Social Philosophy and Policy (2024), **41**: 2, 480–504
doi:10.1017/S026505252400027X

Social Philosophy & Policy

RESEARCH ARTICLE

Public Health as If People Mattered

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Abstract

This essay offers a framework for analyzing whether government may justifiably intervene to contain the spread of disease. Nonconsensual transmission of dangerous pathogens is an inherently violent act. This framework therefore justifies government public health activities for the same reasons and only to the same extent as other government activities. Government public health interventions are legitimate only to the extent they minimize the amount of violence in society. Violence-minimization is a more egalitarian and welfare-enhancing rule than, for example, a rule prescribing that government public health activities should minimize loss of life.

Keywords: COVID-19; economics; political philosophy; public health; smallpox

Introduction

How should governments respond to the threat individuals pose to each other when a dangerous and highly contagious disease is circulating in the population? In 1813, the U.S. Congress authorized the maintenance and subsidized the nationwide distribution of smallpox (variola major) vaccine. Smallpox kills 30 percent of those it infects who are unvaccinated and painfully disfigures and/or blinds many more.[1] President James Madison appointed physician James Smith of Baltimore, Maryland to be the first—and fatefully, the last—National Vaccine Agent. The program mailed cowpox scabs to applicants, with instructions on how to use the material to inoculate patients against smallpox. In 1822, Agent Smith accidentally mailed live-virus smallpox scabs in place of cowpox scabs. The error caused fifty-two smallpox cases and ten smallpox deaths in Tarboro, North Carolina. In response, President James Monroe dismissed Agent Smith and the U.S. Congress repealed the law authorizing the program.[2]

[1] "Smallpox," Centers for Disease Control and Prevention, https://www.cdc.gov/smallpox/clinicians/clinical-disease.html.

[2] Tess Lanzarotta and Marco A. Ramos, "Mistrust in Medicine: The Rise and Fall of America's First Vaccine Institute," *American Journal of Public Health* 108, no. 6 (2018): 742–43.

In 1906, typhoid fever (Salmonella enterica serovar Typhi) struck approximately 3,467 New York City residents and killed 639, an infection fatality rate of 18 percent.[3] Absent treatment, typhoid fever has a death rate between 12 percent and 30 percent.[4] Officials tied fifty-three of those cases and three deaths to Irish immigrant Mary Mallon, a cook who allegedly infected her victims unwittingly through the food she prepared.

With "force and plenty of it"—but without a warrant—police arrested Mallon. The state imprisoned her for two years without arraignment, charge, or trial in a three-room island cottage "with gas, modern plumbing and electricity ... pleasantly situated on the river bank, next to the church"[5] and "a dog as her only companion."[6] Officials released her only after coercing a pledge that she would take "hygienic precautions."[7] Upon release, Mallon allegedly resumed spreading the disease. Officials reimprisoned her on the island, again without a warrant, arraignment, charge, or trial, for twenty-three years until her death.[8]

In the 1970s, as part of the World Health Organization's (WHO) ultimately successful campaign to eradicate smallpox, foreign doctors sometimes resorted to physical coercion to vaccinate resistant Indian and Bangladeshi locals:

> Women and children were often pulled out from under beds, from behind doors, from within latrines, etc. People were chased and, when caught, vaccinated ... . Almost invariably a chase or forcible vaccination ensued ... . When they ran, we chased. When they locked their doors, we broke down their doors and vaccinated them... . I broke the door down and vaccinated—with a struggle—every member of his family, including the man. He was very angry and told me he was going to initiate a case against me ... . In the middle of the night an intruder burst through the door of the simple adobe hut. He was a government vaccinator, under orders to break resistance against smallpox vaccination.[9]

In 2010, United Nations (UN) peacekeeping troops from Nepal unwittingly introduced the bacterium Vibrio cholerae, which causes cholera, into Haiti's water supply.[10] By 2019, cholera had sickened 800,000

[3] George A. Soper, "The Curious Case of Typhoid Mary," *Bulletin of the New York Academy of Medicine* 15, no. 10 (1939): 699.

[4] "About Typhoid Fever and Paratyphoid Fever," Centers for Disease Control and Prevention, https://www.cdc.gov/typhoid-fever/about/index.html.

[5] Soper, "The Curious Case of Typhoid Mary," 708.

[6] "'Typhoid Mary' Must Stay. Court Rejects Her Plea to Quit Riverside Hospital," *The New York Times*, July 17, 1909, https://timesmachine.nytimes.com/timesmachine/1909/07/17/101029416.pdf.

[7] "Mary Mallon (1869–1938)," WikiTree, https://www.wikitree.com/wiki/Mallon-121.

[8] Soper, "The Curious Case of Typhoid Mary," 709–12.

[9] I thank Ann Barnhill for alerting me to this history. Paul Greenough, "Intimidation, Coercion, and Resistance in the Final Stages of the South Asian Smallpox Eradication Campaign, 1973–1975," *Social Science and Medicine* 41, no. 5 (1995): 635–37. The excerpt combines quotations from two different WHO foreign doctors.

[10] Jonathan M. Katz, "U.N. Admits Role in Cholera Epidemic in Haiti," *The New York Times*, August 17, 2016, https://www.nytimes.com/2016/08/18/world/americas/united-nations-haiti-chole

Haitians[11] (8 percent of the population[12]) and killed nearly 10,000[13] (0.1 percent), an infection fatality rate of 1.3 percent. Three months into the crisis, as the death toll reached 2,500, rioting against UN peacekeepers led to five shootings and two deaths.[14] Some Haitians blamed voodoo for the disease's spread.[15] Angry mobs lynched forty voodoo priests. A government official reported that the victims "were stoned or hacked with machetes before being burned in the streets."[16]

A novel, dangerous, and highly transmissible coronavirus disease emerged in late 2019. Within months, COVID-19 had spread worldwide. COVID-19 had an initial (unvaccinated) infection fatality rate of 0.47 percent.[17] Estimates suggest that by March 2023, COVID-19 claimed 7 million lives worldwide.[18] Some research suggests that excess deaths may be a multiple of that number.[19] Again by March 2023, COVID-19 appeared as the underlying (87 percent) or a contributing (13 percent) cause of death on 1.1 million death certificates in the United States. Seventy-six percent of those deaths were age sixty-five or older; 4 percent were younger than age forty-five. Estimates associate the disease with 1.3 million excess U.S. deaths.[20]

ra.html; "About Cholera," Centers for Disease Control and Prevention, https://www.cdc.gov/cholera/index.html.

[11] Yodeline Guillaume et al., "Responding to Cholera in Haiti: Implications for the National Plan to Eliminate Cholera by 2022," *The Journal of Infectious Diseases* 218, no. 3 (2018): S167.

[12] "Haiti Population," Worldometer, https://www.worldometers.info/world-population/haiti-population/.

[13] "Haiti Cholera Outbreak 'Stopped in Its Tracks'," *UN News*, January 24, 2020, https://news.un.org/en/story/2020/01/1056021.

[14] "Haiti Mobs Lynch Voodoo Priests over Cholera Fears," *BBC*, December 24, 2020, https://www.bbc.com/news/world-latin-america-12073029; "Haiti Protesters Clash with Police," *Aljazeera*, December 6, 2010, https://www.aljazeera.com/news/2010/12/6/haiti-protesters-clash-with-police-2; "UN Blamed for Haiti Shootings," *Aljazeera*, updated November 17, 2010, https://web.archive.org/web/20101119052326/http:/english.aljazeera.net/news/americas/2010/11/20101117194643939197.html.

[15] "Mobs Lynch 'Witches' in Haiti for Spreading Cholera Epidemic," *The Sydney Morning Herald*, December 4, 2010, https://www.smh.com.au/world/mobs-lynch-witches-in-haiti-for-spreading-cholera-epidemic-20101203-18jv0.html.

[16] "Haiti Mobs Lynch Voodoo Priests over Cholera Fears."

[17] COVID-19 Forecasting Team, "Variation in the COVID-19 Infection–Fatality Ratio by Age, Time, and Geography during the Pre-Vaccine Era: A Systematic Analysis," *The Lancet* 399, no. 10334 (2022): 1469–88.

[18] Edouard Mathieu et al., "Coronavirus (COVID-19) Deaths," Our World in Data, https://ourworldindata.org/covid-deaths.

[19] "Although reported COVID-19 deaths between Jan 1, 2020, and Dec 31, 2021, totaled 5.94 million worldwide, we estimate that 18.2 million people died worldwide because of the COVID-19 pandemic (as measured by excess mortality) over that period." Haidong Wang et al., "Estimating Excess Mortality Due to the COVID-19 Pandemic: A Systematic Analysis of COVID-19-Related Mortality, 2020–21," *The Lancet* 399, no. 10334 (2022): 1513–36; "The Pandemic's True Death Toll," *The Economist*, https://www.economist.com/graphic-detail/coronavirus-excess-deaths-estimates.

