these are the precisely the studies that would be necessary to see if vaccine compounds travel throughout the body and what tissues and organs are affected.

A number of European scientists were concerned quite early about the dangers from COVID-19 vaccines of clotting, bleeding, and platelet abnormalities, along with thromboembolic serious adverse events, and they wrote three open letters to the European Medicines Agency. "We foresaw deaths and harm from clotting, warning of these dangers before blood clots led to vaccine suspensions around

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[199] Peter Doshi, "Will COVID-19 Vaccines Save Lives? Current Trials Aren't Designed to Tell Us," *BMJ*, 21 October 2020, m4037, https://doi.org/10.1136/bmj.m4037.

[200] See also Peter Doshi, "Pfizer and Moderna's "95% Effective" Vaccines—Let's Be Cautious and First See the Full Data," *The BMJ* (blog), 26 November 2020, https://blogs.bmj.com/bmj/2020/11/26/peter-doshi-pfizer-and-modernas-95-effective-vaccines-lets-be-cautious-and-first-see-the-full-data/.

[201] Ibid. Efficacy in initial phase-three trials meant demonstrating that the vaccines prevented mild illness, for which the end point was as little as a positive PCR test and a cough. The chief medical officer at Moderna said, "Would I like to know that this prevents mortality? Sure, because I believe it does. I just don't think it's feasible within the timeframe [of the trial]."

[202] TrialSite Staff, "Did Pfizer Fail to Perform Industry Standard Animal Testing Prior to Initiation of MRNA Clinical Trials?," TrialSiteNews, 28 May 2021, https://trialsitenews.com/did-pfizer-fail-to-perform-industry-standard-animal-testing-prior-to-initiation-of-mrna-clinical-trials/. See also Peter Doshi, "COVID-19 Vaccines: In the Rush for Regulatory Approval, Do We Need More Data?," *BMJ*, 18 May 2021, n1244, https://doi.org/10.1136/bmj.n1244.

the world."[203] Others have identified a number of potential pathologies that could emerge, based on known virology and vaccine theory.[204] Given unknown tropisms (tissue destination), concerns were raised that the spike protein produced by the new COVID-19 vaccines could bind with and interact with cells throughout the body with potential damage to tissues and organs.[205] A confidential Pfizer biodistribution study performed with rats and filed in Japan, again obtained through a freedom-of-information request, confirmed that in the cases studied the lipid nanoparticles used in the Pfizer vaccination did circulate in the blood post-vaccine and then they "accumulated in organs and tissues including the spleen, bone marrow, the liver, adrenal glands, and in 'quite high concentrations' in the ovaries."[206] About the same time, there were early reports in the media of more serious side effects, especially related to blood clots and vaccine-induced thrombotic thrombocytopenia (VITT).[207] There are now a number of sworn declarations from physicians attesting to serious harms witnessed from COVID-19 vaccines, as well as websites where individuals are reporting their post-vaccine injuries.[208]

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[203] "Doctors for Covid Ethics Signatories," *Doctors for COVID Ethics* (blog), 3 April 2021, https://doctors4covidethics.org/doctors-for-covid-ethics-signatories/. Concerns raised by this group about vaccine safety include bleeding disorders, thrombosis in the brain, stroke and heart attack, autoimmune and allergic reactions, possible antibody-dependent enhancement of disease, possible immunosuppressive effects, reactions to vaccine impurities, spontaneous abortions, Bell's palsy, and neurological reactions. "COVID Vaccine Necessity, Efficacy and Safety," *Doctors for COVID Ethics* (blog), 23 May 2021, https://doctors4covidethics.org/covid-vaccine-necessity-efficacy-and-safety/.

[204] Stephanie Seneff and Greg Nigh, "Worse Than the Disease? Reviewing Some Possible Unintended Consequences of the MRNA Vaccines Against COVID-19," *International Journal of Vaccine Theory, Practice, and Research* 2, no. 1 (10 May 2021): 38–79. https://ijvtpr.com/index.php/IJVTPR/article/view/23/49.

[205] Si Zhang *et al.*, "SARS-CoV-2 Binds Platelet ACE2 to Enhance Thrombosis in COVID-19," *Journal of Hematology & Oncology* 13, no. 1 (December 2020): 120, https://doi.org/10.1186/s13045-020-00954-7; Yuichiro J. Suzuki and Sergiy G. Gychka, "SARS-CoV-2 Spike Protein Elicits Cell Signaling in Human Host Cells: Implications for Possible Consequences of COVID-19 Vaccines," *Vaccines* 9, no. 1 (11 January 2021), https://doi.org/10.3390/vaccines9010036; Sri Jayalakshmi Suresh and Yuichiro Justin Suzuki, "SARS-CoV-2 Spike Protein and Lung Vascular Cells," *Journal of Respiration* 1, no. 1 (March 2021): 40–48, https://doi.org/10.3390/jor1010004. Jay Schneider *et al.*, "SARS-CoV-2 Direct Cardiac Damage through Spike-Mediated Cardiomyocyte Fusion," preprint (In Review, 30 October 2020), https://doi.org/10.21203/rs.3.rs-95587/v1. Alana F Ogata *et al.*, "Circulating Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Vaccine Antigen Detected in the Plasma of MRNA-1273 Vaccine Recipients," *Clinical Infectious Diseases*, 20 May 2021, ciab465, https://doi.org/10.1093/cid/ciab465.

[206] The details were reported in various places, but may be traced in detail in Byram Bridle, "COVID-19 Vaccines and Children: A Scientist's Guide for Parents," 15 June 2021, https://www.canadiancovidcarealliance.org/wp-content/uploads/2021/06/2021-06-15-children_and_COVID-19_vaccines_full_guide.pdf. Bridle's concerns about the toxicity of the spike protein have been challenged, but he has defended his views vigorously. See his "An Open Letter to the President of the University of Guelph," 17 September 2021, https://onedrive.live.com/?authkey=%21ADfHk3IuaBrEH34&cid=914431B73799994E&id=914431B73799994E%2176735&parId=914431B73799994E%2173522&o=OneUp.

[207] An example of early concerns reported in the media is Denise Grady, "A Few Covid Vaccine Recipients Developed a Rare Blood Disorder," *The New York Times*, 8 February 2021, sec. Health, https://www.nytimes.com/2021/02/08/health/immune-thrombocytopenia-covid-vaccine-blood.html. Wider concern and the pausing of AstraZeneca vaccinations came in mid-April 2021. There was real confusion in Canada: Sharon Kirkey, 'Officials' Mixed Messaging More than Blood Clot Risks Are Undermining COVID Vaccine Rollout," *National Post*, 16 April 2021, https://nationalpost.com/news/canada/officials-mixed-messaging-more-than-blood-clot-risks-are-undermining-covid-vaccine-rollout; Sharon Kirkey, "Who's Calling the Shots? More Confusion in AstraZeneca Rollout," *National Post*, 22 April 2021, https://nationalpost.com/news/canada/whos-calling-the-shots-more-confusion-in-astrazeneca-rollout. VITT concerns in Canada: The Staff, "A Look at What We Know about VITT, the Rare Blood Clotting Disorder," Global News, 16 May 2021, https://globalnews.ca/news/7866439/covid-vaccine-vitt-explained/.

[208] Aaron Siri, "One Brave ICU Physician Reporting Covid-19 Vaccine Injuries Leads to a Dozen More," Substack newsletter, *Injecting Freedom* , 1 November 2021, https://aaronsiri.substack.com/p/one-brave-icu-physician-reporting. "Telling Our Stories," No More Silence, accessed 8 November 2021, https://nomoresilence.world/; "The Testimonies

More broadly, there is a vast amount of data accumulating on post-vaccine adverse events in passive pharmacovigilance surveillance systems such as the Vaccine Adverse Event Reporting System (VAERS) in the United States and the Yellow Card scheme in the UK.[209] There is also a VigiAccess system maintained by the Uppsala Monitoring Centre for the WHO.[210] These systems rely on voluntary reporting by individuals and physicians, and the data are therefore far from complete. Under-reporting and under-recording are understood limitations.[211] The data nevertheless provides "signals" that call for careful investigation, rigorous follow-up studies, and clinical scrutiny of cases.[212] Still, the raw data in VAERS is of itself concerning, for it includes hundreds of thousands of reports of adverse events following COVID-19 vaccine injections. As of October 8, 2021, the VigiAccess system records 2,201,851 reports of adverse reactions to COVID-19 vaccines. This is unprecedented. According to the analysis of VAERS by immunological researcher Jessica Rose, as of August 27, 2021 there were reports of adverse events from 1/400 individuals fully vaccinated and reports of serious adverse events from 1/2000. On the whole, the number of unique individuals reporting adverse events in 2021 was more than a thousand times the yearly average already by the end of August.[213] The VAERS data for reported deaths following a COVID-19 vaccine were 5,888 as of June 4, 2021, more than the total of reported deaths for all seventy vaccines in the VAERS system for a period of over thirty years. As of the November 5, 2021, this number had risen to 18,461.[214] According to the UK Yellow Card scheme, the COVID-19 AstraZeneca analysis from January 4 to May 26, 2021, indicated reports of 6,067 blood disorders, 7,177 cardiac disorders, 106 congenital disorders, 7,222 ear disorders, 218 endocrine disorders, 10,948 eye disorders, 68,971 gastrointestinal disorders, and so on alphabetically for 105 pages, with a total of 695,214 reactions reported, 831 of which were fatal. As of

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Project | Testimonies after Covid-19 Vaccination," Vax testimonies, accessed 14 November 2021, https://www.vaxtestimonies.org/en/.

[209] https://vaers.hhs.gov/ and https://coronavirus-yellowcard.mhra.gov.uk/. The latest VAERS data is compiled and reported weekly for COVID-19 vaccines here: https://www.openvaers.com/covid-data. Canadian reporting here: https://health-infobase.canada.ca/COVID-19/vaccine-safety/.

[210] "VigiAccess," accessed 8 October 2021, http://www.vigiaccess.org/.

[211] The Guide to Interpreting VAERS Data states, "VAERS receives reports for only a small fraction of actual adverse events." "VAERS - Guide to Interpreting VAERS Data," accessed 3 October 2021, https://vaers.hhs.gov/data/dataguide.html. One study estimated that "fewer than 1% of vaccine adverse events are reported" to VAERS. "Electronic Support for Public Health - Vaccine Adverse Event Reporting System (ESP:VAERS) (Massachusetts)," AHRQ Digital Healthcare Research: Informing Improvement in Care Quality, Safety, and Efficiency, 30 September 2010, https://digital.ahrq.gov/ahrq-funded-projects/electronic-support-public-health-vaccine-adverse-event-reporting-system. Jessica Rose and colleagues (see below) calculate an estimated under-reporting factor of 31, which would correspond to a little more than 3% of adverse events being reported.

[212] Such follow up study is rare. However, "In May, the Norwegian Medicines Agency reviewed records of the first 100 reported deaths of nursing home residents who received the Pfizer vaccine. The agency concluded that the vaccine 'probably' contributed to the deaths of 10 of those residents through side effects such as fever and diarrhea, and 'possibly' contributed to the deaths of 26 others." Joseph A. Ladapo and Harvey A. Risch, "Are Covid Vaccines Riskier Than Advertised?," *Wall Street Journal*, 22 June 2021, sec. Opinion, https://www.wsj.com/articles/are-covid-vaccines-riskier-than-advertised-11624381749.

[213] Jessica Rose, *VAERS Update for the CCCA – Canadian Covid Care Alliance*, video recording, 27 August 2021, https://www.canadiancovidcarealliance.org/media-resources/vaers-update-for-the-ccca/. (The information comes at 10:25 and 13:30-14:30 in the video report.) Cf. Jessica Rose, "Critical Appraisal of VAERS Pharmacovigilance: Is the U.S. Vaccine Adverse Events Reporting System (VAERS) a Functioning Pharmacovigilance System?" *Science, Public Health Policy, and the Law* 3 (October 2021): 100–129.

[214] "COVID Vaccine Data," OpenVAERS, accessed 14 November 2021, https://openvaers.com/covid-data.

November 5, 2021, the reported number of reported fatalities following AstraZeneca vaccination in the UK was 1,118.[215]

All these raw numbers themselves require careful analysis. It is impossible to say which of these conditions were "caused" by the vaccine, and these numbers must of course to be seen relative to the large numbers vaccinated and compared to other vaccines. But as Yale epidemiologist Harvey Risch and UCLA medical professor Joseph Lapado wrote in the *Wall Street Journal* in June 2021, "The database cannot tell what would have happened in the absence of vaccination. Nonetheless, the large clustering of some adverse events *immediately after* vaccination is concerning."[216] Temporal proximity is one of the Bradford Hill criteria for assessing causation.[217] All of these reports of adverse events ought to be investigated and the data compared to the normal incidence of these conditions, which is what would usually happen in a longer phase-three trial and follow-up studies. It is clear already, however, that there are indications in the data of serious safety issues in regard to cardiovascular, neurological, and immunological issues. A danger of myocarditis in young males is now widely recognized.[218] Reports of female reproductive issues and adverse events among children are also on the rise.[219] The data on risks to pregnant women remains limited.[220] And given the lack of reproductive

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[215] "Case Series Drug Analysis Print: COVID-19 AstraZeneca Vaccine Analysis," GOV.UK, 28 May 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/990932/COVID-19_AstraZeneca_Vaccine_Analysis_Print_26.05.2021.pdf. The parent website is https://www.gov.uk/government/publications/coronavirus-COVID-19-vaccine-adverse-reactions. See also the case series print for 5 November 2021.

[216] Joseph A. Ladapo and Harvey A. Risch, "Are Covid Vaccines Riskier Than Advertised?," *Wall Street Journal*, 22 June 2021, sec. Opinion, https://www.wsj.com/articles/are-covid-vaccines-riskier-than-advertised-11624381749 (italics added).

[217] Indeed, something like the Bradford Hill criteria can be applied generally to discern whether adverse events might be "caused" by the vaccine. See further, Kenneth J. Rothman and Sander Greenland, "Causation and Causal Inference in Epidemiology," *American Journal of Public Health* 95, no. S1 (July 2005): S144–50, https://doi.org/10.2105/AJPH.2004.059204.

[218] Justine Coleman, "Israel Cites 'possible Link' between Pfizer Vaccine, Mild Heart Inflammation in Young Men," Text, TheHill, 2 June 2021, https://thehill.com/policy/healthcare/556470-israel-cites-possible-link-between-pfizer-vaccine-mild-heart-inflammation. "Clinical Considerations: Myocarditis after MRNA COVID-19 Vaccines | CDC," 25 August 2021, https://www.cdc.gov/vaccines/COVID-19/clinical-considerations/myocarditis.html. Biykem Bozkurt, Ishan Kamat, and Peter J. Hotez, "Myocarditis With COVID-19 MRNA Vaccines," *Circulation* 144, no. 6 (10 August 2021): 471–84, https://doi.org/10.1161/CIRCULATIONAHA.121.056135; Tracy Beth Høeg *et al.*, "SARS-CoV-2 MRNA Vaccination-Associated Myocarditis in Children Ages 12-17: A Stratified National Database Analysis," preprint (Epidemiology, 8 September 2021), https://doi.org/10.1101/2021.08.30.21262866. The latter reports: "For boys with no underlying health conditions, the chance of either cardiac adverse event (CAE), or hospitalization for CAE, after their 2nd dose of mRNA vaccine are considerably higher than their 120-day risk of COVID hospitalization, even at times of peak disease prevalence." The myocarditis signal among young people was reported early on in Israel. It may be seen clearly in the US data in the graph by Jessica Rose, "And What's the Deal with Myocarditis? And Dose Relationship? To Age... Hmmm," *Academic* (blog), 3 September 2021, https://i-do-not-consent.netlify.app/post/hi-hugo/. See also Jessica Rose and Peter A. McCullough, "A Report on Myocarditis Adverse Events in the U.S. Vaccine Adverse Events Reporting System (VAERS) in Association with COVID-19 Injectable Biological Products," *Current Problems in Cardiology*, October 2021, 101011, https://doi.org/10.1016/j.cpcardiol.2021.101011. (This article has been temporarily removed by the journal as of 14 November 2021, with a statement that "A replacement will appear as soon as possible in which the reason for the removal of the article will be specified, or the article will be reinstated.")

[219] Rose, *VAERS Update,* 27 August 2021 (at 18:50) cf. Rose, "Critical Appraisal," 106.

[220] The following two preliminary reports have been the basis for advocating vaccination for pregnant women, despite the contraindication and precautions from the drug manufacturers: Tom T. Shimabukuro *et al.*, "Preliminary Findings of MRNA COVID-19 Vaccine Safety in Pregnant Persons," *New England Journal of Medicine* 0, no. 0 (21 April 2021): null, https://doi.org/10.1056/NEJMoa2104983; Lauren Head Zauche *et al.*, "Receipt of MRNA COVID-19 Vaccines Preconception and during Pregnancy and Risk of Self-Reported Spontaneous Abortions, CDC v-Safe COVID-19 Vaccine

toxicology reporting in the preclinical stage of vaccine development and approval, the evidence from the Japanese biodistribution study of lipid nanoparticles in the ovaries, and the high number of reports of spontaneous abortions post-vaccine, can we really tell pregnant women and women of child-bearing age, that there is no risk?

It does seem clear, however, given the confirmed age-stratified risks associated with COVID-19, that the younger one is, the more the risk–benefit ratio of the vaccine skews toward risk. "There is a thousand-fold difference in the risk of mortality from COVID-19 infection between the young and the old."[221] Thus, some scientists have worried about the vaccination of children, "What is the rush for a group at essentially zero risk? Given that the inoculations were tested only for a few months, only very short-term adverse effects could be obtained." The possibility that longer-term data could identify safety issues (auto-immune, neurological, antibody-dependent enhancement, and other effects) means if any of these prove significant, "The children are the ones who will have to bear the brunt of the suffering. There appear to be no benefits for the children and young adults from the inoculations and only costs!"[222]

All things considered, how are we to think about these safety data? We have been reassured on many occasions by public officials that all the vaccines are "safe and effective," without qualification.

Pregnancy Registry 2020-21," preprint (In Review, 9 August 2021), https://doi.org/10.21203/rs.3.rs-798175/v1. There was debate about the numbers reported in the former article, where it seemed possible that the data could be read as indicating an 82% rate of spontaneous abortion. In a previous version of this paper, I quoted this. The questions were raised here: Deanna McLeod, Ira Bernstein, and Sanja Jovanovic, "Letter to Editor – Comment on "MRNA COVID-19 Vaccine Safety in Pregnant Persons", Shimabukuro *et al.* (NEJM Apr 2021)," April 2021, https://onedrive.live.com/view.aspx?resid=F3C3887684911EE4!64771&ithint=file%2cdocx&authkey=!APbt8mmG0zQO6e8; Peter A. MacCullough *et al.*, "Lack of Compelling Safety Data for MRNA COVID Vaccines in Pregnant Women," *TrialSiteNews*, 30 July 2021, https://trialsitenews.com/lack-of-compelling-safety-data-for-mrna-covid-vaccines-in-pregnant-women/. The confusion arose over errors in the presentation of the data in the original *NEJM* article, which has now been corrected: T.T. Shimabukuro, et al, "Correction: Preliminary Findings of MRNA COVID-19 Vaccine Safety in Pregnant Persons," *New England Journal of Medicine*, 8 September 2021, NEJMx210016, https://doi.org/10.1056/NEJMx210016. The best analysis I have seen is John Jalsevac, "Study Shows 82% Miscarriage Rate among Covid-Vaccinated Women? Nope. Here's Why." Substack newsletter, *Casual Thoughts* (blog), 30 June 2021, https://johnjalsevac.substack.com/p/no-study-doesnt-show-82-of-covid, and Syed Ah Kahn, "The Curious Case of the Miscalculated Miscarriages," Substack newsletter, *Arkmedic's Blog* (blog), 14 September 2021, https://arkmedic.substack.com/p/the-curious-case-of-the-miscalculated. Jalsevac points to the selection bias, lack of data, and short time frame (10 weeks) of the study: "Almost certainly (given statistical averages) more of the women would have gone on to miscarry after the study was completed. How many? Well, again, we don't know. . . More data is needed." And again, "I don't see how you can use such a hodgepodge sample of women as a representative sample, and justify drawing the conclusion the authors did. The 3958 women in the study were all vaccinated at different stages of pregnancy, and at different stages of the study. Some early. Some late. The women also overwhelmingly worked in healthcare. In other words, the study sample is very messy and suffers from selection bias." These concerned have been raised in an academic article also: Aleisha R. Brock and Simon Thornley, "Spontaneous Abortions and Policies on COVID-19 MRNA Vaccine Use During Pregnancy," *Science, Public Health Policy, and the Law* 4 (November 2021): 130–43: "In this article, we draw attention to these errors [in Shimabukuro *et al.*] and recalculate the risk of this outcome based on the cohort that was exposed to the vaccine before 20 weeks' gestation. Our re-analysis indicates a cumulative incidence of spontaneous abortion 7 to 8 times higher than the original authors' results ($p < 0.001$) and the typical average for pregnancy loss during this time period" (p. 130).

[221] Jay Bhattacharya, Sunetra Gupta, and Martin Kulldorff, "The Beauty of Vaccines and Natural Immunity," SMERCONISH, 4 June 2021, https://www.smerconish.com/exclusive-content/the-beauty-of-vaccines-and-natural-immunity. See also Byram Bridle, "COVID-19 Vaccines and Children: A Scientist's Guide for Parents," 15 June 2021, https://www.canadiancovidcarealliance.org/wp-content/uploads/2021/06/2021-06-15-children_and_COVID-19_vaccines_full_guide.pdf.

[222] Ronald N. Kostoff *et al.*, "Why Are We Vaccinating Children against COVID-19?" *Toxicology Reports* 8 (29 August 2021): 1665–84, https://doi.org/10.1016/j.toxrep.2021.08.010.

Perhaps. But one would have expected that the expedited timeline for vaccine development and the granting of emergency use authorization would have corresponded to an urgent demand for heightened pharmacovigilance. It has not. Instead, the public campaign for universal vaccination has repeatedly minimized these concerns: As Risch and Lapado observed, "The silence around these potential signals of harm reflects the policy surrounding COVID-19 vaccines."[223]

Changes in protocols in the midst of the vaccine roll out, especially in Canada, such as changes to the timing of doses and the mixing of vaccines, will in fact make the task of identifying long-term statistically meaningful correlations in the data more difficult. And the more that universal vaccination is mandated, the more we lose a control group for study. Still, the initial data on reports of adverse reactions to COVID-19 vaccination are worrying enough that on June 9, 2021, Tess Lawrie, the director of Evidence-based Medicine Consultancy (UK), conducted a rapid review of the Yellow Card data and wrote to the Medicines and Healthcare Products Regulatory Agency, calling for a halt to vaccinations: "The MHRA now has more than enough evidence on the Yellow Card system to declare the COVID-19 vaccines unsafe for use in humans."[224] Indeed, the outstanding questions about safety have meant that there are reputable *pro-vaccine* virologists and immunologists, and hundreds of front-line medical personnel, with no financial conflict of interest, choosing not to recommend this particular vaccine.[225] This makes it all the harder for the general public simply to take it on trust from politicians and public health officials that there is nothing to worry about, nothing to see here. There is, at minimum, a crisis of authority.

In Chap. 6, below, we will return to the discussion of vaccines in terms of the ethics of vaccine mandates, coercion, and medical segregation (vaccine passes or passports). It will be important there to bear in mind the questions raised here about safety and efficacy.

Therapeutics

One of the reasons why so many hopes have been pinned on vaccines for COVID-19 is because of the assumption that there are no other means to prevent or treat the disease. At the beginning of the crisis there was no outpatient or hospital treatment protocol beyond supportive care: Tylenol and fluids at home, and then mechanical ventilation in hospital when the disease advanced to the stage of acute pulmonary inflammation. Indeed, emergency use authorization for vaccines in the United States *required* that "there are no adequate, approved, and available alternatives."[226]However, notwithstanding a bewildering but powerful campaign to discredit the use of repurposed drugs ("off-label") for COVID-19, several effective treatment protocols have been developed, and there is now considerable

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[223] Joseph A. Ladapo and Harvey A. Risch, "Are Covid Vaccines Riskier Than Advertised?" *Wall Street Journal*, 22 June 2021, sec. Opinion, https://www.wsj.com/articles/are-covid-vaccines-riskier-than-advertised-11624381749.

[224] Tess Lawrie, "Open Letter from Dr Tess Lawrie to Chief Exec MHRA Dr Raine – Urgent Preliminary Report of Yellow Card Data up to 26 Th May 2021," 9 June 2021, http://medisolve.org/yellowcard_urgentprelimreport.pdf?fbclid=IwAR1k77rN0K-7pcCaQ7A4heGucozyaz_JXL5ctl-wWfEtbx8kVFVLCbgUC3w. See also the preprint, Bruno R *et al.*, "SARS-CoV-2 Mass Vaccination: Urgent Questions on Vaccine Safety That Demand Answers from International Health Agencies, Regulatory Authorities, Governments and Vaccine Developers," 24 May 2021, https://doi.org/10.22541/au.162136772.22862058/v2.

