

ABSTRACT

The American Anti-Vaccine Movement: An Investigation of Populism, Polarization, and Public Policy

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Populism, animated in part by the distrust of elite authority, can be found across the spectrum of American political ideology. From Donald Trump and his “drain the swamp” rhetoric to Bernie Sanders and his denunciations of corporate greed, this contagious, populist skepticism has invaded contemporary American political culture. Unfortunately, this sentiment has also plagued the medical and scientific communities, with government agencies, pharmaceutical industry giants, and experts encountering growing distrust, especially concerning the safety and efficacy of vaccines. Whereas measles outbreaks occur with increasing frequency across the United States and the rates of non-medical vaccine exemptions are rising to dangerous levels, Americans face a veritable public health crisis. This thesis will trace the roots of populism and political partisanship in order to evaluate their influence on the anti-vaccine movement in the United States, with further attention paid to the specific public health risks of and policy prescriptions for vaccine hesitancy.

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POPULISM, POLARIZATION, AND PUBLIC POLICY

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*This thesis is dedicated to my parents.
Thank you.
I love you, always and forever.*

CHAPTER ONE

Contemporary Populism

Introduction

Recent years have witnessed the flourishing of political engagement and ideas across the United States. Politics, once discussed in hushed whispers and considered taboo at the dinner table and family holidays, are now a subject of conversation and discovered across such burgeoning, high-traffic social media platforms as Twitter and Facebook. And while the politics that influence our daily lives have become highly accessible by riding the coattails of fast-growing technologies that make data and information instantly retrievable, they have arguably become more divisive and misinformed.

Populism contributes to, if not exemplifies, these divisive politics. On the rise in the 21st century, populism empowers the common individual and is often characterized by marked distrust of authority and institutions. Social media, in giving people freedom and rhetorical power, permits challenges to authority and the unabated spread of information from one person to another, regardless of its veracity. Those frustrated with the pace of political progress possess a window to speak directly into the collective political consciousness. So, while knowledge, data, and current events are quite literally at the average American's fingertips, increased accessibility has also given license to both deliberate and inadvertent misinformation and disinformation and has ignited populist sentiment.

In the realm of science and medicine, this free-wheeling populism manifests as distrust of experts in spite of supporting evidence. Moreover, individuals with access to medical and scientific data—without the training necessary to adequately interpret results—

may lead to incorrect observations. The anti-vaccine movement, fueled by the now-retracted *Lancet* study by British gastroenterologist Andrew Wakefield in 1998 that linked the measles, mumps, and rubella (MMR) vaccine to autism, reflects this scientific populism. Despite allegations of falsified data and no causal link established between the MMR vaccine and autism, many “anti-vaxxers” insist upon a connection, while others have justified their opposition through philosophical and religious beliefs. Upward trends in non-medical vaccine exemptions and anti-vaccine rhetoric decrying the purported dangers of rigorously tested immunizations portray an alarming narrative, one which threatens the health of the United States.

This thesis will investigate populism and vaccine hesitancy in the United States, exploring the connection between these two phenomena in order to illuminate the underlying complexities and possible solutions to the anti-vaccine crisis. First, an understanding of populism will provide a framework for helping explain how vaccine hesitancy has gained momentum in the United States. This chapter will introduce to the reader the tenets of populism and will offer examples of American political leaders who support populist policies or propagate populist rhetoric. The premises and motivations of populism will be examined in order to explain their impacts on public health and the anti-vaccine movement.

Defining Populism

In order to fully appreciate populism and its impact on the anti-vaccine movement, it is necessary to begin with its definition. While the modern conception of populism varies among academic disciplines and an authoritative definition may appear elusive, it can be

distilled into the idea “that ‘populism worships the people.’”¹ Writ large, populism appeals to the masses—the common man, as opposed to the affluent, the social elite, the technocrats. But even this definition seems nebulous, as it can be improperly conflated with democracy. In fact, populism can be seen as a challenge to democracy and “skeptical . . . about constitutionalism, insofar as formal, bounded institutions and procedures impede majorities.”² Liberal democratic principles such as due process and the protection of minorities may interfere with the immediate enshrinement of the popular will and thus populist aims. Given these nuances, it is necessary to dissect populism into its distinct parts, which are elucidated by the work of Harvard scholars Noam Gidron and Bart Bonikowski.

First, populism can be understood as an ideology. Cas Mudde at the University of Georgia defines populism as “*an ideology that considers society to be ultimately separated into . . . ‘the pure people’ versus ‘the corrupt elite.’*”³ Put differently, populism can be conceptualized as “an antagonism between the people and the elite, as well as the primacy of popular sovereignty.”⁴ Populism extols the common people and maintains that political authority is derived from popular will. Such a moral juxtaposition between the people and the elite societal classes encourages challenges to authority, if not the disavowal and delegitimization of that authority. In addition, Gidron and Bonikowski assert that because

¹ Ghita Ionescu and Ernst Gellner, eds., *Populism: Its Meanings and National Characteristics* (New York: Macmillan, 1969), 4, quoted in Noam Gidron and Bart Bonikowski, “Varieties of Populism: Literature Review and Research Agenda,” in *Weatherhead Working Paper Series* 13, no. 4 (2013): 3, https://scholar.harvard.edu/files/gidron_bonikowski_populismlitreview_2013.pdf.

² William A. Galston, “The Populist Challenge to Liberal Democracy,” *Journal of Democracy* 29, no. 2 (2018): 11, <https://www.journalofdemocracy.org/articles/the-populist-challenge-to-liberal-democracy/>.

³ Cas Mudde, “The Populist Zeitgeist,” *Government and Opposition* 39, no. 4 (2004): 543, <https://doi.org/10.1111/j.1477-7053.2004.00135.x>. Italics in original.

⁴ Gidron and Bonikowski, “Varieties of Populism,” 6.

Mudde's populism is a "thin-centered ideology" with a loose agenda, populism is "compatible with other, more extensively developed political belief systems" and "can be found across ideological cleavages."⁵ Populism can be found among contemporary Republicans and Democrats. What is important to note from these assertions is that populism is not a political party, but a political ideology: a loosely connected network of ideas glued together by an elite–nonelite dichotomy. Policies, then, that align with this ideological framework may be propagated by either left-wing and right-wing politicians.

Second, populism can be defined rhetorically, or "as a discursive style."⁶ According to Michael Kazin, populism is a form of "language [that] is used by those who claim to speak for the vast majority of Americans."⁷ Gidron and Bonikowski's review clarifies Kazin's analysis, stating that populism as rhetoric is "a mode of political expression that is employed selectively and strategically by both right and left."⁸ Gidron and Bonikowski characterize Kazin's view of populism as one that deliberately constructs a "dichotomy between 'us' and 'them,'"⁹ borrowing from the philosophy of Martin Buber. In this mentality, the virtuous, common individual, and the unjust elite are pitted against each other. However, rhetorical populism is distinct from ideological populism because it is a means of communicating ideas. Politicians who use populist rhetoric to persuade or otherwise influence their constituents need not subscribe to a populist ideology. Put another way,

⁵ Gidron and Bonikowski, "Varieties of Populism," 6.

⁶ Gidron and Bonikowski, "Varieties of Populism," 7.

⁷ Michael Kazin, *The Populist Persuasion: An American History* (Ithaca; London: Cornell University Press, 1995), 1, www.jstor.org/stable/10.7591/j.ctt1w0dcsq.

⁸ Gidron and Bonikowski, "Varieties of Populism," 8.

⁹ Gidron and Bonikowski, "Varieties of Populism," 8.

populism as a discursive style refers to rhetoric, not ideas or policies, that explicitly appeals to the masses. One can imagine that such rhetoric would effectively engender distrust of elites and any institutions perceived to oppose collective interests, and readily mobilize people to accomplish a number of political ends.

The conception of populism as rhetoric, “a discursive style,” deserves further emphasis. Because this view maintains populism as communicative rather than a network of ideas, it can be considered “a form of politics rather than a stable category of political actors.”¹⁰ Gidron and Bonikowski further illuminate populism using Richard Hofstadter’s idea of “the paranoid style,”¹¹ a style primarily characterized by the belief in “an all-encompassing conspiracy that threatens to take control of America and change its most foundational values.”¹² In other words, the communicative form of populism is not only adept at sowing suspicion and distrust, but it is also effective at appealing to people who are susceptible to believing conspiratorial ideas. Moreover, “by considering populism a communication phenomenon . . . it becomes possible to determine *degrees of populism*.”¹³ Far from an exclusive black-and-white label, the populist spectrum is riddled with shades of gray. This is a particularly important point because populism then becomes quantifiable and the extent of political consequences or effects analogous to a dependent variable.

¹⁰ Gidron and Bonikowski, “Varieties of Populism,” 9.

¹¹ Richard Hofstadter, *The Paranoid Style in American Politics and Other Essays* (New York: Vintage Books, 1964), quoted in Gidron and Bonikowski, “Varieties of Populism,” 9.

¹² Gidron and Bonikowski, “Varieties of Populism,” 9.

¹³ Claes H. de Vreese et al., “Populism as an Expression of Political Communication Content and Style: A New Perspective,” *The International Journal of Press/Politics* 23, no. 4 (2018): 426, <https://doi.org/10.1177%2F1940161218790035>. Emphasis in original.

Third, populism can be conceived “as a mode of political strategy”¹⁴ or, alternatively, a “*technique of political persuasion*.”¹⁵ What this political strategy signifies is a “top-down political mobilization of mass constituencies by personalistic leaders who challenge [elites] on behalf of an ill-defined [people].”^{16,17} According to this definition, populism is focused on results and action rather than communication employed strategically as a persuasive tool. Nadia Urbinati of Columbia University similarly frames populism as “a form of collective action aiming to take power.”¹⁸ Thus defined, populism is oriented toward a rearranging of the political totem pole—a challenge to the social order—through unified disdain toward unsympathetic elites. Not to be overlooked are the characteristics of the populist leader, one who is arguably charismatic and surrounds oneself with a cult of personality. In that same vein, the populist leader gives a common identity to people who are, in the words of Levitsky and Roberts, “ill-defined,” while simultaneously lending legitimacy to the leader’s own claims, regardless of whether they truly speak for everyone.

These three alternative definitions of populism speak powerfully to shared themes observed in populism’s historical and modern application and may arguably be used in concert. While this thesis does not claim to have an authoritative definition of populism

¹⁴ Gidron and Bonikowski, 10.

¹⁵ Marc Horger, “American Populism and the Persistence of the Paranoid Style,” *Origins: Current Events in Historical Perspective* 4, no. 7 (2011), 1, <https://origins.osu.edu/article/american-populism-and-persistence-paranoid-style>. Emphasis in original.

¹⁶ Steven Levitsky and Kenneth M. Roberts, eds., *The Resurgence of the Latin American Left* (Baltimore: Johns Hopkins University Press, 2011), 6–7, quoted in Gidron and Bonikowski, “Varieties of Populism,” 12.

¹⁷ Kenneth M. Roberts, “Latin America’s Populist Revival,” *SAIS Review of International Affairs* 27, no. 1 (2007): 5, <http://doi.org/10.1353/sais.2007.0018>.

¹⁸ Nadia Urbinati, “Political Theory of Populism,” *Annual Review of Political Science* 22, no. 1 (2019): 112, <https://www.annualreviews.org/doi/full/10.1146/annurev-polisci-050317-070753>.

(which is still being debated among scholars) nor encompass all of populism's nuance, appreciating these alternative definitions and the ways in which they coalesce is useful in evaluating the current status of American populism and understanding how it relates to the sustained influence of vaccine hesitancy in the United States.

Historical American Populism

Now that the theoretical components of populism have been explored, it is important to turn to how populism has been viewed throughout American history. While it is not a new phenomenon, populism assessed at its historical roots not only provides relevance to the contemporary issue but also allows us to fully comprehend the timeline of American populism and the practical application of its key principles that were previously discussed.

Early signs of populism date back to the nineteenth century. The overarching vision of "*the people*" as "the virtuous, independent producer," or the working class of American society, began with President Andrew Jackson in the 1830s.¹⁹ Defining the people as such, Jackson gave a political identity to disaffected workers, one in opposition to the "idle rich" and racial minorities.²⁰ Essentially, Jackson set the tone for the future populist struggle as one of class conflict. Populism in the United States began in earnest when, discontented with the rural economy in the late nineteenth century, American farmers organized the Populist Party (also called the People's Party) in 1892 and advocated for economic reforms

¹⁹ Chip Berlet and Matthew N. Lyons, *Right-Wing Populism in America: Too Close for Comfort* (New York: Guilford Press, 2000), quoted in Joseph Lowndes, "Populism in the United States," in *The Oxford Handbook of Populism*, eds. Cristóbal Rovira Kaltwasser et al. (Oxford University Press, 2017), 2, <https://doi.org/10.1093/oxfordhb/9780198803560.013.11>. Emphasis in original.

²⁰ Lowndes, "Populism in the United States," 2.

that would revitalize U.S. agriculture.²¹ The precipitous price drop of commodities and increased indebtedness compelled farmers to seek “large-scale government intervention” and the empowerment of individual states.²² Economic anxieties clearly impelled the coordinated efforts of ordinary farmers.

But the advent of the Populist Movement was motivated beyond solely economic concerns; it was also motivated by culture. Echoing Hofstadter’s idea of the paranoid style, farmers believed that the economic downturn “*could only* be happening to them as the result of conspiratorial action taken at great physical and moral distance from themselves.”²³ Even in its nascent years, American populism inculcated coordinated action by the social elite against ordinary people. The first Populists blamed distant decision-makers for their misfortunes and subsequently “defin[ed] an in-group not just against an out-group, but against an ‘elite,’” establishing an us versus them dichotomy.²⁴ Farmers felt isolated from the rest of America and, as James Turner contends, “isolation breeds a political culture at odds with the mainstream of political habits and attitudes.”²⁵ Put simply, isolation is generative of political conflict that characterizes populism. The 1896 defeat of William Jennings Bryan, a Democrat aligned with the Populists on the issue of free silver, marked the end of the organized Populist Movement.²⁶

²¹ The Editors of Encyclopedia Britannica, “Populist Movement,” Encyclopedia Britannica, Encyclopedia Britannica, Inc., September 12, 2019, <https://www.britannica.com/event/Populist-Movement>.

²² Horger, “American Populism,” 1.

²³ Horger, “American Populism,” 1. Emphasis in original.

²⁴ Horger, “American Populism,” 1.

²⁵ James Turner, “Understanding the Populists,” *The Journal of American History* 67, no. 2 (1980): 372, <https://www.jstor.org/stable/1890413>.

²⁶ Encyclopedia Britannica, “Populist Movement.”

Populism continued to crop up in the U.S. in succeeding decades. It appeared again during the Great Depression, ironically during another—but markedly more severe—economic collapse. This time, it was Roosevelt who adopted populist discourse in his defense of the New Deal, “welcom[ing] the hatred of ‘government by organized money’ and sharpen[ing] his rhetorical attacks on ‘economic royalists.’”²⁷ Roosevelt used America’s rich as a scapegoat to drum up support for economic reform and welfare spending. In the 1960s, another Democrat, staunch segregationist and former Alabama governor George Wallace, manipulated “the status anxieties unleashed by the destruction of the racial caste system” in order to sustain white supremacy.²⁸ Wallace unified his base, who “[saw] themselves as average citizens,” by framing his political foes as “the real outsiders,” elites who had grown “unproductive and decadent.”²⁹ Wallace, too, engaged in the rhetoric of populism by pitting white conservatives against a political establishment he believed was acting against their interests. While the New Deal and white supremacy certainly do not stand on the same moral plane, the communicative strategies used by Roosevelt and Wallace clearly construct anti-elitist narratives to accomplish their initiatives. Both these historical examples demonstrate the effectiveness of the populist discursive style as a method of mass mobilization.

Populism throughout American history appears to reinforce the notions of populist ideology, rhetoric, and strategy previously examined in the discussion of alternative definitions. In particular, the populist framework has been used by authority figures and

²⁷ Horger, “American Populism,” 1.

²⁸ Horger, “American Populism,” 2.