[20] National Center for Health Statistics, "COVID-19 Mortality Overview," Centers for Disease Control and Prevention, updated September 12, 2023, https://www.cdc.gov/nchs/covid19/mortality-overview.htm; Wang et al., "Estimating Excess Mortality Due to the COIVD-19 Pandemic."

Governments around the world attempted to contain COVID-19 and protect their populations from it with coercive measures that ranged from spending tax dollars on research, education, and production of a vaccine to stay-at-home orders, mandatory business closures, and masking mandates. Each measure threatened physical violence against noncompliant individuals. On occasion, when individuals did not comply, those threats turned into actual violence and loss of life.[21] Many coercive measures spurred fierce debate and occasional violent responses from civilians.[22]

According to Lawrence Gostin:

> In January of 2020, we saw a city the size of Wuhan lock down 11 million people and then 20 million in the wider Hubei province… . At the time, the world had never seen such a complete shutdown—at least, not since perhaps the 1918 influenza pandemic and even then the records are not clear on this. Certainly, when I helped the CDC draft the Model Emergency Health Powers Act after 9/11 and the anthrax attacks, I envisaged most of the powers that would be used during this pandemic. But I don't think I could have imagined that a city the size of Wuhan would be locked down. Wuhan was locked down with very intrusive surveillance and punishment. And I remember at the time, I was saying publicly, you know, this could never happen in a western democracy. But of course, that's exactly what happened. Paris, Milan, London, New York, San Francisco, and even Delhi—even India, the entire country—locked down in the most dramatic deprivation of freedom, which we couldn't have even imagined.[23]

[21] Georgina Siklossy, "Police Violence and Racial Profiling during COVID-19 Need to Stop: Governments Must Adopt Measures to Ensure Justice," *European Network Against Racism*, May 29, 2020, https://www.enar-eu.org/police-violence-and-racial-profiling-during-COVID-19-need-to-stop-governments/; Emma Ockerman, "'What Is the Justification for the Rage?': Viral Video Shows NYPD Cop Punching, Slapping Man During Social Distancing Enforcement," *Vice*, May 4, 2020, https://www.vice.com/en/article/y3zmmw/what-is-the-justification-for-the-rage-viral-video-shows-nypd-cop-punching-slapping-man-during-social-distancing-enforcement; Festival Godwin Boateng, Samuel Ametepey, and Savior Kusi, "Ghana's COVID Lockdown: Why It Triggered a Toxic Mix of Mass Defiance and Police Violence," *The Conversation*, February 2, 2022, https://theconversation.com/ghanas-covid-lockdown-why-it-triggered-a-toxic-mix-of-mass-defiance-and-police-violence-176062; Anders Hagstrom, "Chinese Police Get Violent as COVID-19 Lockdown Protests Sweep the Country," *Fox News*, November 27, 2022, https://www.foxnews.com/world/chinese-police-get-violent-COVID-19-lockdown-protests-sweep-country.

[22] Rob Iddiols and Jo Shelley, "Violent Clashes Erupt during Anti-Lockdown Demonstrations in Europe," *CNN*, November 22, 2021, https://www.cnn.com/2021/11/21/europe/europe-lockdown-protests-violence-intl/index.html; "Protest against Coronavirus Restrictions Turns Violent in Brussels," *Reuters*, December 5, 2021, https://www.reuters.com/world/europe/protest-against-coronavirus-restrictions-turns-violent-brussels-2021-12-05/; Holly Ellyatt, "Protests against Covid Rules and Lockdowns Erupt across Europe," *CNBC*, November 23, 2021, https://www.cnbc.com/2021/11/22/photos-of-anti-covid-protests-in-europe.html; Stephen McDonell, "China Zero Covid: Violent Protests in Guangzhou Put Curbs under Strain," *BBC*, November 15, 2022, https://www.bbc.com/news/world-asia-china-63633109.

[23] Lawrence Gostin commenting in "The State of Healthcare Policy: From COVID-19 to Medicare for All," *The Federalist Society*, April 16, 2021, *YouTube* video (3:54–5:44), https://fedsoc.org/events/the-state-of-healthcare-policy-from-COVID-19-to-medicare-for-all.

On January 13, 2020, German scientists validated the first diagnostic test. Various foreign and U.S. laboratories soon followed.[24] Foreign regulatory bodies and public health agencies soon approved and began using these tests in conjunction with contact tracing, isolation, and individual-level quarantines.[25]

For several months, the U.S. Food and Drug Administration (FDA) blocked the use of all such tests. The ban rendered public health efforts "useless."[26]

The FDA granted the U.S. Centers for Disease Control and Prevention (CDC) the first (and for a time the only) regulatory approval in the United States of a COVID-19 test. The CDC contaminated its own lab and the test kits it sent around the country with the novel coronavirus. The CDC's "tragic"[27] failure rendered its test kits "useless."[28] Some scientists began developing and using effective tests without FDA approval, putting themselves in legal jeopardy.[29]

Months after inflicting these "devastating"[30] blows to public health, the FDA removed some barriers to testing.[31] In particular, it allowed states to certify tests themselves, but it prohibited additional states from doing so after October 2021.[32]

[24] "Research on COVID-19," updated May 29, 2020, National University of Singapore Saw Swee Hock School of Public Health, https://sph.nus.edu.sg/wp-content/uploads/2020/06/COVID-19-Science-Report-Diagnostics-1-Jun_updated.pdf.

[25] Chad Terhune et al., "Special Report: How Korea Trounced U.S. in Race to Test People for Coronavirus," *Reuters*, March 18, 2020, https://www.reuters.com/article/us-health-coronavirus-testing-specialrep/special-report-how-korea-trounced-u-s-in-race-to-test-people-for-coronavirus-idUSKBN2153BW.

[26] Robert P. Baird, "What Went Wrong with Coronavirus Testing in the U.S.," *The New Yorker*, March 16, 2020, https://www.newyorker.com/news/news-desk/what-went-wrong-with-coronavirus-testing-in-the-us.

[27] Sheila Kaplan, "C.D.C. Labs Were Contaminated Delaying Coronavirus Testing, Officials Say," *The New York Times*, updated May 7, 2020, https://www.nytimes.com/2020/04/18/health/cdc-coronavirus-lab-contamination-testing.html.

[28] James Bandler et al., "Inside the Fall of the CDC," *ProPublica*, October 15, 2020, https://www.propublica.org/article/inside-the-fall-of-the-cdc.

[29] As reported by Sheri Fink and Mike Baker, "'It's Just Everywhere Already': How Delays in Testing Set Back the U.S. Coronavirus Response," *The New York Times*, March 10, 2020, https://www.nytimes.com/2020/03/10/us/coronavirus-testing-delays.html: "By Feb. 25, Dr. Chu and her colleagues could not bear to wait any longer. They began performing coronavirus tests, without government approval."

[30] According to a former CDC lab chief, "[a] competent laboratory would not have that problem." David Willman, "Contamination at CDC Lab Delayed Rollout of Coronavirus Tests," *The Washington Post*, April 18, 2020, https://www.washingtonpost.com/investigations/contamination-at-cdc-lab-delayed-rollout-of-coronavirus-tests/2020/04/18/fd7d3824-7139-11ea-aa80-c2470c6b2034_story.html.

[31] Knvul Sheikh, "U.S. Plans 'Radical Expansion' of Coronavirus Testing," *The New York Times*, updated March 3, 2020, https://www.nytimes.com/2020/02/29/health/fda-coronavirus-testing.html.

[32] Food and Drug Administration Center for Devices and Radiological Health, *Policy for Coronavirus Disease–2019 Tests (Revised)* (Washington, DC: U.S. Department of Health and Human Services, January 12, 2023), https://www.fda.gov/media/135659/download.

Public goods rationale: An externality problem

Containing a dangerous contagion presents a classic positive-externalities problem. Individuals and private organizations will voluntarily take steps (for example, social distancing, masking) to reduce the risk of acquiring or transmitting disease. Such activities produce benefits for and impose costs on the individual actor. In general, individuals will keep taking steps to reduce those risks until the cost of the last unit of risk reduction equals the benefits to that individual.

Here arises the problem. Many risk-reduction activities produce benefits for others. The individual actor may not take full account of those benefits when deciding how much risk mitigation is optimal. If masks primarily prevent transmission from the wearer to others, individuals may not wear them as frequently as they would if the mask-wearer were to capture all the benefit herself.