[225] For example, "Vaccines: "I Would Probably Prefer to Have Natural Immunity" — Viral Immunologist," *Dryburgh.Com* (blog), 24 February 2021, https://dryburgh.com/byram-bridle-coronavirus-vaccine-concerns/.

[226] Center for Biologics Evaluation and Research, "Emergency Use Authorization for Vaccines Explained," *FDA*, 14 December 2020, https://www.fda.gov/vaccines-blood-biologics/vaccines/emergency-use-authorization-vaccines-explained.

evidence for promising drug therapy. A large number of physicians and critical care doctors worldwide have been providing effective early, outpatient, and hospital-based treatments.[227]

Because of the nature of COVID-19 as a communicable disease, doctors did not typically in 2020 have face-to-face office consultations with individuals who contracted the disease in the community, nor were these patients easily able to get medical imaging, lab work, or help from a pharmacy. Instead, these patients had supportive care only. Several research clinicians were concerned to find out if anything more could be done by way of early treatment. One attempt to enroll individuals in a large outpatient trial was unsuccessful finding candidates. It was left to critical care physicians to develop protocols based on their experience and expertise. For example, twenty-three experienced clinical experts reviewed existing literature and developed a protocol for outpatient care based on five principles: reducing reinoculation (ventilating the space, etc.), immunomodulation (e.g. corticosteroids), combination antiviral therapy, antiplatelet antithrombotic therapy, and offering oxygen, monitoring, and telemedicine.[228] The lead author of the study testified before the Texas Senate Committee on Health and Human Services on March 10, 2021 that this protocol proved highly effective in preventing hospitalizations and deaths.[229] Other early treatment protocols have been developed elsewhere.[230]

Throughout the coronavirus crisis, misinformation and exaggerated claims of all kinds have been spread online. But drug therapy in particular became quickly politicized in 2020 and claims for the antimalarial, anti-inflammatory drug Hydroxychloroquine became a flashpoint for controversy, perhaps especially after it was associated with the polarizing figure of Donald Trump and was reported as ineffective in some initial clinical trials.[231] However, clinical researchers have understandably been

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[227] The data and analysis of drug therapy is controversial, but see, e.g., Katherine J. Wu, Carl Zimmer, and Jonathan Corum, "Coronavirus Drug and Treatment Tracker," *The New York Times*, 16 July 2020, sec. Science, https://www.nytimes.com/interactive/2020/science/coronavirus-drugs-treatments.html; "Promising Drugs," COVID-19 Early Treatment Fund, accessed 4 October 2021, https://www.treatearly.org/promising-drugs; Paul E. Marik, "COVID-19: Rx Meta-Analysis," December 2020, https://flccc.net/meta-analysis-of-COVID-19-therapeutics-dr-paul-marik-flccc-alliance-v7/. A number of treatment protocols are listed at "C19Protocols – Reducing Risk of COVID-19 Infection and Severity," accessed 5 October 2021, https://c19protocols.com/.

[228] Peter A. McCullough *et al.*, "Pathophysiological Basis and Rationale for Early Outpatient Treatment of SARS-CoV-2 (COVID-19) Infection," *The American Journal of Medicine* 134, no. 1 (January 2021): 16–22, https://doi.org/10.1016/j.amjmed.2020.07.003.

[229] Association of American Physicians and Surgeons, *Peter McCullough, MD Testifies to Texas Senate HHS Committee*, 2021, https://www.youtube.com/watch?v=QAHi3lX3oGM.

[230] "Early COVID Care Experts," accessed 4 October 2021, https://earlycovidcare.org/; "Early Treatment and Prevention of COVID19," Global Covid Summit, accessed 4 October 2021, https://globalcovidsummit.org/news/early-treatment-and-prevention-of-covid19; "Treatment Protocols," Canadian Covid Care Alliance, accessed 4 October 2021, https://www.canadiancovidcarealliance.org/treatment-protocols/; "I-MASK+ Protocol," FLCCC | Front Line COVID-19 Critical Care Alliance, accessed 4 October 2021, https://covid19criticalcare.com/COVID-19-protocols/i-mask-plus-protocol/. See also, Paul E. Alexander *et al.*, "Early Multidrug Treatment of SARS-CoV-2 Infection (COVID-19) and Reduced Mortality among Nursing Home (or Outpatient/Ambulatory) Residents," *Medical Hypotheses* 153 (1 August 2021): 110622, https://doi.org/10.1016/j.mehy.2021.110622.

[231] The decision early in the pandemic by some doctors to prescribe hydroxychloroquine as a therapeutic trial was in keeping with Principle 37 of the Helsinki Agreement on Medical Research, which states that "physicians may use an unproven intervention if in the physician's judgement it offers hope of saving life, re-establishing health or alleviating suffering. This intervention should subsequently be made the object of research." However, some subsequent RCTs reported negative results. "FAQ on Ivermectin," *FLCCC | Front Line COVID-19 Critical Care Alliance*, accessed 7 June 2021, https://covid19criticalcare.com/ivermectin-in-COVID-19/faq-on-ivermectin/. Note, however, that some question whether the negative findings against hydroxychloroquine are valid. See the collation of studies at "HCQ for COVID-19: Real-Time Analysis of All 306 Studies," accessed 14 June 2021, https://c19hcq.com/.

scouring the repertoire of existing drugs in the approved pharmacopeia, studying their profiles, and looking to see if anything might be promising for the treatment of COVID-19 with its complex disease progression: a viral phase, a pulmonary phase, and a hyperinflammatory phase. Various combination therapies of antivirals, nutraceuticals, anti-inflammatories, and other drugs have been used with varying degrees of success. Monoclonal antibodies have also proved a viable treatment option and received emergency use authorization in the United States.

Paul Marik and Pierre Kory are experienced critical care physicians and highly credentialed researchers who developed a hospital protocol for treating COVID-19 which they refined with other intensivists, forming the Front Line COVID-19 Critical Care Consortium (FLCCC) on April 5, 2020.[232] The doctors using this protocol claimed to have a low rate of mortality (less than 6.1%) after treating some 450 patients within six hours of presentation to their hospitals. Of those who died, the doctors reported that they either succumbed to co-morbidities or had presented in an advanced stage.[233] By October 2020, this group also developed a prevention and early outpatient treatment protocol for COVID-19 that added Ivermectin as a core medication based on a review of the research literature. A year later, they listed 1,578 physicians worldwide supporting or using their protocols.[234] The US-based FLCCC has become the foremost advocacy group investigating and promoting Ivermectin as part of prevention and treatment protocols for COVID-19. But there are others. In January 2021, a team from the Evidence-Based Medicine Consultancy in the UK looked at the evidence for Ivermectin and formed the British Ivermectin Recommendation Development Group (BIRD), working with experts worldwide. They have produced and collected research, protocols, and resources for early treatment, including Ivermectin, and have listed more than thirty health and patients' organizations from around the world as affiliates in advocating for the use of Ivermectin to treat COVID-19.[235]

Ivermectin has been used for four decades as a highly successful anti-parasitic drug. It is on the WHO's list of essential medicines and has an established record for safety (it has been an over-the-counter medicine in France), with some 3.7 billion doses having been administered globally. Its discoverers won the Nobel prize in medicine in 2015.[236] In vitro evidence of anti-viral and anti-inflammatory properties made it a promising candidate for COVID-19 as the search for therapeutics began in 2020.[237] Initial clinical trials reported "repeated, large magnitude improvements in clinical

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[232] Marik developed an important protocol for sepsis and is "the second most published critical care doctor in the history of medicine, with more than 500 peer-reviewed papers and books, 43,000 scholarly citations of his work, and a research 'H' rating higher than many Nobel Prize winners." Michael Capuzzo, "The Drug That Cracked Covid," *Mountain Home*, May 2021. The protocol for COVID-19, referred to above, is "I-MASK+ Protocol," *FLCCC | Front Line COVID-19 Critical Care Alliance*, accessed 7 June 2021, https://covid19criticalcare.com/COVID-19-protocols/i-mask-plus-protocol/, with pdf here: https://flccc.net/flccc-alliance-i-maskplus-protocol-english/.

[233] "The FLCCC Alliance Story," FLCCC | Front Line COVID-19 Critical Care Alliance, accessed 7 June 2021, https://covid19criticalcare.com/about/the-flccc-alliance-story/.

[234] "The FLCCC Alliance," *FLCCC | Front Line COVID-19 Critical Care Alliance*, accessed 4 October 2021, https://covid19criticalcare.com/network-support/the-flccc-alliance/.

[235] "BIRD Affiliates," *British Ivermectin Recommendation Development Group*, accessed 4 October 2021, https://bird-group.org/bird-affiliates/.

[236] "The Nobel Prize in Physiology or Medicine 2015," NobelPrize.org, accessed 7 June 2021, https://www.nobelprize.org/prizes/medicine/2015/campbell/lecture/. On safety,

[237] Fatemeh Heidary and Reza Gharebaghi, "Ivermectin: A Systematic Review from Antiviral Effects to COVID-19 Complementary Regimen," *The Journal of Antibiotics* 73, no. 9 (September 2020): 593–602, https://doi.org/10.1038/s41429-020-0336-z.

outcomes."[238] However, as the FLCCC researchers went to publish their findings, this proved unexpectedly controversial.[239] It has remained so and is now a matter of public interest and debate. According to Google Trends, the search term Ivermectin has been steadily growing in popularity, with a peak interest in late summer 2021.[240]

The discussion of Ivermectin as a treatment for COVID-19 has become especially politically charged, for the major regulatory agencies have rated it as "not promising" or "insufficient evidence" to recommend, while other physicians, scientists, and medical authorities have continued to amass a body of research robustly contesting this verdict.[241] Everyone realizes that lives hang in the balance. For the supporters of Ivermectin, it is a David against Goliath battle; for its detractors, it is a defence of orthodoxy against heresy. Media and technology platforms subscribing to the "Trusted News Initiative" have censored reports or stories advocating Ivermectin, and this has pushed the public discussion of the science of Ivermectin and COVID-19 away from these platforms. We will look at some of the published clinical trials below, but how one discusses Ivermectin has now become a proxy for how one relates to authority. It is a test of faith in the normal evidence-based pyramid of medical research, peer-review and regulation as governed by the big agencies (CDC, FDA, NIH, WHO), since this authority is being challenged by dissenting experts who have turned to alternative platforms to aggregate research and appeal directly to the public. In terms of my usual research as a historian of Christianity, this looks like a version of Church and Sect, or Establishment and Dissent.

An international alliance of physicians and medical scientists met in Rome in September 2021 for a Global Covid Summit, and in just a few weeks they gathered more than 10,000 signatures from doctors and scientists, subscribing to a published declaration rejecting "political intrusion into the practice of medicine" and defending the right of physicians to exchange objective scientific findings "without fear of retribution, censorship, slander, or disciplinary action" and to be free to prescribe safe and effective treatments to their patients. Their website provides resources on early treatment and prevention, including resources on Ivermectin and links to the FLCCC.[242] The numbers and organization of this dissenting body of medical opinion is growing.

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[238] Pierre Kory *et al.*, "Review of the Emerging Evidence Demonstrating the Efficacy of Ivermectin in the Prophylaxis and Treatment of COVID-19," *American Journal of Therapeutics* 28, no. 3 (May 2021): e299–318, https://doi.org/10.1097/MJT.0000000000001377. See also Paul E. Marik and Pierre Kory, "Ivermectin, A Reanalysis of the Data," *American Journal of Therapeutics* 28, no. 5 (October 2021): e579, https://doi.org/10.1097/MJT.0000000000001443, with some revision their study to remove a disputed trial.

[239] The systematic review by Kory *et al.* (ibid.) began as a paper that was provisionally accepted by the journal *Frontiers in Pharmacology* as part of a special issue on repurposing existing drugs as COVID-19 treatments. The publisher withdrew approval under pressure, and the paper was subsequently published in the *American Journal of Therapeutics*. See further, Catherine Offord, "Frontiers Pulls Special COVID-19 Issue After Content Dispute," The Scientist Magazine, 28 April 2021, https://www.the-scientist.com/news-opinion/frontiers-pulls-special-COVID-19-issue-after-content-dispute-68721. See also Miria Cristina Albertini *et al.*, "Resignation in Protest, Frontiers in Pharmacology Topic Editors, 'Treating COVID-19 With Currently Available Drugs,'" 23 April 2021.

[240] "Ivermectin," Google Trends, accessed 4 October 2021, https://trends.google.com/trends/explore?q=Ivermectin.

[241] The statement from the WHO is, "Therapeutics and COVID-19: Living Guideline," 23 September 2021, https://app.magicapp.org/#/guideline/5665. An example of a thorough review supporting the use of Ivermectin is Morimasa Yagisawa *et al.*, "Global Trends in Clinical Studies of Ivermectin in COVID-19," *The Japanese Journal of Antibiotics* 74, no. 1 (March 2021): 44–95, http://jja-contents.wdc-jp.com/pdf/JJA74/74-1-open/74-1_44-95.pdf.

[242] International Alliance of Physicians and Medical Scientists, "Physicians Declaration: Global Covid Summit – Rome, Italy," Global Covid Summit, September 2021, https://doctorsandscientistsdeclaration.org/. An earlier but parallel Canadian declaration had 20,688 signatures by early October 2021.

The FLCCC provides links to a database and real-time analysis of COVID-19 treatment studies, including Ivermectin, by the anonymous, volunteer research group @CovidAnalysis. Although this aggregation of research does not have the status of PubMed or Cochrane, the sources and data are all public and open to verification. This is a good example of dissemination that is operating outside the usual orthodox system for sifting and distributing the findings of medical research. This stands in contrast to authoritative services such as UpToDate or PEER that working doctors depend upon to sort and summarize the latest research.

Turning to the research itself, the @CovidAnalysis group offers a real-time meta-analysis of their database of studies of Ivermectin. As of October 2021, this includes 65 studies from some twenty countries, of which 45 are peer-reviewed and 32 are RCTs. The summary states, "Meta analysis using the most serious outcome reported shows 66% [53-76%] and 86% [75-92%] improvement for early treatment and prophylaxis, with similar results after exclusion based sensitivity analysis and restriction to peer-reviewed studies or Randomized Controlled Trials." More importantly, the site acts as a repository, with all 65 studies made publicly available for examination.[243]

Ivermectin is off-patent and about $13 USD per dose—and considerably less in other countries ($0.60—$1.80 for a 5-day course in Bangladesh, for example). No drug company will make any money from this, and the researchers have no financial conflict of interest. When I looked up the Cochrane Central Register of Controlled Trials to see what RCTs were registered between February and June 2021 for Ivermectin and COVID-19, I was surprised to find that these are being undertaken almost entirely outside of rich industrialized countries in nations such as Iran, Paraguay, Bolivia, Nigeria, Uganda, Gambia, and Brazil, with studies completed in Bangladesh and Egypt.[244] Many of these are

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[243] @CovidAnalysis group, "Ivermectin for COVID-19: Real-Time Meta Analysis of 65 Studies," accessed 4 October 2021, https://ivmmeta.com/. Studies listed at https://c19ivermectin.com/. The group also provides 992 studies of COVID-19 early treatment: https://c19early.com/. A different real-time meta-analysis site for COVID-19 can be queried for other therapeutics, including Ivermectin, though with a far more limited range of studies is https://covid-nma.com/metacovid/. Theodoros Evrenoglou, Isabelle Boutron, and Anna Chaimani, "MetaCOVID:An R-Shiny Application for Living Meta-Analyses of COVID-19 Trials," preprint, *Epidemiology*, 10 September 2021), https://doi.org/10.1101/2021.09.07.21263207.

[244] Karim MM Ahmed S Ross AG, Hossain MS, Clemens JD, Sumiya MK, Phru CS, Rahman M, Zaman K, Somani J, Yasmin R, Hasnat MA, Kabir A, Aziz AB, Khan WA, "A Five-Day Course of Ivermectin for the Treatment of COVID-19 May Reduce the Duration of Illness," *International Journal of Infectious Diseases* 103 (2021): 214; Malektojari A Hosseini FS Ghazizadeh S, Hassaniazad M, Davoodian P, Dadvand H, Nikpoor AR, Nikoofal-Sahlabadi S, Kahoori S, Sepandi M, Hassanipour S, Fathalipour M, "The Efficacy and Safety of Ivermectin in Patients with Mild and Moderate COVID-19: A Structured Summary of a Study Protocol for a Randomized Controlled Trial," *Trials* 22, no. 1 (2021); NCT04834115, "Efficacy of Ivermectin in Outpatients With Non-Severe COVID-19," *Efficacy of Ivermectin in Outpatients With Non-Severe COVID-19: A Randomized Controlled Trial*, 2021; IRCT20111224008507N4, "Evaluation of the Effect of Ivermectin in Treatment of Outpatients with COVID-19," *Double-Blind Placebo-Controlled Clinical Trial of Evaluating the Effectiveness of Ivermectin in Treatment of Outpatients with COVID-19 in 2021*, 2021; IRCT20111224008507N5, "Evaluation of the Effect of Ivermectin in Treatment of Patients Admitted with COVID-19," *Double-Blind Placebo-Controlled Clinical Trial of Evaluating the Effectiveness of Ivermectin in Treatment of Patients Admitted with COVID-19 in 2021*, 2021; NCT04703205, "Study in COVID-19 Patients With Ivermectin (CORVETTE-01)," *A Placebo-Controlled, Randomized, Double-Blind Study in COVID-19 Patients With Ivermectin; An Investigator Initiated Trial*, 2021; NCT04703608, "Prevention and Treatment for COVID -19 (Severe Acute Respiratory Syndrome Coronavirus 2 SARS-CoV-2) Associated Severe Pneumonia in the Gambia," *Prevention and Treatment for COVID -19 Associated Severe Pneumonia in The Gambia: A Randomised Clinical Trial (PaTS-COVID)*, 2021; NCT04712279, "The (HD)IVACOV Trial (The High-Dose Ivermectin Against COVID-19 Trial)," *High-Dose Ivermectin for Mild-to-Moderate COVID-19 - The (HD)IVACOV Trial*, 2021; NCT04727424, "Repurposed Approved Therapies for Outpatient Treatment of Patients With Early-Onset COVID-19 and Mild Symptoms," *A Multicenter, Prospective, Adaptive, Double-Blind, Randomized, Placebo-Controlled Study to Evaluate the Effect of Fluvoxamine, Ivermectin and Metformin in Reducing*

physician-led studies, and until recently none were the sort of large expensive studies that are done by drug companies.[245] Critics call for larger trials and better data.

Andrew Bryant, Tess Lawrie, *et al.* published what is likely the best peer-reviewed systematic review and meta-analysis that supports the use of Ivermectin for COVID-19. The authors reviewed 24 RCTs (randomized controlled trials) and in a meta-analysis of 15 of these found a reduced risk of death of 62% and a reduced risk of infection (taken prophylactically) of 86% and no significant risk of severe adverse reactions. As the authors comment in their discussion, "Corticosteroids have become an accepted standard of care in COVID-19, based on a single RCT of dexamethasone. If a single RCT is sufficient for the adoption of dexamethasone, then a fortiori the evidence of 2 dozen RCTs supports the adoption of ivermectin."[246] A later Cochrane systematic review reported, in contrast, uncertainty about Ivermectin efficacy, but this has been vigorously critiqued ("erroneously concluding 'no effect' from what was merely weaker evidence of a positive effect") and the original finding of positive effect was confirmed by a third party through a series of probability analyses.[247] Individual RCTs that have

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Hospitalization of Patients With Mild COVID-19 and a High Risk of Complications, 2021; NCT04739410, "Effectiveness of Ivermectin in SARS-CoV-2/COVID-19 Patients," *Effectiveness of Ivermectin in SARS-CoV-2/COVID-19 Patients*, 2021; NCT04746365, "Ivermectin Role in COVID-19 Clinical Trial," *Ivermectin Role in Severe COVID-19 Treatment; a Double-Blinded, Randomized Clinical Trial*, 2021; NCT04768179, "Safety & Efficacy of Low Dose Aspirin / Ivermectin Combination Therapy for Treatment of COVID-19 Patients," *A Randomized Clinical Trial to Investigate Safety & Efficacy of Low-Dose Aspirin / Ivermectin Combination Therapy in Management of COVID-19 Patients*, 2021; NCT04836299, "Clinical Trial to "Study the Efficacy and Therapeutic Safety of Ivermectin: (SAINTBO)," *Randomized, Double-Blind, Placebo-Controlled Clinical Trial to Study the Efficacy and Therapeutic Safety of Ivermectin Versus Placebo Associated With Standard of Care Treatment in the Early Phase of Coronavirus Infection (COVID19)*, 2021; PACTR202102535686338, "Efficacy of Ivermectin for the Treatment and Prophylaxis of COVID-19 Disease," *A Multi-Center, Open-Label, Randomized, Controlled Clinical Trial of the Efficacy of Ivermectin for the Treatment and Prophylaxis of COVID-19*, 2021; PACTR202102848675636, "Double Blind, Community-Based, Randomized Controlled Trial on the Use of Ivermectin as Post Exposure Chemo-Prophylaxis for COVID-19 among High Risk Individuals in Lagos (IVERPEPCOV) COVID-19," *Http://Www.Who.Int/Trialsearch/Trial2.Aspx?TrialID=PACTR202102848675636*, 2021; "Use of Ivermectin as a Potential Chemoprophylaxis for COVID-19 in Egypt: A Randomised Clinical Trial," *Use of Ivermectin as a Potential Chemoprophylaxis for COVID-19 in Egypt: A Randomised Clinical Trial* 15, no. 2 (2021): OC27.

[245] A larger study is underway at Oxford, but it has been criticized from the outset for its design. See "Join the PRINCIPLE Trial — PRINCIPLE Trial," accessed 20 September 2021, https://www.principletrial.org; Trial Site Staff, "The Promise, Hope & Disappointment of the PRINCIPLE Trial as Design Concerns Throw Latest Study In Serious Doubt," TrialSiteNews, 12 August 2021, https://trialsitenews.com/the-promise-hope-disappointment-of-the-principle-trial-as-design-concerns-throw-latest-study-in-serious-doubt/.

[246] Andrew Bryant *et al.*, "Ivermectin for Prevention and Treatment of COVID-19 Infection: A Systematic Review, Meta-Analysis, and Trial Sequential Analysis to Inform Clinical Guidelines," *American Journal of Therapeutics* 28, no. 4 (July 2021): e434–60, https://doi.org/10.1097/MJT.0000000000001402.

[247] Maria Popp *et al.*, "Ivermectin for Preventing and Treating COVID-19," *The Cochrane Database of Systematic Reviews* 7 (28 July 2021): CD015017, https://doi.org/10.1002/14651858.CD015017.pub2; cf. Edmund Fordham *et al.*, "Use and Abuses of Systematic Reviews," preprint (Open Science Framework, 3 September 2021), https://doi.org/10.31219/osf.io/peqcj. Two of the studies reviewed by Bryant, *et al.*, have been disputed, but even after removing these "the hypothesis of mortality benefit remains supported with high probability" (ibid.). This is supported by Martin Neil and Norman Fenton, "Bayesian Hypothesis Testing and Hierarchical Modeling of Ivermectin Effectiveness," *American Journal of Therapeutics* 28, no. 5 (September 2021): e576–79, https://doi.org/10.1097/MJT.0000000000001450. Neil and Fenton also critique flaws in Yuani M Roman *et al.*, "Ivermectin for the Treatment of Coronavirus Disease 2019: A Systematic Review and Meta-Analysis of Randomized Controlled Trials," *Clinical Infectious Diseases*, 28 June 2021, ciab591, https://doi.org/10.1093/cid/ciab591, a study that reported no benefit from Ivermectin in reviewing a subset of the studies analysed in Bryant, *et al.* See also the detailed, robust response to alleged misinformation in a widely cited BBC article: "The BBC's Recent Article 'False Science' Disintegrates under Scrutiny." *British Ivermectin Recommendation Development Group* (blog), 22 October 2021, https://bird-group.org/the-bbcs-recent-article-false-science-is-disintegrating-under-scrutiny/. The original BBC piece is Rachel Schraer and Jack Goodman, "Ivermectin: How False Science Created a Covid "miracle" Drug," *BBC News*, 6 October 2021, sec. Health, https://www.bbc.com/news/health-58170809.

been reported as evidence against using Ivermectin, such as appear in newsletters for family physicians, are included in the larger meta-analyses by Bryant, Lawrie, *et al.* and in the real-time meta-analysis by @CovidAnalysis.[248] As far as I can tell, they have not cooked the books.