²⁹ Lowndes, “Populism in the United States,” 6.

identity groups, such as farmers, to demarcate class lines, posture one group against a more privileged other, and mobilize constituents toward collective political aims.

Contemporary American Populism

Now that the historical timeline of American populism has been established, it is necessary to move next to the manifestations of populism in the present. William A. Galston, a senior fellow at the Brookings Institution and former adviser to President Bill Clinton, writes that “a populist surge threatens the assumptions and achievements of politicians and policy makers from mainstream parties.”³⁰ Moreover, the takeover of American institutions by well-educated members of society “has left less-educated citizens in outlying towns and rural areas feeling denigrated and devalued,” contributing to the rise of populism and its accompanying distrust of the elite, technocratic class.³¹ Here, Galston diagnoses the state of American politics as one of rising conflict, characterized by antagonism that threatens the stability of the social order. The status quo of political and societal leadership is under attack by Americans who, perhaps rightfully, believe they have been abandoned and consequently seek a charismatic movement that will prioritize their needs.

Galston identifies three areas of concern regarding the rise of populism in the United States: the economy, society, and politics. Economically, the U.S. has stagnated, exhibiting a “loss of economic ground across generations,”³² not to mention the discontent felt at present by occupants of lower socioeconomic strata who suffer from increasing

³⁰ William A. Galston, “The 2016 U.S. Election: The Populist Moment,” *Journal of Democracy* 28, no. 2 (2017): 23, <https://www.journalofdemocracy.org/articles/the-2016-u-s-election-the-populist-moment/>.

³¹ Galston, “The 2016 U.S. Election,” 23.

³² Galston, “The 2016 U.S. Election,” 25.

income inequality. Socially, some Americans fear a loss of economic opportunity due to an influx of immigrants, demographic shifts that alter the racial and ethnic composition of the U.S. population, and “crime and terrorism [that create] a pervasive sense of insecurity.”³³ And politically, increased polarization and partisanship “has produced the social equivalent of echo chambers” that reinforce one’s own opinions without offering contrarian evidence.³⁴ These considerations paint a picture of contemporary American life being assailed by intense fear and anxiety, all of which feed into a populist narrative that capitalizes on the whims of ordinary people. Left unaddressed, these burgeoning issues may cause some Americans to revisit the terms of their social contract and risk the collapse of our “liberal democracy,” which rests on the assumption that “legitimate public power . . . is inherently limited.”³⁵ Challenges to democracy, political instability, and even the deliberate questioning of the adequacy of our institutions may be expected should economic, social, and political inequalities persist unabated.

One need not look far to find examples of populism in the United States today; two of the most widely known political figures—Bernie Sanders and Donald Trump—have, to some degree, adopted populist posturing as recently as the 2016 presidential election. According to Corina Lacatus at the University of Edinburgh, “the Sanders and Trump campaigns relied on populist discourse to promote two opposing electoral agendas on the left and the right of the political spectrum.”³⁶ Worthy of note is the observation that populist

³³ Galston, “The 2016 U.S. Election,” 26–27.

³⁴ Galston, “The 2016 U.S. Election,” 27.

³⁵ Galston, “The 2016 U.S. Election,” 30.

³⁶ Corina Lacatus, “Populism and the 2016 American Election: Evidence from Official Press Releases and Twitter,” *PS: Political Science & Politics* 52, no. 2 (2019): 223, <https://doi.org/10.1017/S104909651800183X>.

rhetoric was used to support contradictory campaign platforms, which is consistent with the previous assertion that populism is compatible with a variety of political ideologies. Bernie Sanders and Donald Trump, both fixtures of their respective parties and candidates for the 2020 presidential election, are undoubtedly etched into the American political consciousness. That the populist “discursive style” has reached the upper echelons of the political arena is indicative of its pervasive grip on authorities and the psyche of potential voters.

Donald Trump’s campaign rhetoric leading up to the 2016 presidential election clearly carried markers of right-wing populism. Often in alignment with the conservative extreme of the political spectrum, Trump’s use of his Twitter platform displayed “elements of populist right-wing ideology” and a nakedly “nativist dimension” opposed to illegal immigration, threats of foreign terrorism, and Islam at large.³⁷ His ardent pursuit of a southern border wall and a nationwide ban on Muslim immigration provide support for these claims of right-wing populist rhetoric. In addition, “Trump’s discourse was openly critical of political elites in Washington.”³⁸ Perhaps exemplified most plainly by his admonition to “drain the swamp,” which rails against the purportedly out-of-touch political establishment, Trump’s rhetoric clearly draws from populism. In framing the Washington elites as enemies of his own constituents, Trump himself constructed an us versus them narrative which, as his election victory can attest, clearly resonated with a substantial portion of American voters.

³⁷ Lacatus, “Populism and the 2016 American Election,” 226.

³⁸ Lacatus, “Populism and the 2016 American Election,” 226.

Bernie Sanders, on the other hand, aligned primarily with left-wing populism through his campaign rhetoric. On the whole, Sanders endorsed “equality and integration of minorities” and exhibited antagonism toward “the rich, the unregulated financial sector, big corporations, and the Washington establishment.”³⁹ Sanders’ enemy of the people, the mega-rich (or, as he so often describes it, the “one-tenth of one percent”), stands in contrast to Trump (who is a billionaire himself) but serves a similar rhetorical purpose: the identification of an outgroup. A self-avowed Democratic Socialist, Sanders also “spoke on behalf of one main excluded social group—namely, ‘the poor,’” who are considered by Sanders to be “victims of unfair income distribution and a system that favors the rich over the poor.”⁴⁰ In so doing, Sanders’ rhetoric is consistent with characteristics of populism previously described, namely, challenging elites on behalf of the people and constructing a people disadvantaged by systemic conspiracy.

Political candidates today use populist rhetorical appeals, lending veracity to the idea that populism is, in part, a method of communication and political strategy. As Bernie Sanders and Donald Trump show, populism is alive and well in modern U.S. politics and is certainly exacerbated by inequalities that result in discontented, disaffected, and disenfranchised groups. Furthermore, populism may prove disastrous for the advancement of public health and science, which are predicated on liberal democratic protections.

Populism in Health

Though the rise and persistence of populism in the United States are strongly suggested by the preceding literature, one may find it difficult to imagine how this political

³⁹ Lacatus, “Populism and the 2016 American Election,” 226.

⁴⁰ Lacatus, “Populism and the 2016 American Election,” 226.

phenomenon influences the realm of science, medicine, and public health. After all, it seems rather unusual to make a connection between populism and the anti-vaccine movement when they seem superficially unrelated. But what this section aims to illuminate is the bridge between populism and the vaccine hesitancy crisis, which makes the former relevant to solving the latter: medical populism.

First, it would be prudent to clarify what is meant by medical populism. According to a study by Gideon Lasco and Nicole Curato, from the University of the Philippines–Diliman and the University of Canberra, respectively, medical populism is defined “as a political style based on performances of public health crises that pit ‘the people’ against ‘the establishment.’”⁴¹ The repetitive, Buberian us versus them narrative, which flavors the broad, political form of populism, is also evident in the concept of medical populism; it consists of an in-group and an out-group, with the out-group being framed in a decidedly negative light. The significant difference here is that medical populism pertains to public health, rather than a generalized sphere of influence.

Medical populism also appears to be a reactionary phenomenon. Lasco and Curato argue that “medical populism takes off during health crises or emergencies”⁴² because they thrive off “people’s sense of fear and outrage and create demands around urgent solutions to avert impending breakdown.”⁴³ Just as populism capitalizes on the anxieties of the people, medical populism operates through acute fears about the public health, bringing to the

⁴¹ Gideon Lasco and Nicole Curato, “Medical populism,” *Social Science & Medicine* 221 (2019): 1, <https://doi.org/10.1016/j.socscimed.2018.12.006>.

⁴² Lasco and Curato, “Medical populism,” 2.

⁴³ Robert Wuthnow, *Be Very Afraid: the Cultural Response to Terror, Pandemics, Environmental Devastation, Nuclear Annihilation, and Other Threats* (Oxford: Oxford University Press, 2010), 1–6, quoted in Lasco and Curato, “Medical populism,” 2.

forefront such collective values as freedom, safety, and security. However, it must be understood that “populists deliberately perform and perpetuate the crisis,” rather than seek to resolve it, because “populism flourishes” in crises.⁴⁴ As portrayed previously by Levitsky and Roberts, populism as a political strategy requires that a charismatic individual challenge elite cadres “on behalf of an ill-defined [people].” This requirement is echoed by medical populism in that public health pandemonium provides a window of opportunity for populist influencers to seize control of the discourse and wield rhetorical power.

There are three components to medical populism as described by Lasco and Curato, who inform their conclusions using the work of Benjamin Moffitt. Those components include the popular appeal, the “performance of crisis,” and the marriage of “simplified discourse [with a] dramatized performance.”⁴⁵ First, medical populism frames ordinary people as “aggrieved parties, if not victims of diseases due to the system’s neglect.”⁴⁶ If medical populism is the performance, the people are the cast. It defines the role that the people play as one disadvantaged by systemic injustice or negligence. Consequently, medical populism constructs an us versus them dichotomy and blames an overarching conspiracy (“the system”) for collective ills. Next, medical populism co-opts crises and emergencies in order to proffer “the legitimizing narrative to act immediately.”⁴⁷ Liberal democracy, to which populism is diametrically opposed, is traditionally restrained and changes happen only incrementally. Crises, however, fuel anxieties and demand urgent solutions, which is why medical populism requires crises to lend authority to their claims. Finally,

⁴⁴ Lasco and Curato, “Medical populism,” 2.

⁴⁵ Lasco and Curato, “Medical populism,” 2–3.

⁴⁶ Lasco and Curato, “Medical populism,” 2.

⁴⁷ Lasco and Curato, “Medical populism,” 3.

medical populism sustains the crisis mentality by pursuing the “simplification of political vocabularies” and dramatizing the situation, which may manifest as “denial of expert knowledge.”⁴⁸ Simplified language strengthens the appeal of medical populism by bringing more people into the fold—people who can understand and imagine the crisis. And through refuting expert knowledge, medical populism has the potential to sustain itself by perpetuating the perceived severity of a crisis and discarding any evidence that, however true, contradicts its claims.

This understanding of medical populism finally brings us to vaccine hesitancy. Jonathan Kennedy at Queen Mary University of London, who analyzes vaccine hesitancy in Western Europe, claims that “scientific populism is driven by similar feelings to political populism—i.e. profound distrust of elites and experts by disenfranchised and marginalized parts of the population.”⁴⁹ This distrust of scientific expertise, Kennedy explains, is derived from “a valid critique of the scientific method and its inability to uncover objective truth.”⁵⁰ Due to the extensive academic training of physicians and scientists, health information is asymmetrical; experts wield a disproportionately greater facility over such information relative to the public. But the urgent tyranny of health crises and moral panic—as described previously by Lasco and Curato—leads people to reevaluate their faith in scientific and medical experts and regard their truth claims as suspect.

Populism, in serving as the conduit for challenges to medical and scientific authority, protects the anti-vaccine movement and its belief that vaccines are unsafe or

⁴⁸ Lasco and Curato, “Medical populism,” 3.

⁴⁹ Jonathan Kennedy, “Populist politics and vaccine hesitancy in Western Europe: an analysis of national-level data,” *European Journal of Public Health* 29, no. 3 (2019): 513, <https://doi.org/10.1093/eurpub/ckz004>.

⁵⁰ Kennedy, “Populist politics and vaccine hesitancy,” 513.

ineffective. According to Kennedy, it is clear that there is “a significant positive association between votes for populist parties and anti-vaccine sentiment.”⁵¹ Despite conclusions by the physicians and scientists alike that vaccines are rigorously tested, that side effects are minimal, and that immunizations are not causally linked to autism, anti-vaxxers who already distrust the medical community are unlikely to find their claims authoritative. The anti-vaccine issue, viewed through this lens, is a trust issue. As long as vaccines are viewed as a crisis and experts are treated with skepticism, vaccine hesitancy will flourish.

Conclusion

Populism, though an ambiguous term, is characterized primarily by distrust of elites and the establishment. The people are viewed in direct opposition to those elites atop the social order, constructing an “us versus them” narrative which permits not only the unification of disaffected groups but also challenges to the engines of government. Populism has, since its emergence in nineteenth-century America, only continued to influence national politics as recently as the 2016 presidential election; current political figures like Donald Trump and Bernie Sanders propagate the populist discursive style by pitting groups of Americans against a common foe. Unfortunately, populist rhetoric and ideology have infected the sphere of science and medicine, in which health experts and scientific authorities are treated with a similar distrust. Consequently, crises like the anti-vaccine movement have grown in the presence of deep public suspicion. Vaccine hesitancy and populism, sharing this profound distrust, appear to be inextricably tied together. If the anti-vaccine movement is to be prevented from further eroding the public health of the United States, its link to populism must be fully appreciated.

⁵¹ Kennedy, “Populist politics and vaccine hesitancy,” 515.

CHAPTER TWO

The Sociopolitical Perspective

Introduction

The previous chapter delineated the correlation between populism, a political concept marked by distrust of authority and a pervasive conspiratorial suspicion, and the American anti-vaccine movement by exploring contemporary populism and its corollary in healthcare. Populism, which is as nebulous a term as it is multidimensional, can be framed as a political ideology, a rhetorical or discursive style, and a persuasive political tactic. And it need not be restricted to the political sphere, as populism can even be found in science and medicine as the manifestation of low confidence in experts and institutions exacerbated by ongoing health crises that stoke a palpable degree of public anxiety and uncertainty. While it is evident that populism's defining wariness of elites is observed in medicine, its connection to the anti-vaccine movement merits further scholarly attention.

Populism and the anti-vaccine movement, particularly their success in mass mobilization and propagandizing, are both tied inextricably to sociology and communication. As described in chapter one, populism is heavily influenced by rhetoric—language of a persuasive nature—and is, therefore, ostensibly abetted by the social environment. Not surprisingly, the growth of the anti-vaccine movement may also be attributed to prevailing social factors, including the dissemination of misinformation on the internet and anti-science rhetoric propagated by the prevailing powers in Washington.¹ Paul A. Offit from the

¹ Jan Hoffman, "How Anti-Vaccine Sentiment Took Hold in the United States," *New York Times* (New York, NY), Sep. 23, 2019, <https://www.nytimes.com/2019/09/23/health/anti-vaccination-movement-us.html>.

Children’s Hospital of Philadelphia argues that in the era of anti-science and vaccine hesitancy, “science has become just another voice in the room,”² wrought by expedient communications technology that has elevated individual voices and experiences, often at the expense of or in direct competition to facts and scientific evidence. People interpret data and make judgments without the qualifications to do so authoritatively, and to make matters more precarious, “people are notoriously poor at assessing risk.”³ Parents have also, according to studies, lost confidence in experts such as “authorities like the C.D.C. and in pediatricians” since 2014,⁴ paralleling the characteristic distrust of populism that has already been examined.

It appears that anti-vaccine attitudes, like populist attitudes, are linked to political and social forces. Therefore, in an attempt to bridge the anti-vaccine movement to populism, this chapter will focus primarily on contributing political and social phenomena common to both. In illuminating these shared threads, the correlation between populism and vaccine hesitancy should become clear. By identifying populism, or at least its root causes, as suspect in the permissance of anti-vaccine sentiment, appropriate social and political prescriptions to combat resultant vaccine hesitancy may be proposed.

Political Polarization

The anti-vaccine movement in the United States has long been associated with political ideology, although the precise political factors that influence vaccine hesitancy remain poorly understood. To begin this exploration of the anti-vaccine movement as a

² Hoffman, “How Anti-Vaccine Sentiment Took Hold in the United States.”

³ Hoffman, “How Anti-Vaccine Sentiment Took Hold in the United States.”

⁴ Hoffman, “How Anti-Vaccine Sentiment Took Hold in the United States.”

sociopolitical phenomenon, it is necessary to discuss political polarization, meaning the tendency for American political life to be skewed toward opposite and contentious ends of the political spectrum: Republican versus Democrat, conservative versus liberal. Political polarization has important implications for the anti-vaccine movement, as partisanship may deepen political divisions and lead to intensified ideological entrenchment of those holding unorthodox or immoderate views.