In the language of economics, the decision of whether to attend a public gathering or whether to go to work when feeling ill does not carry a price that conveys the full social cost of that choice. Likewise, the decision of whether to mask does not carry a price that conveys the full social benefits. Without prices that push individuals to choose the socially optimal course of action, voluntary action will not deliver the socially optimal quantities of hundreds of different infection-containment activities. To the extent that containing a dangerous contagion involves positive externalities, voluntary action will leave humans to suffer theoretically preventable morbidity and mortality.

The lure of coercion

In theory, government can boost production of infection-containment activities to socially optimal levels with coercive measures that correct those pricing errors. This essay focuses on the kind of coercion that involves the threat or use of physical violence to change another's behavior.[33] As contemporaneous protests against police brutality sought to highlight[34] and the U.S. government's response to those protests often demonstrated,[35] government achieves its ends through threats and the use of physical violence. "Saving lives in this pandemic is

[33] This essay defines *violence* to mean touching another or using physical barriers to confine another, even if no touching occurs, without consent. Under this definition, an act can inflict no physical harm yet still be violent because it violates another's person autonomy. This definition is admittedly broad enough to encompass "touching" as innocuous as the electromagnetic radiation or sound waves that all human bodies emit.

[34] "George Floyd Protests," *Wikipedia*, https://en.wikipedia.org/wiki/George_Floyd_protests; Dakin Andone, "In One Week There Were at Least 9 Instances of Police Using Excessive Force Caught on Camera," *CNN*, updated June 8, 2020, https://www.cnn.com/2020/06/06/us/police-excessive-force-us-protests/index.html.

[35] Kimberly Kindy, Shayna Jacobs, and David A. Fahrenthold, "In Protests against Police Brutality, Videos Capture More Alleged Police Brutality," *The Washington Post*, June 5, 2020, https://www.washingtonpost.com/national/protests-police-brutality-video/2020/06/05/a9e66568-a768-11ea-b473-04905b1af82b_story.html; Shawn Hubler and Julie Bosman, "A Crisis That Began With an Image of Police Violence Keeps Providing More," *The New York Times*, updated March 11, 2021, https://www.nytimes.com/2020/06/05/us/police-violence-george-floyd.html.

job one," tweeted New York City mayor Bill de Blasio in defense of social distancing mandates. "The NYPD uses summonses and arrests to do it."[36] Even taxes that fund otherwise noncoercive public health measures (for example, information collection, contact tracing, subsidizing vaccine development) involve coercion. Willful failure to pay federal taxes can result in fines of $25,000 plus court costs and imprisonment for one year.[37] In 2014, the evidently lawful violence the New York Police Department (NYPD) used to enforce New York tax laws was enough to kill Eric Garner.[38]

Coercion can change behavior. Its ability to solve the externality problem is less clear. History instructs that the reality of government public health efforts falls short of the theoretical ideal.

There is nothing about coercion that enables those who wield it to know the optimal level of the behavior—or even the optimal behaviors—they seek to promote. The optimal amount of masking or social distancing, like the optimal price or quantity of bread, is essentially unknowable. It is a function of the aggregate values individuals place on the benefits and costs of those measures as well as the benefits and costs of available alternatives. If infection control were to involve no externalities, market prices would constantly push people in the direction of providing the optimal quantity[39]—as if "led by an invisible hand."[40] Externalities mean that the information and incentives people receive may not always push voluntary efforts toward the optimal quantity.

The presence of externalities does *not* imply that government action will push toward optimality. Government faces information and incentive problems of its own. In the absence of a price mechanism, government goes where political imperatives demand. In theory, that destination could be optimality or well beyond it. Even amid externalities, there still exists a point beyond which the costs of infection control exceed the benefits. The CDC has never recommended wearing a mask to bed or closing grocery stores, for example.

[36] Bill de Blasio (@NYCMayor), "Saving lives in this pandemic is job one," Twitter, May 7, 2020, 10:17 p.m., https://x.com/NYCMayor/status/1258581714877722630.

[37] The federal government lists the failure to pay federal taxes among forms of "significant domestic terrorism." 26 U.S. Code § 7203; U.S. Federal Bureau of Investigation and U.S. Department of Homeland Security, "Strategic Intelligence Assessment and Data on Domestic Terrorism," May 2021, https://www.dhs.gov/sites/default/files/publications/21_0514_strategic-intelligence-assessment-data-domestic-terrorism_0.pdf, 29.

[38] Andrew Siff, Jonathan Dienst, and Jennifer Millman, "Grand Jury Declines to Indict NYPD Officer in Eric Garner Chokehold Death," *NBC New York*, updated December 4, 2014, https://www.nbcnewyork.com/news/local/grand-jury-decision-eric-garner-staten-island-chokehold-death-nypd/1427980/; Katie Benner, "Eric Garner's Death Will Not Lead to Federal Charges for N.Y.P.D. Officer," *The New York Times*, July 16, 2019, https://www.nytimes.com/2019/07/16/nyregion/eric-garner-daniel-pantaleo.html.

[39] Friedrich A. Hayek, "The Use of Knowledge in Society," *The American Economic Review* 35, no. 4 (1945): 519–30.

[40] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan, vol. 1 (1776; repr., London: Methuen, 1904), IV.2.2, https://oll.libertyfund.org/title/smith-an-inquiry-into-the-nature-and-causes-of-the-wealth-of-nations-cannan-ed-vol-1.

One reason government action may not push toward optimality is that coercion introduces additional costs into the calculus. Coercion can itself spread COVID-19. An arrest is not only coercive but also an intimate act that requires police to come in close proximity to the arrestee.[41] Coercion threatens health in even more direct ways. Every arrest is a violent act that carries a nonzero risk of physical harm. In rare cases, arrests lead to serious injury or even death.[42] Using police to enforce public health measures can further threaten the public by "steer[ing] officers away from fighting crime."[43]

Coercion can also threaten social trust and cohesion. A 2004 survey found that 90 percent of African-Americans supported quarantines to contain a serious contagion, unless police would have the power to arrest violators, in which case support fell to 33 percent.[44] In May 2020, African-Americans accounted for 24 percent of New York City's population[45] but 66 percent of the people the NYPD arrested for violating social distancing measures. In Brooklyn, the figure was 88 percent.[46] Some confrontations between police and people of color became unnecessarily and even gratuitously violent.[47] Coercion can erode social cohesion if only because some people believe it is morally wrong for government to coerce people in that way.[48]

Coercive public health measures can even push beyond optimality to the point of being self-defeating and increasing the amount of violence in society. Voters in many states responded to coercive public health measures by stripping powers from their state's public health officials.[49] In extreme cases, civilians

[41] Cox Media Group National Content Desk, "Kentucky Woman with Coronavirus Arrested at Kroger After Defying Quarantine for Third Time," *WSB-TV*, April 30, 2020, https://www.wsbtv.com/news/trending/kentucky-woman-with-coronavirus-arrested-kroger-after-defying-quarantine-third-time/5MHHEB7HVRBRBC3PTMUK4NUA3Y/.

[42] Siklossy, "Police Violence and Racial Profiling."

[43] Ashley Southhall, "N.Y.C. Commissioner Denies Racial Bias in Social Distancing Policing," *The New York Times*, updated November 5, 2020, https://www.nytimes.com/2020/05/13/nyregion/nypd-social-distancing-race-coronavirus.html.

[44] The corresponding figures for whites were 76 percent and 46 percent, respectively. Robert J. Blendon et al., "Attitudes Toward the Use of Quarantine in a Public Health Emergency in Four Countries," *Health Affairs* 25, no. 1 (2006): 19.

[45] "QuickFacts New York City, New York," U.S. Census Bureau, https://www.census.gov/quickfacts/newyorkcitynewyork.

[46] Ashley Southall, "Scrutiny of Social-Distance Policing as 35 of 40 Arrested Are Black," *The New York Times*, updated November 30, 2020, https://www.nytimes.com/2020/05/07/nyregion/nypd-social-distancing-race-coronavirus.html?login=smartlock&auth=login-smartlock&login=smartlock&auth=login-smartlock.

[47] Southall, "Scrutiny of Social-Distance Policing"; Ockerman, "'What Is the Justification for the Rage?'"

[48] Tyler Cowen, "Forced Quarantines Are Not the American Way," *Bloomberg*, May 13, 2020, https://www.bloomberg.com/opinion/articles/2020-05-13/forced-quarantines-are-not-the-american-way#xj4y7vzkg.

[49] Lauren Weber and Joel Achenbach, "Covid Backlash Hobbles Public Health and Future Pandemic Response," *The Washington Post*, March 8, 2023, https://www.washingtonpost.com/health/2023/03/08/covid-public-health-backlash/.

have threatened[50] or exacted[51] retaliatory violence against public health officials.