On October 14, 2021, the Office of the Attorney General of the State of Nebraska issued a thorough 48-page review of the use of Ivermectin and Hydroxychloroquine for COVID-19, assessing all this data and more. This legal opinion was done at the request of the Chief Executive Officer of the Department of Health, and the filing with the Department of Justice upheld physicians' right to prescribe these treatments for COVID-19. The authors conclude with respect to Ivermectin: "We find the studies and meta-analyses sufficient to resolve this question," and they note in addition "that epidemiological evidence—derived from analyzing COVID-19-related data from various states, countries, or regions—is also instructive in the context of a global pandemic."[249] The chairman of the Tokyo Medical Association, Haruo Ozaki, has also recommended the use of ivermectin for COVID-19 patients.[250]

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[248] An example of aggregated, summarized research sent to family physicians in Canada is Tony Nickonchuk and Michael R Kolber, "Opening a Can of Helminths: Ivermectin for COVID-19," Tools for Practice (College of Family Physicians of Canada (CFPC), 7 September 2021), https://gomainpro.ca/wp-content/uploads/tools-for-practice/1630698383_tfp297_ivermectin.pdf. The title of the article is a pejorative reference to Ivermectin as an anti-parasite or deworming drug. The research presented is incomplete, and the references to Ivermectin poisoning in the media were alarmist if not naïve. There was a flood of stories in the late summer 2021 of people calling poison control after using veterinarian-prescribed doses of Ivermectin "a medicine used to deworm livestock." Some of these stories, such as the one that ran in *Rolling Stone,* and went viral, were an entire fabrication. And as one careful analysis reported, "Suddenly we see hundreds of articles on so-called 'Ivermectin poisoning.' Indeed, we see more ARTICLES published than there were TELEPHONE CALLS in August on Ivermectin to poison control centers in the ENTIRE NATION." Justin R. Hope, "The Great Ivermectin Deworming Hoax," *The Desert Review*, 6 September 2021, https://www.thedesertreview.com/opinion/columnists/the-great-ivermectin-deworming-hoax/article_19b8f2a6-0f29-11ec-94c1-4725bf4978c6.html; "The Ivermectin Deworming Hoax - Part II: Eric Clapton's Human Rights Warning," *The Desert Review*, 16 September 2021, https://www.thedesertreview.com/opinion/columnists/the-ivermectin-deworming-hoax---part-ii-eric-clapton-s-human-rights-warning/article_284902bc-14be-11ec-8d43-43e98275cff8.html; "The Ivermectin Deworming Hoax - Part III: Poison Control Exposed," *The Desert Review*, 20 September 2021, https://www.thedesertreview.com/the-ivermectin-deworming-hoax---part-iii-poison-control-exposed/article_a553b7f2-1a31-11ec-881a-a7df53e98d65.html. The FDA did not help with their tweet: U.S. FDA, "You Are Not a Horse. You Are Not a Cow. Seriously, y'all. Stop It. Https://T.Co/TWb75xYEY4," Tweet, @*US_FDA* (blog), 21 August 2021, https://twitter.com/US_FDA/status/1429050070243192839. Mary Beth Pfeiffer, "I Contacted @nytimes & They Corrected 8/25 Ivermectin Article. "This Article Misstated the Percentage of Recent Calls to the Mississippi Poison Control Center Related to Ivermectin. It Was 2 Percent, Not 70 Percent," Says Appended Note. Sentence Removed. Poof. But Damage Done. Https://T.Co/Bvc1SA9NUo," Tweet, @*marybethpf* (blog), 16 September 2021, https://twitter.com/marybethpf/status/1438652770408665097. An investigative article was published by the same author, Mary Beth Pfeiffer along with Linda Bonvi, "Horse-Bleep: How 4 Calls on Animal Ivermectin Launched a False FDA-Media Attack on a Life-Saving Human Medicine," Substack newsletter, *RESCUE with Michael Capuzzo* (blog), 16 October 2021, https://rescue.substack.com/p/a2520b80-bcd1-4905-a913-68f6f6809779.

[249] Douglas J. Peterson, James A. Campbell, and Mindy L. Lester, "Prescription of Ivermectin or Hydroxychloroquine as Off-Label Medicines for the Prevention or Treatment of COVID-19" (Office of the Attorney General, State of Nebraska, 14 October 2021), https://ago.nebraska.gov. The quotation is p. 17, and the full document is available at https://ago.nebraska.gov/sites/ago.nebraska.gov/files/docs/opinions/21-017_0.pdf.

[250] "東京都医師会、イベルメクチン投与を提言 重症化予防で," 日本経済新聞, 9 February 2021, https://www.nikkei.com/article/DGXZQOFB25AAL0V20C21A1000000/. See google translate: https://www-nikkei-com.translate.goog/article/DGXZQOFB25AAL0V20C21A1000000/?_x_tr_sl=auto&_x_tr_tl=en&_x_tr_hl=en-GB&_x_tr_pto=nui.

Indeed, Ivermectin has already been adopted for use in many countries, and the viral curve has consistently dropped off after its introduction.[251] The most dramatic report has come from Uttar Pradesh, the most populous state in India, with over 200 million people. If Uttar Pradesh were a country, it would be at least the 8th largest by population in the world.[252] On September 10, 2021, the *Hindustan Times* reported, "There are no active cases of the coronavirus disease (COVID-19) in 33 districts of Uttar Pradesh, the state government informed on Friday."[253] If this is correct, this is important data, for this is with only 11% fully vaccinated (as of September 19). Ivermectin was introduced as a prophylaxis and for treatment by government order on August 6, 2020. Vikssendu Agrawal, State Surveillance Officer, said "Uttar Pradesh was the first state in the country to introduce large-scale prophylactic and therapeutic use of Ivermectin," and he claimed its success was due to the timely introduction of the drug.[254] The Indian Bar Association has served legal notice on the WHO for having "deliberately suppressed the data regarding effectiveness of the drug Ivermectin, with an intent to dissuade the people of India from using Ivermectin."[255]

In contrast, critical care patients in the United States have had to resort to legal action to receive treatment with Ivermectin, and Canadian doctors who choose to treat with Ivermectin are disciplined or relieved of their duties.[256] Pharmacies in British Columbia are not permitted to fill prescriptions from doctors for Ivermectin if it is for COVID-19. It is unclear why there has been such strong opposition to Ivermectin by politicians, the media, national regulatory agencies, and the WHO.[257]

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[251] See the country comparisons and data analysis by Juan Chamie, "Epidemiologic Analyses on Ivermectin in COVID-19," FLCCC | Front Line COVID-19 Critical Care Alliance, accessed 25 June 2021, https://covid19criticalcare.com/ivermectin-in-COVID-19/epidemiologic-analyses-on-covid19-and-ivermectin/.

[252] "Population by Country (2021) - Worldometer," accessed 4 October 2021, https://www.worldometers.info/world-population/population-by-country/.

[253] "33 Districts in Uttar Pradesh Are Now Covid-Free: State Govt," *Hindustan Times*, 10 September 2021, https://www.hindustantimes.com/cities/lucknow-news/33-districts-in-uttar-pradesh-are-now-covid-free-state-govt-101631267966925.html.

[254] Maulshree Seth, "Uttar Pradesh Government Says Early Use of Ivermectin Helped to Keep Positivity, Deaths Low," MSN, reporting the Indian Express, 12 May 2021, https://www.msn.com/en-in/news/localnews/uttar-pradesh-government-says-early-use-of-ivermectin-helped-to-keep-positivity-deaths-low/ar-BB1gDp5U. "Health department teams of two, organized by area, proactively visited homes, conducted tests, and provided medication kits in what was probably the largest home prophylactic delivery program worldwide. Led by Dr. Anshul Pareek, General Medical and Health Services for the state, Uttar Pradesh became the first state across India to declare Ivermectin in a large-scale prophylactic program emphasizing 1) close contacts of COVID-19 patients, 2) health workers, and 3) general care of COVID-19 patients." "MSN Showcases the Amazing Uttar Pradesh Turnaround—The Ivermectin-Based Home Medicine Kits," TrialSiteNews, 19 September 2021, https://trialsitenews.com/msn-showcases-the-amazing-uttar-pradesh-turnaround-the-ivermectin-based-home-medicine-kits/.

[255] The Advocates Association of India, "IBA PRESS RELEASE," 26 May 2021, https://indianbarassociation.in/legal/. Note, however, that the Alberta Health Services COVID-19 Scientific Advisory Group in rapid review dated 5 October 2021 reported that the low levels of recorded deaths due to COVID-19 in Uttar Pradesh are due to under-reporting and a high degree of natural immunity with some 71% seroprevalence in July 2021. Alberta Health Services, "Ivermectin Evidence Review," COVID-19 Scientific Advisory Group COVID-19 Recommendations, 5 October 2021, https://www.albertahealthservices.ca/topics/Page17074.aspx. Document: https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-sag-ivermectin-in-treatment-and-prevention-rapid-review.pdf.

[256] Michael Capuzzo, "The Drug That Cracked Covid," *Mountain Home*, May 2021, https://www.mountainhomemag.com/2021/05/01/356270/the-drug-that-cracked-covid. Brian Peckford, "Tragedy In Rural Alberta, A Courageous Doctor Speaks Out ." *Peckford42* (blog), 3 October 2021, https://peckford42.wordpress.com/2021/10/03/tragedy-in-rural-alberta-a-courageous-doctor-speaks-out/.

[257] David R. Henderson and Charles L. Hooper, "Opinion | Why Is the FDA Attacking a Safe, Effective Drug?" *Wall Street Journal*, 28 July 2021, sec. Opinion, https://www.wsj.com/articles/fda-ivermectin-COVID-19-coronavirus-masks-anti-science-11627482393.

There has been a news blackout on Ivermectin in the mainstream media, and social media platforms have censored serious scientific reports as misinformation. The National Institute of Health (NIH) in the United States has approved Remdesivir as a treatment for COVID-19, a drug produced by one of the world's largest pharmaceutical companies, Gilead Sciences, costing $3000 USD per dose, though studies have shown no mortality benefit with COVID-19.[258] In this case there *is* a serious conflict of interest. "Seven members NIH COVID-19 Treatment Guidelines Panel acknowledge in financial disclosures that they have received research support or consultant payments from Gilead, or sit on the advisory board of the $60 billion company."[259] The US Senate hearing on early COVID-19 treatments, which was to hear from a panel about the promising reviews of Ivermectin, was panned beforehand by the *New York Times* as a forum for dubious, fringe theories. Moreover, "the hearing was boycotted by all seven Democrats (who have received a total of $1.3 million in big pharma bucks from Pfizer, AstraZeneca, Johnson & Johnson, Merck, Gilead, and others), and four of the seven Republicans, including Utah's Mitt Romney (more than $3 million received from big pharma), Ohio's Rob Portman ($542,400), and Florida's Rick Scott (more than $1 million in stock in Gilead Sciences, maker of Remdesivir)."[260] Pierre Kory's official testimony in this Senate hearing was erased by YouTube as "endangering the community" when it approached nine million views.

Merck, the pharmaceutical giant who developed Ivermectin, have been working on a new anti-viral drug Molnuvirapir, which is in late-stage clinical trials for treatment of COVID-19, and it stands to make the company handsome profits. (It was approved for use in the UK in November 2021.) They are seeking expedited approval for this drug under emergency use authorization guidelines, which, again, requires that there be no viable alternative available. Indeed, the US government announced on June 17 that it was investing more than $3 billion in the development of new antiviral drug therapies, and this included a contract with Merck for $1.2 billion for Molnuvirapir.[261] So here again there is a massive conflict of interest when the company issued a press release saying (without providing documentation) that there is no evidence of clinical efficacy of the off-patent Ivermectin for COVID-19 and also a concern about safety.[262]

On January 14, the NIH changed its negative recommendation against Ivermectin to a more neutral judgement of "insufficient evidence" to recommend.[263] However, as of March 5, the FDA was still

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[258] Christopher Rowland, "Remdesivir May Not Cure Coronavirus, but It's on Track to Make Billions for Gilead," *Washington Post*, 30 September 2020, https://www.msn.com/en-us/news/us/remdesivir-may-not-cure-coronavirus-but-its-on-track-to-make-billions-for-gilead/ar-BB19z4E5.

[259] Capuzzo, "The Drug That Cracked Covid," 24.

[260] Ibid.

[261] "Biden Administration to Invest $3 Billion from American Rescue Plan as Part of COVID-19 Antiviral Development Strategy," Text, HHS.gov, 17 June 2021, https://www.hhs.gov/about/news/2021/06/17/biden-administration-invest-3-billion-american-rescue-plan-as-part-COVID-19-antiviral-development-strategy.html. See also the press release, "Front Line COVID-19 Critical Care Alliance (FLCCC) President and Chief Medical Officer Issues Video Statement on Wasteful and Unnecessary U.S. Government Supply Agreement with Merck," 14 June 2021, https://covid19criticalcare.com/wp-content/uploads/2021/06/FLCCC-Merck-Statement.pdf. Pfizer also has an antiviral drug being prepared for market. An analysis of the conflict of interest over Merck's new Covid drug is James Lyons-Weiler, "The Extraordinary Hypocrisy of Molnupiravir," Substack newsletter, *Popular Rationalism* (blog), 5 October 2021, https://popularrationalism.substack.com/p/the-extraordinary-hypocrisy-of-molnupiravir.

[262] "Merck Statement on Ivermectin Use During the COVID-19 Pandemic," Merck.com, accessed 4 June 2021, https://www.merck.com/news/merck-statement-on-ivermectin-use-during-the-COVID-19-pandemic/.

[263] "Ivermectin," COVID-19 Treatment Guidelines, accessed 7 June 2021, https://www.covid19treatmentguidelines.nih.gov/antiviral-therapy/ivermectin/.

warning consumers against Ivermectin, raising concerns about safety at high dosage.[264] And on March 31, the WHO recommended against use of Ivermectin, except in clinical trials.[265] The WHO Ivermectin panel has been charged with not following its own protocols, arbitrarily excluding data, and other breaches of best practice.[266] On July 8, 2021, the NIH (the agency specifically governing hospital practice) quietly changed its guidelines to include Ivermectin as an antiviral agent "approved or under evaluation" with a dosing regimen and other parameters for use.[267]

It remains to be seen what the outcome of this controversy will be. Is there a danger of "populist medicine" intruding into the realm of "expert medicine"? Or is there suppressed evidence—for whatever reason—that needs to be heard? It might be useful to engage in a thought experiment that historians call a counter-factual hypothetical. Let us suppose that the internet had existed during the Thalidomide crisis in the 1960s. Could we imagine that dissenting scientists and regulators, or front-line medical personnel witnessing birth defects, might have taken to the internet to raise their concerns? If they were censored on mainstream platforms, might they have persisted getting the word out on their own websites or alternative platforms? Regardless of the answers to these hypotheticals, one hopes that in the present question (of the use of Ivermectin for COVID-19 treatment) the evidence will soon become sufficiently overwhelming to resolve the controversy decisively.

The politicized controversy over Ivermectin as a treatment for COVID-19 raises a number of larger questions about financial interest, censorship, and the influence of large drug companies, large technology companies, and others. We have largely avoided these questions thus far, but these issues will be taken up below in Chapter 6. For our purposes here in this chapter, seeking to analyse the efficacy of public policy with respect to pharmaceutical interventions (vaccines and therapeutics), it is enough to draw a few conclusions. There are clearly serious scientific questions outstanding. This is true regarding the safety of vaccines and also their overall efficacy, especially when employed not chiefly as a means of protecting the vulnerable, respecting individual informed consent, but as a sole public health strategy to achieve population-wide immunity and to end the state of emergency. But then there are also mounting questions about the suppression of certain therapeutics (especially Ivermectin) and unwillingness by public health authorities and the media to support or allow reasonable treatment protocols for outpatient and hospitalized cases of COVID-19. In rich industrialized countries, there were no emergency use authorizations for Ivermectin. Quite the contrary. Despite the low safety risk and high benefit potential, treatment with Ivermectin could get a doctor fired.

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[264] Office of the Commissioner, "Why You Should Not Use Ivermectin to Treat or Prevent COVID-19," *FDA*, 5 March 2021, https://www.fda.gov/consumers/consumer-updates/why-you-should-not-use-ivermectin-treat-or-prevent-COVID-19.

[265] "WHO Advises That Ivermectin Only Be Used to Treat COVID-19 within Clinical Trials," accessed 7 June 2021, https://www.who.int/news-room/feature-stories/detail/who-advises-that-ivermectin-only-be-used-to-treat-COVID-19-within-clinical-trials.

[266] The allegations are made in a press release, "FLCCC Alliance Statement on the Irregular Actions of Public Health Agencies and the Widespread Disinformation Campaign Against Ivermectin," 12 May 2021, https://covid19criticalcare.com/videos-and-press/flccc-releases/flccc-alliance-statement-on-the-irregular-actions-of-public-health-agencies-and-the-widespread-disinformation-campaign-against-ivermectin/.

[267] National Institutes of Health, "Table: Characteristics of Potential Antiviral Agents," COVID-19 Treatment Guidelines, 8 July 2021, https://www.covid19treatmentguidelines.nih.gov/tables/table-2e/.

Chapter 5
Our Disproportionate Response and the Fears We Have Awakened

To review, the mainstream public narrative has been that the lethal danger of COVID-19 can only be managed by submitting to an emergency regime of restrictions until near-universal vaccination provides a level of immunity from COVID-19 and its variants that allows us to return to normal. The analysis in the first chapter above suggests that the assumptions about the lethality and transmission of COVID-19, upon which public policy have been based, are faulty. The "state of fear" aroused by these faulty assumptions has been the basis for the legal "state of exception," authorizing the use of emergency powers to suspend constitutional rights and mandate universal restrictive interventions at a population level. These interventions themselves (masks, social distancing, lockdown, PCR testing) have weak and questionable scientific evidence for efficacy in reducing the transmission of the virus, but they have caused enormous collateral harms. With respect to pharmaceutical interventions, public health authorities have made special emergency provision for vaccines but have largely discountenanced repurposed drugs for therapeutic treatment. The evidence for vaccine safety is incomplete at best, and mounting evidence in support of repurposed therapeutics is suppressed ferociously, and in both cases there are potentially damning conflicts of interest. The public health strategy for pharmaceutical intervention has followed the example of restrictive non-pharmaceutical interventions by using the state of emergency to justify near-compulsory mass vaccination. This is seen as the only way to save lives. The alternative public policy of "focused protection" of the vulnerable, which seeks to allow civil society to function as freely as possible, has been rejected, even though this was standard public health policy prior to March 2020.

It remains now to turn from the data itself to analyse in more detail the social, ethical, and political response to COVID-19. The first and most fundamental observation is that tremendous fears have been awakened, sustained, and exploited. The restrictive public policies that have been imposed on society would not have succeeded apart from this state of fear.

The State of Fear: Convergent Interests and the Dominant Narrative

A particular egregious example of a national government weaponizing fear of the virus in order to manipulate the public into compliance with restrictive measures has been documented in the UK. A paper written by the Scientific Pandemic Influenza Group on Behaviours, dated March 22, 2020, advised the government "that a substantial number of people still do not feel sufficiently personally threatened" to follow the rules. One of the options proposed by these behavioural scientists to increase public compliance with imposed public health measures was to use media to increase a sense of alarm, since "the perceived level of personal threat needs to be increased among those who are

complacent, using hard-hitting emotional messaging."[268] The covert use of nudge behaviourism throughout the pandemic in the UK has also been documented by the journalist Laura Dodsworth in a detailed investigative report published in May 2021.[269] Canadian federal and provincial governments followed Britain's example in "the massive social science experiment" to modify citizen behaviour by applying the insights of behavioural science with "nudge units" operating behind the scenes to advise authorities on communication strategy.[270] Indeed, even the Canadian military were involved. An article in the *National Post* reported in September 2021: "Canadian military leaders saw the pandemic as a unique opportunity to test out propaganda techniques on an unsuspecting public, a newly released Canadian Forces report concludes. The propaganda plan was developed and put in place in April 2020 even though the Canadian Forces had already acknowledged that 'information operations and targeting policies and doctrines are aimed at adversaries and have a limited application in a domestic context.'" The Canadian Forces spent more than a million dollars training personnel in behaviour modification techniques. The aim was to "change attitudes and behaviours of Canadians as well as to collect and analyze information from public social media accounts," using "information warfare" tactics on citizens.[271] It is important to realize that communication from public authorities about COVID-19 has been neither a straightforward, candid reporting of facts nor an ingenuous sharing of information, but, more often than not, a sophisticated species of calculated, crafted, behavioural messaging.

Even apart from such overtly cynical tactics, there have been a number of mutually reinforcing interests at work to buttress the terrifying narrative of a deadly, invisible danger.[272] The interests of politicians, chief medical health offices, and media have converged to sustain an official narrative. Politicians, untrained and unprepared for an epidemic, depended heavily on their expert staff. It is clearly costly for politicians to go against the advice of their chief medical officers, though these officers themselves only hold their positions at the pleasure of the politicians.[273] It has often not been clear therefore who has been answering to whom, nor how moral and political decisions (as distinct

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[268] "Options for Increasing Adherence to Social Distancing Measures," Report by the Scientific Pandemic Influenza Group on Behaviour (SPI-B) (22 March 2020), 25-options-for-increasing-adherence-to-social-distancing-measures-22032020.pdf. Laura Dodsworth, *A State of Fear: How the UK Government Weaponised Fear during the COVID-19 Pandemic* (London: Pinter & Martin, 2021), 1-2. Gordon Rayner, "State of Fear: How Ministers "Used Covert Tactics" to Keep Scared Public at Home," *The Telegraph*, 2 April 2021, https://www.telegraph.co.uk/news/2021/04/02/state-fear-ministers-used-covert-tactics-keep-scared-public/.

[269] Dodsworth, *State of Fear* (see previous note). Her book has become an immediate best-seller in the UK in multiple categories.

[270] Susan Delacourt, "'The Nudge Unit': Ottawa's Behavioural-Science Team Investigates How Canadians Feel about Vaccines, Public Health and Who to Trust," *Thestar.Com*, 21 February 2021, sec. Opinion, https://www.thestar.com/politics/political-opinion/2021/02/21/the-nudge-unit-ottawas-behavioural-science-team-investigates-how-canadians-feel-about-vaccines-public-health-and-who-to-trust.html.

[271] David Pugliese, "Military Leaders Saw Pandemic as Unique Opportunity to Test Propaganda Techniques on Canadians, Forces Report Says," *National Post*, 27 September 2021, sec. Canada, https://ottawacitizen.com/news/national/defence-watch/military-leaders-saw-pandemic-as-unique-opportunity-to-test-propaganda-techniques-on-canadians-forces-report-says.

[272] See further the satirical analysis by Julius Ruechel, "Who's in Charge The Rule Makers, Power Brokers, and Influencers of Lockdown Wonderland," *JuliusRuechel.Com* (blog), 12 April 2021, https://www.juliusruechel.com/2021/04/whos-in-charge-rule-makers-power.html.

[273] Former premier of Newfoundland Brian Peckford discusses this phenomenon, Take Action Canada, *The Fall Of Democracy: Canada's Last Architect Of Charter Of Freedoms & Rights Brian Peckford*, video recording, September 2021, https://rumble.com/vmncht-the-fall-of-democracy-canadas-last-architect-of-charter-of-freedoms-and-rig.html.

from scientific assessments) have been made. Moreover, the media have almost universally reinforced, rather than challenged, the political narrative. There have been a few notable exceptions, chiefly in op-ed pieces. But media revenues are now either reliant on outright direct government funding (especially in the case of the CBC and the BBC) or dependent upon online user engagement, and the financial incentive is overwhelming to report alarming headlines ("click-bait"): "If it scares it airs; if it bleeds, it leads." In most cases, as I was told when I enquired with a reporter at the *Vancouver Sun,* the mainstream media do not any longer have the resources or much will for sustained, investigative journalism. Again, David Cayley has noticed how "both the *Globe* and the CBC seem to conceive their role not as platforms for discussion but as guardians of correct thought."[274] The decision on the part of editors to select stories that evoke fear, to highlight statistics that alarm (without context), and to display images that frighten has added to the pressure on politicians to demonstrate strength. The tough regulatory actions of politicians in one region, approved by public opinion, have exerted pressure on politicians in other regions to act likewise. Soon everyone is using the same talking points.

Given the political cost of admitting that harmful restrictions and mandates could have been a mistake, the pressure to maintain the narrative (high lethality, invisible spread, and dangerous mutation) has increased the longer the measures are in place. The "sunk costs" are enormous. Accordingly, science and medicine have been recast, not as contingent bodies of knowledge open to contestation, but as a homogeneous discourse offering an immaculate set of facts and received opinions.[275] The meme on social media is "Follow the Science™." Cayley has noted how science has been personified as a singular voice: science tells us, or follow the science, or "we know that . . ," etc.[276] The foil to this myth of self-evident science is that any arguments that challenge the dominant narrative, however reasoned and supported by evidence, are mischaracterized, discountenanced, caricatured, or censored, and critics are regularly libelled as "Covid deniers" or worse.[277] Alternative viewpoints are dismissed as the fringe ideas of "anti-mask, anti-vax, right-wing conspiracy theorists."