Trends in Polarization

Polarization has become an increasingly prevalent component of contemporary American politics, almost coinciding with the rise of populism and vaccine hesitancy in the United States. While it is generally understood that politics are more partisan than previous decades, data support this claim. Political polarization, otherwise known as the diminishing of the American political moderate, has been on the rise for many years. According to the Pew Research Center concerning U.S. politics and policy, “Republicans and Democrats are more divided” today than at any other time in the last twenty years.⁵ In 1994 and in 2004, the ideological medians of the Democratic Party and Republican Party could be found relatively close together, in the center.⁶ But in 2014, the same survey showed an ideological shift resembling a bimodal curve marked by the shrinking of political moderates and skewing toward consistently liberal and consistently conservative views, respectively.⁷ Now, Americans who express these ideologically consistent views

⁵ Pew Research Center, “Political Polarization in the American Public,” Pew Research Center, June 12, 2014, <https://www.people-press.org/2014/06/12/political-polarization-in-the-american-public/>.

⁶ Pew, “Political Polarization.”

⁷ Pew, “Political Polarization.”

make up 21% of the population, an increase of 11% over two decades.⁸ With a waning political moderate, those who can bridge the party divide are fewer and further between.

But what complicates these statistics are the uptick in partisans who believe that the opposing political party is a national threat and the commonality of what Pew calls “ideological silos,” or political echo chambers.⁹ Party-line partisans who occupy these echo chambers are much less likely to encounter contradictory views and even interact with those individuals with whom they disagree. Consistent liberals and conservatives are also more politically engaged than moderates, resulting in an American political electorate in which the relative influence of partisan voters is outsized.¹⁰ What follows is a political culture that has steadily devalued bipartisan agreement and fostered an “us versus them” framework, a characteristic explored in chapter one that may be symptomatic of populism.

Concerning the Anti-Vaccine Movement

The aforementioned increase in political polarization is significant with regard to the anti-vaccine movement because people are more likely to believe vaccines are unsafe or subscribe to the vaccine hesitancy platform if they lie on the partisan margins of the liberal-conservative continuum. Among the nation’s communities boasting the highest non-medical exemption rates are liberal cities like Austin, Texas, Portland, Oregon, and Seattle, Washington, as well as generally conservative locales like Fort Worth, Texas, and

⁸ Pew, “Political Polarization.”

⁹ Pew, “Political Polarization.”

¹⁰ Pew, “Political Polarization.”

Salt Lake City and Provo, Utah.¹¹ Barring local exceptions, Washington and Oregon typically vote Democrat, and Texas and Utah typically vote Republican. Across these communities, which generally lean toward the ends of the political spectrum, parents are increasingly refusing to vaccinate their children against harmful diseases like measles, mumps, and rubella, which may expose them to infection and put other children at risk.

Charles McCoy, assistant professor of sociology at SUNY Plattsburgh, contended in 2017 that more conservative and more liberal Americans are more likely to question vaccine safety and that conservatives in particular are more likely to reject the notion of vaccine mandates.¹² Peter Hotez, who serves as dean of the National School of Tropical Medicine at Baylor College of Medicine in Houston, Texas, also believes that anti-vaccine perspectives “tend to come from the extreme elements of either the left or the right.”¹³ Moreover, other studies have concluded that conservative parents tend to exhibit more anti-vaccine behavior compared to liberals.^{14,15} These studies and experts have collectively found that extreme conservatives and liberals are associated with a greater likelihood to regard vaccines negatively, highlighting the dangers of political polarization should the left

¹¹ Jacqueline K. Olive et al., “The state of the antivaccine movement in the United States: A focused examination of nonmedical exemptions in states and counties,” *PLoS Medicine* 15, no. 6 (2018): e1002578, <https://doi.org/10.1371/journal.pmed.1002578>.

¹² Charles McCoy, “Anti-vaccination beliefs don’t follow the usual political polarization,” *The Conversation*, Aug. 23, 2017, <http://theconversation.com/anti-vaccination-beliefs-dont-follow-the-usual-political-polarization-81001>.

¹³ Andy Langer, “Dr. Peter J. Hotez: ‘A Scary Anti-Science Movement Has Become Very Strong in Texas,’” *Texas Monthly* (Austin, TX), Dec. 10, 2018, <https://www.texasmonthly.com/podcast/peter-j-hotez-scary-anti-science-movement-strong-texas/>.

¹⁴ Mitchell Rabinowitz et al., “Beliefs about Childhood Vaccination in the United States: Political Ideology, False Consensus, and the Illusion of Uniqueness,” *PLoS One* 11, no. 7 (2016): e0158382, <https://doi.org/10.1371/journal.pone.0158382>.

¹⁵ Bert Baumgaertner, Juliet E. Carlisle, and Florian Justwan, “The influence of political ideology and trust on willingness to vaccinate,” *PLoS One* 13, no. 1 (2018): e0191728, <https://doi.org/10.1371/journal.pone.0191728>.

and right continue to grow more entrenched and partisan. While politics do not constitute the only factor contributing to anti-vaccine views, it can be inferred that certain aspects of political ideology—such as individual freedom and a smaller federal government—may align with negative beliefs about the safety and efficacy of required vaccines.

Further connecting populism to vaccine hesitancy, Bert Baumgaertner, Juliet Carlisle, and Florian Justwan also found that those “with lower levels of trust in government medical experts are also less likely to express intent to vaccinate, and these individuals also tend to be conservative.”¹⁶ One of populism’s defining characteristics is suspicion of elites, institutions, and authority. Here, we observe that the mistrust of experts found in populism also negatively influences the views of Americans regarding vaccines, thus connecting one of the defining characteristics of populism directly to vaccine hesitancy. The less Americans trust medical experts, the less likely they will support vaccinations. To make matters worse, public confidence and trust in medicine have been declining for decades. In 1973, 53.8% of respondents surveyed said they had “a great deal” of confidence in medicine, whereas, in 2012, that same category was down to its lowest point at 38.9%, with a near doubling of the percentage of people who had “hardly any” confidence in medicine, rising from 5.8% to 10.1%.¹⁷ These statistics may reflect the recent, gradual rise in populism and anti-vaccine sentiment. One can infer that, should trust in the medical establishment continue to decline at this rate, support for vaccinations will likewise dissipate.

¹⁶ Baumgaertner, Carlisle, and Justwan, “The influence of political ideology.”

¹⁷ Tom W. Smith and Jaesok Son, “Trends in Public Attitudes about Confidence in Institutions,” in *General Social Survey 2012 Final Report*, NORC at the University of Chicago (2013): 13, https://www.norc.org/PDFs/GSS%20Reports/Trends%20in%20Confidence%20Institutions_Final.pdf.

Conspiracies

Finally, what is worth noting from a political angle is the prevalence of conspiratorial beliefs at the polarized ends of the political spectrum. According to a 2015 article that cites extensive research on populism, extreme political beliefs on the left and right are “strongly associated” with belief in conspiracy theories because they provide a “straight-forward explanatory framework” for the world.¹⁸ The study found that the higher tendency for people with extreme political beliefs to endorse conspiracy theories is the result of a “highly structured thinking style.”¹⁹ These conspiratorial beliefs do not appear limited to one political ideology, suggesting that increased polarization might exacerbate these beliefs; as polarization rises, Republicans and Democrats alike will drift away from the center and, in occupying the margins of the political spectrum, be more likely to believe conspiracies. Conspiratorial beliefs are also, according to David Robert Grimes at the University of Oxford, “endemic in anti-vaccination groups.”²⁰ The anti-vaccine movement itself is driven by misinformation and disinformation, and could arguably be classified as conspiratorial. Increased political polarization, then, which has risen drastically in the last two decades, may have indirectly driven anti-vaccine sentiment by fueling conspiratorial beliefs and, without correction, will continue doing so.

¹⁸ Jan-Willem van Prooijen, André P. M. Krouwel, and Thomas V. Pollet, “Political Extremism Predicts Belief in Conspiracy Theories,” *Social Psychological and Personality Science* 6, no. 5 (2015): 576, <https://doi.org/10.1177%2F1948550614567356>.

¹⁹ van Prooijen, Krouwel, and Pollet, “Political Extremism,” 570.

²⁰ David Robert Grimes, “On the Viability of Conspiratorial Beliefs,” *PLoS One* 11, no. 1 (2016): e0147905, <https://doi.org/10.1371/journal.pone.0147905>.

Another study argues that fear about vaccinations has been intensified by mistrust of institutions such as “the pharmaceutical–industrial complex.”²¹ Mistrust, one of the primary characteristics of populism, is ostensibly a driver of vaccine hesitancy. Thus, anti-vaccine sentiment seems further tied to populism in this instance because it echoes the mistrust of institutional authority that colors populist beliefs. In chapter one, populism was framed by Richard Hofstadter as “the paranoid style” that is prone to conspiratorial beliefs, with medical populism similarly faulting wide-ranging conspiracies for society’s health problems. Vaccine hesitancy is also directly linked to conspiratorial beliefs and indirectly linked by way of political polarization. Given that political polarization, populism, and the anti-vaccine movement appear interrelated in this way, solutions aimed at increasing vaccination rates must take into account the dangerous tendency for populism and polarization to encourage unfounded conspiracy theories.

Summary

We began with the premise that anti-vaccine attitudes are tied to political forces, zeroing in on political polarization as a key contributing factor. Studies found that political polarization, which has been rising steadily in the United States since 1994, diminishes the political moderate and reduces the ability of left- and right-wing voters to find common ground. Polarization unwittingly manufactures a dichotomy between liberals and conservatives that is generative of ideological silos and uncannily similar to the Buberian “us versus them” narrative indicative of populism. Relatedly, negative attitudes toward vaccines are associated with extreme political ideologies that are either consistently

²¹ Daniel A. Salmon et al., “Vaccine hesitancy: Causes, consequences, and a call to action,” *Vaccine* 33, no. 4 (2015): D67, <https://doi.org/10.1016/j.vaccine.2015.09.035>.

conservative or consistently liberal, and these negative attitudes are also exacerbated by growing mistrust of government institutions. Political polarization, in addition to helping fuel anti-vaccine stances, also increases the likelihood of adopting conspiratorial beliefs—beliefs upon which populism and the anti-vaccine movement rely. All told, the connection between populism and the anti-vaccine movement is influenced, at least in part, by polarization. Prescriptions for the harmful effects of these two phenomena must include measures to address political factors, like polarization, that have witnessed sharp intensification in recent decades.

Social Factors

In addition to being a political tool, populism is largely a rhetorical phenomenon, driven by language and persuasive argumentation that pits the ordinary person against the elite, stokes fear, and is capable of disseminating false information. Populism influences and is enabled by the social milieu that surrounds it, and this social context—the rhetoric of inflammation that makes it so successful—is the next topic of consideration as the connection between populism and the anti-vaccine movement is further dissected.

Social Media

Communication, particularly misinformation, has energized the American anti-vaccine movement. While medical misinformation is not a recent development, it “has become pervasive” due to the advent of social media and the ability for consumers to almost instantly spread false information regarding human health.²² Internet-facilitated “direct-

²² Paul W. Armstrong and C. David Naylor, “Counteracting Health Misinformation: A Role for Medical Journals?” *JAMA* 321, no. 19 (2019): 1863, <https://doi.org/10.1001/jama.2019.5168>.

to-consumer marketing” has opened the door to misinformation regarding vaccine safety, among other alarming health-related controversies.²³ The internet’s threat to accurate public health information is two-pronged. First, it allows unbridled access to health information independent of a health professional, which is problematic in that untrained individuals may not be equipped to interpret that information. And second, because social media use is virtually ubiquitous, individuals can now unrestrainedly spread health information to others, making the accuracy of that information all the more dubious. Truthful information may, in the realm of social media, begin to blend with tabloid gossip. Such is the case with vaccines, in which rumors surrounding their safety and effectiveness can be multiplied by social media users despite evidence to the contrary. The anti-vaccine movement takes advantage of digital media by capitalizing on the fear and misinformation that results from unfiltered and unfettered access to health data.

As previously discussed, populism itself is also inextricably tied to communication and information. Populism employs rhetoric and “political communication” to incite fear, appealing to “people-centrism and anti-elitism” through messaging.²⁴ This anti-elitism extends even into the realms of medicine and science. For Van Aelst et al., part of the concern about populism in the modern era is the matter of “increasing relativism” about the truth “in which mere opinions not backed by evidence are traded as facts.”²⁵ This decline in the

²³ Armstrong and Naylor, “Counteracting Health Misinformation,” 1863.

²⁴ Claes H. de Vreese et al., “Populism as an Expression of Political Communication Content and Style: A New Perspective,” *The International Journal of Press/Politics* 23, no. 4 (2018): 425, <https://doi.org/10.1177%2F1940161218790035>.

²⁵ Van Aelst et al., “Political Communication in a High-Choice Media Environment: A challenge for Democracy?” *Annals of the International Communication Association* 41, no. 1 (2017): 14, <http://dx.doi.org/10.1080/23808985.2017.1288551>.

veracity of information, which is compounded by open-access social media, gives populism space to breathe. And while the true extent of social media's impact is difficult to determine, what is clear is that social media enables populism and the distribution of disinformation.²⁶ By way of communication, populism and vaccine hesitancy are intertwined. While social media and digital communications are not necessarily required for the propagation of populist and anti-vaccine sentiment, such tools are doubtless among the major factors contributing to their ascendance.

Misinformation

Misinformation, unleashed by the relative freedom of digital media, has deadly consequences. According to a 2019 opinion in the *Journal of the American Medical Association*, “misinformation has influenced parents to refuse vaccination for their children,” exposing them to diseases like measles that once killed nearly three million people annually.²⁷ Digital sources mediate these dangers because search engines indistinguishably mix evidence-based health claims with falsehoods, generating ample opportunity to confuse parents and extend the public influence of anti-vaccine groups.²⁸ In addition, another study has observed that “falsehood diffused significantly farther” through social media channels than accurate information.²⁹ That is to say, scientific evidence that supports the safety and effectiveness of vaccines can, unfortunately, be outpaced, despite its abundance in

²⁶ de Vreese et al, “Populism as an Expression,” 432–433.

²⁷ Lawrence O. Gostin, Scott C. Ratzan, and Barry R. Bloom, “Safe Vaccinations for a Healthy Nation: Increasing US Vaccine Coverage Through Law, Science, and Communication,” *JAMA* 321, no. 20 (2019): 1969, <https://doi.org/10.1001/jama.2019.4270>.

²⁸ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1969.

²⁹ Soroush Vosoughi, Deb Roy, and Sinan Aral, “The spread of true and false news online,” *Science* 359, no. 6380 (2018): 1146, <https://doi.org/10.1126/science.aap9559>.

reputable literature. Given these findings, it is important to recognize that vaccine hesitancy is influenced by the fast-paced social environment brought about by digital media, with the understanding that productive solutions will involve effective countermeasures against the sharing of inaccurate information.

Groupthink

The formation and persistence of anti-vaccine attitudes may also be influenced by sociology. Specifically, social networks and social connections to people who subscribe to a particular viewpoint contribute to the strengthening of that viewpoint. According to a Dartmouth College study published in *Royal Society Open Science*, this socializing effect occurs because people prefer to avoid conflict with their neighbors and relatedly “do not form their opinions based on evidence.”³⁰ This alarming fact is relevant to our discussion of populism and vaccine hesitancy because it partially explains how fearmongering claims and anti-vaccine attitudes coexist alongside evidence to the contrary. Furthermore, the study assumes that “individuals choose their opinions and their connections only to avoid disagreement,” thus creating “echo chambers” that contribute to polarization in the realm of political discourse.³¹ According to an article in *ScienceDaily* that refers to this study, these social networks are “self-reinforcing” and resemble “political subcommunities that develop on ideological grounds ‘from Republicans and Democrats to pro-vaccination and

³⁰ Tucker Evans and Feng Fu, “Opinion formation on dynamic networks: identifying conditions for the emergence of partisan echo chambers,” *Royal Society Open Science* 5, no. 10 (2018): 181122, <https://doi.org/10.1098/rsos.181122>.