Limitations of the externality model

While theoretically elegant, the externality model presents limitations. One is a conceptual and practical challenge that may render the externality model too difficult for policymakers and political processes to manage. The efficiency- or social welfare-maximizing quantity of any given public good is unknown and unknowable. Unlike as happens with private goods, policymakers have no "invisible hand" to guide them toward the optimal quantity of public goods. The push and pull of politics is a poor substitute—one might say no substitute—for the price mechanism because the political system allows participants to exaggerate the benefits of policies they support and the costs of policies they oppose. As Paul Samuelson explains: "One could imagine every person in the community being indoctrinated to behave like a 'parametric decentralized bureaucrat' who *reveals* his preferences by signaling in response to price parameters ... to questionnaires, or to other devices. But ... by departing from his indoctrinated rules, any one person can hope to snatch some selfish benefit."[52] Government officials, moreover, do not pay the full price of their decisions. Without a self-correcting price mechanism to guide them and unable to know the extent to which the information they receive about efficiency or social welfare is the result of strategic behavior by self-interested groups, policymakers attempting to solve the public goods problem are groping in the dark.

Another practical limitation is that those who teach and invoke the externality model tend to ignore the coercion inherent in government public health interventions and the effects of such coercion. This limitation is not inherent. An externalities model can theoretically account for whatever additional (great or small) costs coercion introduces. Government officials who invoke this model, however, face strong incentives to obscure the coercive nature of the interventions they propose and the costs of such coercion. In practice, they behave as though the only people engaging in costly behaviors are the civilians whose behavior they hope to change.

These limitations can systematically lead policymakers to intervene even when doing so is not welfare enhancing. A municipality that candidly announces that police will begin slamming young men to the sidewalk for not masking—and that those young men will overwhelmingly be black—is a municipality that would receive more information about the costs of such coercion and would less often enact a mask mandate.

[50] Anna Maria Barry-Jester, "'We're Coming for You': For Public Health Officials, a Year of Threats and Menace," *Kaiser Health News*, April 25, 2021, https://khn.org/news/article/public-health-officials-year-of-threats-menace-santa-cruz-california/.

[51] Greenough, "Intimidation, Coercion, and Resistance," 636.

[52] Paul A. Samuelson, "The Pure Theory of Public Expenditure," *Review of Economics and Statistics* 36, no. 4 (1954): 389.

A violence-minimization model

The remainder of this essay proposes a simpler, more parsimonious, more manageable model to guide policymakers during public health crises. In brief, rather than focus on correcting whatever externalities policymakers imagine may exist across countless behaviors that affect disease transmission, policymakers should adopt the rule of acting only to the extent that doing so would minimize the total amount of violence in society. In addition to its relative simplicity, this model has the benefits of showing greater respect for the dignity and autonomy of all individuals, encouraging greater trust of public health officials (and therefore greater compliance with public health measures), and potentially closer approximations of the optimal quantities of positive-externality behaviors.

Public health concerns situations where one person's decisions affect or pose a risk to the health of another without the other's consent. Nonconsensual transmission of a dangerous pathogen is an inherently violent act. A virus or bacterium can be as deadly as a bullet or a blade. To infect another with a deadly pathogen, even if unintentionally, is to put their life at risk. To expose them to that risk without their consent is an act of violence.[53] Another way to describe a pandemic is a period when millions or billions of people simultaneously do violence to others.[54]

Pathogens are not the only dangers in a pandemic. Humans intuitively recognize that the transmission of a dangerous pathogen is an inherently violent act. When that violence reaches a certain point, humans respond with violence, as in Haiti's 2010 cholera outbreak. (One should not entertain for a moment the idea that there is anything special about Haiti.) Humans also respond by channeling violence through the state. During the COVID-19 pandemic, government agents slammed young men to the sidewalk for not wearing masks and jailed civilians for entering prohibited areas.

A respect for human equality and autonomy countenances some government public health activities. Government's role and legitimate scope in a public health emergency are the same as at all other times: to protect individual rights by using its coercive powers to minimize the net amount of violence in society. Just as it is morally permissible for government to use the least amount of coercion necessary to protect us from those who would harm us with guns and knives, it is permissible for government to minimize the amount of violence surrounding the transmission of dangerous pathogens. Government action can both discourage civilians from initiating violence (for example, transmitting a disease) and from responding to such actions with further violence (for example, angry mobs, lynchings) by creating the alternative norms of preventing and responding to such violence through more open, democratic, and less violent processes. The tools government uses to protect us during a pandemic—for example, research, education, contact tracing, and quarantines—may be

[53] Adults routinely consent to disease-transmission risks, such as by visiting crowded areas and engaging in sexual activity. When adults give informed consent, such risks do not violate autonomy.

[54] The violence is no less real, even if it is inadvertent.

different from the tools it uses elsewhere. The aim of such public health activities nevertheless is or should be the same: to minimize the net amount of violence humans do to each other.

An important corollary is that—contra de Blasio—"job one" in a pandemic should *not* be to save lives per se but to minimize the incidence of violence. The idea of elevating autonomy (equivalently, the minimization of coercion) over saving lives is foreign neither to law nor medical ethics. Such is the purpose of the doctrine of informed consent. To prioritize life or health over autonomy would sanction government forcing patients—including not only COVID-19 vaccine resisters but also the elderly, Jehovah's Witnesses, Christian Scientists, and anyone with a living will or "do not resuscitate" (DNR) order—to take any medicines and to submit to any medical procedures that would lengthen their lives or improve their health. It would allow forcible vaccination of individuals against their wills for any modicum of reduced risk, no matter how small, toward others.

In the language of the externalities model, a violence-minimization rule takes nothing away from the economic good of greater health. Rather, it assigns overriding weight to the economic good of autonomy and overriding negative weight to the economic "bad" of coercion. Prioritizing autonomy and violence-minimization can improve government public health efforts. To the extent those efforts disregard autonomy, they can engender distrust and even resistance among civilians who see their own government as denying their equality by robbing them of autonomy. Prioritizing saving lives over autonomy can thus cause—and has caused—government public health efforts to backfire.

The existence of a dangerous pathogen does not give government officials carte blanche to take whatever steps they think might combat disease any more than murders justify all actions by police that might catch a murderer. To be a legitimate use of government power, public health activities must maximize autonomy by minimizing the sum total of violence, including the transmission of dangerous pathogens as well as civilian and government responses to that danger.

Ethicists typically argue that government public health activities must be effective, proportionate, essential, and the least restrictive means of achieving a given goal.[55] The imperative to reduce the amount of violence in a public health crisis requires government activities to meet criteria that are similar to but different from these in important respects.

Reduce net coercion

First and foremost, any government public health activity must prevent more violence than it introduces. If the government collects taxes to finance an education campaign about how to reduce transmission of a pathogen, the campaign must produce a greater reduction in coercion (in terms of transmission of the pathogen) than it creates (by threatening individuals subject to those

[55] James F. Childress et al., "Public Health Ethics: Mapping the Terrain," *The Journal of Law, Medicine, & Ethics* 30, no. 2 (2002): 170–78; "COVID-19 and Mandatory Vaccination: Ethical Considerations," World Health Organization, May 30, 2022, https://apps.who.int/iris/rest/bitstreams/1425927/retrieve.

taxes with fines, arrest, and prison). The more dangerous the pathogen and the more effective the public education campaign, the greater the reduction in violence—and the higher a tax the campaign can justify. The greater the cost of the tax (see below) and the more coercion government uses to collect it, the less likely the education campaign will result in a net reduction in violence.

Minimize total coercion

A net reduction in coercion is necessary to justify government action. But it is not sufficient. To be a legitimate use of government power, public health activities must also minimize the total amount of violence in society.

Suppose that absent government action, a given pathogen would produce fifty units of violence. A government public health activity that generated forty units of violence yet eradicated the pathogen would produce a net reduction in violence. So far, so good. The forty-unit activity would not be morally permissible, however, if a ten-unit activity could also eradicate the pathogen. The availability of the ten-unit strategy means the forty-unit activity would introduce thirty unnecessary units of violence.

The preceding criteria encapsulate (or at least approximate) the ethicist's directives that government action be effective, proportionate, essential, and minimally restrictive. A government activity would have to be effective to satisfy a reduction-in-violence criterion because to do the latter requires reducing transmissions or the severity of illness. The requirement that the activity minimize total coercion satisfies the proportionality and least restrictive means requirements. Finally, an activity that minimizes net violence satisfies the requirement that the activity be essential.