John Ioannidis's indictment of this distortion of scientific discourse is scathing: "Honest, continuous questioning and exploration of alternative paths are indispensable for good science. In the authoritarian (as opposed to participatory) version of public health, these activities were seen as treason and desertion." With COVID-19 the rhetoric turned increasingly martial: "The dominant narrative became that 'we are at war.' When at war, everyone has to follow orders. If a platoon is

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[274] Cayley, Pandemic Revelations.

[275] On the problems with this, see the immunologist Steve Templeton, "The Problem With Science Is Scientists," Substack newsletter, *Fear of a Microbial Planet*, 8 October 2021, https://stemplet74.substack.com/p/the-problem-with-science-is-scientists; Alex Stevens, "Governments Cannot Just "Follow the Science" on COVID-19," *Nature Human Behaviour* 4, no. 6 (June 2020): 560–560, https://doi.org/10.1038/s41562-020-0894-x; "Retracted Coronavirus (COVID-19) Papers," *Retraction Watch* (blog), 29 April 2020, https://retractionwatch.com/retracted-coronavirus-COVID-19-papers/; Stuart Ritchie, *Science Fictions: How Fraud, Bias, Negligence, and Hype Undermine the Search for Truth*, First edition (New York: Metropolitan Books ; Henry Holt and Company, 2020); Philip E. Tetlock, *Expert Political Judgment: How Good Is It? How Can We Know?*, New edition (Princeton Oxford: Princeton University Press, 2017).

[276] Cayley, Pandemic Revelations. See also Hannah Devlin and Sarah Boseley, "Scientists Criticise UK Government's "following the Science" Claim," The Guardian, 23 April 2020, http://www.theguardian.com/world/2020/apr/23/scientists-criticise-uk-government-over-following-the-science.

[277] See, e.g., the resignation in protest from *Frontiers in Pharmacology* of the founding topic editors over the cancellation of an issue of peer-reviewed articles on "Treating COVID-19 With Currently Available Drugs." https://www.hartgroup.org/wp-content/uploads/2021/05/ResignationsFrontiers.pdf. See further, Catherine Offord, "Frontiers Pulls Special COVID-19 Issue After Content Dispute," *The Scientist Magazine*, 28 April 2021, https://www.the-scientist.com/news-opinion/frontiers-pulls-special-COVID-19-issue-after-content-dispute-68721.

ordered to go right and some soldiers explore maneuvering to the left, they are shot as deserters. Scientific skepticism had to be shot, no questions asked." In this atmosphere, Ioannidis observes, even serious scientists were driven to become "unrestrained, wild-beast avatars of themselves, spitting massive quantities of inanity and nonsense."[278]

A cancel culture, dismissive of any scientific dissent, was evident in many quarters in the hostile reception of the "Great Barrington Declaration," a minority report, as it were, by scientists of the highest reputation from Harvard, Stanford, and Oxford, with more than 860,000 signatories, including a large number of highly respected medical and public health scientists and medical practitioners.[279] Another example, here in Canada, is the treatment of Dr. John Conly, a senior professor at the University of Calgary, who took part in a scientific panel discussion in April 2021 on the transmissibility of the virus. Evidence was coming out that the virus might be spread by aerosols and not by droplets. He maintained the latter position (a minority view), but the brutal response illustrates the silencing of scientific discussion by slander. "Social media attacks compared Conly and like-thinking colleagues to Auschwitz doctor Josef Mengele, called him stupid and a quack, and suggested he was responsible for 'millions of deaths."[280] It did not matter that the professor was a member of the Order of Canada and chair of a committee that advises the World Health Organization on COVID-19 infection control. The official narrative has discountenanced dissent and authorized such vitriol.

Again, the official narrative has been reinforced by a convergence of interests among politicians, public health officers, and the media—all of these together. At the same time, it has become clear that the financial and political motivations of the world's largest pharmaceutical and technology corporations, along with certain influential globalist elites, are aligned to support the same account. The greater the fear, the greater the overall prospects for drug companies, including not only billions in profits, but also expedited approvals, legal immunity, and the suppression of alternatives.[281] So also the pandemic has emboldened technology giants like Google to call for what Naomi Klein calls a

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[278] Ioannidis, John P A, "How the Pandemic Is Changing Scientific Norms," Tablet Magazine, 9 September 2021, https://www.tabletmag.com/sections/science/articles/pandemic-science.

[279] The attacks on the Great Barrington Declaration are described by James Harrigan and Phillip W. Magness, "The Great Barrington Declaration One Year On," AIER: American Institute for Economic Research, 5 October 2021, https://www.aier.org/article/the-great-barrington-declaration-one-year-on/. See also Greg Piper, "'Science Denialist': Vaccine Scientists Who Question COVID Policy Compared to Big Tobacco," Just The News, 19 October 2021, https://justthenews.com/accountability/cancel-culture/vaccine-scientists-who-question-covid-policy-compared-big-tobacco; Martin Kulldorff, "Covid, Lockdown and the Retreat of Scientific Debate," The Spectator, 12 October 2021, https://www.spectator.co.uk/article/covid-lockdown-and-the-retreat-of-scientific-debate.. In addition to the highly credentialed signatories to the Great Barrington Declaration (https://gbdeclaration.org/), see also the group of highly qualified UK doctors, scientists, economists, psychologists and other academic experts at "Who Are We?," HART: Health Advisory and Recovery Team, accessed 15 May 2021, https://www.hartgroup.org/bios/. A more serious response to the Great Barrington Declaration was the John Snow Memorandum, which nevertheless seeks to claim, by declaring it to be so, that there is a settled scientific consensus about the management of COVID-19. Nisreen A Alwan *et al.*, "Scientific Consensus on the COVID-19 Pandemic: We Need to Act Now," *The Lancet* 396, no. 10260 (October 2020): e71–72.

[280] Tom Blackwell, "'It's Very Volatile': How a Scientific Debate over COVID Spread Turned into an Online War," *National Post*, 13 May 2021, https://nationalpost.com/health/airborne-vs-droplets-how-a-scientific-debate-over-covid-spread-turned-into-an-online-war.

[281] MacKenzie Sigalos, "You Can't Sue Pfizer or Moderna If You Have Severe Covid Vaccine Side Effects. The Government Likely Won't Compensate You for Damages Either," CNBC, 17 December 2020, https://www.cnbc.com/2020/12/16/covid-vaccine-side-effects-compensation-lawsuit.html. Sharon Lerner, "How Big Pharma Will Profit From the Coronavirus," *The Intercept*, 13 March 2020, https://theintercept.com/2020/03/13/big-pharma-drug-pricing-coronavirus-profits/.

"Screen New Deal." In the interests now of safety and public health, and in an environment of fear and uncertainty, comes a promise of a safe "no-touch future" and Amazon-like efficiency in the delivery of services. In particular, the present crisis has been seized on as a moment to overcome any remaining democratic obstacles to heightened digital surveillance. As Google's Eric Schmidt said already in a presentation in May 2019, "Surveillance is one of the 'first-and-best customers' for AI," and "Mass surveillance is a killer application for deep learning."[282] And as New York Governor Andrew Cuomo said on May 8, 2020, after a video conference with Schmidt, "We are ready, we are all-in."[283] In addition to the potentially self-serving interests of highly capitalized drug companies and technology corporations, we have seen the opportunistic call likewise for more globalist policy ("build back better," and "the great reset") under the conditions of the pandemic: modern monetary theory, staggering levels of sovereign debt, big government, universal basic income, large-scale public–private partnerships, as well as the expansion of the state in censorship and legislative coercion—all in the service of solving global problems and within a new world order. These ideas have been a theme of the World Economic Forum and other global elites, elected and unelected.[284] The term "progressive" is not ideal for these policy directions since the adherents of these political proposals do not necessarily correspond to traditional capitalist–socialist or liberal–conservative alignments. Indeed, the globalist vision has been critiqued as neo-feudalism.[285] There are critics of "Big Tech" and "Big Pharma" from both the left and right, from both socialists and libertarians and all those in between on the political spectrum. All told, however, the interests of large drug companies, dominant technology platforms, and globalist elites have been powerfully reinforcing during the COVID-19 crisis. One need not assume a secret conspiracy still to see convergent opportunism. The saying, "Don't waste a good crisis," has been used often during the pandemic.[286]

The final and most volatile domain where the official narrative is reinforced has been in the swift reactions not of the sovereign people, but of the "twitter mob" with its instant judgements on social media. In this polarizing environment—where there is no longer any private sphere, but instead the

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[282] Naomi Klein, "Under Cover of Mass Death, Andrew Cuomo Calls in the Billionaires to Build a High-Tech Dystopia," *The Intercept*, 8 May 2020, https://theintercept.com/2020/05/08/andrew-cuomo-eric-schmidt-coronavirus-tech-shock-doctrine/.

[283] Ibid.

[284] "The pandemic represents a rare but narrow window of opportunity to reflect, reimagine, and reset our world." Klaus Schwab, "Now Is the Time for a 'Great Reset,'" World Economic Forum, accessed 31 May 2021, https://www.weforum.org/agenda/2020/06/now-is-the-time-for-a-great-reset/. Klaus Schwab and Thierry Malleret, *COVID-19: The Great Reset*, (Geneva: World Economic Forum, 2020). "The Davos Agenda," World Economic Forum, accessed 10 June 2021, https://www.weforum.org/events/the-davos-agenda-2021/.

[285] Jodi Dean, "Neo-Feudalism: The End of Capitalism?" *Los Angeles Review of Books*, 12 May 2020, https://lareviewofbooks.org/article/neofeudalism-the-end-of-capitalism/.

[286] Christopher Nardi, "'Don't Waste a Good Crisis': Experts Push Governments to Create Digital ID Programs in Wake of COVID-19," *Nationalpost*, 25 June 2020, https://nationalpost.com/news/politics/dont-waste-a-good-crisis-experts-push-governments-to-create-digital-id-programs-as-COVID-19-pushes-digital-transformation. Brooks DeCellia, "CBC News Poll: Why the Economic Crisis Could Speed up Transition to Renewable Energy," CBC News, 16 April 2020, https://www.cbc.ca/news/canada/calgary/cbc-news-poll-energy-transition-support-1.5533036. In this vein, the former governor of the Bank of Canada and the Bank of England, Mark Carney, wrote, "If we come together to meet the biggest challenges in medical biology, so too can we come together to meet the challenges of climate physics and the forces driving inequality." Mark Carney, *Value(s): Building a Better World for All* (New York: Public Affairs, 2021), 261. Klaus Schwab of the World Economic Forum likewise wrote, "The possibilities for change and the resulting new order are now unlimited and only bound by our imagination." Terence Corcoran, "From Vaccine Passports to Personal Carbon Passports: Get Ready for CLIMATE-21 Fossil Fuel Virus Lockdowns," *Financial Post*, 8 September 2021, https://financialpost.com/opinion/terence-corcoran-get-ready-for-climate-21-fossil-fuels-virus-lockdowns.

display and permanence of every error, the denial of atonement for any wrongs, and the mass hysteria of crowds ("nudged" this way or that by the invisible algorithms of surveillance technology)—the stakes have been raised enormously for public figures to keep control of the narrative. As Douglas Murray has observed about the madness of crowds in social media, "It is the reason why politicians look so terrified when anyone tries to lead them on to any rocky terrain. . . One negative response (from anybody in the world) can be turned into a storm. This fear now engulfs almost all public figures."[287]

Ethics Beyond Sociology

It is not that individual politicians, public health officials, journalists, business owners, and activists are necessarily compelled to act dishonestly or to collude in their own interests. Many, if not most, have no doubt been acting more or less from conviction, conscience, and according to professional standards. When interests converge like this, however, there exists what sociologists call a "plausibility structure" powerfully supporting the assumption that the danger must be as it appears and the necessary response, self-evident.[288] Indeed, the sociology of moral panics, developed by Stanley Cohen and others, and widely applied to analyze past crises, describes just such a repeated pattern of response to perceived threats in a society: the identification of a danger, the development of hostility to those associated with the threat, the emergence of a consensus narrative to account for it, the disproportional actions taken to eliminate it, and so on.[289] It would be hard not to recognize COVID-19 as just such a moral panic. Similar dynamics are evident in the psychology of mass formation, where social isolation, anomie, free-floating anxiety and discontent are conditions that allow for mass formation ("mental intoxication") around a focal narrative that is radically intolerant of dissent.[290] Sociological and psychological pressures do not themselves falsify the official narrative of the pandemic, of course, but they do signal the possibility of distortion and the acute importance of heightened vigilance, investigative research, and critical assessment of all the evidence available.

These social forces are real, and individuals and corporate bodies may be acting in self-interest or operating in the grip of a moral panic. This needs to be acknowledged and assessed in due course. But it is good to remember that public reasoning *always* operates under social pressures. Scientists, politicians, public health officers, and every one of us, operate daily in the midst of myriad temptations to act in self-interest rather than in pursuit of what is wholly good and true. The motives of power and profit, shame and approval, must be resisted by *all* people of goodwill in the effort to know the truth. The important first question to ask about pandemic reporting must always, therefore, be "Is it true?" And then we can ask, "Have we acted rightly?"

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[287] Douglas Murray, *The Madness of Crowds: Gender, Race and Identity* (London: Bloomsbury Continuum, 2020), 157 (cf. 109-110).

[288] The term was coined by Peter L. Berger, *The Sacred Canopy* (Garden City, NY: Doubleday, 1967).

[289] Stanley Cohen, *Folk Devils and Moral Panics*, Routledge Classics (Abingdon, UK: Routledge, 2011), especially the first chapter, "Deviance and Moral Panics."

[290] Gustave Le Bon, *The Crowd: A Study of the Popular Mind* (Mineola, NY: Dover Publications, 2001). Patrick Dewals, "The Emerging Totalitarian Dystopia: An Interview With Professor Mattias Desmet," *The Daily Sceptic* (blog), 7 March 2021, https://lockdownsceptics.org/interview-with-mattias-desmet-professor-of-clinical-psychology/; Thomas Casey, "Mass-Formation by Dr. Mattias Desmet Professor of Psychology University of Ghent," *Thomascasey* (blog), 28 August 2021, https://thomascasey.wordpress.com/2021/08/28/mass-formation-by-dr-mattias-desmet-professor-of-psychology-university-of-ghent/; Dan Astin-Gregory, *Why Do So Many Still Buy into the Narrative? An Interview with Mattias Desmet*, video recording, 2021, https://www.youtube.com/watch?v=uLDpZ8daIVM.

Proportionality and the Balance of Harms

My own assessment in light of the analysis in the chapters above is that the response to COVID-19 has been *disproportionate* and that if the Oakes test had been properly applied in Canada, there could have been a more proportionate response and a more careful balancing of harms.[291] This is what was called for in December 2020 and January 2021 by Preston Manning, former leader of the official opposition in Parliament, in an article in the *Globe and Mail* and an open letter to Justice Minister and Attorney General David Lametti in the *National Post*.[292] Manning called for "a better and more equitable balance between: the protection of the health of Canadians through government measures adopted in response to the COVID-19 crisis and the protection of the rights and freedoms of Canadians as guaranteed by the Canadian Charter of Rights and Freedoms." He also noted the government's "obligation to provide Parliament, and the public, with evidence that it has done its due diligence and taken into account all the scientific evidence, including the views of those who disagree with the government's assumptions." He called specifically for "government to broaden its management beyond the health department and the advice of the medical community to include a broader range of scientific expertise." There should also be a "comprehensive assessments of the impacts of health-protection measures," especially a full economic impact assessment. I would add the need to provide an accounting for the full balance of harms inflicted on Canadians by public health mandates including (but not limited to) the impact of missed GP and specialist appointments, missed cancer screening, delayed emergency medical treatment of stroke and cardiovascular disease (including cardiac arrest), and other delayed treatments; rates of drug addiction, alcoholism, homelessness, and suicide; impacts on mental health; rates of domestic and child abuse; impacts on all levels of education; impacts on arts and culture; rates of unemployment and closing of businesses; and impacts on inequality.[293]

Some data are beginning to appear, and it is concerning. For example, in the UK, reports are that 12,000 women were left with breast cancer undiagnosed because of the lockdowns.[294] There was a five-fold increase in the number of rape victims waiting more than a year for justice.[295] Cases of serious harm to children linked to abuse rose by a fifth.[296] As with the statistics on COVID-19, each of these listed harms is an abstraction that stands for countless stories of human tragedy and suffering. I have

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[291] This principle of proportionality is also enshrined in that statement of the UN Commission on Human Rights, The Siracusa Principles on the Limitation and Derogation Provisions in the International Covenant on Civil and Political Rights, UN Doc E/CN.4/1985/4 (Sept. 28, 1984), Principle 51.

[292] Preston Manning, "Whatever Happened to Canadians' Famous Pursuit of Balance?" *Globe and Mail*, 29 December 2020, https://www.theglobeandmail.com/opinion/article-whatever-happened-to-canadians-famous-pursuit-of-balance/. Preston Manning, "Lockdown Rules Are Violating Our Rights. I'm Calling on the Justice Minister to Intervene," *National Post*, 26 January 2021, https://nationalpost.com/opinion/preston-manning-lockdown-rules-are-violating-our-rights-im-calling-on-the-justice-minister-to-intervene.

[293] Some of these harms have been catalogued in the UK by Laura Dodsworth, *State of Fear*, 232-235, and internationally at "CG Database," Collateral Global, accessed 25 May 2021, https://collateralglobal.org/cg-database/. I am not aware of any systematic collection of data on harms in Canada.

[294] Kat Lay, "Lockdowns Left 12,000 Women with Undiagnosed Breast Cancer," *The Times (London)*, 5 October 2021, sec. news, https://www.thetimes.co.uk/article/lockdowns-left-12-000-women-with-undiagnosed-breast-cancer-v2dr7gh59.

[295] Charles Hymas, "Five-Fold Rise in Rape Victims Waiting More than a Year for Justice," *The Telegraph*, 22 October 2021, https://www.telegraph.co.uk/news/2021/10/22/five-fold-rise-rape-victims-waiting-year-justice/.

[296] Adam Forrest, "'Harrowing' Rise in Child Deaths since Covid Lockdowns," The Independent, 20 August 2021, https://www.independent.co.uk/news/health/covid-children-deaths-neglect-england-b1906120.html.

tried to focus in this essay on analysis, and so I have avoided narrating the many poignant human stories that lie beneath the data and the issues. An anecdote is a data point of one. And yet it is good to be reminded that not only with the harms of COVID-19, but also with the collateral harms of public policy, there is real suffering, grief, and loss for individuals and their loved ones.

In poor countries especially, the impact of restrictive measures has been devastating. A news release from the WHO stated, "Drastic cuts in the availability and use of essential public health services across South Asia due to COVID-19 may have contributed to an estimated 228,000 additional child deaths in 2020, according to a new United Nations Report. Around 11,000 additional maternal deaths are also expected."[297] Here too we need a full accounting of the balance of harms.

The need for proportionality is not about a cold economic calculus that can be computed by actuarial tables of QALYs (quality adjusted life years).[298] It requires moral judgement. The call for proportionality is grounded in our deepest moral intuitions as human beings that each person matters and that we have an obligation to one another. For the philosopher Emmanuel Levinas, ethics has its very foundation here, in "the face of the other."[299] The pandemic has, however, opened up a dangerous ethical gap. Medical ethics has typically been patient-centred and focused upon individuals and an absolute "duty of care" in the Hippocratic tradition. I must do my best for the person before me. The ethics of public health, on the other hand, concerns populations, and epidemiological calculations are inevitably utilitarian: the greatest good for the greatest number.[300] There is a very serious danger in the shift toward the latter framework of a brutal utilitarianism that has no regard for the individual life. One only need imagine a "cold utilitarianism" that would see nothing wrong with killing one person to harvest his or her organs and redistribute these body parts to save a greater number of others.[301] Utilitarian thinking quickly dispenses with individual rights and constitutional protections, and it always leads to a police state. The history of the twentieth century reminds us that cold utilitarianism is not as unthinkable as we might suppose. In the end, neither autonomous self-interest nor a population-level calculus will serve the good of each and of all. A relational ethics (which for the Christian will always be grounded in revealed nature of God himself as persons-in-communion)

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[297] WHO News Release, "Disruptions in Health Services Due to COVID-19 "May Have Contributed to an Additional 239,000 Child and Maternal Deaths in South Asia" - UN Report," 17 March 2021, https://www.who.int/southeastasia/news/detail/17-03-2021-disruptions-in-health-services-due-to-COVID-19-may-have-contributed-to-an-additional-239-000-child-and-maternal-deaths-in-south-asia---un-report. The full report is here: https://www.unicef.org/rosa/reports/direct-and-indirect-effects-COVID-19-pandemic-and-response-south-asia.

[298] Milton C. Weinstein, George Torrance, and Alistair McGuire, "QALYs: The Basics," *Value in Health : The Journal of the International Society for Pharmacoeconomics and Outcomes Research* 12 Suppl 1 (March 2009): S5-9, https://doi.org/10.1111/j.1524-4733.2009.00515.x.

[299] Diane Perpich, "Levinas and the Face of the Other," in *The Oxford Handbook of Levinas*, ed. Michael Morgan (Oxford University Press, 2019), https://doi.org/10.1093/oxfordhb/9780190455934.013.17.

[300] I am drawing here on the insights of a graduate student paper by medical doctor whose name I shall keep private, "Whose lives matter…and how: Trinitarian ethics applied to isolation of the elderly during COVID-19," Research Paper, 14 December 2020, Regent College, Vancouver. The contrast between these two ethical frameworks is noted in David Ian Jeffrey, "Relational Ethical Approaches to the COVID-19 Pandemic," *Journal of Medical Ethics* 46, no. 8 (1 August 2020): 495–98, https://doi.org/10.1136/medethics-2020-106264. "Clinicians and nurses are trained to adopt a duty based (Kantian), ethical approach which stipulates that the care of the individual patient is their prime concern. When health risks primarily affect an individual, respect for autonomy has a high value. However, when a population is at risk, collective interests assume the greatest relevance" (p. 495).

[301] "Whose lives matter," 2, drawing on Stephen John, "The Ethics of Lockdown: Communication, Consequences, and the Separateness of Persons," *Kennedy Institute of Ethics Journal*, September 2020, https://kiej.georgetown.edu/ethics-of-lockdown-special-issue/.

will always strive to consider the individual good and the common good together. And over against the harms so easily imposed by the bureaucratic state and its centralized planning, the ideal of subsidiarity in Catholic social thought argues that nothing should be done by a larger and more complex organization which could be done just as well by a smaller and simpler organization.[302] This principle would go far to ensure that the local care for vulnerable individuals is not crushed by the enforcement of broad population-wide public policies that can never take into account the exigencies of those particular persons-in-relation who do not conform to the abstract quantities of epidemiological reasoning. Trying to adhere fastidiously to public health orders has so often led to absurdities in practice. At best there is a loss of common sense; at worst, there are enormous harms. Public Health Canada is not anyone's doctor, and there is no way such authority or its representatives can prescribe medical treatment for any individual's needs and circumstance. Prime Minister Trudeau: you are not my doctor.

The Crisis of Fear

The danger of the disproportionate response to the threat of COVID-19 on the part of western governments is not trivial. As the Swedish psychiatrist David Eberhard has argued, "We feel less and less secure despite arguably living in the safest period of time in human history."[303] This paradox was observed well before the virus became a unique threat. Matthew Crawford argues, "Safetyism is a disposition that has been gaining strength for decades and is having a triumphal moment just now because of the virus. Public health, one of many institutions that speak on behalf of safety, has claimed authority to sweep aside whole domains of human activity as reckless, and therefore illegitimate."[304] A population that has been made to feel disproportionately afraid is uniquely vulnerable, for "people willingly sacrifice liberty for security during a crisis."[305] The Italian philosopher Georgio Agamben watched on as his country descended in 2020 into a biosecurity state: "We can use the term 'biosecurity' to describe the government apparatus that consists of this new religion of health, conjoined with the state power and its state of exception. . . Experience has shown that, once a threat to health is in place, people are willing to accept limitations on their freedom that they would never theretofore have considered."[306] Again, Crawford sees this working at a psychological level in a reinforcing way that is hard to escape: "At the level of sentiment, there appears to be a feedback loop wherein the safer we become, the more intolerable any remaining risk appears. At the level of

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[302] "A community of a higher order should not interfere in the internal life of a community of a lower order, depriving the latter of its functions, but rather should support it in case of need and help to coordinate its activity with the activities of the rest of society, always with a view to the common good." John Paul II, *Centesimus Annus*, Papal Encyclical, 1991. https://www.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_01051991_centesimus-annus.html#-2S.