³¹ Evans and Fu, “Opinion formation on dynamic networks,” 181122.

anti-vaccination groups.”³² Therefore, the human sociological tendency to form like-minded groups—while not necessarily a negative component of society—opens the door to ideological silos and political polarization which can, as was discussed in the previous section, inadvertently lend support to anti-vaccine sentiment and conspiratorial beliefs. Because this social behavior is a natural inclination, it cannot be entirely avoided, but our understanding of the forces that guide political polarization and the anti-vaccine movement must take into account this sociological principle.

Rhetorical Counterefforts

Speaking to the continued importance of rhetoric and communication in light of the growing anti-vaccine movement and recurring measles outbreaks associated with low vaccination rates, experts are being called upon to persuade parents that vaccines work. Pointing to falling confidence in vaccines, Steven Ross Johnson recognizes the “importance of clinicians in persuading parents to immunize their children” as a potential solution.³³ But in order for physicians to be successful, trust is ultimately needed between the doctor and parent.³⁴ Persuasiveness is built upon credibility and trust; without it, parents are just as easily swayed by uncorroborated claims and anti-vaccine attitudes. Moreover, interactions between patients and providers can devolve “into arguments, or sort of

³² Dartmouth College, “Social relationships more important than hard evidence in partisan politics: Study explains how political groupings become extreme and divided,” ScienceDaily, <https://www.sciencedaily.com/releases/2018/11/181113141826.htm>.

³³ Steven Ross Johnson, “Doctors seek effective approaches to persuade parents to vaccinate,” Modern Healthcare, https://www.modernhealthcare.com/providers/doctors-seek-effective-approaches-persuade-parents-vaccinate?utm_source=modern-healthcare-daily-dose&utm_medium=email&utm_campaign=20190415&utm_content=article3-readmore.

³⁴ Johnson, “Doctors seek effective approaches.”

an expert-nonexpert dynamic so that the family . . . [is] put on the defensive.”³⁵ This dynamic between physicians and parents, separated by a gap in clinical knowledge, resembles the anti-elitist mantra of populism writ large. In this case, the physician is the elite and the parent is the nonelite, ordinary person. If this model holds, parents may feel empowered to challenge the physician’s moral authority and question whether the physician truly acknowledges the family’s best interest; after all, parents have not the clinical wherewithal to make informed decisions themselves, though some may certainly try to take matters in their own hands. While this particular example refers to individual interactions between doctors and their patients, it also compares to the macro forces that influence parents altogether, including the declining trust in institutions, like the medical establishment, that are increasingly regarded by some as corporate-minded. Appropriate interventions to curb the tide of anti-vaccine sentiment will thus be cognizant of the physician-patient relationship and take necessary steps to build trust, thereby preventing an adversarial dynamic.

Addressing health misinformation is also key in restoring confidence in vaccines. Due to new and expanding web-based repositories, health information once found only in written sources and understood primarily by physicians is “now accessible to the layman,” leading to “shared decision-making.”³⁶ But not all information found on the internet is necessarily accurate. Users unfamiliar with medical information are likely to misidentify accurate sources online and, after viewing anti-vaccine propaganda for just a few

³⁵ Johnson, “Doctors seek effective approaches.”

³⁶ Azhar Hussain et al., “The Anti-vaccination Movement: A Regression in Modern Medicine,” *Cureus* 10, no. 7 (2018): e2919, <https://doi.org/10.7759/cureus.2919>.

minutes, walk away with negative misperceptions about vaccine safety and effectiveness.³⁷ Undoubtedly due to this backdrop of “misleading information,” parents may be more susceptible to challenging their physicians and “not giving consent to having their children vaccinated.”³⁸ Reassurance from health providers and scientific experts is imperative in preventing parents from unwittingly acquiescing to anti-vaccine pseudoscience that the internet so easily distributes. Because accuracy seems to matter less in this free environment of shared information, persuasion must be considered a useful tactic in meeting the challenges of the anti-vaccine movement.

Conclusion

While populism appears to be a preeminent contributor to the anti-vaccine movement in the United States, other forces—political and social—seem to directly fuel the forward progress of the movement. Political polarization and health misinformation, to name two important determinants delineated previously, weave together the narratives of populism and anti-vaccine attitudes and must be addressed. If the anti-vaccine movement and its threat to public health are to be halted, vaccine hesitancy should be understood as a multifaceted, sociological phenomenon that is influenced by a wide array of factors.

³⁷ Hussain et al., “The Anti-vaccination Movement.”

³⁸ Hussain et al., “The Anti-vaccination Movement.”

CHAPTER THREE

The Anti-Vaccine Movement: Public Health at Risk

Introduction

The preceding two chapters described populism and the political, sociological, and rhetorical forces that undergird and influence the prevalence of vaccine hesitancy in the United States. Distrust toward the medical and scientific establishments has been illuminated as a primary contributor to the state of vaccine hesitancy in the United States, particularly as political trends suggest that increasing polarization and populist posturing have engendered skepticism toward experts of all stripes. These influences are important to acknowledge because without addressing polarization and the ascendance of populism in the United States, including the rhetoric and social behaviors they entail, the anti-vaccine movement will maintain its current course.

What must next be investigated are the risks and dangers posed by vaccine hesitancy itself—the reasons why the anti-vaccine movement not only deserves scholarly scrutiny but also why the anti-vaccine movement endangers public health. Opening with a case study of measles outbreaks to put this public health crisis into context, this chapter will describe the prevalence of exemptions to immunizations and explore public confidence in vaccines, as well as explain the potential risks of vaccine refusal. Resultantly, the urgency of addressing rising populism and polarization in the United States may be solidly linked to tangible outcomes and the tremendous impacts of vaccine refusal on Americans' well-being.

Putting it into Context: Infectious Diseases

Infectious diseases are nothing new, having existed for millennia, whereas our understanding of infections and immunity has grown by an exponential factor only recently alongside scientific and clinical advancements. But while the mere presence of infectious diseases has remained static, the United States has borne witness to rapid change. In the twentieth century, landmark achievements in public health introduced life-saving vaccines, improved sanitation, and penicillin—technologies which, among others, sharply reduced the incidence and mortality of infectious diseases.

Vaccines, in particular, were enormously successful. The smallpox vaccine helped eliminate smallpox globally by the 1980s,¹ a highly contagious disease with an estimated 30% mortality rate whose last natural outbreak in the United States was in 1949.² Poliomyelitis, commonly known as polio, annually infected more than 35,000 Americans in the late 1940s and resulted in over 15,000 annual cases of paralysis.³ Nationwide administration of the polio vaccine, first developed in 1955, enabled a precipitous reduction in paralysis cases and led to the cessation of endemic polio transmission in 1979.⁴ Finally, measles infected between an estimated 3 and 4 million Americans annually before the measles

¹ Gregory Poland and Alan Barrett, “The old and the new: successful vaccines of the 20th century and approaches to making vaccines for the important diseases of the 21st century,” *Current Opinion in Immunology* 21, no. 3 (2009): 306, <https://doi.org/10.1016/j.coi.2009.05.014>.

² Centers for Disease Control and Prevention, “About Smallpox,” *Smallpox*, CDC, last reviewed June 7, 2016, <https://www.cdc.gov/smallpox/about/index.html>.

³ Centers for Disease Control and Prevention, “Polio Elimination in the United States,” *Polio*, CDC, last reviewed October 25, 2019, <https://www.cdc.gov/polio/what-is-polio/polio-us.html>.

⁴ Centers for Disease Control and Prevention, “Polio,” *Vaccines and Preventable Diseases*, CDC, last reviewed May 4, 2018, <https://www.cdc.gov/vaccines/vpd/polio/index.html>.

vaccination was widely employed.⁵ Of the approximately 500,000 yearly cases reported to the Centers for Disease Control (CDC) prior to 1963, up to 500 died and nearly ten percent of patients were hospitalized.⁶ Since 1963, however, “widespread use of the measles vaccine has led to a greater than 99% reduction in measles cases compared with the pre-vaccine era.”⁷ Vaccines, which prevented the death and disability of thousands, if not millions, of Americans and halted the transmission of debilitating infections, are among the greatest public health victories of the past century.

But since the advent of the twenty-first century, some of the infectious diseases that had been controlled by public health efforts and largely eliminated from the collective American consciousness have reemerged. Measles, for example, which according to the World Health Organization was eliminated from the United States in 2000,⁸ has seen an alarming resurgence in the past decade, swelling to a record number of cases in 2019. As will be observed, outbreaks of such infectious diseases as measles have occurred among unvaccinated populations, underscoring the role that immunizations play in protecting public health—and the concurrent role of vaccine hesitancy in undermining that progress.

Measles’ Return

Measles is not simply a problem of the past. Quite the contrary, the threat posed by infectious diseases like measles has metamorphosized as misinformation and refusal to

⁵ Centers for Disease Control and Prevention, “Vaccine for Measles,” *Measles (Rubeola)*, CDC, last reviewed June 13, 2019, <https://www.cdc.gov/measles/vaccination.html>.

⁶ CDC, “Vaccine for Measles.”

⁷ CDC, “Vaccine for Measles.”

⁸ Centers for Disease Control and Prevention, “Measles Elimination,” *Measles (Rubeola)*, CDC, last reviewed October 4, 2019, <https://www.cdc.gov/measles/elimination.html>.

vaccinate endangers children at the cost of contracting this potentially deadly virus. In 2019, 1,282 cases of measles spanning 31 states were reported to the CDC, marking the worst year for measles in the U.S. since 1992.⁹ 128 measles patients were hospitalized,¹⁰ notching a 10% hospitalization rate similar to the hospitalization rate observed prior to the administration of the first measles vaccines in 1963. Contending that “the majority of cases [in 2019] were among people who were not vaccinated against measles,”¹¹ the CDC all but implicated vaccine refusal and anti-vaccine attitudes in the most severe measles outbreak to afflict the United States in almost 30 years. Furthermore, the United States nearly lost its measles elimination status last year as a result of a protracted outbreak in New York State, which was responsible for 73% of cases.¹²

Recent outbreaks have been largely attributed to pockets of individuals lacking adequate immunization. In 2018, cases in New York and New Jersey “occurred primarily among unvaccinated people in Orthodox Jewish communities”; in 2017, 75 cases of measles were reported among a Minnesotan community of Somali-Americans with low measles-mumps-rubella (MMR) coverage; and in 2014, which saw 667 total cases, a 383-case outbreak in Ohio rocked unvaccinated Amish communities.¹³ For the preventive MMR vaccination to succeed in thwarting measles, between 93% and 95% of the population must

⁹ Centers for Disease Control and Prevention, “Cases and Outbreaks,” *Measles (Rubeola)*, CDC, last reviewed February 3, 2020, <https://www.cdc.gov/measles/cases-outbreaks.html>.

¹⁰ CDC, “Cases and Outbreaks.”

¹¹ CDC, “Cases and Outbreaks.”

¹² CDC, “Cases and Outbreaks.”

¹³ CDC, “Cases and Outbreaks.”

acquire immunity to measles infection,¹⁴ with another expert suggesting that the level required for herd immunity may be as high as 96%.¹⁵ In unvaccinated communities, however, there are far fewer immune individuals than are needed to establish herd immunity, thus opening the door for unvaccinated people—whether by choice or because of other health-related vulnerabilities, such as those with compromised immune systems—to contract measles.

Measles' recent resurgence and accompanying anti-vaccine rhetoric captured the attention of major U.S. media organizations, including *The New York Times*. On May 30, 2019, *The New York Times* reported that within five months, measles infected 971 people, exceeding the 963-case burden set in 1992.¹⁶ This unnerving explosion of measles cases was attributed to “the spread of misinformation about vaccines,” particularly the notion that vaccines are associated with an increased risk of developing autism spectrum disorder.¹⁷ Misconceptions about the MMR vaccine's safety prompted CDC director Dr. Robert Redfield to refute the false autism link and reassert that the disease itself is extremely hazardous—not the vaccines that prevent it.¹⁸ This article, among others, appears to reinforce one of the overarching tropes of vaccine hesitancy: misinformation concerning vaccines

¹⁴ Sebastian Funk, “Critical immunity thresholds for measles elimination,” World Health Organization and the London School of Hygiene and Tropical Medicine, published October 19, 2017, https://www.who.int/immunization/sage/meetings/2017/october/2._target_immunity_levels_FUNK.pdf.

¹⁵ Johnathan Bowes, “Measles, misinformation, and risk: personal belief exemptions and the MMR vaccine,” *Journal of Law and the Biosciences* 3, no. 3 (2016): 721, <https://doi.org/10.1093/jlb/lsw057>.

¹⁶ Liam Stack, “Measles Cases Reach Highest Level in More Than 25 Years, C.D.C. Says,” *New York Times* (New York, NY), May 30, 2019, <https://www.nytimes.com/2019/05/30/health/measles-cases.html>.

¹⁷ Stack, “Measles Cases Reach Highest Level.”

¹⁸ Stack, “Measles Cases Reach Highest Level.”

contributes to low vaccination rates and outbreak susceptibility, often directly conflicting with evidence attesting to vaccines' safety and efficacy. Vaccine hesitancy is not only a risk to public health but fundamentally a phenomenon of rhetoric and social behavior.

To be clear, the MMR vaccine is safe and has no proven connection to autism. Contrary to Wakefield's now-retracted findings, Carolyn Edwards claims that "expert reviews have found no good evidence to link MMR and autism," and neither does the American Medical Association nor the Centers for Disease Control and Prevention support such an association.¹⁹ An epidemiological study published in *The Lancet* in 1999, one year after Wakefield's fraudulent claims, demonstrated no causal link between the vaccine and the development of autism.²⁰ But despite the fact that decades of reputable scientific literature deny any connection between the MMR vaccine and autism, many people with anti-vaccine attitudes today are still fearful of the association, suggesting that the underlying issue may be inadequate messaging or persistent public distrust of scientific evidence itself. With regard to side effects in children, the MMR vaccine may cause fever and, rarely, febrile seizures, but the probability of these side effects is low—1 in 6 and 1 in 3,000, respectively.²¹ These side effects, however, are decidedly outweighed by the vaccine's protective benefits, as an unvaccinated child is more likely to develop encephalitis as a complication of measles (1 in 1,000) than suffer a febrile seizure as a side effect of

¹⁹ Carolyn Edwards, "Is the MMR vaccine safe?" *Western Journal of Medicine* 174, no. 3 (2001): 197–198, <https://doi.org/10.1136/ewjm.174.3.197>.

²⁰ Brent Taylor et al., "Autism and measles, mumps, and rubella vaccine: no epidemiological evidence for a causal association," *The Lancet* 353, no. 9169 (1999), [https://doi.org/10.1016/S0140-6736\(99\)01239-8](https://doi.org/10.1016/S0140-6736(99)01239-8).

²¹ Centers for Disease Control and Prevention, "MMR Vaccine Information Statement, December 16, 1998, <http://www.cdc.gov/nip/publications/VIS/vis-mmr.pdf>, quoted in Edwards, "Is the MMR vaccine safe?" 198.

vaccination.²² Studies clearly show the MMR vaccine is safe, effective, and an important public health safeguard against outbreaks, making anti-vaccine arguments all the more incredulous.

But the risk of measles outbreaks in the United States is not isolated; countries with low vaccination rates are exceedingly more susceptible to outbreaks. Samoa, for example, recorded a first-dose MMR vaccination (MCV1) coverage rate of 31% in 2018, according to estimates by the World Health Organization and UNICEF.²³ Even more alarming was Samoa's second-dose MMR vaccination (MCV2) coverage rate, which stood at an estimated 13% in 2018, far lower than official reports of 28%.²⁴ Then, in October 2019, Samoa was afflicted by an outbreak of over 4,000 measles cases out of a population of 200,000, resulting in 63 deaths by early December.²⁵ As *The Washington Post* puts it, "if the United States had Samoa's current level of measles cases, there would now be more than 7 million infected Americans."²⁶ Vaccinations—and the diseases they prevent—are literally a matter of life and death, and the continued persistence of anti-vaccine attitudes may have fatal repercussions.

Stories like those reported in *The Washington Post* and *The New York Times*, and the alarming narratives illuminated by data from the Centers for Disease Control and World

²² Edwards, "Is the MMR vaccine safe?" 198.