Public health activities vary dramatically in the amount of coercion they employ. The following are categories of public health activities in ascending order of coercion:

- *Do nothing.* When government officials do nothing or "simply monitor the current situation,"[56] they introduce no coercion beyond the taxes that finance such monitoring.
- *Information/coordination.* The least coercive interventions involve government gathering and transmitting information to the public about how to reduce the risk for themselves and others. They involve no coercion beyond a small tax burden because they leave civilians free to choose how to use that information. In 2022, the entire CDC budget of $16 billion accounted for 0.3 percent of federal outlays[57] and 0.06 percent of U.S. GDP.[58]

[56] Nuffield Council on Bioethics, *Public Health: Ethical Issues* (London: Cambridge Publishers, 2007), 42, https://www.nuffieldbioethics.org/assets/pdfs/Public-health-ethical-issues.pdf.

[57] FY2022 CDC gross outlays: $16.5 billion. FY2022 total federal outlays: $6.3 trillion. U.S. Office of Management and Budget, *Budget of the U.S. Government: Fiscal Year 2024*, 152, 488, https://www.whitehouse.gov/wp-content/uploads/2023/03/25-1_fy2024.pdf.

[58] U.S. Office of Management and Budget, *Budget of the U.S. Government: Fiscal Year 2024*, 135.

https://doi.org/10.1017/S026505252400027X

- *Recommendations.* Government goes a step further when it recommends that civilians change their behavior. Such recommendations can become coercive even if government officials do not initially attach penalties for noncompliance and even if they assure the public that compliance is voluntary. If noncompliance with official recommendations leads to harm, courts may adopt the recommendations as the standard of care in tort cases, thereby rendering coercive what was officially voluntary.
- *Subsidizing behavior.* Next, government can subsidize activities it wishes to effect, such as working from home or developing and taking vaccines. By December 2022, "[t]he federal government ha[d] spent more than $30 billion on COVID-19 vaccines … incentivizing their development, guaranteeing a market, and ensuring that these vaccines would be provided free of charge to the U.S. population."[59] As with education campaigns, the only coercion these subsidies introduce comes from the taxes that fund them. When government imposes new conditions on existing subsidies, such as when Medicare threatened to withhold subsidies from hospitals where workers did not vaccinate,[60] it introduces no additional coercion.[61]

[59] Jennifer Kates, Cynthia Cox, and Josh Michaud, "How Much Could COVID-19 Vaccines Cost the U.S. After Commercialization?" *Kaiser Family Foundation*, March 10, 2023, https://www.kff.org/coronavirus-COVID-19/issue-brief/how-much-could-COVID-19-vaccines-cost-the-u-s-after-commercialization/.

[60] Kelly Gooch, "Vaccine Mandates Have Hospitals Concerned about Staffing," *Becker's Hospital Review*, September 13, 2021, https://www.beckershospitalreview.com/workforce/vaccine-mandates-spur-staffing-worries-at-hospitals.html.

[61] When governments condition services or subsidies on certain behaviors, they introduce no additional physical violence. Such conditions are no different from any other party to a transaction withholding its consent to that transaction. Even when a condition is unpopular, painful, or unconstitutional, government is not employing or threatening physical violence against those to whom the conditions apply. Due in part to the far greater difficulties in measuring nonviolent forms of pressure —i.e., duress—this essay defines and focuses on coercion in the sense of physical force. Note, however, that to the extent a nonviolent condition is so unjust and/or so painful that it would trigger a violent response from civilians, government officials would enter those effects into the balancing test this essay offers.

This position is not unassailable: withholding life-saving medical care feels coercive. Assailants face a challenge, however. If one sweeps into one's definition of *coercion*, *force*, or *violence* the use of economic consequences to change another's behavior *that do not* involve nonconsensual touching or physical barriers, one faces two possibly untenable options. The first is to consider *every* increase in *every* price of *every* good and service and *every* refusal to bargain to be *coercion*, *force*, or *violence.* (Every price increase threatens economic consequences against consumers who do not give producers more money than before: they no longer get the good or service. Every refusal to deal is an economic consequence that implicitly seeks to get the other party to accept a different price.) The second option is to furnish a rule that tells where noncoercive material incentives end and coercive material incentives begin. Hard cases ("refusing water to a man dying of thirst") are easier to locate than is a limiting principle. Focusing on nonconsensual touching and physical barriers, as this essay does, avoids such difficulties.

Assailants are not wrong to seek validation of their intuition that threatening to withhold Medicare subsidies from hospitals with unvaccinated workers, which could well lead to loss of life, is coercive. The coercion they seek perhaps lies not in that condition per se, but in the coercive taxes that are so extensive that they make the economic consequences of such conditions so severe; that makes tens of millions dependent on Medicare for medical care.

- *Financial penalties.* More coercive than subsidies to encourage socially beneficial behavior are financial penalties for socially harmful behaviors. Public health mandates typically give individuals the option of either complying with the mandate or paying a fine. Such penalties employ the same type of coercion as tax collection. Such penalties also include the implicit penalties that befall the noncompliant when government offers those who engage in certain behaviors a deduction or credit against existing taxes. Because financial penalties target specific individuals and seek to coerce certain behaviors rather than merely raise tax revenue, civilians are likely to see them as more coercive and a greater threat to autonomy than are the broad-based taxes that finance education campaigns, official recommendations, or even direct subsidies.
- *Invasive coercion.* In extreme cases, government may physically coerce individuals to perform the behavior government desires, such as forcible stay-at-home orders, curfews, quarantining, or vaccination.[62]

To minimize the amount of violence in society, government officials must begin with the least coercive category and work their way down this list. Officials may move to the next category only after exhausting every option in previous categories. Crucially, officials must stop at the first intervention that would not clearly reduce the net amount of coercion.

Measure at the margin

To ascertain whether an intervention would reduce the net amount of violence in society, officials must consider the effects of that intervention at the margin. Even when government does nothing, the private sector takes steps to minimize violent transmission of pathogens. In early 2020, many people stopped traveling, many businesses sent their workers home or shut down, and many individuals began wearing masks and practicing social distancing before government told them to do so. Policymakers must evaluate only the additional benefits and costs that an intervention would produce, given what civilians and other government interventions are already doing.

Marginal analysis requires steps that may seem alien to policymakers. Even when government intends to reduce coercion at the margin, for example, it introduces coercion inframarginally. A vaccine mandate does not get credit for the reduction in transmissions that comes from those who would have vaccinated anyway. However, a vaccine mandate *does* coerce those who would have vaccinated anyway; it deprives them of the freedom to make that choice themselves. Moreover, the marginal benefits of a government activity fall to the extent that it crowds out private violence-reducing activities. Suppose a vaccine mandate prods 30 percent of the population to vaccinate but leads 2 percent of the population who otherwise would have vaccinated *not* to do so. Perhaps those 2 percent wish to protest the mandate or they believe they no

[62] Mary Beth Keane, "The History of Quarantine Is the History of Discrimination," *TIME*, October 6, 2014, https://time.com/3474945/politics-quarantines-typhoid-mary-ebola/.

longer need to vaccinate because the mandate will produce herd immunity. In that case, because the mandate crowded out noncoercive vaccinations, it deserves credit only for boosting vaccination rates by 28 percentage points. Finally, many policies become more coercive at the margin. The twelfth week of lockdown is more coercive than the first week; raising the income-tax rate from 40 percent to 50 percent is more coercive than raising it from 10 percent to 20 percent; and so on.

Some coercive COVID-19 policies reduced the consumption of things that extend life (for example, medical care) or improve quality of life (for example, the arts, romance, socializing, sports, watching children play, mobility, worship) to the point where they triggered sometimes violent civilian resistance. Those responses suggest that policymakers may have pushed some of those interventions to the point where they increased violence at the margin.

Measure all margins

Policymakers must also take account of the effects of public health interventions at all margins, including the government's ability to conduct successful public health interventions in the future. One crucial margin is social cohesion and trust in government. Public trust is essential for funding and executing successful public health interventions. Agent Smith wrote President Madison in 1809 that he believed a federal agency could eradicate smallpox, but only "if the Confidence of the people can be preserved."[63] Government officials did not directly add to the amount of violence in society when they flipped from discouraging masking to encouraging it. However, issuing dramatically conflicting recommendations within a short span of time reduced the public's confidence in government, which reduced government's ability to use public health tools to reduce violence in the then-current crisis and future crises. Politicization of public health matters can cause half of a polity not to trust public health officials.[64]

A consideration that should weigh heavily on public health officials is the impact of their actions on minorities. Government invariably enforces public health measures more strictly against minority and immigrant communities that lack political power, which leads to distrust and noncompliance among entire communities. According to Mary Beth Keane, "quarantines in our nation's history have always meant taking a group of people, usually in the lowest income bracket or of the same minority group, and placing them apart. Looking at a history of quarantine means looking at a history of discrimination."[65] In 1901, New York City police raided immigrant homes in the middle of the night, "administered smallpox vaccinations by force,"[66] and tore symptomatic children

[63] Lanzarotta and Ramos, "Mistrust in Medicine," 743.