[303] TEDx Talks, *The Security Junkie Syndrome; How Pausing the World Leads to Catastrophe | David Eberhard | TEDxSSE*, 2021, https://www.youtube.com/watch?v=43J7hD9I0jY.

[304] Matthew Crawford, "The Danger of Safetyism," *UnHerd* (blog), 14 May 2020, https://unherd.com/2020/05/the-hypocrisy-of-safetyism/. See also Matthew B. Crawford, *Why We Drive: On Freedom, Risk and Taking Back Control* (London: The Bodley Head, 2020).

[305] Dodsworth, *A State of Fear*, 45.

[306] Giorgio Agamben, *Where Are We Now? The Epidemic as Politics*, trans. Valeria Dani (London: Rowman & Littlefield, 2021), 9. On 1 October 2021 the UK officially replaced "Public Health England" with a new "Health Security Agency": "UK Health Security Agency Launches with a Relentless Focus on Keeping the Nation Safe," GOV.UK, accessed 5 October 2021, https://www.gov.uk/government/news/uk-health-security-agency-launches-with-a-relentless-focus-on-keeping-the-nation-safe.

bureaucratic grasping, we can note that emergency powers are seldom relinquished once the emergency has passed. Together, these dynamics make up a kind of ratchet mechanism that moves in only one direction, tightening against the human spirit."[307]

This is why I think it is important to address this crisis directly at the point where people are most afraid, and to ask, "Why are you afraid?" and "What are you afraid of?" This is the key inflection point. When the flight-or-fight amygdala brain is activated, it is important to slow down and to think. To provide people with a more accurate and specific risk assessment of morbidity and mortality is therefore one important task at all levels of society (politicians, public health authorities, media). This is essential if we are to reduce the ancient, deep-seated fear of contagion and death that has been awakened. It is important to demand that we not be lied to or misled. We each need to be able to make our own informed evaluation of the data. The principle of informed consent in medicine is sacrosanct.[308]

At a deeper level, this crisis exposes the need to reckon more seriously with the human condition as subject to frailty and irretrievably mortal. Of course, we urgently want to prevent unnecessary suffering and death. But there is a more profound existential question we are facing: "Why are we afraid to suffer and to die?" and do we really think modern medicine and a biosecurity state can protect us from the human condition itself? What other resources do we have, and how are we prepared to face up to the suffering that surely comes to us all, sooner or later, so that we might find meaning and hope in the midst of this and still to live a good life? And what will it mean for us to die a good death? The state cannot intervene, nor can the medical establishment, to pre-empt the need to answer these questions for ourselves. I suspect there is a great inner freedom when you are not afraid to die. Alasdair McIntyre wrote of the need for a new St. Benedict in our time to help us recover virtue. I wonder if we need a new St. Francis now to teach us how to receive the world as a gift and, when the time comes, how to die. We want to save lives, heal the sick, and protect the vulnerable, but we must still all reckon with our mortality.

In his 1974 article entitled "Medical Nemesis" in *Lancet*, and in the book that followed, *Limits to Medicine,* the philosopher and social critic Ivan Illich provided the classic analysis of iatrogenic (medically induced) harm at all levels: clinically, socially, and culturally. And part of what I have been concerned with in the analysis above are the very direct iatrogenic harms that may be seriously underplayed at present for political and other motives. More broadly, though, Illich believed that as the goods of modern medicine advanced in the last century there came a point where more and more of life was medicalized. Soon the bureaucratic management of health as a quasi-industrial system began to do harm (as with education and transportation). Although Illich documented myriad harms at many levels, perhaps his greatest concern was the way modern medicine can make us passive to our own lives and dependent upon institutions from birth to death, supplanting in particular the human, social, cultural, and religious resources necessary to face with dignity the intimate experience of pain,

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[307] Crawford, "Danger of Safetyism."

[308] "Universal Declaration on Bioethics and Human Rights: UNESCO," accessed 30 August 2021, http://portal.unesco.org/en/ev.php-URL_ID=31058&URL_DO=DO_TOPIC&URL_SECTION=201.html. "WMA - The World Medical Association-WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects," accessed 30 August 2021, https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/. Informed Consent: It's Your Right – Canadian Covid Care Alliance," Canadian Covid Care Alliance, accessed 26 September 2021, https://www.canadiancovidcarealliance.org/media-resources/informed-consent-its-your-right/.

impairment, loss, and death to which we are subject. Medicine can aid us in these human experiences, but it cannot protect us from the contingency that comes with being alive.[309]

As we probe more deeply our own fear of suffering and death in this crisis, we may find that we have been willing to trade almost everything for what Illich and Agamben describe as mere natural life, or bare life, or biological life.[310] What is a society with no value other than survival?[311] Again, each human life is unspeakably precious, irrespective of any deemed "usefulness," and the preservation of life itself is a holy task. But how long can we sustain a society of the half dead, living in what Walker Percy once described in fiction as the "thanatos syndrome"?

Of course, we want to mitigate what harms we can, and especially to protect the vulnerable with skill, determination, and sacrifice. But something happens to us when we begin really to indwell in the sort of epidemiological modelling that we have been subjected to daily for the past year and more. I cease to live the life present to me immediately, here in my own body, in this moment, in this place, with my own unique history. Illich spoke prophetically in the 1990s when he said, "In the most intense way, this disembodiment happens through what we call risk awareness. If anybody should ask me what is the most important religiously celebrated ideology today, I would say the ideology of risk awareness." He explained, "Why is risk so disembodying? Because it is a strictly mathematical concept. It is a placing of myself, each time I think of risk, into a base population for which certain events, future events, can be calculated. It's an invitation to intensive self-algorithmization, not only disembodying, but reducing myself entirely to misplaced concreteness by projecting myself on a curve."[312] His compound word "self-algorithmization" is dreadful, but I can think of none better to describe the experience of the pandemic this past twenty months, as we locate ourselves repeatedly in the daily reporting of "cases" or, now, in the percentage of the population vaccinated. It is as if we listen to the weather forecast all day, and indwell its numbers, but never go outside to see if it is raining.

Agamben at his most tender suggests another response to the fears that have been awakened in society. In an admittedly dense Heideggerian phenomenological analysis of fear, he comes to the conclusion that it may be less by rational argument than by memory that we find our way out of the disabling anxiety of the moment. He knows that people cannot easily argue themselves out of fear. He suggests instead "remembering"—remembering that it is a condition of our being alive to the world, open to it, that we can also be afraid sometimes. Still, the world presents itself to me as pure gift. "Only because I am in the world can things appear to me and, potentially, scare me." But remembering this prior reality of a larger, unspeakably beautiful world that stands open to me—this

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[309] See Ivan Illich, "Medical Nemesis," *The Lancet* 303, no. 7863 (May 1974): 918–21, https://doi.org/10.1016/S0140-6736(74)90361-4; Illich, *Limits to Medicine: Medical Nemesis—The Expropriation of Health* (Toronto: McClelland and Stewart, 1976); and Ivan Illich and David Cayley, *The Rivers North of the Future: The Testament of Ivan Illich* (Toronto: House of Anansi Press, 2005). David Cayley describes the way health and safety and "naturalized life" are now treated in a quasi-religious way, with the consequence that death has no meaning. It is simply to exit the system. "Naturalized life, divorced from its source, is the new god. Health and safety are its adjutants. Its enemy is death. Death still imposes a final defeat but has no other personal meaning. There is no proper time to die – death ensues when treatment fails or is terminated." Cayley, "Questions About the Current Pandemic From the Point of View of Ivan Illich," *Davidcayley.Com* (blog), 8 April 2020, https://www.davidcayley.com/blog/2020/4/8/questions-about-the-current-pandemic-from-the-point-of-view-of-ivan-illich-1.

[310] Agamben, *Where Are We Now?* 17-18.

[311] Agamben, 18.

[312] Illich and Cayley, *Rivers North*, 210. Cf. David Cayley's introduction, p. 39: "Indeed, he believed that the ever-growing emphasis on risk calculation in medicine constitutes the ultimate disembodiment, because it invites people to think of themselves not as unique persons but as members of an abstract class for which probabilities can be calculated."

can allow me to find proportion and resist the abuse of power on the basis of fear.[313] As we recover a sense of awe before the sheer contingency of a fragile world to which we are present and fully conscious, we may discover a reservoir of wisdom for coping with particular things that threaten. In biblical terms, the fear of the Lord is the beginning of wisdom (Prov. 9: 10).

In the fourteenth century, Julian of Norwich lived through the frightening experience of bubonic plague, war, and economic instability. This was her pandemic, and it was much more brutal than our own. Perhaps this contributed to her sense of the world as something contingent. Her insight was not unlike that of Agamben. The universe could have been otherwise, it need not have been at all, and it only exists for me as sheer gift. She imagined the whole universe, from God's point of view, as something reduced almost to a point. It was like something the size of a hazelnut, she said. Her response was not a profound sense of secular alienation but rather astonished awe that all things exist only as they are held in being by a God who tenderly made, loves, and keeps them. It is as if the entire universe were a tiny hazelnut cupped in the hand of God. Our world is lovingly held in being. Julian realized how fragile life seems: "This little thing which is created seemed to me as if it could have fallen into nothing because of its littleness."[314] Her sense of repose in a time of insecurity was not "in this thing which is so little," but in the divine love underneath it all.

Absent this sense of contingency, we may be tempted to believe we have more control than we do over the world. Modernity has in many ways granted human beings an unprecedented sense of control over nature, and the spread of a novel coronavirus was a shock to all the modern systems that deliver this control (especially initially). Would the financial system collapse? Would fiscal and monetary interventions stabilize markets, stave off hyper-inflation, avoid deflation, and prevent a great depression? Would supply chains collapse and render daily life precarious? (Who can forget the hoarding of toilet paper?) Would the medical system be overwhelmed? Would science save us from the virus? Would technology rescue us from our isolation? Would our educational systems survive? Would the welfare system be robust enough to cope with mass unemployment? The fears awakened by this pandemic thus went beyond the fear of death. A microscopic new pathogen, around 50 to 140 billionths of a metre in diameter, suddenly exposed the taken-for-granted quality of modern life as much more fragile than we had ever imagined.

Fear can lead people to do terrible things. In the time of the plague, during Julian's life, Jews were scapegoated and accused of bringing on the plague by poisoning water, and so mob violence was directed at them, and there were expulsions and massacres. In one day at Strasbourg in 1349 nearly two hundred Jews were burned to death by an angry mob. There are dangers presently that disproportionate fear has already led to disproportionate reactions. The front page of the *Toronto Star* on August 25, 2021, quoted Twitter in large type, "I have no empathy left for the wilfully unvaccinated. Let them die. I honestly don't care if they die from COVID-19. Not even a little bit. Unvaccinated patients do not deserve ICU beds."[315] Scapegoating, as René Girard foretold, remains a dangerous

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[313] Agamben, *Where are we now?* 95. Again, Illich reflects on this contingency of our nature: "The world which is around me, the cat over there and the four red roses which bloomed during the night are a gift, something which is a grace. This moment . . . isn't logically necessary, but rather is pure gift." Illich, *Rivers North*, 65.

[314] Julian of Norwich, *Showings*, ed. Edmund Colledge and James Walsh, The Classics of Western Spirituality (New York: Paulist Press, 1978), 183-4.

[315] "'Hate Speech': The Toronto Star Slammed for Headline Wishing DEATH on the Unvaccinated – Toronto 99," accessed 5 October 2021, https://www.toronto99.com/2021/08/26/hate-speech-the-toronto-star-slammed-for-

temptation even today.[316] There is a perilous path from incitement of fear to incitement of contempt, and from incitement of hatred to incitement of violence. A better path is for us to allow fear to put us in touch with our own mortality. Recognizing the human condition, we can prepare in wisdom for the death that will come as an absolute certainty to us all. A salutary fear can lead to awe, and awe to wisdom. Every human being deserves love and respect.

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headline-wishing-death-on-the-unvaccinated/; "Toronto Star Referrer," accessed 5 October 2021, https://thestarepaper.pressreader.com/toronto-star/20210826. Bruce Pardy, "See How the Meaning of Human Rights Is Being Twisted. The Right of the Individual to Be Free from the Tyranny of the Mob Is Giving Way to the Mob's Sacrifice of the Individual in the Name of Some Greater Good. That's the Opposite of What Human Rights Were Conceived for." Tweet, *@PardyBruce* (blog), 9 September 2021, https://twitter.com/PardyBruce/status/1435764229659938827.

[316] René Girard, *I See Satan Fall like Lightning* (Maryknoll, NY: Orbis Books, 2001); Luke Burgis, "Prophet of the Pandemic," accessed 26 September 2021, https://read.lukeburgis.com/p/prophet-of-the-pandemic. Todd Hayen, "Covid's Willing Executioners," *OffGuardian* (blog), 12 September 2021, https://off-guardian.org/2021/09/12/covids-willing-executioners/.

Chapter 6
Till We Have Faces:
Implications for Human Flourishing

The disproportionate fear and disproportionate response of governments has been damaging to individuals and to society, as touched on at various points above, not only in terms of serious direct harms and the violation of fundamental rights, but also the loss of the neighbour, conviviality, "third places" (neither home nor work); the reduction of pro-social openness to strangers; the pitting of citizens against one another (Covid scolds); the social impoverishment of endless digitally mediated experiences; and much else.

These issues are serious enough. But, at the same time, this crisis has exposed deep pathologies in the media, government, and some of the world's largest corporate interests in technology and drug manufacturing. I discussed above the near collapse of the fourth estate, the absence of critical investigative journalism, and the base appeal to fear in the reporting of this crisis. Where journalists could have been holding public policy up to scrutiny, demanding evidence, pointing out inconsistencies, and making space for serious debate, they have instead done little more than amplify the official narrative in Canada and elsewhere. Where does this leave us? I think we can now identify at least five very specific pathologies exposed by this crisis. There are dangers here that go far beyond the biological threat of the virus itself. Our fears may in fact be misplaced. The final pathology—the suspension of democratic rights and freedoms—is the one that concerns me most, and I'll devote most space to explaining why I think this has become so serious.

Pathology 1: The Censorship of Science

Even worse than the weakness of the fourth estate has been the outright censorship of dissenting scientists of the very highest reputation on social media. To take just one example among many, Martin Kulldorff was kicked off Twitter for a month. Was he some tinfoil-hat conspiracy theorist pedalling hate or dangerous remedies? Here is his byline: "Martin Kulldorff, Ph.D., is a biostatistician, epidemiologist, and professor of medicine at Harvard Medical. His research centers on developing and applying new disease surveillance methods for post-market drug and vaccine safety surveillance and for the early detection and monitoring of infectious disease outbreaks. His methods are used by most federal and state public health agencies around the world, and by many local public health departments and hospital epidemiologists."[317] How is *anyone* at Twitter qualified to de-platform such a scientist? Twitter has also widely censored reports on early treatment of COVID-19, and much else.[318] We have noted further examples above of this sort of censorship. It is now happening on all

[317] His byline is given in Jay Bhattacharya, Sunetra Gupta, and Martin Kulldorff, "The Beauty of Vaccines and Natural Immunity," SMERCONISH, 4 June 2021, https://www.smerconish.com/exclusive-content/the-beauty-of-vaccines-and-natural-immunity.

[318] "Twitter Censors @CovidAnalysis Scientific Research," accessed 10 June 2021, https://ivmstatus.com/twitter.html. A list of other leading scientists and front-line physicians who have been censored is given by Elizabeth Woodworth, "COVID-19 and the Shadowy 'Trusted News Initiative,'" Global Research, 13 August 2021, https://www.

the leading technology platforms. This is much more serious than a violation of free speech, important as this is. It is a manipulation of public science at the very moment when it is most important for informed debate.[319]

The Trusted News Initiative, set up initially in 2019 "to protect audiences and users from disinformation" related to elections, has been directed now against alleged disinformation threatening public health. It has been repurposed "to tackle the spread of harmful coronavirus disinformation." The partners include AP, AFP; BBC, CBC/Radio-Canada, European Broadcasting Union (EBU), Facebook, Financial Times, First Draft, Google/YouTube, The Hindu, Microsoft , Reuters, Reuters Institute for the Study of Journalism, Twitter, and The Washington Post.[320] So, for example, the "COVID-19 Medical Misinformation Policy" of Google/YouTube states: "YouTube doesn't allow content that spreads medical misinformation that contradicts local health authorities' or the World Health Organization's (WHO) medical information about COVID-19," and this includes anything that contradicts these agencies' guidance on "treatment, prevention, diagnosis, transmission, social distancing and self-isolation guidelines."[321] If any scientists contradict public health authorities, then off they go. There are some courageous journalists who have spoken out against this "paralyzing consensus" in the media.[322]

In some cases, these news organizations have been guilty of egregious misinformation themselves. For example, the *New York Times* reported on October 6, 2021, the alarming statistic that "nearly 900,000 children have been hospitalized with COVID-19 since the pandemic began."[323] The newspaper was forced to admit the following day that the number was closer to 63,000.[324] In late August 2021, a number of news agencies reported that Ivermectin was a dangerous "horse de-wormer," leaving the distinct but misleading impression that it was not a drug prescribed (billions of times) for human use and in clinical trials for COVID-19. Sanjay Gupta, CNN's top medical analyst, had to retract comments made on the network. On October 13, 2021, he admitted to the popular podcaster Joe Rogan, who took a medical prescription for the drug and recovered from COVID-19,

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globalresearch.ca/COVID-19-shadowy-trusted-news-initiative/5752930. See also Brownstone Institute, "Harvard Epidemiologist Censored by LinkedIn for Defending Healthcare Jobs," *Brownstone Institute* (blog), 4 October 2021, https://brownstone.org/articles/harvard-epidemiologist-censored-by-linkedin-for-defending-healthcare-jobs/.

[319] Barry Brownstein, "Censorship Kills," AIER: American Institute for Economic Research, 30 June 2021, https://www.aier.org/article/censorship-kills/.

[320] European Broadcasting Union, "Trusted News Initiative to Combat Spread of Harmful Vaccine Disinformation," 10 December 2020, https://www.ebu.ch/news/2020/12/trusted-news-initiative-to-combat-spread-of-harmful-vaccine-disinformation. "Trusted News Initiative (TNI) to Combat Spread of Harmful Vaccine Disinformation and Announces Major Research Project," accessed 10 July 2021, https://www.bbc.com/news/entertainment-arts-55257814. See also "COVID-19 Censorship: Trusted News Initiative to Decide the Facts?" TrialSiteNews, 25 June 2021, https://trialsitenews.com/COVID-19-censorship-trusted-news-initiative-to-decide-the-facts/.

[321] "COVID-19 Medical Misinformation Policy - YouTube Help," accessed 7 October 2021, https://support.google.com/youtube/answer/9891785.

[322] See the open letter from a long-term employee of German public broadcaster ARD on the COVID-19 coverage: Ole Skambraks, "I cannot do it anymore," Multipolar, 14 October 2021, https://multipolar-magazin.de/artikel/i-cannot-do-it-anymore.

[323] Archived version: Apoorva Mandavilli, "A New Vaccine Strategy for Children: Just One Dose, for Now," *The New York Times*, 6 October 2021, https://web.archive.org/web/20211006232548/https://www.nytimes.com/2021/10/06/health/covid-vaccine-children-dose.html.

[324] Grant Atkinson, "New York Times Forced to Admit It Inflated Number of Children Hospitalized by COVID to 14 Times Higher Than Reality," The Western Journal, 8 October 2021, https://www.westernjournal.com/new-york-times-forced-admit-inflated-number-children-hospitalized-covid-14-times-higher-reality/.

that the network should not have called it a horse de-wormer: "They shouldn't have said that."[325] On October 12, 2021, Alberta Health reported its "youngest COVID-related death to date," and the headline in City News (Edmonton) was "Young teen among new COVID deaths reported Tuesday." This had to be retracted the following day after the family took to Twitter to express their outrage: "The 14 year old was my brother who was fighting a high grade glioma brain cancer for 9 months. On the verge of his death after his body stopped accepting Fluids and the doctor preparing us for his death they randomly decided to conduct a covid test which came back positive."[326] In many cases, such as these, media coverage of COVID-19 has been distorted by political pressures and the tactical "messaging" of public health. On October 18, 2021, the Saskatchewan Health Authority tweeted out blatant misinformation as part of its vaccination campaign, saying, "Your risk from COVID-19 is not determined by age, fitness level or community."[327] Nothing could be less true. Yet these sort of "noble lies" are amplified when taken up by the media as a standard for "trusted news."

The media mandate to support public policy unquestioningly has included the censoring of serious scientific discourse at the highest level. Yet, as Joseph Ladapo and Harvey Risch have written, "One remarkable aspect of the COVID-19 pandemic has been how often unpopular scientific ideas, from the lab-leak theory to the efficacy of masks, were initially dismissed, even ridiculed, only to resurface later in mainstream thinking. Differences of opinion have sometimes been rooted in disagreement over the underlying science. But the more common motivation has been political."[328]

There have been death threats and job losses and discrimination directed at scientists and doctors who have dared to stray from the official narrative.[329] Unfortunately, examples could be multiplied. As soon as the respected virologist Byram Bridle raised concerns about the spike protein targeted in COVID-19 vaccines, he was attacked. The bounce-back on his email included the following: "Unfortunately, as a result of this media commitment I have found myself under vicious attacks by some. A libelous website has been developed using my domain name, a false Twitter account has been created, and a public smearing campaign has been initiated. I am even experiencing some harassment

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[325] Dominick Mastrangelo, "Gupta Tells Joe Rogan CNN Shouldn't Have Called Ivermectin 'Horse Dewormer,'" TheHill, 14 October 2021, https://thehill.com/homenews/media/576723-gupta-tells-joe-rogan-cnn-shouldnt-have-called-ivermectin-horse-dewormer.

[326] Original article archived here: Josh Ritchie, "Alberta Reports Youngest COVID-Related Death to Date - CityNews Edmonton," 12 October 2021, https://web.archive.org/web/20211012225219/https://edmonton.citynews.ca/2021/10/12/alberta-teen-covid-death/; It was retracted here: Josh Ritchie and Denise Wong, "Alberta's Top Doctor Says COVID-19 Not Cause of Teen's Death," CityNews Edmonton, 12 October 2021, https://edmonton.citynews.ca/2021/10/12/alberta-teen-covid-death/; Simone Spitzer, "@BlakeMMurdoch @CMOH_Alberta The 14 Year Old Was My Brother Who Was Fighting a High Grade Glioma Brain Cancer for 9 Months. On the Verge of His Death after His Body Stopped Accepting Fluids and the Doctor Preparing Us for His Death They Randomly Decided to Conduct a Covid Test Which Came Back Positive." Tweet, *@spitzer_simone*, 14 October 2021, https://twitter.com/spitzer_simone/status/1448457643312386048.

[327] Saskatchewan Health Authority, "Your Risk from COVID-19 Is Not Determined by Age, Fitness Level or Community...Your Risk Is Determined by Vaccine Status. ~78% of All New Cases & Hospitalizations in #Sask in Sep Were Unvaccinated or Partially Vaccinated People.," Tweet, *@SaskHealth* (blog), 18 October 2021, https://twitter.com/SaskHealth/status/1450191878255783940.

[328] Joseph A. Ladapo and Harvey A. Risch, "Are Covid Vaccines Riskier Than Advertised?" *Wall Street Journal*, 22 June 2021, sec. Opinion, https://www.wsj.com/articles/are-covid-vaccines-riskier-than-advertised-11624381749.

[329] "Une enquête ouverte à Nantes après des menaces de mort contre le Pr Raoult," accessed 10 June 2021, https://www.20minutes.fr/justice/2748543-20200326-nantes-enquete-ouverte-parquet-apres-menaces-mort-contre-professeur-raoult.

in my workplace."[330] Doctors have been officially muzzled by the College of Physicians and Surgeons of Ontario: "Physicians hold a unique position of trust with the public and have a professional responsibility to not communicate anti-vaccine, anti-masking, anti-distancing and anti-lockdown statements and/or promoting unsupported, unproven treatments for COVID-19," and this instruction has been followed up with threats of investigation and disciplinary action.[331] The exercise of power in these ways to silence informed dissent and expert opinion is a sign of deep pathology in civil society at all levels.[332] It also erodes trust in public institutions when we most need absolute fidelity to the truth.

Pathology 2: Covert Government Communication Strategies

As discussed above, the use of nudge behaviourism and covert manipulation of audiences, such as has been documented in the UK and on record in Canada, is also deeply troubling.[333] This business model of massive data harvesting, involving digital surveillance and targeted advertising, is worth billions and has been exposed as working in a polarizing way against healthy public discourse. It involves an ongoing violation of fundamental rights, including the right to privacy, the right to be forgotten, and what Shoshana Zuboff calls "the right to the future tense." If my choices are being manipulated covertly, like slanting the floor so it is more difficult to walk uphill, then I am losing my sovereignty over my freely chosen future.[334] It is disturbing enough that this manipulation is driving internet searches and communication across almost all online commercial platforms, but it is more troubling that these same tactics are being used by government to manipulate citizens, and that even the Canadian military has been secretly using these behavioural techniques on its own citizens.