²³ World Health Organization, "Samoa: WHO and UNICEF estimates of immunization coverage: 2018 revision," July 2, 2019, 8, https://www.who.int/immunization/monitoring_surveillance/data/wsm.pdf.

²⁴ WHO, "Samoa: Who and UNICEF estimates," 9.

²⁵ Rick Noack and Miriam Berger, "If the U.S. had Samoa's current level of measles cases, there would now be more than 7 million infected Americans," *The Washington Post* (Washington, D.C.), December 6, 2019, <https://www.washingtonpost.com/world/2019/12/06/if-us-had-samoas-current-level-measles-cases-there-would-now-be-more-than-million-infected-americans/>.

²⁶ Noack and Berger, "If the U.S. had Samoa's current level of measles cases."

Health Organization, are becoming much more commonplace as the anti-vaccine movement ascends. Unvaccinated individuals are at a greater risk of contracting dangerous infections, such as measles, and may contribute to the spread of these diseases to others who are also unvaccinated—including those, like infants and immunocompromised individuals, who have no choice. Despite the availability of safe and effective vaccines for preventable infectious diseases, outbreaks occurring among unvaccinated populations strain our public health system and put innocent lives at risk. History not only tells us that vaccines work, but that these diseases—measles and polio among them—have human consequences. Thus, one should be concerned with vaccine hesitancy and the sociopolitical factors that influence its rise because the fallout involves real public health outcomes.

Vaccine Exemptions

Like many countries, the United States has a rigorous vaccine schedule, meaning children of certain age cohorts are required to have up-to-date records with specific immunizations in order to enter public schools. But as with any rule, there are exceptions, and in the realm of vaccine policy, those exceptions are termed vaccine exemptions. Parents with a legitimate philosophical or religious objection to receiving vaccines (e.g., parents in Amish communities) may request from their state an exemption from one or more vaccines—although these non-medical exemptions may vary in legal permissibility between individual states. More rarely, exemptions may also be requested for medical reasons, helping reduce any plausible risk to the patient’s health as a result of receiving an immunization. Exemptions such as these may be secured for patients who have severe allergic reactions, who are pregnant, who have weakened immune systems, or who have

tuberculosis, among other potential complicating factors.²⁷ Unfortunately, vaccine exemptions can be abused to the extent that communities fall beneath the threshold for herd immunity required to cease endemic transmission of infectious diseases. As more exemptions are granted, the proportion of unvaccinated people rises, resultantly increasing the likelihood of disease outbreaks. And these exemptions have been increasing of late, coinciding with the outbreaks of diseases like measles and the gathering strength of anti-vaccine attitudes, both of which have imperiled public health in the United States.

Exemption Data

The CDC annually publishes the number and percentage of kindergarteners with a reported exemption from one or more vaccines. These data provide a snapshot of the current state of exemptions in the United States and help elucidate trends in vaccine exemptions over time. According to the CDC, no U.S. state exceeded 1% of kindergarteners exempted from one or more vaccines for medical reasons.²⁸ The two states with the highest rates of medical exemptions, West Virginia and Washington, both recorded a medical exemption rate of 0.8% among their kindergarteners, and this rate has not significantly changed since the 2009–2010 school year.²⁹ A majority of U.S. states recorded medical exemption rates of 0.2% or less.³⁰ These numbers are logical, as the circumstances

²⁷ Centers for Disease Control and Prevention, “Who Should NOT Get Vaccinated with these Vaccines?” *Vaccines and Preventable Diseases*, CDC, last reviewed January 8, 2020, <https://www.cdc.gov/vaccines/vpd/should-not-vacc.html>.

²⁸ Centers for Disease Control and Prevention, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report,” *SchoolVaxView*, CDC, last reviewed September 10, 2019, <https://www.cdc.gov/vaccines/imz-managers/coverage/schoolvaxview/data-reports/exemptions-trend/index.html>.

²⁹ CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

³⁰ CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

required for medical exemptions are few and far between—albeit necessary in the event that a child has a weakened immune system or a severe reaction to a particular immunization. Being so small, these medical exemption rates are hardly responsible for lowering collective immunity to the extent necessary for the resurgence of disease outbreaks like measles that we are currently observing in the United States.

Non-medical exemptions (NMEs), however, tell a different story. During the 2018–2019 school year, the percentage of NMEs far surpassed that of medical exemptions. Alabama, the state with the lowest reported percentage of NMEs among kindergarteners, stood at 0.9%, a greater percentage than the highest statewide rate of medical exemptions in the country.³¹ Of those states with the highest NME rates, which were primarily clustered in New England, the Midwest, and the western United States (particularly the Pacific Northwest), Idaho and Oregon reported 7.4% and 7.5%, respectively.³² Of the 45,870 kindergarteners in Oregon, 3,457 had a non-medical exemption to one or more vaccines.³³ Texas laid claim to the highest number of kindergarteners with NMEs in the country at 8,502.³⁴ Nine states reported NME rates of 4.5% or greater, which approaches the critical threshold for measles which, as discussed previously, stands at about 95%.³⁵ What are also noteworthy are the trendlines for NMEs among kindergarteners per state. Especially in states with the highest rates of non-medical exemptions, like Oregon, percentages of

³¹ CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

³² CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

³³ CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

³⁴ CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

³⁵ CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

children with NMEs have generally been steadily rising since the 2009–2010 school year.³⁶ Not only are NME rates high in some states, but they appear to have risen gradually over the past decade, and the data suggest that these rates will continue to do so if left unabated.

Data on vaccine exemptions between states may vary due to differences in state legislation that either permits or disallows certain types of exemptions. According to the National Conference of State Legislatures, all 50 states and the District of Columbia permit medical exemptions, whereas 45 states and the District of Columbia allow religious exemptions to one or more vaccines.³⁷ Only “15 states allow philosophical exemptions for those who object to immunizations because of personal, moral or other beliefs.”³⁸ Oregon and Idaho, which boasted the highest rates of NMEs among kindergarteners for the 2018–2019 school year, permit personal belief exemptions, as does Texas, which has the highest number of non-medical exempted kindergarteners.³⁹ Unsurprisingly, these states with alarmingly high NME percentages are among those states with religious and philosophical exemptions that give tremendous liberty to parents seeking to circumvent immunizations mandated by the public school system—states that are also hotbeds of anti-vaccine activity.

Local Breakdown

The CDC data and trends are also backed by experts in epidemiology and infectious diseases. An article published in *PLoS Medicine* in June 2018 argues that “a social

³⁶ CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

³⁷ National Conference of State Legislatures, “States With Religious and Philosophical Exemptions From School Immunization Requirements,” NCSL, January 3, 2020, <https://www.ncsl.org/research/health/school-immunization-exemption-state-laws.aspx>.

³⁸ NCSL, “States With Religious and Philosophical Exemptions.”

³⁹ NCSL, “States With Religious and Philosophical Exemptions.”

movement of public health vaccine opposition has been growing in the United States in recent years,” correlated with an increase in clustered measles cases.⁴⁰ Olive et al., citing the 2015 National Immunization Survey, state that “72.2% of children aged 19 and 35 . . . were fully vaccinated,” partly resulting from “parental concerns about vaccine safety and efficacy.”⁴¹ The authors confirmed an upward trend in NME rates in twelve states with philosophical exemptions, reporting such an increase in Arkansas, Arizona, Idaho, Maine, Minnesota, Missouri, North Dakota, Ohio, Oklahoma, Oregon, Texas, and Utah since 2009.⁴² Idaho and Oregon, which had the highest NME rates in the nation during the 2018–2019 school year according to CDC data, should be noted here, as should Texas, which has the greatest overall number of NMEs among kindergarteners.

Just as statewide exemption rates differ, NME rates are also significant in localized pockets within specific counties and cities. Olive et al. found several communities with more than 400 kindergarteners with NMEs: Phoenix, Salt Lake City, Seattle, Spokane, Detroit, Houston, Fort Worth, Plano, and Austin, to name a few.⁴³ While this list is not exhaustive, cities such as Seattle and Spokane appear to align with the data showing high NME rates in the Pacific Northwest, and four large Texas cities offer plausible insight into the high numbers of NMEs in the Lone Star State. Idaho, which reported a 7.4% NME rate

⁴⁰ Jacqueline K. Olive et al., “The state of the antivaccine movement in the United States: A focused examination of nonmedical exemptions in states and counties,” *PLoS Medicine* 15, no. 6 (2018): e1002578, <https://doi.org/10.1371/journal.pmed.1002578>.

⁴¹ Olive et al., “The state of the antivaccine movement in the United States.”

⁴² Olive et al., “The state of the antivaccine movement in the United States.”

⁴³ Olive et al., “The state of the antivaccine movement in the United States.”

among kindergarteners in the 2018–2019 school year, was also identified as a state in which small counties have exceptional exemption rates.⁴⁴

Vaccine coverage and NME rates are also directly related. Olive et al. established an inverse relationship between MMR coverage and NME rates in each state while also finding “new foci of antivaccine activities” in particular cities.⁴⁵ Politically, “state closure of NMEs has resulted in an increase of MMR coverage.”⁴⁶ And finally, regions with high percentages of kindergarteners with NMEs may be more susceptible to outbreaks of pediatric infectious diseases.⁴⁷ These conclusions implicate NMEs in enhancing the risk of outbreaks among unvaccinated populations while also suggesting that the anti-vaccine movement exacerbates this public health problem by encouraging parents to seek NMEs. The reduction of NMEs—or a narrowing of the criteria required to grant such exemptions—may be beneficial in reducing the number of unvaccinated kindergarteners in high-risk localities, as would the mitigation of anti-vaccine attitudes that heighten parents’ demand for NMEs.

Overall, vaccine exemptions (especially NMEs) are an appropriate correlative of the strength of the anti-vaccine movement in the United States as well as an important indicator of risk for epidemics of infectious diseases like measles. NMEs, while regionally variable, are quite high in many states and municipalities, and upward trends in NME rates that have coincided with recent outbreaks and anti-vaccine sentiment suggest that vaccine hesitancy and NMEs will continue to pose an increasing risk to the public health. And

⁴⁴ Olive et al., “The state of the antivaccine movement in the United States.”

⁴⁵ Olive et al., “The state of the antivaccine movement in the United States.”

⁴⁶ Olive et al., “The state of the antivaccine movement in the United States.”

⁴⁷ Olive et al., “The state of the antivaccine movement in the United States.”

while exemption rates may not seem high overall, it is important to consider that vaccination coverage is not evenly distributed across the United States. National and statewide figures can be misinterpreted—while a single state may have a low non-medical exemption rate, smaller communities that would otherwise be concealed by aggregate data may contain pockets of unvaccinated children at immediate risk of infection. When NME rates are combined with medical exemption rates, the picture of protection against vaccine-preventable diseases looks even bleaker, with many states on the cusp of the critical threshold for herd immunity. Proper consideration should be given to the influence of the anti-vaccine movement on exemption rates as risks to human health are weighed.

Vaccine Confidence

Another marker indicative of the prevalence of anti-vaccine attitudes in the United States is confidence in vaccines. Similar to the level of trust in the scientific establishment and in medical experts, which was explored as a component of medical populism, confidence pertains to the extent that people believe vaccines are important, safe, and effective. The Vaccine Confidence Project, based out of the London School of Hygiene and Tropical Medicine, measured the level of confidence in vaccines in countries worldwide in 2016. According to their survey data, there are substantial portions of the U.S. population that lack confidence in vaccines and ostensibly harbor distrust toward the “elites” of the medical field.

The Vaccine Confidence Project asked Americans to respond to four prompts: “vaccines are important for children to have,” “overall I think vaccines are safe,” “overall

I think vaccines are effective,” and “vaccines are compatible with my religious beliefs.”⁴⁸ Researchers found that among the Americans they surveyed in 2016, 8.8% of respondents indicated some degree of disagreement with the importance of vaccines; 13.5% of respondents indicated some degree of disagreement with the safety of vaccines; 9.6% of respondents indicated some degree of disagreement with the effectiveness of vaccines; and 10.5% of respondents indicated that the administration of vaccines is to some extent incompatible with their religious views.⁴⁹ While a commanding majority of respondents supported vaccines—they strongly agreed or tended to agree that vaccines are important, safe, effective, and compatible with their religious views—a small percentage of the surveyed population expressed ambivalence about each question, responding “don’t know.”⁵⁰ 4.8% were unsure of vaccine importance; 5.3% were unsure of vaccine safety; 4.6% were unsure of vaccine effectiveness; and 15.7% were unsure whether vaccines could be compatible with their religion.⁵¹ With an appreciable component of Americans still persuadable, it behooves one to consider how many of those undecideds will be convinced by anti-vaccine rhetoric and the language of vaccine choice. If those individuals who responded “don’t know” lean toward the side of vaccine hesitancy, the percentage of Americans who strongly or slightly disagree with the importance, safety, effectiveness, and religious compatibility of vaccines may swell to 13.6%, 18.8%, 14.2%, and 26.2%, respectively.

⁴⁸ The Vaccine Confidence Project, “The State of Vaccine Confidence: 2016,” December 2, 2016, <https://www.vaccineconfidence.org/research-feed/the-state-of-vaccine-confidence-2016>.

⁴⁹ The Vaccine Confidence Project, “The State of Vaccine Confidence: 2016.”

⁵⁰ The Vaccine Confidence Project, “The State of Vaccine Confidence: 2016.”

⁵¹ The Vaccine Confidence Project, “The State of Vaccine Confidence: 2016.”

These data show that the risk of vaccine hesitancy in the United States and, relatedly, the risk of outbreaks of vaccine-preventable diseases, may be much larger than they initially appear. Oregon, the state with the highest rates of NMEs in the country, also has the highest percentage of exemptions overall at 7.7% of kindergarteners, tying with Idaho.⁵² But the 7.7% exemption figure hardly approaches the level of skepticism toward vaccines suggested by the Vaccine Confidence Project. Vaccine skeptics, according to the Vaccine Confidence Project, outnumber the percentage of kindergarteners who were granted exemptions for one or more vaccines during the 2018–2019 school year. Because there are ostensibly more Americans unconvinced of the importance, safety, effectiveness, and religious compatibility of vaccines than there are Americans with non-medical exemptions, it stands to reason that the number of NMEs and unvaccinated children in the United States has the potential to explode. In particular, the U.S. may observe a spike in vaccine hesitancy as holdouts for NMEs are persuaded by anti-vaccine rhetoric and the populist bandwagon distrustful of vaccines propagated by the scientific community. One limitation of the confidence data as a measure of vaccine hesitancy in the United States is that the survey analyzes confidence at the national level. If the data were broken down to the state and local levels, which would go beyond the scope of this thesis, perhaps the percentage of individuals harboring skepticism toward vaccines would be much steeper in the hotbeds of anti-vaccine activity that were identified by Olive et al., including Oregon, Idaho, and Texas. If true, the risk of vaccine hesitancy and the associated susceptibility of outbreaks of pediatric infectious diseases would be much more severe than is currently realized.

⁵² CDC, “2009-10 through 2018-19 School Year Vaccination Exemptions Trend Report.”

A Leading Voice

Dr. Peter J. Hotez, Dean of the National School of Tropical Medicine at Baylor College of Medicine in Houston, Texas, and co-director of the Texas Children's Hospital Center for Vaccine Development, is a respected scholar in the field of pediatric infectious diseases and neglected tropical diseases. Dr. Hotez is also an expert on vaccines, particularly the anti-vaccine movement, having written a plethora of peer-reviewed articles and served as a public advocate for vaccines nationally. His expertise leads him to contend that the anti-vaccine movement in the United States endangers public health, and he predicts that outbreaks of vaccine-preventable diseases will continue to occur unless experts rush to vaccines' defense.

According to Hotez, who coauthored the previous Olive et al. study, "there are now more than 100 pockets of very low vaccine coverage" spanning at least twelve states.⁵³ Even more alarming is the CDC's claim that 100,000 American children are "fully unvaccinated,"⁵⁴ not to mention those children who are partially vaccinated and may still be susceptible to infections like measles, which is highly transmissible. The prevalence of unvaccinated children in the United States has likely been exacerbated by anti-vaccine activity. Harkening to previous chapters' assertions that the anti-vaccine movement has sociopolitical roots, Hotez argues similarly that the anti-vaccine movement is buoyed by nearly 500 websites and books released on Amazon's electronic platform, as well as "political action committees lobbying to enact legislation to make it easier for parents to

⁵³ Peter Hotez, "The physician-scientist: defending vaccines and combating antisience," *The Journal of Clinical Investigation* 129, no. 6 (2019): 2169, <https://doi.org/10.1172/JCI129121>.