[64] Harold Pollack, "Why Public Health Experts Aren't Reaching Conservatives on Covid," *Politico*, August 12, 2021, https://www.politico.com/news/magazine/2021/08/12/conservative-public-health-covid-conservative-affirmative-action-503448.

[65] Keane, "The History of Quarantine."

[66] Keane, "The History of Quarantine."

from their parents.[67] The practice led immigrant parents not to cooperate with police and public health officials, just as violence against Indian and Bangladeshi villagers led other villagers not to cooperate with (often white, English-speaking) WHO doctors.

Government officials (and civilians) must consider the long-term effects of political and legal precedents that public health activities set. Will a given public health intervention lead to mission creep that distracts public health agencies from their mission? The eradication of smallpox may have been a great success, but how might less enlightened government officials use those powers in the future? Might government officials hesitate to declare that a public health emergency has ended because they are reluctant to lay down the additional powers they wield while emergency declarations are in effect?[68]

Subsidiarity

A violence-minimization framework is easier to articulate than to implement. The considerable uncertainty about the foregoing questions and trade-offs is a function of both the uncertainties inherent in health and medicine and in trying to maximize the "good" of autonomy without benefit of a functioning price mechanism.

It is because of these uncertainties that a key criterion of a violence-minimization framework is subsidiarity. That is, government responses to public health crises should always come from the most local level possible.

Nationwide or even multinational public health interventions may sometimes be beneficial because a contagious disease may spill over from one locality or one state to another. Smallpox eradication is an example of a sensible global public health strategy (see below). When case rates are dramatically lower in some states or in some localities than in others, however, it makes little sense to have a national policy on masking or closures of schools and businesses.

Subsidiarity reduces the likelihood of government officials introducing coercion where it is not necessary. State and local officials generally have better information about their constituents' needs and fewer forces diverting them from those needs than do officials of the national government. They also have greater incentive than national governments to tailor public health policies to minimize violence in their state. By contrast, nationwide policies can introduce unnecessary coercion in some states while simultaneously failing to address preventable private coercion in other states. A clear example of subsidiarity and its benefits is the FDA's (perhaps reluctant) decision to allow states to certify COVID-19 diagnostic tests themselves.

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[67] Alexandra Marvar, "How New York Separated Immigrant Families in the Smallpox Outbreak of 1901," *Smithsonian Magazine*, January 10, 2019, https://www.smithsonianmag.com/history/how-new-york-separated-immigrant-families-smallpox-outbreak-1901-180971211/.

[68] "States' COVID-19 Public Health Emergency Declarations," *National Academy for State Health Policy*, updated June 13, 2023, https://nashp.org/states-COVID-19-public-health-emergency-declarations/; Juliette Cubanski et al., "What Happens When COVID-19 Emergency Declarations End? Implications for Coverage, Costs, and Access," *Kaiser Family Foundation*, January 31, 2023, www.kff.org/coronavirus-COVID-19/issue-brief/what-happens-when-COVID-19-emergency-declarations-end-implications-for-coverage-costs-and-access/.

Subsidiarity can also lead to better public health interventions. As states and localities experiment with different interventions, they can learn from each other's successes and failures. Nationwide interventions do not create the same opportunities for competition and learning.

The rule of law

Another key criterion is that government officials must act within democratic constraints, in particular, law. Democratic and legal institutions constrain government officials and are an essential check against excessively coercive public health measures.[69]

Public health officials frequently exceed and even disregard their legal authority. New York officials imprisoned Mary Mallon "without due process of law, without legal representation, indeed, without even a trial."[70] The principal investigator said that "she was held without being given a hearing; she was apparently under life sentence; it was contrary to the Constitution of the United States to hold her under the circumstances."[71]

When government officials coerce civilians without legal authority, their actions are morally comparable to the Haitian mobs that rioted against voodoo priests. Even if those extralegal actions reduce net violence in the short term, they violate the principle of egalitarianism by asserting arbitrary power over others. They can also be self-defeating, and increase violence over the long term, by reducing trust in government generally and in public health officials.

Humility

A final component of a violence-minimization framework is humility. Government officials should err on the side of not introducing coercion. Even when pathogen transmission is a violent act, government's attempts to reduce such violence can produce unintentional consequences, including introducing violence where there was none. State laws criminalizing the transmission of human immunodeficiency virus, for example, sometimes punish the victim of transmission rather than the perpetrator.[72]

Indeed, government is as likely to undermine public health and trust in government as it is to promote either. Prior to COVID-19, decades of state regulation suppressed the supply and mobility of health professionals,

[69] "Democracy … is an obstacle to the suppression of freedom," though certainly not an insurmountable one. Friedrich A. Hayek, *The Road to Serfdom*, 50th Anniversary Edition (Chicago, IL: University of Chicago Press, 1994), 69–70.

[70] Stanley M. Aronson, "The Civil Rights of Mary Mallon," *Rhode Island Medical Journal* (1995): 74, http://www.rimed.org/rimedicaljournal/2020/05/2020-05-74-heritage-aronson.pdf.

[71] Emily Sweetland Long, "Mary Mallon and Typhoid Fever," *Fairmount Folio: Journal of History* 10 (2008): 39, https://journals.wichita.edu/index.php/ff/article/view/117/124.

[72] "The first person to test positive often is assumed to be the source of transmission even though someone else, including the complainant, may have infected that person." The Center for HIV Law & Policy, *HIV Criminalization in the United States: A Sourcebook on State and Federal HIV Criminal Law and Practice* (Brooklyn, NY: The Center for HIV Law and Policy, 2022), 1.

guaranteed that otherwise feasible telehealth systems would not be in place when the pandemic struck,[73] suppressed hospital capacity and innovation, and prevented rapid market entry once COVID-19 created shortage conditions.[74]

Federal officials performed no better. They diverted resources from public health to less effective medical interventions,[75] including repeatedly siphoning money from the federal Prevention and Public Health Fund to subsidize health insurance[76]; suppressed contactless access to essential medicines (internet purchasing, vending machines, interactive kiosks)[77]; caused more than 7.3 million workers to lose coverage unnecessarily during the pandemic by tying health insurance to employment[78]; put the most vulnerable workers at higher risk for contracting COVID-19 by encouraging them to return to work for fear of losing their coverage[79]; paid hospitals more when patients acquire preventable infections and less when they avoid infections[80]; crowded vulnerable seniors in housing where COVID-19 spread rapidly by subsidizing nursing homes over other forms of long-term care[81]; suspended requirements that hospitals report infection rates once COVID-19 struck[82]; and (again) prohibited effective COVID-19 diagnostic tests when the need was greatest.

[73] Shirley Svorny and Michael F. Cannon, "Health Care Workforce Reform: COVID-19 Spotlights Need for Changes to Clinician Licensing," Cato Institute Policy Analysis no. 899, August 4, 2020, https://www.cato.org/policy-analysis/health-care-workforce-reform-covid-19-spotlights-need-changes-clinician-licensing.

[74] Matthew D. Mitchell, Thomas Stratmann, and James Bailey, "Raising the Bar: ICU Beds and Certificates of Need," Mercatus Center policy brief, April 29, 2020, https://www.mercatus.org/research/policy-briefs/raising-bar-icu-beds-and-certificates-need.

[75] Nason Maani and Sandro Galea, "COVID-19 and Underinvestment in the Public Health Infrastructure of the United States," *The Milbank Quarterly* 98, no. 2 (2020): 239–49.

[76] Sarah Kliff, "The Incredible Shrinking Prevention Fund," *The Washington Post*, April 19, 2013, https://www.washingtonpost.com/news/wonk/wp/2013/04/19/the-incredible-shrinking-prevention-fund/.

[77] Jeffrey A. Singer and Michael F. Cannon, "Drug Reformation: End Government's Power to Require Prescriptions," *Cato Institute*, October 20, 2020, https://www.cato.org/white-paper/drug-reformation-end-governments-power-require-prescriptions.

[78] Paul Fronstin and Stephen A. Woodbury, "Update: How Many Americans Have Lost Jobs with Employer Health Coverage during the Pandemic?" *The Commonwealth Fund*, January 11, 2021, https://www.commonwealthfund.org/blog/2021/update-how-many-americans-have-lost-jobs-employer-health-coverage-during-pandemic; Michael F. Cannon, "End the Tax Exclusion for Employer-Sponsored Health Insurance: Return $1 Trillion to the Workers Who Earned It," Policy Analysis no. 928, *Cato Institute*, May 24, 2022, https://www.cato.org/policy-analysis/end-tax-exclusion-employer-sponsored-health-insurance-return-1-trillion-workers-who.