With the collapse of the fourth estate, de-platforming, and manipulation, it is no wonder that both scientific debate and public discussion have become highly polarized and vicious. I certainly do not think the answer will come with the government taking on the role of censor or any other "ministry

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[330] Private communication. See also Bridle's Sworn Affidavit of Expert Witness, 13 April 2021, submitted to the Ontario Superior Court of Justice in Ontario v. Adamson, which includes his full c.v. and scientific opinion. https://adamsonbarbecue.us17.list-manage.com/track/click?u=b87c59887e28bf7ecc4cb59b2&id=91a44059db&e=212ff61dfa. See also Byram Bridle, "Crush the Science," *The Spectator World*, 11 October 2021, https://spectatorworld.com/topic/bryam-bridle-suppression-scientific-debate/.

[331] "CPSO - Statement on Public Health Misinformation," accessed 28 May 2021, https://www.cpso.on.ca/News/Key-Updates/Key-Updates/COVID-misinformation. The reaction from doctors can be traced here: "DECLARATION OF CANADIAN PHYSICIANS FOR SCIENCE AND TRUTH," accessed 27 May 2021, https://canadianphysicians.org/. See also the similar restrictions on doctors in British Columbia: Brenna Owen, "B.C. Doctors Could Face Penalty for Veering from COVID-19 Health Guidelines: College," *Vancouver Sun*, 11 May 2021, https://vancouversun.com/news/local-news/b-c-doctors-could-face-penalty-for-veering-from-COVID-19-health-guidelines-college. See further the news conference on Parliament Hill, *COVID-19: Canada Responds: MP Derek Sloan Raises Concerns Over Censorship of Doctors and Scientists*, CPAC, 2021, https://www.cpac.ca/en/programs/COVID-19-canada-responds/episodes/66396178/. These disciplinary policies have been enforced: Canadian Press, "Northern Ontario News | Local Breaking | CTV News Northern Ontario," 28 September 2021, https://northernontario.ctvnews.ca/englehart-ont-doctor-sanctioned-for-disgraceful-conduct-related-to-COVID-19-1.5603594/patrick-phillips-1.5603602.

[332] Austin, "Technocracy Is the Worst Totalitarianism," Substack newsletter, *Thoughts* (blog), 29 August 2021, https://monkmanque.substack.com/p/technocracy-is-the-worst-totalitarianism.

[333] Several observers on social media have noticed that GAVI, a vaccine alliance, is buying ads on Google to discredit Ivermectin, claiming Google promotes their link to the top of the search results page when someone searches for Ivermectin. In the nature of things, one simply does not know how search algorithms are being adjusted silently by the tech giants to influence discussion of COVID-19 and public policy.

[334] Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (New York: PublicAffairs, 2019), 57-61, 329-48, 475-92, cf. 295-325 on behaviour modification.

of truth."[335] I hope that liability shields will be lifted so that large technology platforms and drug companies can be sued, and that anti-monopoly and privacy laws can be strengthened. We may also need laws that give us some form of control or ownership of our personal data, along with other digital rights, so that the advertising and data-harvesting model that has been so corrupting of public life can be finally destroyed. We also need laws preventing governments from using covert communication strategies without the consent of the public. It would be good if this health crisis, where it counted so much to have good governance and civil discourse, led to these sorts of reforms. As Shoshana Zuboff has commented, we need to be vigilant always to ask, "Who knows?" "Who decides?" and "Who decides who decides?"[336]

Pathology 3: Conflict of Interest for Drug Companies

I discussed above the convergence of interests of various parties in responding to COVID-19, but it is worth underlining the pervasive conflict of interest that is already documented and well known in the case of the largest, dominant drug companies. One does not need to resort to conspiracy theories, when the worst has been confirmed by no less than Marcia Angell, a former editor-in-chief of the *New England Journal of Medicine*.[337] Jon Jureidini and Leemon McHenry have also traced how conflict of interest has distorted research and development at each stage of bringing a drug to market.[338] The large-scale randomized controlled trials necessary to approve a new drug are paid for by large, private drug companies such as Gilead or Merck or Pfizer. At the design stage they can influence factors like the coding (such as calling "suicidal thoughts" simply "emotional lability") or the dosage level necessary to trigger side effects (pushing the dose if trialing a competing drug) or any number of other parameters.[339] The drug company then usually contracts out the conduct of the trial to companies (contract research organizations or CROs) with a financial interest in producing the results that the sponsor desires. The data remains the property of the drug company, and they can suppress negative outcomes, and try again repeatedly, or withhold data. The trial results are often written up by a ghostwriter from a medical communications company, with a blank spot left for the name of a lead researcher.[340] Then the drug company shops around for an academic from a research university with a suitable reputation (KOLs or "key opinion leaders") to be named as lead investigator, with often very little detailed knowledge of the data, but with perhaps a well-paid position on the pharmaceutical advisory board or handsome remuneration through a speaker's bureau. At this point intellectual copyright is transferred to the lead author. (In 2005, one of the first whistle-blower reports of this process exposed the company AstraZeneca who were condemned for "an egregious case of unethical

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[335] Anja Karadeglija, "MPs Accused of "Secret Law Making" in Rush to Pass Controversial C-10 Broadcasting Bill," nationalpost, 11 June 2021, https://nationalpost.com/news/politics/mps-accused-of-secret-law-making-in-rush-to-pass-controversial-c-10-broadcasting-bill.

[336] Zuboff, *Surveillance Capitalism*, 180-82.

[337] Marcia Angell, *The Truth about the Drug Companies: How They Deceive Us and What to Do about It*, rev. and updated (New York: Random House, 2005). See also, Ben Goldacre, *Bad Pharma: How Drug Companies Mislead Doctors and Harm Patients* (Toronto: Signal, 2014); Peter C. Gøtzsche, Richard Smith, and Drummond Rennie, *Deadly Medicines and Organised Crime: How Big Pharma Has Corrupted Healthcare (*London: Radcliffe Publishing, 2013); Jon Jureidini and Leemon B McHenry, *The Illusion of Evidence-Based Medicine: Exposing the Crisis of Credibility in Clinical Research* (Mile End, South Australia: Wakefield Press, 2020).

[338] See their overview of the whole process, Jureidini and McHenry, *Illusion of Evidence-Based Medicine*, 8-9.

[339] Ibid., 32, 27. The authors list ten ways the designs of trials have been manipulated to distort the reporting of adverse effects (pp. 34-36, cf. 77).

[340] Ibid., 106-7.

behavior.")[341] The journals that publish these trials are themselves supported by massive ad buys from the drug companies and huge purchases of offprints. Even the important peer-review process can be corrupted. The *Lancet* editor, Richard Horton, claimed it has "devolved into information-laundering operations for the pharmaceutical industry."[342] The drug companies again contribute hefty amounts to politicians and pay professional lobbyists to advance their interests in Congress. 45% of the FDA budget is paid by drug companies, and the 1997 modernization act "required the agency to lower its standards for approving drugs (sometimes accepting just one clinical trial instead of two, for example)."[343] Doctors receive samples and the public are carpet-bombed with advertising, and so on. The manipulation of evidence-based medicine in the manner I have described has been traced in detail in the case of two trials for psychiatric drugs, while seeking approval for use in children: GlaxoSmithKline's Study 329, testing paroxetine; and Forest Laboratories' Study CIT-MD-18, testing citalopram. All this is only the tip of the iceberg of what has been found in investigative research.[344] There is a revolving door between the large 3-letter agencies and the drug companies and the media, and the well-studied phenomenon of regulatory capture is a serious danger.[345]

It may seem overly cynical to suspect large pharmaceutical companies of acting in bad faith in these ways, but the evidence is overwhelming. In September 2009, Pfizer was fined $2.3 billion dollars in what was then the largest criminal fine ever imposed in the US for misbranding a pain-killer "with the intent to defraud or mislead." In November 2011, Merck paid a fine of $950 million for the illegal promotion of the painkiller Vioxx, later taken off the shelves after it was found to increase the risk of heart attacks. GlaxoSmithKline: $3 billion in fines in July 2012 for "failure to report safety data." Johnson & Johnson: $2.2 billion in fines for promoting drugs "for uses not approved as safe and effective." AstraZeneca: $520 million in April 2010 to resolve a similar charge.[346] These are only a few examples. Johnson & Johnson has accumulated over $9 billion in fines since the year 2000 for false claims, safety violations, corrupt practices, price-fixing, and other offenses, including $5 billion for

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[341] Ibid., 108. Adriane Fugh-Berman, "The Corporate Coauthor," *Journal of General Internal Medicine* 20, no. 6 (June 2005): 546–48, https://doi.org/10.1111/j.1525-1497.2005.05857.x. The journal editors revised the article to remove the names of the specific companies "to focus on the issues at hand, not the individual companies involved" (Ibid., 546n).

[342] Quoted, Jureidini and McHenry, *Illusion of Evidence-Based Medicine*, 10.

[343] Ibid., 185, quoting Angell, *The Truth about Drug Companies*.

[344] See the sources above, fn. 355.

[345] For example, "Thomson Reuters Foundation Chairman Is Also Board Member at Pfizer," Diverge Media, 28 June 2021, https://web.archive.org/web/20210806204149/https://divergemedia.ca/2021/06/28/thomas-reuters-foundation-chairman-is-also-board-member-at-pfizer/. On regulatory capture, see Daniel Carpenter and David A. Moss, *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (New York: Cambridge University Press, 2014); Rasmus Borup, Janine Morgall Traulsen, and Susanne Kaae, "Regulatory Capture in Pharmaceutical Policy Making: The Case of National Medicine Agencies Related to the EU Falsified Medicines Directive," *Pharmaceutical Medicine* 33, no. 3 (1 June 2019): 199–207, https://doi.org/10.1007/s40290-019-00277-0.

[346] Lena Groeger, "Big Pharma's Big Fines," ProPublica, 24 February 2014, https://projects.propublica.org/graphics/bigpharma. One can also look up drug companies, such as Pfizer, at "Pfizer | Violation Tracker," accessed 26 September 2021, https://violationtracker.goodjobsfirst.org/parent/pfizer. See also Associated Press, "Pfizer Pays US$60M to Settle Allegations of Bribing Doctors," CTVNews, 7 August 2012, https://www.ctvnews.ca/health/health-headlines/pfizer-pays-us-60m-to-settle-allegations-of-bribing-doctors-1.906216.

contributing to the national opioid epidemic.[347] Cases related to asbestos-contaminated talcum powder are still making their way through the courts.[348]

Notwithstanding this history of documented malfeasance and this degree of conflicted interest, it would be wrong to assume that every individual involved in the development of a new drug is inevitably venal and unconcerned for the public good. And it is clearly not in the long-term interest of pharmaceutical companies to produce drugs that are found to be unsafe. Over the years, these large drug companies have produced important, life-saving drugs. Still, there are some powerful dynamics operating behind the scenes. I don't know for sure whether financial self-interest on the part of drug companies has led to a corruption of evidence-based judgements in the promotion of COVID-19 vaccines or in the suppression of therapeutics. This knowledge will have to await future investigative research. But it does seem, as one observer put it, like there is a huge gravitational force that can be felt, skewing the discourse, and it makes you look for a corresponding object out there somewhere.[349] If it comes to light that there has indeed been a falsification of the truth, bribery, or intent to deceive in this public health crisis, it would be not only be deplorable: it would be criminal.

Pathology 4: Undemocratic Globalist Influence

The deployment of vast reserves of capital can also be seen at an international level in the case of the Bill and Melinda Gates Foundation and their support of the WHO and numerous other agencies such as the vaccine alliance GAVI and the Tony Blair Institute for Global Change. As with the World Economic Forum, the interests here are not neutral. There is an agenda, as the Blair Institute clearly indicates, for "global change." Without prejudice to the individuals involved, these are unelected, unaccountable actors on the international stage, with vast resources, who are on record as working toward a new international order—a fourth industrial revolution. It is only nation states who can finally enact the legal measures to realize these changes, but we have seen during this crisis how quick international elites have been to leverage the crisis for long desired goals such as biometric interoperable digital IDs.[350] It may well be that the motivation of the elites who support the Davos Agenda are in many cases benign and their goals worthy of debate, but the power and money at work

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[347] "Johnson & Johnson | Violation Tracker," accessed 5 October 2021, https://violationtracker.goodjobsfirst.org/prog.php?parent=johnson-and-johnson.

[348] Daniel King, "Johnson & Johnson: Company History and Talcum Powder Lawsuits," Mesothelioma Center - Vital Services for Cancer Patients & Families, accessed 5 October 2021, https://www.asbestos.com/companies/johnson-johnson/. See also Jeff Feeley and Anna Edney, "Unsealed Emails Show How J&J Shaped Report on Talc's Links to Cancer," *Bloomberg.Com*, 8 November 2021, https://www.bloomberg.com/news/articles/2021-11-08/j-j-s-role-shaping-cancer-report-revealed-by-unsealed-emails.

[349] The comment was made in an interview with Pierre Kory by Bret Weinstein, *COVID, Ivermectin, and the Crime of the Century: DarkHorse Podcast with Pierre Kory & Bret Weinstein*, 2021, https://www.youtube.com/watch?v=Tn_b4NRTB6k.

[350] Chris Burt, "WTTC and World Economic Forum Partner to Share Information and Promote Biometric Travel | Biometric Update," 19 July 2019, https://www.biometricupdate.com/201907/wttc-and-world-economic-forum-partner-to-share-information-and-promote-biometric-travel; Chris Burt, "ID2020 and Partners Launch Program to Provide Digital ID with Vaccines | Biometric Update," 20 September 2019, https://www.biometricupdate.com/201909/id2020-and-partners-launch-program-to-provide-digital-id-with-vaccines; "ID2020 | Alliance & Governance," ID2020, accessed 9 October 2021, http://id2020.org/alliance; "Digital Identity," World Economic Forum, accessed 9 October 2021, https://www.weforum.org/agenda/archive/digital-identity/; "Common Trust Network | World Economic Forum," 4 October 2020, https://web.archive.org/web/20210809183837/https://www.weforum.org/projects/commonpass.

in the absence of democratic accountability, during a time of global anxiety over a new pathogen, invites close scrutiny.[351]

Pathology 5: Suspension of Democratic Rights and Freedoms

Although democratic western governments declared states of emergency and suspended fundamental rights and freedoms in response to COVID-19, the justification has been that this is both necessary and temporary. Agamben, who has long studied the use of the "state of exception" by governments, is more concerned. One only has to imagine the "state of exception" being prolonged indefinitely to see the danger. With the fears now being raised about any number of variants, and immune escape, this is not implausible. Some worry that unless widespread testing is abandoned, and lockdowns thoroughly discredited, this crisis will never end. "The state of exception," Agamben says, "is the mechanism by which democracies can transform themselves into totalitarian states"[352] Again, the danger is that the rights of the individual will be bulldozed by the needs of the whole. "If health becomes the object of a state politics transformed into biopolitics, then it ceases to concern itself first and foremost with the agency of each individual and becomes, instead, an obligation which must at any cost, no matter how high, be fulfilled."[353] The previously unthinkable rationing of health services for only the morally deserving sick is now advocated openly. You have an obligation to the state to be healthy.

It may seem extreme to express a worry about totalitarian or authoritarian government emerging out of this crisis, but observers have already described the ideology of cancel culture as a form of "soft totalitarianism."[354] There is not only an alt-right, but also a ctrl-left. Moreover, Stephen Thomson and Eric Ip have traced in detail, country by country, the concerning wave of authoritarian governance that during the COVID-19 crisis in 2020 "swept the globe with profound, worldwide implications for democracy, the rule of law, and human rights, dignity, and autonomy."[355] As just one example, the Hungarian Act on the Containment of the Coronavirus granted extraordinary emergency powers to the government to suspend enforcement of existing laws and bypass statutory requirements and implement new measures by decree—all this to continue indefinitely, without a sunset clause. During this indefinite period, no elections or referenda were to be permitted. And the spreading of false or

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[351] "Now Is the Time for a 'Great Reset,'" World Economic Forum, 3 June 2020, https://www.weforum.org/agenda/2020/06/now-is-the-time-for-a-great-reset/; "The Great Reset," World Economic Forum, accessed 9 October 2021, https://www.weforum.org/great-reset/. See also, "The Davos Agenda," World Economic Forum, accessed 10 June 2021, https://www.weforum.org/events/the-davos-agenda-2021/. The meetings were held this year January 25-29, 2021. The opening paragraph of the agenda frames the need for global change in light of the pandemic: "The COVID-19 pandemic has demonstrated that no institution or individual alone can address the economic, environmental, social and technological challenges of our complex, interdependent world. The pandemic itself will not transform the world, but it has accelerated systemic changes that were apparent before its inception. The fault lines that emerged in 2020 now appear as critical crossroads in 2021. The time to rebuild trust and to make crucial choices is fast approaching as the need to reset priorities and the urgency to reform systems grow stronger around the world." The Government of Canada's exploration of this future is reflected in the work of its own organization, reporting to the ministry of employment, Policy Horizons Canada. See Government of Canada, "About Us – Policy Horizons Canada," accessed 8 November 2021, https://horizons.gc.ca/en/about-us/, and, for example, "Exploring Biodigital Convergence – Policy Horizons Canada," 11 February 2020, https://horizons.gc.ca/en/2020/02/11/exploring-biodigital-convergence/.

[352] Agamben, *Where are We Now?* 38.

[353] Ibid., 81.

[354] The phrase is used in Rod Dreher, *Live Not by Lies: A Manual for Christian Dissidents* (New York City: Sentinel, 2020).

[355] Stephen Thomson and Eric C. Ip, "COVID-19 Emergency Measures and the Impending Authoritarian Pandemic," *Journal of Law and the Biosciences* 7, no. 1 (25 July 2020), https://doi.org/10.1093/jlb/lsaa064.

even "distorted" claims about the COVID-19 outbreak was made a legal offense punishable by up to five years' imprisonment.[356] The Economist Intelligence Unit produced its annual Democracy Index and found 2020 to be the worst year on record, noting that "the pandemic resulted in the withdrawal of civil liberties on a massive scale and fuelled an existing trend of intolerance and censorship of dissenting opinion." Of the countries covered, almost 70% suffered a decline in their overall score.[357]

I expect 2021 will be even worse with the imposition of increasingly harsh restrictions on "unvaccinated" individuals. The Edo State Governor in Nigeria for example, banned unvaccinated individuals not only from places of worship and public venues, but also from banks.[358] In the Northern Territory in Australia essential workers ("employees who interact with the public") are not only being ordered to take the vaccine but they will be fined $5,000 if they refuse.[359] Like Indonesia, Micronesia, and Turkmenistan, Austria has announced plans for compulsory vaccination for all citizens as of February 1, 2022.[360] In the autumn of 2021, the pressure mounted in Canada. The federal government announced the exclusion of the vaccine injured and those medically contraindicated, those partially vaccinated or unvaccinated, those with objections based on religious conscience—the exclusion of all these without exception from employment in government or government regulated industries, from increasing numbers of workplaces, and from domestic and international travel by air or train.[361] On October 6, 2021, the Prime Minister made clear: "Exemptions will be exceedingly narrow, specific, and to be honest somewhat onerous to obtain. The goal is to ensure everyone chooses to get vaccinated."[362] Canada now has some of the harshest restrictions in the world on travel for the unvaccinated, and it joins Russia and North Korea as a state that has effectively barred dissidents from leaving the country. As one observer in Scotland noted, "Canada is about to become the world's biggest prison for the unvaccinated."[363] Moreover, after November 30, 2021, an unvaccinated citizen (or partially vaccinated, vaccine injured, medically contraindicated, or conscientious objecting) cannot

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[356] Ibid., 22.

[357] The Economist Intelligence Unit, "Democracy Index 2020," *The Economist*, 2021, https://www.eiu.com/n/campaigns/democracy-index-2020/.

[358] William Clowes, "Nigerian States to Ban the Unvaccinated From Banks and Places of Worship," *Bloomberg.Com*, 1 September 2021, https://www.bloomberg.com/news/articles/2021-09-01/nigeria-states-to-bar-unvaccinated-from-banks-places-of-worship. Raw footage at Apex World News, "NIGERIA: The Edo State Governor Has Banned People from Churches, Mosques, Venues, and Even Banks, If They Do Not Have a Vaccine Passport. Https://T.Co/Mh9wypM3Wl," Tweet, *@apexworldnews* (blog), 6 September 2021, https://twitter.com/apexworldnews/status/1434938005475762178.

[359] Emily Cosenza, "Australia's Strictest Vax Mandate Imposed," *News.Com.Au*, 13 October 2021, sec. Australia, https://www.news.com.au/world/coronavirus/australia/northern-territory-announces-mandatory-vaccines-for-workers-and-5000-fines-for-those-who-dont-comply/news-story/d1f86632da29575488918d55590f814c.

[360] Philip Oltermann, "Austria Plans Compulsory Covid Vaccination for All," *The Guardian*, 19 November 2021, sec. World news, https://www.theguardian.com/world/2021/nov/19/austria-plans-compulsory-covid-vaccination-for-all. One newspaper reports that there will be fines of 3,600 euros or a month's imprisonment in the event of refusal: "Impfung Oder Haft: Corona-Regime Will Impfpflicht Für ALLE Ab 1. Februar!" *Wochenblick*, 19 November 2021, https://www.wochenblick.at/impfung-oder-haft-corona-regime-will-impfpflicht-fuer-alle-ab-1-februar/.

[361] Transport Canada, "Government of Canada Provides Further Details on New Vaccine Requirements," news releases, 29 October 2021, https://www.canada.ca/en/transport-canada/news/2021/10/government-of-canada-provides-further-details-on-new-vaccine-requirements.html.

[362] "PM Trudeau Unveils Vaccine Mandates," CPAC - For the Record, 6 October 2021, https://www.cpac.ca/episode?id=4261737b-8ca9-4ca4-8a33-56ea2af732bb.

[363] James Melville, "Unvaccinated Travellers in Canada Will Not Be Allowed to Depart from Canadian Airports from 30th October. Canada Is about to Become the World's Biggest Prison for the Unvaccinated. Https://T.Co/PMlTTbp0ss," Tweet, *@JamesMelville* (blog), 9 October 2021, https://twitter.com/JamesMelville/status/1446739989933527040.

travel by air or rail even within the country for a family emergency, to visit a dying loved one, attend a funeral of a close relative, or for any other reason. All this was enacted not by legislation in parliament but by press release.

The mainstream media (or "legacy media") has largely failed to report on the growing number of protests worldwide against authoritarian public health measures. Crowds numbering in the thousands and tens of thousands have been gathering to protest weekly in cities in Europe and elsewhere around the world.[364] In Toronto on September 18, 2021 there was a peaceful demonstration as part of the fourth Worldwide Rally for Freedom with more than 20,000 marching in the streets to protest unconstitutional lockdowns, mask mandates, vaccine mandates and coercion, domestic and international travel restrictions, and all state-of-emergency declarations.[365] Similar rallies took place in dozens of cities in Canada and in at least 43 countries around the world. Yet you have to look beyond the mainstream media, and past the censorship of the major technology platforms, to find information about these protests on the internet. But there is an abundance of eye-witness reports, including pictures, raw video, and drone footage documenting the movement of dissent.[366] Again, none of this was covered in the mainstream media outlets in Canada.

Australia has seen some of the harshest lockdown policies and medical mandates among Western nations, and it also is one of the countries that has seen large protests in various cities, including parents and children, young and old, gathering to demonstrate. In Melbourne there has been escalating police violence against these unarmed protestors, including security forces in full body armour with assault vehicles, using tear gas, pepper spray, rubber bullets, and making brutal physical assaults and arrests. All this also is not reported in the mainstream Canadian media, though the violent police state that has emerged has been documented by local observers and citizen journalists.[367] Canada has not itself been immune from incidents of police violence in response to the pandemic.[368] There are signs that officers of the law are themselves are troubled by the orders they are asked to enforce. An open letter to RCMP Commissioner Brenda Lucki questions the enforcement of vaccine mandates and

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[364] For example, on more than three months of protests in Italy, France, and Switzerland, see Marie Oakes, "Massive Protest in Rome, Italy against the Vaccine Pass. Starting October 15, the Pass Will Be Mandatory in Order to Access the Workplace for 23 Million Italian Workers. Https://T.Co/G7SjyX5Oh4," Tweet, @*TheMarieOakes* (blog), 9 October 2021, https://twitter.com/TheMarieOakes/status/1446840630295019528; Aaron Ginn, "This Weekend's Swiss Protests against COVID Law Started Last Night. Https://T.Co/UFUTEM21sM," Tweet, @*aginnt* (blog), 8 October 2021, https://twitter.com/aginnt/status/1446571261430218763; Marie Oakes, "Large Protesters Once Again in Paris, France against the Domestic Vaccine Passes. Protests in France Have Been Going on for Thirteen Consecutive Weeks against the Governments Vaccine Pass. Https://T.Co/3Xznc9m5b5," Tweet, @*TheMarieOakes* (blog), 9 October 2021, https://twitter.com/TheMarieOakes/status/1446838674939944966.