⁵⁴ Hotez, "The physician-scientist," 2169.

exempt their children.”⁵⁵ Like other experts, Hotez—who has a daughter with autism—asserts that there is no connection between autism and vaccines,⁵⁶ a common criticism lobbed by vaccine skeptics, implicitly alluding to the difficulty in combating anti-vaccine rhetoric despite the availability of evidence to the contrary.

Speaking to how experts in the medical and scientific communities can debunk anti-vaccine claims publicly, Hotez admonishes some physician-scientists to engage in “high-profile” public discourse, especially as “the antivax and other antiscience movements have conquered the Internet and disseminate misinformation on a scale that far exceeds the accurate messaging from scientists.”⁵⁷ Here, Hotez argues that the success of the anti-vaccine movement is largely attributed to its robust messaging and rhetoric—its capitalization of distrust and fear to motivate human behavior even when faced with sound opposition. Because the anti-vaccine movement is in part a social phenomenon that has taken advantage of free-for-all social media, coordinated, pro-vaccine strategies will need to compete with vaccine hesitancy on the same stage by upping the ante on media platforms and marketing. Experts must interject in online spaces that have long been unbridled hubs of anti-vaccine misinformation. Hotez goes further to say that because we are so disconnected from the scientific process, Americans are prone to “suspicion, sometimes leading to unfounded conspiracy theories.”⁵⁸ These conspiracy theories, intended to rationalize distrust of the medical and scientific establishment, play into the narrative of medical populism by dichotomizing ordinary people and medical professionals. Scientific knowledge has long

⁵⁵ Hotez, “The physician-scientist,” 2169.

⁵⁶ Hotez, “The physician-scientist,” 2170.

⁵⁷ Hotez, “The physician-scientist,” 2170.

⁵⁸ Hotez, “The physician-scientist,” 2170.

been separated from the public due to the extensive education required for scientific fluency and competence, and this disparity no doubt contributes to the sequestering of knowledge responsible for the growing distrust and conspiratorial perceptions of the anti-vaccine community.

Moreover, Hotez maintains that rhetoric and populism exert an outsize influence on the anti-vaccine movement in the United States and in Europe, echoing much of the preceding analysis which has identified the sociopolitical factors that keep anti-vaccine attitudes afloat. Despite the successes of vaccination programs in the twentieth century that contributed to “more than a 95% reduction” in measles deaths, “mostly unopposed antivaccine groups and lobbies” alongside “populist regimes touting ‘medical freedom’ from vaccines” have mitigated these positive trends.⁵⁹ With the deliberately used term “medical freedom,” we observe a reframing—if not a masquerading—of anti-vaccine attitudes as something more palatable. By appealing to liberty-loving sensibilities, vaccine skeptics can disguise the fact that medical freedom would decrease levels of vaccine coverage to a point that would almost certainly raise the likelihood of outbreaks and jeopardize the lives of vulnerable, unvaccinated children. Purported “medical freedom” would come at the cost of reversing the progress of vaccine programs across the country and globally, risking children’s lives to highly contagious diseases that once killed millions yet have escaped our collective consciousness.

Even as diseases like measles were close to elimination, recent years of anti-vaccine activity have coincided with their resurgence. Hotez blames this outcome—these

⁵⁹ Peter Hotez, “America and Europe’s new normal: the return of vaccine-preventable diseases,” *Pediatric Research* 85 (2019): 912, <https://doi.org/10.1038/s41390-019-0354-3>.

outbreaks of reemerging diseases—on gaps in vaccine coverage aggravated by “vaccine ‘conscientious objections’” that, in some cases, are connected to “new populist coalition government[s]” like Italy.⁶⁰ In addition, the rhetoric of the anti-vaccine movement has adopted “a populist tone . . . and promotes fake conspiracies,”⁶¹ thus drawing supporters en masse and sowing suspicion directed at federal agencies such as the CDC. Parents, perhaps out of an abundance of caution, tune into anti-vaccine talking points because they appeal to their uncertainties and because the scientific wherewithal surrounding vaccines is accessible only to a limited few experts. It remains clear that the anti-vaccine movement is a phenomenon of social and political proportions. Populism and anti-vaccine rhetoric are among the most influential contributors to the growth of vaccine hesitancy in the United States and hamper the effectiveness of public health officials. Coordinated policy efforts and rhetorical counterpunches that reduce populist impulses are needed to revive widespread vaccine coverage capable of forestalling deadly outbreaks.

Dire Consequences

Now that the anti-vaccine movement in the United States has been characterized in the context of public health, with appropriate consideration given to the sociopolitical factors that have enabled its rise, the risks and consequences of vaccine hesitancy must be weighed. First, it must be understood that the anti-vaccine movement propagates objection to mandatory immunization schedules and supports non-medical vaccine exemptions. According to an extensive data review by Saad B. Omer et al. in the *New England Journal of*

⁶⁰ Hotez, “America and Europe’s new normal,” 912.

⁶¹ Hotez, “America and Europe’s new normal,” 912.

Medicine, children exempted from vaccinations “are at increased risk for acquiring and transmitting vaccine-preventable diseases.”⁶² Because these vaccine-preventable diseases are highly contagious, potentially fatal, and generative of debilitating symptoms, unvaccinated children incur incredible personal risk to their health. Measles, for example, is deadly and may cause cases of encephalitis, but can be easily prevented with a two-dose vaccination. Exempted children are “35 times as likely to contract measles as nonexempt children,” and unvaccinated children are “22 times as likely to have had measles” than vaccinated children.⁶³ Because these preventable diseases are generally associated with disability and high mortality, risks to the individual as a result of vaccine hesitancy should not be overlooked.

Next, it is important to evaluate the risk that the anti-vaccine movement poses to the community. Non-medical exemptions are consequential, and their adverse effects on public health cannot be overstated. According to various studies, NMEs—when conglom-erated in a specific location—raise the risk of vaccine-preventable diseases.⁶⁴ Intuitively, the clustering of NMEs increases the likelihood of encountering an exempt child who may transmit a vaccine-preventable disease to others and exacerbates a community’s suscepti-bility to outbreaks. There is also a wide degree of variability in NME rates at the local level, which may not be reflected at the state level. In Washington State, for example, “the county-level [NME] rate ranged from 1.2 to 26.9%” between 2006 and 2007, whereas the

⁶² Saad B. Omer et al., “Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-Pre-ventable Diseases,” *The New England Journal of Medicine* 360 (2009): 1983, <https://doi.org/10.1056/NEJMsa0806477>.

⁶³ Omer et al., “Vaccine Refusal, Mandatory Immunization,” 1983.

⁶⁴ Omer et al., “Vaccine Refusal, Mandatory Immunization,” 1983.

statewide NME rate stood at 6%.⁶⁵ In Oregon and California, the former being a national hotbed for NMEs, “similar heterogeneity in exemption rates” has been observed.⁶⁶ With such broad variability, entire communities may be at risk for endemic transmission of pediatric infections, contrary to statewide NME rates which might offer milder, if not deceptive, predictions. Vulnerable populations—in particular, those who cannot receive vaccinations due to “medical contraindications to vaccination,” and young children and infants—are also “more susceptible to the complications of infectious diseases.”⁶⁷ Refusal to vaccinate affects not only the child who goes voluntarily unvaccinated but also risks infecting other children who have no choice. These children may be unwitting victims of vaccine hesitancy and needlessly suffer from disease sequelae, chronic disability, or death.

The anti-vaccine movement might also have the unintended effect of reducing primary care coverage. Historically, “some clinicians have discontinued . . . their provider relationship with families that refuse vaccines.”⁶⁸ Even though the American Academy of Pediatrics Committee on Bioethics recommends that physicians educate, rather than abandon, their patients, a national survey indicated that “almost 40% of [pediatricians] . . . would not provide care to a family that refused all vaccines.”⁶⁹ Should a pediatrician refuse to provide care, a vaccine-hesitant family may face a temporary lack of access to a primary care provider (PCP). Because PCPs are critical for assessing the health needs of their

⁶⁵ Omer et al., “Vaccine Refusal, Mandatory Immunization,” 1983.

⁶⁶ Omer et al., “Vaccine Refusal, Mandatory Immunization,” 1983.

⁶⁷ Omer et al., “Vaccine Refusal, Mandatory Immunization,” 1984.

⁶⁸ Omer et al., “Vaccine Refusal, Mandatory Immunization,” 1986.

⁶⁹ Omer et al., “Vaccine Refusal, Mandatory Immunization,” 1986.

communities and providing general care before specialized interventions are needed, refusal to provide care to an antivax family may result in unmet community health needs. At a time when the supply of PCPs is inadequate to meet U.S. demand, the loss of primary care for unvaccinated families is unwarranted. Accordingly, pediatricians should avoid refusing service and the anti-vaccine movement must be accountable for potential lapses in care.

Finally, the anti-vaccine movement inflicts material costs on the public health system. Vaccine hesitancy, which reduces MMR vaccine coverage, increases the incidence of measles and both direct and indirect costs of care.⁷⁰ Given that reduced coverage increases susceptibility to measles, it is logical that costs of care would rise as healthcare dollars are spent on the treatment of measles. According to Lo and Hotez, “a 5% decline in MMR vaccine coverage in US children would result in a 3-fold increase in national measles cases” in children aged 2 to 11, tacking \$2.1 million onto public sector spending.⁷¹ Greater costs would likely be incurred if estimates are taken for children under the age of 2 and over the age of 11. And if the economic costs beyond direct treatment are accounted for, such as long-term care and reductions in economic productivity, the price tag for reductions in vaccine coverage would almost certainly be steeper. States like Oregon, then, with a staggering 7.5% NME rate among kindergarteners, could save millions in healthcare spending by investing in strategies that reduce vaccine hesitancy statewide, with a particular focus on counties most drastically affected by the anti-vaccine movement.

⁷⁰ Nathan C. Lo and Peter J. Hotez, “Public Health and Economic Consequences of Vaccine Hesitancy for Measles in the United States,” *JAMA Pediatrics* 171, no. 9 (2017): 890, <https://doi.org/10.1001/jamapediatrics.2017.1695>.

⁷¹ Lo and Hotez, “Public Health and Economic Consequences,” 890.

Conclusion

Pediatric infectious diseases have generally seen a remarkable reduction in prevalence and mortality since the advent of the major 20th-century vaccine programs. But recent years of anti-vaccine activity have contributed to the reappearance of diseases like measles, of which outbreaks have occurred sporadically across the United States among primarily unvaccinated populations. Despite the historic successes of vaccines, outbreaks of “eliminated” diseases that have crescendoed in the wake of vaccine hesitancy continue to strain our public health system. The first part of this chapter characterized the anti-vaccine movement as it exists in the United States today. Non-medical exemptions for one or more mandated vaccines have slowly risen over the past decade, with current statewide NME rates ranging from 0.9% to 7.5%. Many states still permit philosophical vaccine exemptions, enabling the persistence of vaccine hesitancy in localized pockets with low vaccine coverage across the country. Small but significant percentages of Americans lack confidence in the importance, safety, effectiveness, and religious compatibility of vaccines, raising the possibility of an explosion of vaccine refusal and demand for NMEs that exceeds current rates. Populism and inflammatory rhetoric appropriated by the anti-vaccine movement will continue to fan the flames of distrust toward medical experts and the scientific elite, making effective communication all the more imperative for professionals in the public health arena. And finally, this chapter revealed the consequences of the anti-vaccine movement, evaluating exemptions and vaccine hesitancy as grave threats to the health of unvaccinated individuals—whether by choice or by medical necessity—and the health of entire communities. Left unabated, the anti-vaccine movement will continue to cost the public sector millions in healthcare spending, not to mention the indirect costs

associated with lost productivity and chronic care. Because the anti-vaccine movement imperils the public health of the United States and has tangible, human consequences, it is necessary to combat this threat with an arsenal of political and social solutions that adequately consider the anti-vaccine movement's political and social pillars: populism and anti-elite rhetoric.

CHAPTER FOUR

Fighting Back: Potential Interventions for Securer Public Health

Introduction

With populism ascendant in the United States, non-medical exemption rates among kindergarteners reaching dangerous levels, and measles outbreaks occurring in under-vaccinated locations across the country, swift and broadly effective interventions are needed now to control the anti-vaccine crisis and save lives from vaccine-preventable infections. Vaccine hesitancy is, however, a complex issue aggravated by a deep suspicion of ivory-towered elites, polarized politics, inflammatory rhetoric, misinformation, and permissive policies regarding mandated immunizations. Therefore, the response required to mitigate the adverse effects of vaccine hesitancy must be as multifaceted as the problem it corrects, with deliberate interventions on all fronts: in politics, in communication, and in public health.

The anti-vaccine issue has been appraised as a major threat that deserves a concerted response. The World Health Organization (WHO) in 2019 explicitly characterized vaccine hesitancy as one of the most pressing threats to global health, citing “lack of confidence” as a reason for vaccine refusal.¹ A year later the WHO listed “earning public trust” as a decennial health challenge, noting the anti-vaccine movement, misinformation, and “an erosion of trust in public institutions” as key contributing factors that must be

¹ World Health Organization, “Ten threats to global health in 2019,” WHO, <https://www.who.int/news-room/feature-stories/ten-threats-to-global-health-in-2019>.

allayed.² Similarly, Dr. Heidi Larson—an anthropologist at the London School of Hygiene and Tropical Medicine—predicted that misinformation and “emotional contagion” would be responsible for virtually neutralizing vaccines and causing the next significant outbreak.³ But while vaccine hesitancy has recently been identified as a global threat, leaders have not yet developed a detailed strategy by which to combat it—understandably, because vaccine hesitancy is a rather nebulous issue.

American mainstream media have also taken notice of the alarming rise in anti-vaccine sentiment. In a January 2019 editorial, the *New York Times* wrote that the anti-vaccine movement has been amplified through digital technologies and generally aided by a lack of rhetorical opposition.⁴ Because of these powerful forces governing the growth of the anti-vaccine movement, the *New York Times* articulated the need for the public to rise to the occasion with “a campaign as bold and aggressive as the one being waged by the anti-vaccination contingent.”⁵ A nationwide campaign to stymie the progress of the anti-vaccine movement is necessary and, indeed, the lives of children and vulnerable populations depend on it. This campaign calls for a series of interventions to confront anti-vaccine rhetoric and misinformation while also tightening restrictions on non-medical exemptions at the local level. In the following sections, this chapter will explore important components

² Tedros Adhanom Ghebreyesus, “Urgent health challenges for the next decade,” WHO, January 13, 2020, https://www.who.int/news-room/photo-story/photo-story-detail/urgent-health-challenges-for-the-next-decade?utm_source=STAT+Newsletters&utm_campaign=1931cb646b-MR_COPY_02&utm_medium=email&utm_term=0_8cab1d7961-1931cb646b-150708293.

³ Heidi J. Larson, “The biggest pandemic risk? Viral misinformation,” *Nature* 562 (2018): 309, <https://doi.org/10.1038/d41586-018-07034-4>.

⁴ The Editorial Board, “How to Inoculate Against Anti-Vaxxers,” *New York Times* (New York, NY), January 19, 2019, <https://www.nytimes.com/2019/01/19/opinion/vaccines-public-health.html>.

⁵ *The New York Times*, “How to Inoculate Against Anti-Vaxxers.”

of this pro-vaccine campaign, but these interventions are certainly not exhaustive nor exclusive. Rather, these strategies will be examined logically and should be regarded as potential solutions aimed at advancing the national conversation about vaccine policy.

Social Media and Education

Rhetoric, communication, misinformation, and social media have all partly contributed to the propagation of anti-vaccine attitudes across the United States. Moreover, because social media is so ubiquitous and accessible, lacking filters and substantive fact-checking, just about anyone—including the anti-vaccine movement—can flood social media channels with false, if not egregious, claims. Social media is a microphone, and the anti-vaccine movement has learned to use it effectively to amplify their message and reach persuadable ears. In the absence of serious refutation from the scientific community, anti-vaccine arguments become much more potent. Therefore, any effective intervention to combat the anti-vaccine movement must not only appreciate the salience of social media and rhetoric but also meet the moment with an array of strong educative strategies.