[79] Sarah Kliff, "Why the Sickest Workers May Be among the First Back on the Job," *New York Times*, June 18, 2020, https://www.nytimes.com/2020/06/18/upshot/coronavirus-health-insurance-sickest-workers-return.html.

[80] Michael F. Cannon and Jacqueline Pohida, "Would 'Medicare for All' Mean Quality for All? How Public-Option Principles Could Reverse Medicare's Negative Impact on Quality," *Quinnipiac Health Law Journal* 25, no. 2 (2022): 181–258, https://www.cato.org/sites/cato.org/files/2022-04/cannon-qhlj-v25n2.pdf.

[81] Stephen A. Moses, "Aging America's Achilles' Heel: Medicaid Long-Term Care," *Cato Institute*, Policy Analysis no. 549, September 1, 2005, https://www.cato.org/policy-analysis/aging-americas-achilles-heel-medicaid-long-term-care.

[82] Steve Burrows, "We Deserve to Know Infection Rates," *Morning Consult*, September 11, 2020, https://morningconsult.com/opinions/we-deserve-to-know-infection-rates/.

https://doi.org/10.1017/S026505252400027X

Government routinely undermines public trust by deciding countless divisive questions that individuals would otherwise decide for themselves, including how to educate children; whether and what type of health insurance to purchase; whether to enter the country; whether to fund contraception; whether people can possess, exchange, and ingest recreational drugs; whether churches should be subject to stricter rules than bike shops; and so forth. When government arrogates to itself the power to decide such questions, it overrides the values of one tribe or another, alienates large segments of the public, and sows resentment and mistrust.

The institution that will implement the most elegant, coercive public health strategy that scholars can devise will be the same institution that has repeatedly shown such lack of foresight and regard for public health that it left the United States "not only ill-prepared and poorly positioned to deal with COVID-19, but also uniquely susceptible to the spread of this illness."[83] Policymakers should therefore exercise humility to the point of erring on the side of intervening too little. Government officials should not assume they have better information and incentives than civilians do. Federal (state) officials should not assume they have better information and incentives than state (local) officials do. They should introduce coercion only when there is clear and convincing evidence as opposed to mere likelihood that an intervention would minimize the level of violence in society.

Applying the violence-minimization principle

Applying the violence-minimization principle to a given public health intervention requires policymakers to answer a series of questions:

1. Do government officials have clear legal authority for the intervention?
2. How much violence would the intervention prevent, given existing civilian and government efforts to reduce such violence? To what extent would the intervention affect the amount of violence individuals inflict on each other? Would it reduce pathogen transmission? Would it make transmission less dangerous (for example, vaccines or medical treatments)? Would it avert violent reactions or retributions to the threat of transmission (for example, Haiti)?
3. How much additional violence or coercion would the intervention introduce? How severe would it be? How many civilians would it affect?
4. Would the intervention itself provoke violent responses? Are the behaviors the intervention seeks to produce or the penalties for noncompliance so costly or uneven that civilians would resist, as they have in Brussels and elsewhere?[84] Would government officials, intentionally or not, inflict disproportionate coercion on certain groups?

[83] Maani and Galea, "COVID-19 and Underinvestment."

[84] Iddiols and Shelley, "Violent Clashes Erupt"; "Protest against Coronavirus Restrictions"; Ellyatt, "Protests against Covid Rules"; McDonell, "China Zero Covid."

5. How would the intervention affect less obvious margins? What would be the long-term effects? Would the intervention affect incentives? Or trust in government? How would future government officials misuse the same power?
6. Would the intervention result in a net reduction in violence? Is the evidence that the intervention would produce a net reduction in violence clear and convincing? Or does the evidence merely suggest that a net reduction is more likely than not?
7. Are there other interventions that would achieve a greater net reduction in violence? For example, intervention at a more local level of government?

Requiring satisfactory answers to these questions would result in fewer yet more effective public health interventions.

The historical examples of smallpox eradication, New York's imprisonment of Mary Mallon, and select episodes from the COVID-19 pandemic illustrate, at least in hindsight, how to operationalize the violence-minimization framework.

Smallpox

The tremendous violence humans do to each other by transmitting smallpox and the comparatively minuscule cost of violence to eradicate it make this case relatively easy to evaluate. Overall, the WHO smallpox-eradication campaign passes a violence-minimization test with flying colors. Even so, individual acts of coercion during that campaign may fail the test due to marginal effects and long-term consequences.

Smallpox is no joke. When Europeans brought the disease to the Americas, it killed up to 95 percent of some indigenous tribes.[85] In the twentieth century, it still had an infection fatality rate of 30 percent. Up to another 9 percent suffered eye disease, including blindness.[86] Many more victims suffered painful pustules and disfiguration. Sadly, "[d]uring the 20th century alone, an estimated 300 million people died of the disease—more than twice the death toll of all the military wars of that century."[87]

The WHO launched its eradication campaign in 1967. By 1980, smallpox was gone. Particularly when we account for nonfatal injuries, that campaign ended a disease that caused *twice* as much human-on-human violence as World War I, the Russian Revolution, the Chinese Revolution, World War II (including Hiroshima and Nagasaki), the Korean War, the Vietnam War, the First Iraq War, the Rwandan Genocide, and all other conflicts from 1900 to 1999 *combined.*

[85] Steven Charles Buckingham, *Saints, "Savages," and Smallpox: Epidemic Disease and the Colonization of New England, 1616–1637* (master's thesis, University of Memphis, 2012), 65, https://digitalcommons.memphis.edu/cgi/viewcontent.cgi?article=1530&context=etd.

[86] Richard D. Semba, "The Ocular Complications of Smallpox and Smallpox Immunization," *Journal of the American Medical Association Ophthalmology* 121, no. 5 (2003): 715–19.

[87] Donald A. Henderson, "The Eradication of Smallpox: An Overview of the Past, Present, and Future," *Vaccine* 295 (2011): D7–D9, https://uploads-ssl.webflow.com/60089b563e769ee6263ec4ba/60809179d325cb2b6196eb2a_SMALLPOX%20REVIEW1-s2.0-S0264410X11009546-main.pdf.

https://doi.org/10.1017/S026505252400027X

Smallpox eradication relied on government coercion. Taxes funded the deployment of public health professionals to outbreak areas as well as the contact tracing, testing, and ring-vaccination strategies they performed. Ann Marie Nelson reports:

> The total cost of smallpox eradication was $315 million between 1967–1980; $30 million was from the United States and the rest from developing countries... . Since the eradication of smallpox in 1977, the U.S. Public Health Service estimates a *monthly* savings of more than $30 million in material and human resources (cost of production, administration of the vaccine, treatment of adverse reactions, record-keeping and surveillance, immigration control, quarantine, and education).[88]

Imagine a government intervention that employed as little coercion as smallpox eradication did but instead permanently eradicated *war*. Such a tax would indeed purchase civilization.[89]

Smallpox eradication may be the rare example of a government program that truly and clearly paid for itself. It prevented more violence than it introduced. It reduced government outlays more than it increased them. It even reduced the incidence of government coercion (immigration controls and quarantines).

Even so, the success of smallpox eradication does not justify every coercive act that contributed to it. The eradication effort itself did violence to U.K. residents Janet Parker, who contracted smallpox via laboratory exposure and died, and her mother Hilda Witcomb, who survived.[90] The coercion and violence that some foreign WHO doctors employed in India and Bangladesh violated egalitarianism and may not have been strictly necessary to achieve eradication; *at the margin* it may even have led to a net increase in violence by breeding resentment that hindered both smallpox eradication and subsequent public health efforts:

> [C]oercion can leave behind a residue of resentment that sours public attitudes toward the next vaccination campaign ... . It is also worth considering whether some of the resistance that vaccinators encountered in the villages of India and Bangladesh in 1975 might not itself have been the result of *prior* half-completed but unsuccessful immunization campaigns in which coercion had played a role.[91]

[88] Emphasis added. Ann Marie Nelson, "The Cost of Disease Eradication: Smallpox and Bovine Tuberculosis," *Annals of the New York Academy of Sciences* 894, no. 1 (1999): 85.

[89] As Oliver Wendell Holmes, Jr., famously said in a dissenting opinion: "Taxes are what we pay for civilized society." *Compania General de Tobacos v. Collector*, 275 U.S. 100 (1927). See also, John Pomeroy, Waitstill Ranney, and Timothy Redfield, "Report of the Committee Appointed by the Governor to Take into Consideration the Financial Affairs of the State," in *Journal of the House of Representatives of the State of Vermont, October Session* (Burlington, VT: Chauncey Goodrich, 1851), 368–69.