[365] See the press release, "World Wide Rally for Freedom Press Release," World Wide Demonstration, 3 August 2021, https://worldwidedemonstration.com/wp-content/uploads/2021/08/WWRFFPressRelease.03.08.pdf.

[366] "Home," Worldwide Canada, accessed 5 October 2021, https://www.canadaforfreedom.info; internationally, see "Home - World Wide Demonstration," 6 September 2021, https://worldwidedemonstration.com/, https://worldwidedemonstration.com/. On Twitter, search "Worldwide rally for freedom," and the hashtag #weweillALLbethere to see some of the video and record of past protests. On Telegram, see "World Wide Demonstration Official," Telegram Channel, accessed 5 October 2021, T.me/worldwidedemonstration.

[367] It is difficult to watch some of the scenes of violence, but at least some of it can be seen at "#AustraliaHasFallen - Twitter Search / Twitter," Twitter, accessed 26 September 2021, https://twitter.com/search?q=%23AustraliaHasFallen, though there seem to be tweets disappearing.

[368] "Policing the Pandemic," *Justice Centre for Constitutional Freedoms* (blog), 7 September 2021, https://www.jccf.ca/policing-the-pandemic/.

other restrictions imposed on the general public. Within four days it had over 40,000 signatures from RCMP staff and their supporters.[369]

Could we be witnessing, as Agamben warns, a slide into a form totalitarianism justified by the demands of biosecurity? The foremost philosopher to analyse totalitarian government was Hannah Arendt, and she argued that the distinctive features of this form of government are terror, on the one hand, and ideology, on the other. Totalitarianism differs from mere tyranny because it is not arbitrary power. Positive laws (those laws "posited" or enacted by duly established authority) are not abolished simply by an act of power by a self-interested ruler. No, positive law is abolished by a direct appeal to the realization of justice. "Its defiance of positive laws claims to be a higher from of legitimacy which, since it is inspired by the sources themselves, can do away with petty legality."[370] But this higher principle of justice is not the ancient idea of a stable natural law or divine law but a special insight into the historical process in terms of a central controlling idea: the arc of history. Again, in the rise of totalitarianism, power shifts from the army to the police, and foreign policy is directed toward a world order.[371] To bring people into this form of government requires widespread fear and isolation. In this movement, enforced by terror, totalitarianism "eliminates individuals for the sake of the species, sacrifices the 'parts' for the sake of the 'whole.'"[372] And "by pressing men against each other, total terror destroys the space between them." It does not just "curtail liberties or abolish essential freedoms . . . It destroys the one essential prerequisite of all freedom which is simply the capacity of motion which cannot exist without space."[373] Today, and for the past year or more, it certainly feels like the space for free discourse and movement has been closing.

According to Arendt, ideology is what provides the motive force or principle of action for the regime—an "-ism" which to the satisfaction of their adherents "can explain everything and every occurrence by deducing it from a single premise."[374] It presents itself to the fearful as a total explanation. Such an ideology is characterized by carrying through the logic of its premise without regard for other ideas or experience. It derives B from A, and C from B, "down to the end of the murderous alphabet."[375] This ideological thinking ("deductive dogmatism") becomes independent of reality, or, rather, it provides a "sixth sense" to see "behind" appearances. Arendt writes, "The preparation has succeeded when people have lost contact with their fellow men as well as the reality around them . . . The ideal subject of totalitarian rule is not the convinced Nazi or the convinced Communist, but people for whom the distinction between fact and fiction (*i.e.,* the reality of experience) and the distinction between true and false (*i.e.*, the standards of thought) no longer exist."[376] Are we losing the capacity today to distinguish fact and fiction, truth and falsity?

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[369] Mounties for Freedom, "Open Letter to RCMP Commissioner Brenda Lucki," Mounties For Freedom – Your Freedom is Our Fight, 21 October 2021, https://mounties4freedom.ca/. See also the response from concerned Canadian lawyers: 'The Free North Declaration', FreeNorthDeclaration, accessed 22 November 2021, https://www.freenorthdeclaration.ca; Bruce Pardy, "COVID Has Cost Canadians Their Freedom. It Must Be Restored," *National Post*, 20 November 2021, sec. NP Comment, https://nationalpost.com/opinion/bruce-pardy-covid-has-cost-canadians-their-freedom-it-must-be-restored.

[370] Hannah Arendt, *The Origins of Totalitarianism*, 2nd ed. (New York: Meridian Books, 1958), 462.

[371] Ibid., 460.

[372] Ibid., 465.

[373] Ibid., 466.

[374] Ibid., 468.

[375] Ibid., 472.

[376] Ibid. 474.

It is the combination in this coronavirus crisis of exaggerated fear, heightened ideology, and policies of enforced social alienation that is genuinely worrying if we cannot "snap back" to normal. Arendt says simply, "Isolation is, as it were, pre-totalitarian."[377] It is possible to analyse these conditions and recognize the dangers without being simply alarmist. One hopes democratic instincts are robust enough, and our institutions resilient enough, to endure and outlast the pandemic.

In British Columbia, our chief public health officer did much to win confidence and maintain public support, even after public health recommendations became public health orders that have the force of law. The appeal to citizens here seems to have been to something Agamben calls "a sort of superlative civicism wherein the imposed obligations are presented as proofs of altruism, and where the citizen . . . [is] forced by law to be healthy ('biosecurity')."[378] Good people, who care about others, will be compliant. The duty to neighbour becomes framed as a duty to uphold the (health) system, and the duty to the system becomes an enforceable duty to the state, or biosecurity.

However, perhaps the most troubling aspect of public health orders in British Columbia during 2020-21 was the way churches and religious groups were uniquely singled out and prevented from gathering. This went beyond almost any other jurisdiction I am aware of (except perhaps Ireland). For much of the pandemic churches were closed entirely while yoga studios and fitness studios remained open, and while liquor stores never closed at all. It is not clear why the *purpose* of a gathering should be the basis for discrimination. British Columbia was in the strange situation where for much of this period an Alcoholics Anonymous meeting could gather in the church basement, but if they stayed on to open a bible or pray, it would be against the law. In a similar situation, the Supreme Court in the United States sided with religious organizations and overturned Governor Andrew Cuomo's restrictions on religious gatherings in New York, and in its ruling in November 2020, it pointed to exactly this sort of inequity.[379] On the whole, with only a few exceptions, churches and religious organizations in Canada have not worried about these issues and have been, rather, at the forefront of displaying zealous conformity to all public health orders, recommendations, and protocols. It is understandable, once the official narrative is accepted, that strict conformity is seen as a way of "loving my neighbour" and preventing deadly harms. Who wants to be the church that spreads disease and kills people? Still, the longer this "state of exception" continues, the more important it will be for churches to exercise critical judgement in respect of the actual dangers, to assess the harms of public policy, to stand up for basic rights and the rule of law, and to ensure their independence of the state. It is good to see that a number of church leaders have united in opposition to vaccine discrimination in society or in the church. As of early October 2021, there were 1,896 signatories from Christian leaders in the UK protesting vaccine passports.[380]

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[377] Ibid.

[378] Agamben, *Where Are We Now*?, 56.

[379] Ariane de Vogue, "In a 5-4 Ruling, Supreme Court Sides with Religious Groups in a Dispute over COVID-19 Restrictions in New York," CNN, 26 November 2020, https://www.cnn.com/2020/11/26/politics/supreme-court-religious-restrictions-ruling-covid/index.html.

[380] "Christian Leaders — Vaccine Passport Letter," Christian Leaders — Vaccine Passport Letter, accessed 26 September 2021, https://vaccinepassportletter.wordpress.com/. A similar declaration in Canada has 273 churches and organizations as signatories. "The Niagara 2020 Declaration on the Liberties of the Church in Canada from Sea to Sea," Niagara Declaration, accessed 8 October 2021, https://www.niagaradeclaration.ca.

Conclusion
The Bright Red Line:
Medical Discrimination and Coercion

For me, the Rubicon is indeed the use of vaccine mandates and passports to deny fundamental human rights to certain members of society: the unvaccinated, the conscientious objecting, the partially vaccinated, the vaccine injured, the vaccine at risk, and those unwilling to yield up their medical privacy.[381] Depriving such individuals of their livelihood, or restricting their mobility or assembly, or their access to work or any place of business or worship, is unjust. It is medical segregation and medical apartheid, plain and simple. It is not only discriminatory; it is persecutory. Crucially, "vaccine passes" are not really passes to allow vaccinated people *in*; these are passes that keep unvaccinated people *out*. It is only the prolonged state of exception, suspending rights and freedoms for months on end, that now gives the impression otherwise. Proof of vaccination is presented as a solution to "ending the pandemic," when in reality it is being offered as a means to end the *restrictions* imposed by the state.

However, vaccine discrimination is both unwarranted and unethical.[382] As we have demonstrated in Chapter 4, the argument that only universal vaccination will protect society is scientifically flawed in many respects, and the risk of adverse vaccine reactions has not been fully assessed. More importantly, the introduction of vaccine passes imposes civil disabilities on those who will not undergo an invasive medical procedure: it is a violation of privacy, it is intrusive, and it implies that fundamental human rights are somehow in the gift of the government of the day. It is a serious form of medical coercion. As Ivan Illich noted in a discussion of "diagnostic imperialism," medical certification does only two things outside of treatment. "Medicalized status" can exempt someone from obligations (work, prison, military service, etc.), or it can authorize others to encroach upon the certificate holder's freedom (institutionalization, denying work, travel, etc.).[383]

I wrote these last paragraphs in June 2021, thinking that I was describing an unlikely dystopian future. This was an abstract possible, not an imminent probable. Surely, we would never contemplate such a thing as vaccine discrimination in Canada? I was aware that the Prime Minister, premiers of provinces, and public health officers had all said this would never happen here. I spoke personally with my Member of Parliament, the Hon. Joyce Murray, and she assured me in August 2021 that the Prime Minister had no plans to introduce vaccine passes or mandates. This was just days before a divisive, hardline vaccine policy became a leading plank in the platform of the Liberal Party of Canada in the autumn election. It was widely recognized in the media as a cynical wedge issue: something to

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[381] See further, David Cayley, "The Case Against Vaccine Passports," *First Things*, 16 September 2021, https://www.firstthings.com/web-exclusives/2021/09/the-case-against-vaccine-passports.

[382] See Günter Kampf, "COVID-19: Stigmatising the Unvaccinated Is Not Justified," *The Lancet* 398, no. 10314 (November 2021): 1871, https://doi.org/10.1016/S0140-6736(21)02243-1.

[383] Illich, *Limits to Medicine*, 77

exploit for partisan advantage.[384] Thus began a new turn toward authoritarian government and a deepening of the biosecurity state in Canada.

To be clear, on January 14, 2021 Justin Trudeau opposed mandatory vaccination as an "extreme measure," saying, "I think the indications that the vast majority of Canadians are looking to get vaccinated will get us to a good place without having to take more extreme measures that could have real divisive impacts on community and country."[385] The Prime Minister responded to the question of mandating vaccines by saying that he could think of numerous legitimate reasons why Canadians would *not* take a COVID-19 shot: "We always know there are people who won't get vaccinated, and not necessarily through a personal or political choice. There are medical reasons. There are a broad range of reasons why someone might not get vaccinated and I'm worried about creating knock-on, undesirable effects in our community."[386] Even early in the election campaign when passes and mandates were being announced as policy goals, Canada's chief human resources officer, Christine Donoghue, wrote a memo to deputy ministers: "We recognize that some people are unable to be vaccinated. In these cases, we will discuss accommodations that could be put in place."[387] These ethical concerns all evaporated overnight, and indeed there is reason to regard the Prime Minister's statements with some scepticism, since it appears the Liberal cabinet was looking at the feasibility of immunopassports as early as April 22, 2020.[388]

A similar reversal of policy took place in British Columbia, where our chief public health officer, Bonnie Henry, stated on May 25, 2021: "This virus has shown us that there are inequities in our society that have been exacerbated by this pandemic. And there is no way that we will recommend that inequities be increased by use of things like vaccine passports for services for public access here in British Columbia. And that's my advice. And I've got support from—the premier and I have talked about this, Minister Dix, and others. . . It would not be my advice that we have any sort of vaccine passport within British Columbia for services in BC."[389] And yet on August 23, 2021, Henry announced the introduction of vaccine passports and digital IDs to begin excluding "unvaccinated" persons by order from various venues and residences (for students)—with no provision for medical or religious or any other exemptions. With the encouragement of the public health officer, we are also seeing increasing numbers of vaccine mandates imposed on government employees, government-

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[384] The Canadian Press, "Mandatory Vaccinations Become First Wedge Issue in Pandemic Election | News," DH News, 16 August 2021, https://dailyhive.com/vancouver/mandatory-vaccinations-wedge-issue-election.

[385] Amran Abocar and David Ljunggren, "Trudeau Says He Still Has "a Lot to Do," and Wants to Serve for "Number of More Years" | CBC News," CBC, 14 January 2021, https://www.cbc.ca/news/politics/trudeau-freeland-vaccine-passports-1.5873987.

[386] David Lao, "No Plans for "Divisive" Vaccine Passports for Canadians, Trudeau Says," Global News, National, 14 January 2021, https://globalnews.ca/news/7576955/coronavirus-vaccine-passports-canada-trudeau/.

[387] Chris Selley, "Trudeau Faces a Tough Follow-through on His Vaccine Tough Talk," *National Post*, 22 September 2021, https://nationalpost.com/opinion/chris-selley-trudeau-faces-a-tough-follow-through-on-his-vaccine-tough-talk.

[388] Holly Doan, "EMAIL: Covid "Passport" Kept Quiet @PrivyCouncilCA Memo April 22, 2020 from Deputy Secretary to Cabinet Thao Pham to @FinanceCanada Minister @cafreeland in Answer "to Your Questions". Https://Blacklocks.ca/Covid-Passport-Kept-Quiet/ #cdnpoli #VaccinePassport Https://T.Co/QUhYMrWP3Y," Tweet, @*hollyanndoan*, 26 August 2021, https://twitter.com/hollyanndoan/status/1430856093715083273.

[389] "COVID-19: Vaccine Passports Come with Risks, Warns B.C. Ombudsperson," accessed 5 October 2021, https://www.citynews1130.com/2021/05/26/COVID-19-vaccine-passports-bc-ombudsperson/; for the video of her news conference on 25 May: Vienna Aldis, "Bonnie Henry, May 25, 2021: 'It Would Not Be My Advice That We Have Any Sort of Vaccine Passport in BC for Services in BC.' 'There Is No Way We Will Reccommend That Inequities Be Increased by Use of Things like Vaccine Passports for Services in BC.'" Tweet, @*naturalbabes* (blog), 25 August 2021, https://twitter.com/naturalbabes/status/1430637584045121536.

regulated industries, healthcare workers, universities, and other businesses: get vaccinated or get terminated.

On September 6, 2021, Trudeau also promised legal protection for employers mandating vaccines, removing any legal liability for intrusion into medical privacy or for medical coercion, and indemnifying employers from lawsuits arising from vaccine injuries.[390] One would think the opposite would be the case, that legal liability would be a *corollary* of a mandatory medical procedure. This contradiction was noted by Agamben in his speech to a committee of the Italian Senate on October 7, 2021, prior to the vote on a wide-ranging vaccine mandate in the country. He began by reminding the lawmakers of the special Decree Law, number 44, called the criminal shield, by which the government exempted itself from any liability for damage caused by the vaccines. The law clearly envisioned the possibility of serious damage. Article 3 of the decree "explicitly mentions Articles 589 and 590 of the Criminal Code, which refer to manslaughter and negligent injury." To force citizens then to be vaccinated or be excluded from social life and employment is a contradiction. "Is it possible to imagine a situation legally and morally more abnormal? How can the state accuse of irresponsibility those who choose not to vaccinate, when it is the same state that first formally disclaims any responsibility for the possible serious consequences?"[391]

Mandates and the threat of job loss clearly represent a new level of coercion. Even earlier, with public policy driven by the official narrative of the extreme lethal danger of COVID-19 to one and all, there was increasing social and political pressure brought to bear on the "vaccine hesitant." Individuals were not, and still are not, being encouraged to undertake a careful risk–benefit assessment for their own situation, but the message has been that "no one is safe, until we are all safe." The vaccination of virtually the entire population has been presented as the only way to return to normal life.[392] For public policy, everything now depends on vaccine-induced immunity.

However, the evidence of high rates of breakthrough infections among the vaccinated and rapidly waning vaccine-induced immunity, together with the evidence of high case rates and hospitalization in those countries with the highest rates of vaccination—never mind the possibility of antibody-dependent enhanced disease and epigenetic pressure on the virus—argues firmly against universal vaccination as the only way to protect society. These vaccines are too "leaky," and they fade.[393] Moreover, it is clear now that the COVID-19 vaccines, even when they provide some protection from serious illness and death, do not provide sterilizing immunity. On August 6, 2021, Rochelle Walensky, Director of the CDC, spoke about the vaccines and admitted, "What they can't do anymore is prevent

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[390] Canadian Press, "Trudeau Vows Legal Protection for Businesses Asking for Proof of Vaccination," National | Globalnews.ca, 6 September 2021, https://globalnews.ca/news/8170146/liberals-vow-legal-protection-businesses-covid-vaccine-mandates/.

[391] The video recording is available in Italian: *07 Ottobre 2021 Senato, Prof. Giorgio Agamben , Green Pass*, 2021, https://www.youtube.com/watch?v=_IWO9unA3BE. See transcript, "Agamben in Senato: 'Green pass mostruosità, eroso modello democratico,'" La Pressa, 7 October 2021, https://www.lapressa.it/articoli/politica/agamben-in-senato-green-pass-mostruosit-eroso-modello-democratico. There are various English translations. See Lena Bloch, "Giorgio Agamben's Speech to the Commission on Constitutional Affairs of the Senate, October 7, 2021," *Medium* (blog), 10 October 2021, https://lenabloch.medium.com/giorgio-agambens-speech-to-the-commission-on-constitutional-affairs-of-the-senate-october-7-2021-15ba7ddf2955.

[392] "None of Us Is Safe until We All Are, Says UN Chief at EU Push to End COVID-19 Pandemic," UN News, 4 May 2020, https://news.un.org/en/story/2020/05/1063132.

[393] Byram W. Bridle, "5 Factors That Could Dictate the Success or Failure of the COVID-19 Vaccine Rollout," The Conversation, accessed 5 October 2021, http://theconversation.com/5-factors-that-could-dictate-the-success-or-failure-of-the-COVID-19-vaccine-rollout-152856.

transmission."[394] Evidently, the government likes people who transmit SARS-CoV-2 after an injection, but not people who transmit it with no injection. Even if we did want to divide society into "safe" people and "unsafe" people, there is no scientific evidence that the vaccinated are safe to be around if you are worried about getting an infection. This is why, prima facie (literally), mask mandates continue for the vaccinated. The evidence is (again quite literally) staring you in the face. This is very different from previous vaccines, such as for Yellow Fever, where after taking the inoculation, you feel safe to travel across the world and place yourself in the very middle of the path of the pathogen.[395]

At the same time, however, while people are wrongly being told that the vaccinated are somehow "safe," people are also wrongly being told that all unvaccinated people are categorically "unsafe," without acknowledgement of the lasting protective immunity to SARS-CoV-2 following natural infection for many.[396] Even if one has acquired natural immunity through having had COVID-19, there is no program to screen out vaccine candidates based on this history, nor based on an antibody test. To punish these individuals for failing to be vaccinated makes no sense. Moreover, the risk–benefit ratio for such individuals has to be *all* risk of vaccine-induced harm and *no* benefit whatsoever. There is evidence too that the vaccine is more risky for those who have had COVID-19.[397] But the

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[394] Madeline Holcombe and Christina Maxouris, "Fully Vaccinated People Who Get a COVID-19 Breakthrough Infection Can Transmit the Virus, CDC Chief Says," CNN, 6 August 2021, https://www.cnn.com/2021/08/05/health/us-coronavirus-thursday/index.html. The faulty reasoning offered for vaccine mandates and passes is succinctly analysed in the short video, "Are Charter Violations Justified?" Canadian Covid Care Alliance, accessed 14 November 2021, https://www.canadiancovidcarealliance.org/media-resources/are-charter-violations-justified/.

[395] The observation was made by Byram Bridle in Jane Stannus, "Crush the Science," The Spectator World, 11 October 2021, https://spectatorworld.com/topic/byram-bridle-suppression-scientific-debate/.

[396] Jay Bhattacharya, Sunetra Gupta, and Martin Kulldorff, "The Beauty of Vaccines and Natural Immunity," SMERCONISH, 4 June 2021, https://www.smerconish.com/exclusive-content/the-beauty-of-vaccines-and-natural-immunity. Sivan Gazit *et al.*, "Comparing SARS-CoV-2 Natural Immunity to Vaccine-Induced Immunity: Reinfections versus Breakthrough Infections," preprint (Infectious Diseases (except HIV/AIDS), 25 August 2021), https://doi.org/10.1101/2021.08.24.21262415; Martin Kulldorff, "In Israel, Vaccinated Individuals Had 27 Times Higher Risk of Symptomatic COVID Infection Compared to Those with Natural Immunity from Prior COVID Disease [95%CI:13-57, Adjusted for Time of Vaccine/Disease]. No COVID Deaths in Either Group. Https://T.Co/HopImCD1D0," Tweet, *@MartinKulldorff* (blog), 25 August 2021, https://twitter.com/MartinKulldorff/status/1430660291579105284; John Zwaagstra, "Vaccine Concerns Weighed against Natural Immunity," *OCLA* (blog), 21 September 2021, https://ocla.ca/vaccine-concerns-weighed-against-natural-immunity/; Jennifer Block, "Vaccinating People Who Have Had COVID-19: Why Doesn't Natural Immunity Count in the US?" *BMJ*, 13 September 2021, n2101, https://doi.org/10.1136/bmj.n2101. "Natural Immunity and Covid-19: Thirty Scientific Studies to Share with Employers, Health Officials, and Politicians," *Brownstone Institute* (blog), 10 October 2021, https://brownstone.org/articles/natural-immunity-and-covid-19-twenty-nine-scientific-studies-to-share-with-employers-health-officials-and-politicians/; Jay Bhattacharya, "The Strange Neglect of Natural Immunity," *Brownstone Institute*, 28 July 2021, https://brownstone.org/articles/the-strange-neglect-of-natural-immunity/. Paul Elias Alexander, "128 Research Studies Affirm Naturally Acquired Immunity to Covid-19: Documented, Linked, and Quoted," *Brownstone Institute* (blog), 17 October 2021, https://brownstone.org/articles/79-research-studies-affirm-naturally-acquired-immunity-to-covid-19-documented-linked-and-quoted/.

[397] Antonella d'Arminio Monforte *et al.*, "Association between Previous Infection with SARS CoV-2 and the Risk of Self-Reported Symptoms after MRNA BNT162b2 Vaccination: Data from 3,078 Health Care Workers," *EClinicalMedicine* 36 (1 June 2021), https://doi.org/10.1016/j.eclinm.2021.100914 Rachael K. Raw *et al.*, "Previous COVID-19 Infection but Not Long-COVID Is Associated with Increased Adverse Events Following BNT162b2/Pfizer Vaccination," 22 April 2021, https://doi.org/10.1101/2021.04.15.21252192; "Self-Reported Real-World Safety and Reactogenicity of COVID-19 Vaccines: An International Vaccine-Recipient Survey, MedRxiv," accessed 5 October 2021, https://www.medrxiv.org/content/10.1101/2021.02.26.21252096v1. See also the discussion by Byram Bridle of the scientific evidence for his own natural immunity, compared to the uncertain vaccine-induced immunity of the President of the University of Guelph: Byram Bridle, "An Open Letter to the President of the University of Guelph," 17 September 2021,

point here is simply that the unvaccinated include many individuals with a broad-based, lasting and effective natural immunity, rendering the notion that all unvaccinated people are "unsafe" invalid. That this is not taken into account in public policy suggests that it is not *immunity* that is the goal: it is simply universal vaccination, at all costs. Both in Israel and here in British Columbia, public health officials have been caught on microphone acknowledging that vaccination passes are not about preventing transmission but *only* about coercing or incentivising vaccination.[398]

In addition, we found earlier that asymptomatic transmission has not been the driver of serious infection and disease. It remains the case that we should not treat ordinary healthy people with no symptoms as a vector of deadly disease since they *might* just become infectious. We should not treat them as guilty (sick) until proven innocent (healthy). I keep thinking of the science fiction film *Minority Report* that portrays a future world where the elite law enforcement branch "Precrime" uses special powers of pre-cognition to predict crimes and then to arrest individuals for crimes they are *about to* commit. This is the dystopian world in which the unvaccinated and partially vaccinated now live. Those who were ordinary people yesterday are regarded as lepers today.[399]

When we hear news that ICUs and hospitals are in crisis and over-capacity, we ought rightly to be concerned and have compassion on both the sick and those who care for them. I believe the reports from doctors and front-line medical staff who are overwhelmed and traumatized by what they are facing, and I have heard from some of these doctors personally. This invites our compassion. However, it is important to exercise critical judgement in assessing the messaging of public health and political figures in this regard, especially the oft-repeated refrain that this is now "a pandemic of the unvaccinated" or that it is only the unvaccinated ending up in hospital now. All the numbers must be verified and given context.