First, it is important to recognize the role social media plays in the spread—and, conversely, the potential mitigation—of vaccine hesitancy in the United States. Social media might be to blame for growing distrust toward vaccines and the scientific community in general. In the age of social media, platforms like Facebook and Twitter, in addition to search engines such as Google that are incapable of distinguishing health facts from falsehoods, have drastically accelerated “the penetration of misinformation” and the proliferation of “unfounded fears” online.⁶ Like search engines, parents are also unable to separate

⁶ Lawrence O. Gostin, Scott C. Ratzan, and Barry R. Bloom, “Safe Vaccinations for a Healthy Nation: Increasing US Vaccine Coverage Through Law, Science, and Communication,” *JAMA* 321, no. 20 (2019): 1969, <https://doi.org/10.1001/jama.2019.4270>.

facts and falsehoods,⁷ making inaccurate reports like Wakefield’s purported link between the MMR vaccination and autism, for example, more believable. Due to its accessibility, social media also disseminates false information more quickly.^{8,9} Social media platforms are rife with “information silos and echo chamber effects” that amplify the distribution of false information in the absence of competing claims.¹⁰ Clearly, social media can cause anti-vaccine attitudes to metastasize due to its open, accessible, and multiplicative nature. This tendency for social media to widely spread falsehoods must be understood at the outset of any digital communication strategy.

In an effort to combat misinformation, one could argue that the companies that oversee social media platforms and search engine results should advance their technical capacity to distinguish fact from fiction with regard to health information. Facebook, for example, indicated last year that they would remove advertisements containing inaccurate information about vaccines, and companies like Pinterest, YouTube, and Amazon have begun to follow suit.¹¹ Search engines like Google and Bing, however, have not made such efforts to classify the veracity of evidence in their search results.¹² Should search engines begin to filter information based on accuracy, the digital arm of the anti-vaccine movement would be significantly hamstrung. These efforts are predicated on the notion that social

⁷ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1969.

⁸ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1969.

⁹ Wen-Ying Sylvia Chou, April Oh, and William M. P. Klein, “Addressing Health-Related Misinformation on Social Media,” *JAMA* 320, no. 23 (2018): 2417, <https://doi.org/10.1001/jama.2018.16865>.

¹⁰ Chou, Oh, and Klein, “Addressing Health-Related Misinformation,” 2417.

¹¹ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

¹² Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

media corporations maintain a “social responsibility” to “filter out misleading information,”¹³ a notion that often fails to gain significant traction in the economically liberal American market. While these companies could be legally compelled to filter information, advocates for internet freedom may oppose such efforts and would likely necessitate long-term, cultural change.

Speaking more to companies’ responsibility to the public good, public officials might find success in directly cooperating with corporations. In such a relationship, public officials would provide “oversight” of social media platforms to ensure that their operators “screen out” inaccurate information about vaccines just as “sexually explicit, violent, or threatening messages” are filtered almost immediately.¹⁴ While this screening could be couched as responsibly ensuring the security and sustained health of social media users, it could also face implementation challenges in light of pressure to keep the internet—and nearly all information posted on it—free and open. The extent to which the internet is open and equally accessible has been subject to intense debate since the Federal Communications Commission (FCC) moved to repeal Obama-era net neutrality rules in 2017.¹⁵ In doing so, the FCC removed provisions banning “paid prioritization,” which stipulated that internet service providers could not enhance data speeds “for companies and consumers who paid premiums.”¹⁶ This new regulation (or deregulation) could have outside effects

¹³ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

¹⁴ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

¹⁵ Keith Collins, “Net Neutrality Has Officially Been Repealed. Here’s How That Could Affect You,” *New York Times* (New York, NY), June 11, 2018, <https://www.nytimes.com/2018/06/11/technology/net-neutrality-repeal.html>.

¹⁶ Collins, “Net Neutrality Has Officially Been Repealed.”

on the spread of anti-vaccine misinformation by giving anti-vaccine advocates an avenue for more quickly disseminating their claims. While screening online health information for accuracy would certainly aid the campaign against the anti-vaccine movement, these challenges must not be flippantly dismissed.

Another solution to counter the spread of vaccine misinformation on social media does not require changing the online rules of engagement nor starting with legal compulsion from the top-down. Instead, “a long-term national health communication campaign to build vaccine literacy” may help improve trust in vaccines.¹⁷ Through such a plan, the federal Department of Health and Human Services could disseminate accurate data about vaccines, written in language readily accessible to the layperson, through high-profile celebrities and parents.¹⁸ Experts and physicians could also enter the fray by helping to “correct misleading information” online.¹⁹ One expert who was previously discussed, Dr. Peter Hotez, offers a superb example of a socially-engaged and accurate informant of the facts surrounding vaccine safety and efficacy. As the father of a daughter with autism spectrum disorder and a well-educated pediatrician-scientist, Dr. Hotez wields the credibility necessary to make arguments against false claims on social media. Parents and physicians with similar credibility may, in large numbers, make a significant impact on vaccine attitudes through positive and informed messaging. These figures provide two-pronged evidence— anecdotal and empirical—that, together, may prove particularly convincing. If enough parents and experts engage the public on social media, pro-vaccine messages could

¹⁷ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

¹⁸ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

¹⁹ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

successfully crowd out anti-vaccine messaging while working within the existing system of internet regulations.

Yet another potential avenue for the correction of medical misinformation lies in the purview of medical journals. Medical journals like the *Lancet*, the *New England Journal of Medicine*, and the *Journal of the American Medical Association* are among the most reputable and credible sources of critical information for healthcare professionals in the United States. If medical journals were enlisted in a national campaign to educate the public about vaccine safety and efficacy, they could serve an important role in clarifying the message that primary care physicians and pediatricians should tell their patients about vaccines listed on the national immunization schedule. With many physicians reading these journals regularly, medical journals should be able to reach a professional audience with relative ease. Some journals have “open-access ‘patient pages’” for patients to “educate themselves,” as well.²⁰ It is important that these patient-centered publications contain language that is intelligible to the general public, not just those individuals trained in the healthcare field. Medical journals also “have natural alliances with the medical profession,” enabling them to take advantage of a wide professional network.²¹ Overall, medical journals can support pro-vaccination strategies by “fostering science literacy.”²² Credibility and resources put medical journals in an advantageous position to serve as an educative agent for medical professionals and the general public. Even if patients are reluctant to access medical journals for their health information, they can still be a clarifying and

²⁰ Paul W. Armstrong and C. David Naylor, “Counteracting Health Misinformation: A Role for Medical Journals?” *JAMA* 321, no. 19 (2019): 1863, <https://doi.org/10.1001/jama.2019.5168>.

²¹ Armstrong and Naylor, “Counteracting Health Misinformation,” 1863.

²² Armstrong and Naylor, “Counteracting Health Misinformation,” 1863.

unifying resource to doctors who are, as respected leaders in their communities, generally considered trustworthy, despite trends that appear to foment a decline in trust toward experts.

Modern technology has evened the discrepancy of medical information between patients and their doctors. Information that was once restricted to an enclave of medical professionals is now, since the advent of the internet, “accessible to the layman,” leading to increased patient autonomy and “shared decision-making.”^{23,24} But because patients (and parents of patients) are afforded more autonomy over their healthcare decisions in the digital age without a formal medical education, patients can be easily misled by inaccurate information found online and taken for granted; this, among other reasons, sometimes urges parents to leave their children unvaccinated.²⁵ In fact, one study assessing the ability of students to distinguish true claims about vaccines online found that the participants tended to overestimate the percentage of sites that displayed accurate information.²⁶ Patients’ autonomy is not to be dismissed, but given the unreliability of patients to separate fact from fiction with regard to vaccines, healthcare providers should take a more active role in educating and informing their patients when making consequential decisions.

High-profile leaders beyond celebrity personalities can also be influential in disseminating anti-vaccine sentiment. Politicians are capable of propagating anti-vaccination

²³ Azhar Hussain et al., “The Anti-vaccination Movement: A Regression in Modern Medicine,” *Cureus* 10, no. 7 (2018): e2919, <https://doi.org/10.7759/cureus.2919>.

²⁴ Olivia Benecke and Sarah Elizabeth DeYoung, “Anti-Vaccine Decision-Making and Measles Resurgence in the United States,” *Global Pediatric Health* 6, no. 2333794X19862949 (2019), <https://doi.org/10.1177/2333794X19862949>.

²⁵ Hussain et al., “The Anti-vaccination Movement.”

²⁶ Hussain et al., “The Anti-vaccination Movement.”

claims, such as President Donald Trump, who has “shared anti-vaxx messages on social media,” and Texas Rep. Jonathan Stickland, referring to immunizations as “sorcery” in a rebuttal against Dr. Peter Hotez on Twitter, for which he was harshly rebuked.²⁷ Politicians, with pulpits through which to speak to the public, must exercise considerable responsibility when discussing vaccines, as public opposition to them may certainly persuade some constituents to share those views and consequently jeopardize public health. Through the vehicle of social media, anti-vaccination sympathizers use “common trope[s]” such as “vaccine injury” and “overnight autism” to provoke their audiences.²⁸ Rhetorically, these devices serve to incite fear of personal harm or imminent danger—although vaccines are empirically safe and highly unlikely to cause either—which, as emotional appeals, can engender fear-based responses and thus be quite persuasive. Anti-vaccine claims can be dangerous not because they are factually accurate, but because they strongly and deliberately appeal to *pathos*. That is to say, strategies to counter anti-vaccine attitudes must take into account not only the facts but also the bevy of emotions that accompany them. Reassurance and assuaging fear are key. Anti-vaccine attitudes are also highly associated with “purity and liberty.”²⁹ Effective strategies should take into account the morals and values of anti-vaccine parents, appreciating the competition and interplay amongst those values in a complex hierarchy. It would be reasonable to appeal to those values, like liberty, by revisiting the moral argument. Reframing liberty, for example, as a collective virtue versus an

²⁷ Benecke and DeYoung, “Anti-Vaccine Decision-Making.”

²⁸ Benecke and DeYoung, “Anti-Vaccine Decision-Making.”

²⁹ Benecke and DeYoung, “Anti-Vaccine Decision-Making.”

individual one, may convince liberty-minded parents to prioritize the health of other children and the public good over private convenience.

Others have argued for bringing vaccinations into the public arena through legitimate and elevated debate. What is needed for public debate on vaccines to be constructive is “contributory expertise and interactional expertise.”³⁰ The former refers to practical competence, such as scientists and physicians, and the latter refers to linguistic competence, meaning individuals who exhibit facility over experts’ lingo without formal professional training.³¹ Both these types of expertise are required for meaningful public dialogue without the topics “being dictated by their spokespersons.”³² That is to say, scientists and physicians—with their practical and functional competence—may tend to overemphasize their expertise and subsequently monopolize the conversation. If laypeople are educated enough to engage with experts beyond a rudimentary level, dialogue becomes much more synergistic and less authoritative. This kind of communication may lend itself toward repairing public trust with scientific and medical “elites.” In addition, there is a role for mainstream media in the public eye. “Media in general” have a tendency to portray two sides of an argument “as having equal footing,” regardless of their relative veracity.³³ This propensity assists the anti-vaccine movement at the expense of evidence-based research that supports vaccines’ safety and efficacy. Should the media broadcast arguments with

³⁰ Kenneth Camargo, Jr., and Roy Grant, “Public Health, Science, and Policy Debate: Being Right Is Not Enough,” *American Journal of Public Health* 105, no. 2 (2015): 234, <https://doi.org/10.2105/AJPH.2014.302241>.

³¹ Camargo, Jr. and Grant, “Public Health, Science, and Policy Debate,” 234.

³² Camargo, Jr. and Grant, “Public Health, Science, and Policy Debate,” 234.

³³ Camargo, Jr. and Grant, “Public Health, Science, and Policy Debate,” 234.

appropriate weight given to the merits of either side, pro-vaccination claims may begin to supersede the noise generated by their counterparts.

Public Policy Prescriptions

Aside from a rhetorical standpoint and strategies related to social media, there are measures that the United States government can take to combat the anti-vaccine movement in the political sphere. Discussed in this section are mandated immunizations, statewide vaccine exemptions, solutions from foreign partners, and interventions against populism.

The Mandate

The first component of public policy to be explored with regard to vaccinations is the mandate—in other words, the childhood immunization schedule. The United States government operates under a system of federalism, in which power is shared between the national and regional (or state) governments. In the United States, vaccinations are no exception. While the CDC can issue national recommendations for childhood vaccines, “states have sole authority to mandate” them.³⁴ Vaccine mandates have been constitutionally upheld by the Supreme Court, which has historically maintained that “generally applicable state public health laws” are permissible and do not violate personal religious and philosophical freedoms.³⁵ Moreover, each state has the sole power to exempt certain children from scheduled immunizations; otherwise, vaccinations are required as a prerequisite for enrolling in public schools.³⁶ Children without the proper immunizations—unless they

³⁴ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1969.

³⁵ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1969.

³⁶ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1969.

are exempted—are not allowed to enter publicly funded schools, making the mandate an incentive for parents to vaccinate their children. The reason why individual states are empowered to do so is that education in the United States falls primarily under local control with federal guidance; for example, there are national benchmarks, but each state issues its own curricular requirements and standardized testing.

But as was examined in the third chapter, there are varying degrees of vaccine coverage across state lines. States like Oregon have far lower coverage rates—and higher exemption rates—among schoolchildren than states like West Virginia. Anti-vaccination parents may be incentivized to move to a state with lax regulations, consequently raising the risk of disease outbreaks. Therefore, it might arguably be in the national interest to issue a federal mandate for immunizations that would standardize childhood vaccinations and clarify the permissibility of exemptions across the nation. After all, vaccine hesitancy is an issue that “transcend[s] state borders” and “requires a national solution.”³⁷ Such a solution would certainly usher sweeping changes to state public health laws as they currently exist, but this solution would also invite a host of legal challenges. A federal mandate, rather than a state mandate, could be deemed unconstitutional, as the Supreme Court has largely ruled on state vaccination laws. This mandate would also rearrange the federalist equation between the national government and state governments, resulting in opposition from conservatives who tend to support local power. Despite implementation challenges and potential litigation, this intervention deserves close consideration, especially as the anti-vaccine movement extends its foothold in many states nationwide.

³⁷ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

Immunization mandates are not one-size-fits-all with regard to their implementation and exhibit varying degrees of rigidity. According to a study in *Vaccine*, mandates across jurisdictions fall along a spectrum ranging from entirely discretionary to entirely compulsory.³⁸ Compliance is rewarded with a benefit called a “carrot,” in which “public goods” like public school enrollment and “financial incentives” such as fines are linked to the vaccination schedule.³⁹ Amongst all of these incentives are exemptions, which are more or less restricted based on the flexibility of the mandate itself.⁴⁰ Finally, this schema of the immunization mandate is influenced by “severity of consequences for non-compliance, and intensity of enforcement.”⁴¹ All told, vaccine mandates are quite variable, and the degree to which these mandates are flexible—meaning, the extent to which they are permissive of exceptions or uncompromising about linked benefit requirements—ostensibly influences the behavior of parents.

California, for example, is more coercive than most U.S. states, initially reducing “complacency” by making obtaining NMEs much more elusive and requiring signed documentation from a doctor, before eliminating them entirely in 2015.⁴² But this no-exceptions law may have unwittingly influenced “financially vulnerable private schools” to abandon their vaccine requirements to stay operational.⁴³ The law was also passed along

³⁸ Katie Attwell et al., “Recent vaccine mandates in the United States, Europe and Australia: A comparative study,” *Vaccine* 36, no. 48 (2018): 7378, <https://doi.org/10.1016/j.vaccine.2018.10.019>.

³⁹ Attwell et al., “Recent vaccine mandates,” 7378.

⁴⁰ Attwell et al., “Recent vaccine mandates,” 7378.

⁴¹ Attwell et al., “Recent vaccine mandates,” 7382.