[90] Monica Rimmer, "How Smallpox Claimed Its Final Victim," *BBC News*, August 9, 2018, https://www.bbc.com/news/uk-england-birmingham-45101091.

[91] Greenough, "Intimidation, Coercion, and Resistance," 643.

Mary Mallon

New York officials' treatment of Mary Mallon did not pass the violence-minimization test. Imprisoning Mallon on North Brother Island for twenty-six years likely reduced the amount of violence in society. Evidence suggests that Mallon spread typhoid to dozens of victims. It further suggests that, had the state not imprisoned her, she likely would have spread it to dozens more. Her imprisonment likely saved lives.

New York officials did not *minimize* the amount of violence in Mallon's case, however. It is possible the state could have achieved the same reduction in violence without coercing Mallon to the extent they did. The state imprisoned her long after it released other asymptomatic typhoid carriers. Officials might have stopped further transmissions through some combination of educating Mallon about the disease and how to avoid transmission; teaching her a different, safer, and more lucrative trade; paying her not to work; giving her a job that posed little risk of transmission; and having her check in periodically with public health officials. There is no evidence that officials tried any of these less coercive strategies. They ultimately employed her in a lab on the island—a captive worker. Mallon wrote her attorney: "There is a visiting doctor who came here in October. He did take quite an interest in me. He really thought I liked it here, that I did not care for my freedom."[92] Officials also believed that removing Mallon's gallbladder would have rendered her noncontagious, but she would not consent to the procedure. They were right not to coerce her to submit to that procedure.

New York officials also failed the violence-minimization test because they acted outside of the law. The state wildly violated Mallon's legal rights. It arrested her without warrant, never charged her with a crime, and imprisoned her for twenty-six years without trial. When Mallon sued for her release, the courts turned a blind eye to these violations. The precedential implications of Mallon's case are staggering. Mallon's attorney warned that the power to "clap someone in jail upon the word of some medical man" is a license to violate the rights of "thousands upon thousands of persons."[93]

Mallon's case also illustrates that government public health officials, like private individuals, face incentive problems. Some scholars argue that New York officials continued to imprison Mallon out of stubbornness and because she was useful to them as a "lab rat."[94] Other scholars say that Mallon's immigrant status played a part in her captivity.[95]

COVID-19

COVID-19 provides examples of government policies that met the violence-minimization test, policies that did not, and the fluid nature of violence-minimization calculations.

[92] Long, "Mary Mallon and Typhoid Fever," 38.
[93] Long, "Mary Mallon and Typhoid Fever," 39.
[94] Long, "Mary Mallon and Typhoid Fever," 44.
[95] Aronson, "The Civil Rights of Mary Mallon," 74–75.

If conventional estimates of costs and benefits are correct, government investments in COVID-19 vaccines also pass the violence-minimization test with flying colors. According to one estimate, the vaccines saved 20 million lives worldwide between late 2020 and late 2021.[96] If so, they turned what would otherwise have been 20 million lethal assaults into nonlethal assaults. Another estimate suggests that, in the United States, the vaccines averted 18 million hospitalizations and 3 million deaths.[97] Equivalently, they prevented 3 million lethal assaults and 18 million serious assaults. Again, the U.S. government spent some $30 billion, or roughly $100 per resident, subsidizing the vaccines' development and distribution.[98] Given those figures, it would seem that those government subsidies prevented far more coercion than they introduced—all the more so if those U.S. investments also saved lives overseas and reduced spending on compulsory government programs.

The diagnostic-testing debacle of early 2020 quite clearly fails the violence-minimization test. The FDA literally stopped public health professionals from detecting and stopping violent assaults: "The [FDA] did exactly what it shouldn't have. It limited the diagnostic capacity of this country. It's insane."[99]

State governments' efforts to strip physicians of their medical licenses for discouraging vaccines or prescribing ineffective treatments would also fail a violence-minimization test.[100] Such efforts first require the creation and maintenance of a system of government licensing of health professionals, which itself requires considerable coercion. Such systems likely introduce more coercion than government could prevent by revoking licenses—which itself constitutes a coercive restraint on the ability to practice medicine—in cases where clinicians dispense advice or treatments that lead to more violent transmissions of pathogens. Even if using government licensing in this manner could reduce more coercion than licensing itself introduces, other interventions—for example, medical malpractice liability or laws that specifically target fraud—could achieve a greater net reduction in coercion.

Other COVID-19 public health strategies fall somewhere in between. Government recommendations that individuals mask, practice social distancing, or work from home likely passed the test as low-coercion coordination

[96] Oliver J. Watson et al., "Global Impact of the First Year of COVID-19 Vaccination: A Mathematical Modelling Study," *The Lancet Infectious Diseases* 22, no. 9 (2022): 1293–1302, https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(22)00320-6/fulltext.

[97] Meagan C. Fitzpatrick et al., "Two Years of U.S. COVID-19 Vaccines Have Prevented Millions of Hospitalizations and Deaths," *The Commonwealth Fund*, December 13, 2022, https://www.commonwealthfund.org/blog/2022/two-years-covid-vaccines-prevented-millions-deaths-hospitalizations.

[98] Kates, Cox, and Michaud, "How Much Could COVID-19 Vaccines Cost the U.S. After Commercialization?"

[99] Jon Cohen, "The United States Badly Bungled Coronavirus Testing—but Things May Soon Improve," *Science*, February 28, 2020, https://www.science.org/content/article/united-states-badly-bungled-coronavirus-testing-things-may-soon-improve.

[100] Owen Dyer, "COVID-19: U.S. Doctors Sue Regulator for Charging Them with Spreading Misinformation in Pandemic," *British Medical Journal* 382 (2023): https://www.bmj.com/content/bmj/382/bmj.p1991.full.pdf.

mechanisms and means of signaling the seriousness of the crisis. Closing public spaces such as parks and beaches might have passed the test if COVID-19 were far deadlier and more transmissible or when there was some uncertainty on those points. Arresting those who trespassed in public spaces does not pass the test, because such confrontations increased the risk of transmission and other harms. Likewise, closing businesses and schools might have passed the test early in the pandemic (when there was uncertainty about transmissibility and disease severity) and even later (when there were still no vaccines), but not uniformly. Such measures could pass the test in outbreak areas, but not in areas with low case rates.

When effective vaccines became available, they dramatically altered the violence-minimization calculus for all other public health interventions. Masking recommendations, mandates, and school closures that might have passed the test suddenly failed it. The growing and often angry backlash against those measures suggests civilians judged that those measures posed a greater threat to their autonomy than did a virus whose infection-fatality rate had gone from being slightly higher to significantly lower than that of seasonal influenza.

Again, voters in many states retaliated by stripping powers from state public health officials.[101] The continued pushes for compliance with those measures and multiple rounds of vaccinations may have done long-lasting damage to public trust in state and federal public health officials and their ability to minimize violence in the future.

Potential concerns with and objections to a violence-minimization criterion include that it might permit killing one innocent to prevent the violent killing of five innocents; it could allow the aggregation of many small exercises of coercion to outweigh the violence of killing a few people, and therefore condone the latter to avoid the former; and it would allow a "heckler's veto" by giving undue weight to strategic retaliatory violence by civilians. Regarding the last concern, it is an odd social-welfare accounting that does not incorporate retaliatory violence. Public health officials should take the potential for such violence into account when weighing the wisdom of intervention, even if it means abandoning low-yield public health interventions. A powder-keg society is one on which public health officials should tread especially lightly.

Conclusion

Public health policy is an expression of how we value other humans. A violence-minimization approach to public health respects the dignity of all individuals by maximizing autonomy.

How exactly to minimize coercion and violence is not something policymakers can calculate with an abacus. Yet it has virtues and advantages over other models. It provides a framework for thinking about public health that

[101] Weber and Achenbach, "Covid Backlash Hobbles Public Health."

maximizes human dignity. It focuses policymakers' attention on the fact that they themselves introduce coercion and violence into society. It requires policymakers to weigh carefully the one aspect of government public health activities that most breeds distrust. It holds the promise of making government officials more circumspect about violating autonomy. It is perhaps conceptually and functionally simpler than a maximand of efficiency and more likely to arrive at the socially optimal level of public health interventions. Finally, a violence-minimization approach focuses government officials' attention on the only legitimate reason for government.

Competing interests. The author declares none.

Cite this article: Cannon, Michael F. 2024. "Public Health as If People Mattered." *Social Philosophy and Policy* 41, no. 2: 480–504. https://doi.org/10.1017/S026505252400027X