Moreover, if it were true generally that "this is a pandemic of the unvaccinated," how do we make sense of the rate of hospitalization seen in countries like Israel with the highest rate of vaccination? How long does protective immunity last? There are other questions to ask. What is the significance of counting among the unvaccinated *all* those who have only one shot or who are fewer than 14 days post-injection for the second? How do the large numbers of "unknown" (neither vaccinated nor unvaccinated) affect the reporting? What are the co-morbidities on admission? How many acquire COVID-19 in hospital? Why are they not being given the full range of early treatment and hospital treatment protocols that are being used effectively elsewhere? Is there a "supply side" problem that is being obscured, and not just a "demand side" problem? In September 2021, reports from Alberta were of a system overloaded with COVID-19 patients, but Alberta began with a very low number of beds per capita compared with other jurisdictions in Canada and elsewhere, and this was made worse

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[398] FWM Staff, "Israeli Health Minister: Health Pass Only Designed to Increase Jab Rates," Free West Media, 14 September 2021, https://freewestmedia.com/2021/09/14/israeli-health-minister-health-pass-only-designed-to-increase-jab-rates/. "COVID-19 Virtual Medical Staff Forum: Vaccine Updates & Build Back Better | Vancouver Coastal Health," Odysee, 9 October 2021, https://odysee.com/COVID-19-Virtual-Medical-Staff-Forum--Vaccine-Updates--Build-Back-Better--Vancouver-Coastal-Health:ff3a990cadd35daa2f25c7981c596b3cac5707dd.

[399] This language was used by the veteran Vancouver broadcaster Bill Good of those who dissent from vaccination: "And they will discover a real lack of freedom, brought on by nobody but themselves. They'll be shunned by former friends, even family . . . And it's just the beginning. They will feel like lepers. Most people want no part of them. It won't be pretty." A Minute with Bill Good, News 1130, 2 September 2021, https://www.citynews1130.com/audio/minute-with-bill-good/.

by staff shortages and resignations.[400] Taking the larger picture, the case survival rate for COVID-19 in Alberta as of October 1, 2021, was still over 99%.[401]

But as we have noted above, the data for COVID-19 infections and virulence this past 18 months is "lumpy"—i.e., it is not distributed evenly temporally or geographically. Where there are outbreaks, I am not sure we necessarily understand all the reasons why, and it makes the question of "supply" more urgent. Rather than spending more than $300 billion in Canada to shut down the economy, would it not have made more sense to spend a fraction of that to ensure health care capacity and adequate staffing and support?[402] Moreover, it is surely the worst possible time to start laying off health care workers that refuse to become vaccinated. Ironically, health care workers are those most likely to have acquired robust natural immunity due to their high exposure to COVID-19 patients.

Thus far, I have been seeking to discredit the widely held belief that "we're not safe, until we're all safe" with its implication that universal vaccination is necessary to keep each other well. And I have been arguing that this is scientifically unwarranted, *even if* one were to accept the population-based utilitarian ethic that runs roughshod over individual needs, concerns, circumstances and, above all, rights.

The normal assumption with a vaccine is that the vulnerable or the frightened can protect *themselves* by making their own risk–benefit assessment and then choosing to get vaccinated, but this has been overtaken by the idea that anyone who does not take the vaccine is failing to protect *others*. The unvaccinated are selfish.[403] However, if vaccines are effective and you are vaccinated, it is not clear

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[400] Special to National Post, "Vitor Marciano: Alberta's Fourth Wave Exposes How Little Capacity Canada's Hospitals Actually Have," *National Post*, 29 September 2021, https://nationalpost.com/opinion/vitor-marciano-albertas-fourth-wave-exposes-how-little-capacity-canadas-hospitals-actually-have. "Pre-pandemic data from 2018 showed that all U.S. states except Hawaii and Vermont had an ICU capacity of 18 per 100,000 or better — that's not hospital capacity, that is ICU capacity and those numbers have likely increased since COVID. Alberta's expanded ICU capacity is 370 beds, or about eight per 100,000." See also J. J. McCullough, "What Alberta's Covid Numbers Tell Us about the Deficiencies of Canada's Health System," *Washington Post*, accessed 8 October 2021, https://www.washingtonpost.com/opinions/2021/10/01/canada-alberta-covid-alabama-deficiencies-government-healthcare/.

[401] "Covid Statistics Alberta – 1 October 2021," *Justice Centre for Constitutional Freedoms*, accessed 8 October 2021, https://www.jccf.ca/covid-stats/ and https://www.jccf.ca/wp-content/uploads/2021/10/Covid-Statistics-Alberta-oct-1-2021.png.

[402] The question of whether we are seeing a "pandemic of the unvaccinated," or the reverse, is hotly debated. In many countries the case rate following vaccination has risen. For example, the COVID-19 Vaccine Surveillance Reports from what is now called the UK Health Security Agency are showing growing numbers of cases among the vaccinated, though with some continued protection against severe illness, hospitalization, and death. See "COVID-19 Vaccine Surveillance Report Week 40" (UK Health Security Agency, 7 October 2021), https://www.gov.uk/government/publications/COVID-19-vaccine-weekly-surveillance-reports. See also the online analysis by Don Wolt, "Oct 7, 2021 Update: UK CoV2 Infection Rates among the Fully Vaccinated Are Now Higher than Those of the Unvaccinated in All Age Cohorts ≥30. Both Vaxxed & Unvaxxed Get Infected and Spread & in Most Age Groups, the Vaxxed Moreso, Which Renders Vaccine Passports Useless. Https://T.Co/FN7nLYmUdA," Tweet, @*tlowdon* (blog), 8 October 2021, https://twitter.com/tlowdon/status/1446330963902885888; el gato malo, "An Epidemic of the Vaccinated," Substack newsletter, 8 October 2021, https://boriquagato.substack.com/p/an-epidemic-of-the-vaccinated.

[403] It seems President Biden does not realize that the vaccinated have no sterilizing immunity. On 7 October 2021, he announced, "We're making sure healthcare workers are vaccinated because if you seek care at a healthcare facility, you should have the certainty that the people providing that care are protected from COVID and cannot spread it to you." Ian Schwartz, "Biden: The Vaccinated Are 'Protected' From COVID, 'Cannot Spread It To You,'" 7 October 2021, https://www.realclearpolitics.com/video/2021/10/07/biden_vaccinated_protected_from_covid_cannot_spread_it_to_you.html. This is despite his own Director of the CDC, Rochelle Walensky, admitting, "What they can't do anymore is prevent transmission." Madeline Holcombe and Christina Maxouris, 'Fully Vaccinated People Who Get a COVID-19 Breakthrough Infection Can Transmit the Virus, CDC Chief Says," CNN, 6 August 2021, https://www.cnn.com/2021/08/05/health/us-coronavirus-thursday/index.html.

why the person next to you needs to be vaccinated for your safety. We have not treated other vaccines this way. This has been summed up in a riddle: Why do the protected need to be protected from the unprotected by forcing the unprotected to use the protection that didn't protect the protected in the first place? All the pressure now is to forego an individual risk–benefit calculation, and instead focus on the supposed public good of population-wide vaccine-induced immunity, notwithstanding the impossibility of achieving this goal. This superseding analysis of risk–benefit at a population level (which authorized the emergency use legislation in the first place) is itself based entirely on problematic assumptions related both to dangers and to efficacy. Also, the targets for the vaccination rate, necessary before restrictions can be lifted, seem to be based on the same sort of mathematical modeling that has proved unreliable at many points since March 2020.

Given the official narrative regarding COVID-19 and the public policy that has gone all-in for vaccination, the campaign to persuade or coerce individuals to "take the first vaccine you are offered" was in full force in Canada in the spring of 2021, and the messaging that "all approved vaccines are safe and effective" was relentless. This proved not to be the best advice, as various vaccines were later withdrawn, or advice modified. This revision of official advice continues.[404] But nevertheless the so-called vaccine-hesitant have been treated increasingly as socially irresponsible free-riders, deserving of shame. Social pressure is being directed also toward pregnant women and the young to be vaccinated (the latter, able to do so by law in British Columbia and many other jurisdictions without parental consent). Initially, this was a matter of inducement. The fear of COVID-19 led to widespread calls for vaccine incentives. Beginning with Ohio in May, many US states, and then Canadian provinces, rolled out million-dollar lotteries ("Vax-a-million") as vaccine incentives.[405] Now, having tried the carrot, authorities are turning to the stick.

I think June was an inflection point. On June 6, 2021, the Tony Blair Institute for Global Change released a paper, "Less Risk, More Freedom," advocating sweeping public discrimination against the unvaccinated. The mechanism proposed for this was an interoperable, digital biometric app from the government to prove vaccine status, on the basis of which travel could be restricted and businesses could be vaccine-only. Such vaccine-only businesses would be permitted to open without the legal restrictions of businesses open to all. The app would be interoperable with other countries and could be updated as necessary to take into account new variants and updated vaccines, adjusting the individual freedoms of the user accordingly.[406] This platform was obviously long in the making.[407] As

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[404] Associated Press, "Sweden Suspends Moderna Vaccine for Those 30 and Under," *New York Post*, 6 October 2021, https://nypost.com/2021/10/06/sweden-suspends-moderna-vaccine-for-those-30-and-under/.

[405] Zach Guzman, "Million-Dollar Lotteries as COVID-19 Vaccine Incentives Spread to More States," Yahoo!Finance, 28 May 2021, https://finance.yahoo.com/news/million-dollar-lotteries-as-vaccine-incentives-spread-to-more-states-215812447.html. Shane Gibson and Joe Scarpelli, "Manitoba Launches Nearly $2M Lottery to Encourage COVID-19 Vaccinations," Global News, 9 June 2021, https://globalnews.ca/news/7934320/manitoba-premier-to-announce-COVID-19-vaccine-incentives-with-liquor-and-lotto-ceo/. And for young people: "Youth Vaccination Selfie Contest," Hastings Prince Edward Public Health, accessed 12 June 2021, https://hpepublichealth.ca/vax2playhpe/. Alberta announced a lottery too: "Open for Summer Lottery," accessed 14 June 2021, https://www.alberta.ca/open-for-summer-lottery.aspx.

[406] Kirsty Innes *et al.*, "Less Risk, More Freedom," Tony Blair Institute for Global Change, 6 June 2021, https://institute.global/policy/less-risk-more-freedom, 4-5.

[407] "Common Trust Network | World Economic Forum," 4 October 2020, https://web.archive.org/web/20210809183837/https://www.weforum.org/projects/commonpass. See also, | Chris Burt, "WTTC and World Economic Forum Partner to Share Information and Promote Biometric Travel | Biometric Update," 19 July 2019,

Blair said on the BBC in an interview, "We should really distinguish between the vaccinated and the unvaccinated," and "it's important to give people a real incentive to get vaccinated." When asked about discrimination, the former prime minister replied, "I think, you know, the word 'discrimination' has got a very loaded meaning in the English language now. But really when it comes to risk management *it's all about discrimination*."[408] No wonder Nick Cohen wrote in the *Guardian* already in February 2021, "It is only a matter of time before we turn on the unvaccinated."[409] Indeed, a German doctor argued that those who do not receive a COVID-19 vaccine should not be able to access a ventilator in hospital if they get sick.[410] As authorities such as President Joe Biden publicly expressed anger toward the "unvaccinated" ("Our patience is running out. Your refusal has cost us all"), and this was echoed by Canadian politicians such as Premier Scott Moe ("time for patience is over"), a fearful population was freed of any inhibitions from openly declaring hatred toward their fellow citizens.[411] Twitter is full of reports of people being told, "I hope you die."[412] It has never gone well in history when societies have openly divided the population into the safe and the unsafe, the clean and the unclean, the virtuous and the unvirtuous. It has almost always led to violence. And, as with lockdowns, this policy is discriminating most against racial minorities.[413]

Instead of encouraging individual, informed consent and the rational assessment of personal risks and benefits, state authorities and public leaders first advocated bribes to take a vaccine, and then, with Tony Blair, called for basic human rights to be withheld and health status monitored.

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https://www.biometricupdate.com/201907/wttc-and-world-economic-forum-partner-to-share-information-and-promote-biometric-travel; "Digital Identity," World Economic Forum, accessed 9 October 2021, https://www.weforum.org/agenda/archive/digital-identity/; | Chris Burt, "ID2020 and Partners Launch Program to Provide Digital ID with Vaccines | Biometric Update," 20 September 2019, https://www.biometricupdate.com/201909/id2020-and-partners-launch-program-to-provide-digital-id-with-vaccines; "ID2020 | Alliance & Governance," ID2020, accessed 9 October 2021, http://id2020.org/alliance.

[408] *BBC One - The Andrew Marr Show, 06/06/2021, Tony Blair on G7, Compulsory Vaccination and Covid Origins*, 2021, https://www.bbc.co.uk/programmes/p09kq4fc (italics added). The full transcript of the interview is here: http://news.bbc.co.uk/1/shared/bsp/hi/pdfs/06062102.pdf.

[409] Nick Cohen, "It Is Only a Matter of Time before We Turn on the Unvaccinated," *The Guardian*, 27 February 2021, sec. Opinion, http://www.theguardian.com/commentisfree/2021/feb/27/it-is-only-a-matter-of-time-before-we-turn-on-the-unvaccinated.

[410] Bill McLoughlin, "Merkel Covid Crackdown: Germany to DETAIN Lockdown Rule Breakers in Refugee Centres," *Express.Co.Uk*, 18 January 2021, https://www.express.co.uk/news/world/1385597/Germany-Covid-angela-merkel-eu-news-coronavirus-lockdown-detention-centre-refugee-camp.

[411] The government of Saskatchewan and its "Covid Enforcement Team" has not only prepared online forms for anonymous Covid snitching on people allegedly not following public health orders, but "the health authority is also preparing a 'secure isolation site' at Saskatchewan Hospital in North Battleford." Guy Quenneville, 'Ex-Police Will Enforce COVID-19 Rules,' 'secure Isolation Site' Planned, Sask. Doctors Told | CBC News," CBC, 8 October 2021, https://www.cbc.ca/news/canada/saskatoon/saskatchewan-COVID-19-1.6205235.

[412] For example, Yvonne C, Fighting Back is the New Normal, "Life in Trudeau's Canada: As We Were Walking Back to Our Car from the Toronto March Yesterday Carrying Our Protest Signs, We Passed a Woman on the Sidewalk Who Looked at Us with Hatred and Said, 'I Hope You Die.'" Tweet, *@CountryGardener* (blog), 5 September 2021, https://twitter.com/CountryGardener/status/1434635311724773377. In Lithuania, a former member of parliament and speaker of the house, has said that COVID-19 is like wartime and previously in times of war those who side with the enemy are shot, but "there will be no need to shoot the anti-vaxxers. I hope they will die out on their own." See the mainstream Lithuanian newspaper article, 17 September 2021: https://www.15min.lt/naujiena/aktualu/komentarai/arunas-valinskas-apie-galviju-pasus-kodel-nereikia-saudyti-antivakseriu-500-1566398. (English trans. available through Google translate, and widely reported in Twitter.)

[413] Billy Prempeh, "Hundreds of Thousands of Americans Have Watched My Open Letter to White Liberals. We Will Not Be Your Guinea Pigs Anymore! Https://T.Co/VJyXnLe7tS," Tweet, *@BillyPrempeh* (blog), 7 October 2021, https://twitter.com/BillyPrempeh/status/1446114590220165139.

Notwithstanding safety concerns, unless you allow a government authorized molecule to be injected into your body, with updates as required, your fundamental freedoms will be denied, and a digital app will track this in a social credit system that is permanent and revisable at any moment. The digital platform is designed for boosters and further vaccinations, as indeed for other social credit monitoring. These technologies were planned for use in Canada well before this autumn.[414]

It is true that one's fundamental human rights do not grant one a right to endanger others. Freedom of mobility does not confer a right to drive drunk. But we have argued that it is scientifically unwarranted to regard the unvaccinated as endangering the vaccinated, and unethical to divide citizens into categories of safe and unsafe people. Personal health and disease is too complicated and individual for such crude generalization. In fact, if epigenetic pressure from vaccines causes the evolution of more virulent variants, it will be the vaccinated that have endangered the unvaccinated. The so-called Marek effect has been studied in the case of leaky vaccines for chickens. All the unvaccinated chickens now die within ten days.[415] The long-term effects of the vaccines remain unknown. The nightmare scenario would be the rise of antibody-dependent enhancement of disease in individuals or vaccine-induced virulence in the virus, while, at the same time, the unvaccinated are wrongly scapegoated as a reservoir of deadly disease.

Instead, we must remind ourselves of what we used to know about human rights and informed medical consent. The Universal Declaration on Bioethics and Human Rights, UNESCO, 2005, states (Art. 3.1) that "Human dignity, human rights and fundamental freedoms are to be fully respected." And it continues (Art. 3.2) with the sacrosanct principle: "The interests and welfare of the individual should have priority over the sole interest of science or society." As a corollary (Art. 6.1), "Any *preventive,* diagnostic and therapeutic medical intervention is only to be carried out with the prior, free and informed consent of the person concerned, based on adequate information. The consent should, where appropriate, be express and may be withdrawn by the person concerned at any time and for any reason *without disadvantage or prejudice*."[416] The principle of medical privacy is also fundamental (Art. 9): "The privacy of the persons concerned and the confidentiality of their personal information should be respected." And in all this, there should be no shaming or discrimination. Thus (Art. 11), "No individual or group should be discriminated against or stigmatized on any grounds, in violation of human dignity, human rights and fundamental freedoms."

These principles were also enshrined in the World Medical Association Declaration of Helsinki on Ethical Principles for Medical Research, 1964 (with amendments, to 2013). The principle of informed consent and concomitant right to refuse are stated clearly, and the priority of the individual is again affirmed in the Hippocratic tradition: "The health of my patient will be my first consideration."[417]

Moreover, insofar as the current investigative vaccines are an acknowledged human experiment, and this is implied by the emergency use authorizations and the shortened trials and the introduction

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[414] "Ontario's Digital ID Plan," Ontario.ca, accessed 7 June 2021, https://www.ontario.ca/page/ontarios-digital-id-plan.

[415] Nsikan Akpan, "This Chicken Vaccine Makes Its Virus More Dangerous," PBS NewsHour, 27 July 2015, https://www.pbs.org/newshour/science/tthis-chicken-vaccine-makes-virus-dangerous.

[416] "Universal Declaration on Bioethics and Human Rights: UNESCO," accessed 30 August 2021, http://portal.unesco.org/en/ev.php-URL_ID=31058&URL_DO=DO_TOPIC&URL_SECTION=201.html (italics added).

[417] "WMA - The World Medical Association-WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects," accessed 30 August 2021, https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/.

of new technologies (mRNA), such experiments are governed by the Nuremberg Code on "Permissible Medical Experiment" (1947), ratified by Western nations. This ethical code likewise stresses informed choice, and the utter freedom to reject and discontinue an experiment at any stage in the process.[418]

These are fundamental, established principles of bio-ethics and medical ethics. My conviction is also that vaccine passes and mandates are an unconstitutional violation of Canadian Charter rights and freedoms, which are also based on protecting individuals against the power of majorities. This is the distinction between constitutional law and positive law. *Lex* must be based on *ius*. In our Canadian Charter we declare as constitutional (not the gift of the state or the government of the day), our *fundamental* freedoms of assembly and association (§2), our *mobility* rights to move about freely and to pursue the gaining of a livelihood (§6.2), our *legal* rights to liberty and security of the person, including bodily integrity (§7) and to privacy (§8) and the presumption of innocence (§11(d)), and to not be subjected to cruel and unusual treatment or punishment (§12). We also assert our *equality* rights to equal protection and equal benefit under the law for every individual without discrimination (§15).

It is a telling indictment of public policy that medical doctor and ethicist Aaron Kheriaty, a professor in the School of Medicine and Director of the Medical Ethics Program at University of California Irvine was suspended by his university for the stand he has taken against vaccine mandates.[419] In Canada, likewise, ethics professor of twenty years at University of Western Ontario, Julie Ponesse, took a courageous stand against mandates, at the cost of her own job, and gave a short but moving final lecture to her students online: Ethics 101. She was terminated on September 7, 2021, but her video went viral around the world, despite censorship.[420] These were *ethicists* that were fired or suspended. There are increasing numbers of doctors and nurses also taking a costly stand against vaccine mandates. An open letter opposing these measures in Alberta was, signed by 3,544 health care workers including 73 physicians, 1,111 nurses, 227 paramedics and thousands of allied health professionals.[421] A similar response has been mounted in Ontario.[422]

In conclusion, what are we to do as a society and as individuals in response to this crisis? I am convinced that we need to stop travelling in the direction of authoritarian biosecurity and instead return to an ideal of protecting the vulnerable with renewed vigour and determination in an open,

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[418] "The Nuremberg Code (1947)," http://www.bioethicsforum.info/Nuremberg%20Code-1947.pdf.

[419] Aaron Kheriaty, "Legal Update 10/5/21: UC Has Put Me on Leave for Challenging Their Vaccine Mandate," Substack newsletter, *Human Flourishing* (blog), 6 October 2021, https://aaronkheriaty.substack.com/p/legal-update-10521.

[420] It has been mirrored on a number of sites to prevent censorship, but just on Instagram it has over a million views. It is reliably archived on "Ethics Professor Threatened with Dismissal for Refusing Vaccine," Canadian Covid Care Alliance, accessed 8 October 2021, https://www.canadiancovidcarealliance.org/media-resources/ethics-professor-dismissed-for-refusing-vaccine/.

[421] "OPEN LETTER: Health Care Workers against Mandatory Vaccinations," *The Western Standard*, 24 September 2021, https://westernstandardonline.com/2021/09/open-letter-health-care-workers-against-mandatory-vaccinations/. See also an Oct 4 lawyer's letter on behalf of "a number of doctors" regarding "Unethical Conduct of the College of Physicians and Surgeons Council" in Alberta, https://www.jccf.ca/wp-content/uploads/2021/10/2021-10-04-LT-CPSA.pdf.

[422] The United Health Care Workers of Ontario, Stand Up Canada, "UHCWO Mandatory Vaxx," Standup Canada, accessed 8 October 2021, https://standupcanada.solutions/uhcwo-mandatory-vaxx. The firing and suspensions continue. See CTV Toronto, "76 Employees at Copernicus Lodge Remain Suspended without Pay for Failing to Show Proof of COVID-19 Vaccination. Https://T.Co/JCYtIWRM66," Tweet, *@CTVToronto* (blog), 8 October 2021, https://twitter.com/CTVToronto/status/1446301907971190819.

functioning society that includes the sorts of risks we have tolerated in time past. To continue in the present direction, and indefinitely to isolate, discriminate, and distance people from one another damages individuals and society at its foundation. Agamben describes the essence of politics as being present to one another, face to face, since individuals in society "must first communicate their openness—in other words, a pure communicability— [and] the face is the very condition of politics, the site on which everything that individuals say and communicate is founded."[423] The longer we are masked, literally and metaphorically, and kept separate from one another, the greater the danger inflicted *upon-the-demos* (*epi-demic*, a Greek word that originally meant civil war in Homer). The danger is great for the society that Augustine called the city of men. The city of God, which we anticipate, is itself described as the place of pure openness, where by grace we shall see God *facie ad faciem,* face to face.[424] This is why C. S. Lewis spoke of the need to speak openly from "the centre of your soul," without any mask, veil, or *persona*. In his great novel on this theme, he wrote that the gods require this very thing of mortals. "How can [the gods] meet us face to face till we have faces?"[425] If we turn back now, we can perhaps recover this openness, this sense of generosity to one another in a society where the flourishing of each enriches the other.

[423] Agamben, *Where Are We Now?* 86-87.
[424] 1 Cor. 13: 12.
[425] C. S. Lewis, *Till We Have Faces* (1956; repr. Glasgow: Collins, 1983), 305.