⁴² Attwell et al., “Recent vaccine mandates,” 7378–7379.

⁴³ Attwell et al., “Recent vaccine mandates,” 7379.

party lines, which “may cultivate political polarization.”⁴⁴ As we examined earlier, increased polarization has the unintended consequence of amplifying anti-vaccine attitudes due to their association with extreme partisanship. In addition, we observe in the California example that inflexible vaccination mandates may have diminishing returns or even reverse effects. In sum, the *Vaccine* study asserts that “it does not necessarily follow that restrictive mandates in all jurisdictions will produce better coverage rates than less restrictive alternatives.”⁴⁵ Although mandates are necessary for the security of public health, they should not be so rigid as to encourage rebellious behavior or disincentivize parents, but neither should they be permissive enough to cause exemption rates to skyrocket. Mandates should be regionally tailored to find a happy medium in which marginal utility is achieved.

Scuttling Exemptions

One attainable manner in which vaccination coverage can be raised is by eliminating non-medical exemptions in the United States. Religious exemptions, in particular, may be targeted by lawmakers. Vaccine mandates, according to the Supreme Court, are “not constitutionally required” to exempt children on the basis of “religio[n] or conscience.”⁴⁶ In addition, courts have supported state mandates with no religious provisions and efforts by states to verify the legitimacy of religious exemption claims.⁴⁷ Therefore, despite the broad interpretability of the First Amendment and its clause respecting the free exercise of religion, there is no constitutional basis for religious exemptions to vaccines—at least,

⁴⁴ Attwell et al., “Recent vaccine mandates,” 7379.

⁴⁵ Attwell et al., “Recent vaccine mandates,” 7383.

⁴⁶ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1969.

⁴⁷ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1969.

insofar as the judiciary has maintained—in light of their immense public benefit. And speaking to national policies, both religious and philosophical exemptions can be abolished by the federal government if the receipt of federal funds through entitlement programs like Medicaid is contingent upon their elimination.⁴⁸ Even though state governments are empowered to mandate vaccinations, the federal government can exercise Supreme Court-supported “conditional funding” to influence state policy.⁴⁹ A national policy to eliminate non-medical exemptions, then, is possible by incentivizing states financially. While it is difficult to predict whether those states would willingly comply or resist federal pressure, this option is feasible in the current political climate.

At the center of the debate surrounding vaccine exemptions is the balance between individual freedom and the public good. Specifically, “exercising autonomy . . . for sensitive personal issues” directly competes with “herd immunity” that benefits all people collectively.⁵⁰ Autonomy, of course, is not to be dismissed; autonomy is pervasive throughout the rights and liberties that American citizens enjoy. However, personal freedom taken to the extreme fails to acknowledge the public benefits that arise when some of those freedoms are sacrificed, and these benefits are shared by everyone. This principle subscribes to “rule utilitarianism,” in which the greatest benefit for the greatest number of people should be pursued.⁵¹ In this instance, one could argue that public health achieved through vaccinations and herd immunity—in addition to reductions in mortality—far outweigh the value of individual autonomy. Furthermore, personal freedoms and liberties are

⁴⁸ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

⁴⁹ Gostin, Ratzan, and Bloom, “Safe Vaccinations for a Healthy Nation,” 1970.

⁵⁰ Hussain et al., “The Anti-vaccination Movement.”

⁵¹ Hussain et al., “The Anti-vaccination Movement.”

significantly impinged when public health is adversely affected, as rights and liberties can be curbed during a crisis. Achieving public health fundamentally enables and enhances the expression of rights and liberties in a free society.

Vaccine exemptions are not necessarily incompatible with public health in the United States. Herd immunity, as in the case of measles, requires that approximately 95% of the population be immunized, meaning up to 5% of the population can forego vaccination assuming these individuals are evenly geographically distributed. But experts agree that exemptions are permissible as long as the number of exemptions does not exceed the amount allowable for herd immunity to occur.⁵² To keep exemptions within the window of ethical behavior, “waivers” must only be issued to “individuals who sincerely need them rather than ones who are inconvenienced by them.”⁵³ That is to say, priority for vaccine exemptions should be given to vulnerable individuals—those with preexisting conditions, who are immunocompromised or who otherwise have medical contraindications to vaccination. Then, if coverage rates still exceed the threshold for herd immunity, others may receive exemptions without ostensibly jeopardizing public health. However, exemptions for personal reasons should be strongly discouraged to avoid misuse and overabundance. Exemptions can be minimized if states impose additional requirements for parents to apply for exemptions and necessitate “parental documentation of exemption requests.”⁵⁴ States may also exercise their financial prerogative by levying fees for exemption applications. Such requirements would disincentivize parents who are only mildly or moderately

⁵² Hussain et al., “The Anti-vaccination Movement.”

⁵³ Hussain et al., “The Anti-vaccination Movement.”

⁵⁴ Benecke and DeYoung, “Anti-Vaccine Decision-Making.”

motivated to receive exemptions. Schools also seldom “follow-up” on exempted children.⁵⁵ Tightening local oversight and monitoring may help districts ascertain the legitimacy of parents’ exemption claims.

Comparative Solutions

This thesis previously visited the idea of establishing public-private partnerships in order to increase accountability and ensure the accuracy of vaccine information online. These public-private partnerships might also be useful in the realm of consumer goods. In Canada, misinformation associated with the anti-vaccine movement has led to similar concerns about vaccine coverage as in the United States. Authors of a 2017 study contend that “truth in advertising,” enforced by a federal agency, may prevent the criminally negligent misrepresentation of products such as vaccines.⁵⁶ They call for “better regulation of product claims” that is based on scientific evidence, thus raising the standard by which claims are approved and minimizing the presence of false claims on the market.⁵⁷ Even in the United States, Federal Trade Commission regulations “prohibit claims of efficacy and safety for [over-the-counter] homeopathic drugs” that lack “scientific evidence.”⁵⁸ However, these regulations should be tightened and extended to vaccines as well, so that no ineffectual alternative therapy is promoted nor are vaccines misrepresented on the market. The United States could borrow language from Canadian advertising law to encourage

⁵⁵ Benecke and DeYoung, “Anti-Vaccine Decision-Making.”

⁵⁶ Timothy Caulfield, Alessandro R. Marcon, and Blake Murdoch, “Injecting doubt: responding to the naturopathic anti-vaccination rhetoric,” *Journal of Law and the Biosciences* 4, no. 2 (2017): 240, <https://doi.org/10.1093/jlb/lxx017>.

⁵⁷ Caulfield, Marcon, and Murdoch, “Injecting doubt,” 241.

⁵⁸ Caulfield, Marcon, and Murdoch, “Injecting doubt,” 242.

airtight accuracy of product claims and referee advertisements in the healthcare marketplace. Cooperation from federal entities and private manufacturers may also dispel any misgivings about immunizations produced by the pharmaceutical industry, which often comes under intense scrutiny by the public and congressional lawmakers.

Countering Populism

Central to this thesis is the notion that populism has greatly contributed to the ascendance and persistence of the anti-vaccine movement in the United States, so it seems appropriate here to highlight what paths public officials can take to counter the spread of populist politics. Combating populism is essential for public health because populist fear-mongering tactics drive people away from vaccines and medicines that are backed by scientific evidence. Public health officials can first illuminate how populism has risen, highlighting “identity politics,” rising social inequalities, and reactionary tendencies, and then use “methods such as modeling, natural experiments, and health impact assessment” to demonstrate the negative consequences of populist policies.⁵⁹ The public health field is already equipped to analyze epidemiological trends and predict future outcomes, so the health community is also poised to address the ill effects of populism on people who would otherwise be blind to its consequences. While it is easy to seize on a particular talking point, it is difficult to deny the overwhelming weight of evidence that the public health community can bring to bear in the political sphere.

⁵⁹ Martin McKee and David Stuckler, “‘Enemies of the People?’ Public Health in the Era of Populist Politics: Comment on ‘The Rise of Post-truth Populism in Pluralist Liberal Democracies: Challenges for Health Policy,’” *International Journal of Health Policy and Management* 6, no. 11 (2017): 670, <https://doi.org/10.15171/ijhpm.2017.46>.

Next, because “populist politicians seek untrammelled power,” public health should defend the institutions that check and balance the power of individual leaders.⁶⁰ These institutions—including legislatures, courts, and independent agencies—help with “collecting and analyzing the data on which epidemiology depends.”⁶¹ Because these institutions aid in the careful development and implementation of health policy, whereas an authoritarian leader tends to prioritize personal over public interests, public health professionals and officials can combat populism and restore their credibility by supporting checks on the power of the executive. Because populist leaders seek the popular will and view the political establishment as dangerous, public health officials—entrusted with the health of the nation—have a responsibility to encourage republican principles and resist temptations to deviate from good governance.

Populism, like the anti-vaccine movement, is vitally dependent upon rhetoric, communication, and misinformation to incite fear and engender an “us vs. them” dichotomy between ordinary people and perceived elites. Resultantly, populist rhetoric has put the scientific and medical communities on the defensive and anti-vaccine sentiments have steadily risen. Therefore, public health officials and professionals “should reclaim the narrative.”⁶² By taking control of messaging surrounding vaccines, rising to meet the moment at a time in which social media is ubiquitous and false claims are rampant, the public health community can directly oppose misleading and inaccurate information in public communication channels. In addition, “support[ing] fact checking organizations” may also help

⁶⁰ McKee and Stuckler, “Public Health in the Era of Populist Politics,” 670.

⁶¹ McKee and Stuckler, “Public Health in the Era of Populist Politics,” 670.

⁶² McKee and Stuckler, “Public Health in the Era of Populist Politics,” 670.

the public health community counter false claims made by populist politicians.⁶³ Falsehoods uttered by populist politicians, which are reinforced in the absence of immediate refutation, can be significantly weakened by efforts to call out inaccurate claims as they are made. By entering the public arena and engaging directly with people, public health officials and professionals can seize command of the facts about vaccines and oppose populist rhetoric. With the facts on the side of public health, direct communication and the assuaging of fears about vaccine safety and efficacy may reduce the emotional purchasing power of populist rhetoric.

Interventions in Healthcare

There are measures that physicians and other healthcare providers can take to reverse the growing tide of the anti-vaccine movement. Healthcare providers are critical for a successful pro-vaccine strategy because “weak recommendations” from physicians are contributors to “poor vaccine uptake.”⁶⁴ First, patient-doctor communication is essential for encouraging vaccination and compliance with state mandates. Because parents are not acquainted with vaccines and vaccine-preventable diseases on a scientific level, healthcare professionals are equipped to educate parents about the benefits of vaccinations.⁶⁵ By describing to parents the diseases that vaccines prevent, physicians may cultivate a level of personal health consciousness in parents that will drive compliant behavior. “A strong

⁶³ McKee and Stuckler, “Public Health in the Era of Populist Politics,” 671.

⁶⁴ C. Lee Ventola, “Immunization in the United States: Recommendations, Barriers, and Measures to Improve Compliance: Part 1: Childhood Vaccinations,” *Pharmacy and Therapeutics* 41, no. 7 (2016): 433, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4927017/>.

⁶⁵ Ventola, “Immunization in the United States,” 434.

provider recommendation” is effective in convincing parents to vaccinate their children.⁶⁶ An unequivocal recommendation from a healthcare professional is crucial because they are generally trusted individuals, and parents are likely to follow their expert guidance if the recommendation is issued without reservation. Weak recommendations are perhaps less effective because they give parents the impression that vaccines are not serious, or that the physician is personally unsure about the effectiveness of vaccines. And because physicians are the points of contact for patient questions, providers should be well-versed in the consequences of noncompliance and in “unsubstantiated safety concerns” that parents may encounter online.⁶⁷ Being forthright about the consequences of going unvaccinated and mollifying undue concerns will likely reassure patients that vaccines are safe and effective and dispel myths parents may have heard from anti-vaccine sympathizers.

Physicians should also be proactive about encouraging vaccinations. “Missed opportunities” are responsible for “up to two-third of undervaccination” among children under two years old.⁶⁸ Therefore, physicians should treat “all clinical encounters, including visits for injuries or mild illness” as windows for vaccination.⁶⁹ People tend to contact their doctor or visit the hospital when they present with unusual symptoms or when they are very sick, with wellness checks seldom attended. This is because most children over the age of two “are only brought to the doctor for sick visits,” and parents believe that “healthy children don’t need to be seen” by their physician.⁷⁰ Among socioeconomically

⁶⁶ Ventola, “Immunization in the United States,” 434.

⁶⁷ Ventola, “Immunization in the United States,” 434.

⁶⁸ Ventola, “Immunization in the United States,” 434.

⁶⁹ Ventola, “Immunization in the United States,” 434.

⁷⁰ Ventola, “Immunization in the United States,” 434.

disadvantaged families, children may only visit their primary care provider when they absolutely need to, especially to avoid paying exorbitant out-of-pocket costs. Because there are limited opportunities for physicians to interact with their patients on a continuous basis, being proactive about encouraging and administering vaccinations at all patient visits may increase compliance with the state immunization schedule and demonstrate to parents that the physician believes vaccines are a serious matter.

Patients, like any consumer, are also keenly aware of convenience. Thus, providers should offer combination vaccines, or the “simultaneous administration of [multiple] childhood vaccines,” in order to “simplify the immunization regimen” for parents and patients.⁷¹ Combination vaccines are “safe and effective,” without adverse side effects, and provide the added advantage of eschewing follow-up appointments.⁷² With fewer visits needed, this option may appeal to parents who are fiscally or temporally strained. While this option may necessitate more paperwork and “scrupulous record-keeping” on the part of the healthcare provider, parents are more likely to adhere to the vaccine schedule if they understand the benefits of combination vaccines.⁷³ Just as consumers purchase “combos” to get more bang for their buck, parents and patients may pursue combination vaccines whenever possible due to the convenience of the visit. For children, in particular, immunizations can be a painful or terrifying experience, and limiting the number of visits may help avoid chronic stress and anxiety for parents and children.

⁷¹ Ventola, “Immunization in the United States,” 434.

⁷² Ventola, “Immunization in the United States,” 434.

⁷³ Ventola, “Immunization in the United States,” 434.

Finally, as with all health issues, doctors must also address demographic disparities in healthcare access. Patients of low socioeconomic status are at a disadvantage with regard to vaccine compliance, as they are less likely to have the job security and financial wherewithal to attend primary care appointments.⁷⁴ Enabling “walk-in visits” for patients “on the same day they call to make an appointment” would increase access to vaccinations for patients of low socioeconomic status,⁷⁵ as would offering “school- and day care-based immunization programs.”⁷⁶ Doing so works conveniently in concert with parents’ short-term availability and eliminates some logistical barriers, like location and waiting times, that would have otherwise hindered the ability of patients to appear at the doctor’s office. Enhancing access to vaccines for patients of low socioeconomic status, therefore, helps increase vaccination coverage in low-income communities, level disparities among clustered income strata, and lower the risk of an outbreak of a vaccine-preventable disease.

Conclusion

A broad, national campaign that promotes parental education, scientific literacy, and increased engagement by medical and public authorities, is needed to combat the rise of the anti-vaccine movement on all fronts: rhetorical, political, sociological, scientific, and medical. Populist fearmongering and anti-vaccine attitudes, which have dominated social media channels, can be interfered with directly by strengthening fact-checking and filtering capabilities, increasing public engagement and education from medical and scientific experts, and confronting misinformation through grassroots activism. Governments can force

⁷⁴ Ventola, “Immunization in the United States,” 434–435.

⁷⁵ Ventola, “Immunization in the United States,” 435.

⁷⁶ Ventola, “Immunization in the United States,” 436.

the anti-vaccine movement to take steps back by tightening the ability to secure vaccine exemptions, standardizing vaccine mandates across state lines, encouraging companies nationwide to self-regulate information on their platforms, and checking populist impulses wherever they arise. In addition, physicians themselves can amplify vaccine uptake by making immunizations more convenient and accessible and by serving as compassionate educators for patients and their parents. These measures, when coordinated as part of an overarching national strategy, have the potential to avert the imminent danger of the anti-vaccine movement—either by confronting the movement directly, blocking the movement’s traditional avenues of public engagement, or increasing vaccination coverage.

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