

Competing Epistemic Spaces: How Social Epistemology Helps Explain and Evaluate Vaccine Denialism

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Abstract: Recent increases in the rates of parental refusal of routine childhood vaccination have eroded many countries' "herd immunity" to communicable diseases. Some parents who refuse routine childhood vaccines do so because they deny the mainstream medical consensus that vaccines are safe and effective. I argue that one reason these *vaccine denialists* disagree with vaccine proponents about the reasons in favor of vaccination is because they also disagree about the sorts of practices that are conducive to good reasoning about healthcare choices. Vaccine denialists allocate epistemic authority more democratically than do mainstream medical professionals. They also sometimes make truth ascriptions for nonepistemic reasons, fail to recognize legitimate differences in expertise and competence, and seek uncritical affirmation of their existing beliefs. By focusing on the different epistemic values and practices of vaccine denialists and mainstream medical professionals, I locate my discussion of vaccine denialism within broader debates about rationality. Furthermore, I argue that gender inequality and gendered conceptions of reason are important parts of the explanation of vaccine denialism. Accordingly, I draw upon feminist work—primarily feminist social epistemology—to help explain and evaluate this form of vaccine refusal.

Keywords: feminist philosophy; public health ethics; social epistemology; vaccination; virtue epistemology

1. Introduction: Vaccine Denialism

In 2010, tens of thousands of children and adults suffered from pertussis ("whooping cough") in the United States.¹ Pertussis infections are on the rise throughout the United States and in other developed societies, where rates of infection are the highest they have been in over 50 years. Other diseases—including measles and mumps—are experiencing a similar resurgence.² These disease outbreaks are caused, in part, by a breakdown

¹Centers for Disease Control and Prevention, "CDC–Pertussis: Outbreaks," July 13, 2012, <http://www.cdc.gov/pertussis/outbreaks.html>.

²Centers for Disease Control and Prevention, "CDC–Measles: Outbreaks," May 21, 2012, <http://www.cdc.gov/measles/outbreaks.html>; Centers for Disease Control and Prevention, "CDC–Mumps: Outbreaks," October 6, 2010, <http://www.cdc.gov/mumps/outbreaks.html>.

in “herd immunity,”³ which, in turn, has been caused by increased rates of parental refusal of routine childhood vaccination.⁴

Contemporary vaccine refusal has many causes.⁵ Some vaccine refusers are motivated by the same reasons that have prompted vaccine refusal throughout the history of public vaccination programs.⁶ These reasons include the idea that public vaccination programs undermine religious liberty and that they compromise the extra-political status of the traditional family.⁷ Also, parents whose decisions about childhood vaccination are based exclusively on considerations of their own children’s well-being may choose not to vaccinate, but to “free-ride” on existing herd immunity.⁸ Finally, parents of children with compromised immune

³Roy M. Anderson and Robert M. May, “Vaccination and Herd Immunity to Infectious Diseases,” *Nature* 318, no. 6044 (1985): 323-29.

⁴Thomas May and Ross D. Silverman, “‘Clustering of Exemptions’ as a Collective Action Threat to Herd Immunity,” *Vaccine* 21, no. 11-12 (2003): 1048-51; Saad Omer et al., “Nonmedical Exemptions to School Immunization Requirements,” *The Journal of the American Medical Association* 296, no. 14 (2006): 1757-63; Saad Omer et al., “Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-preventable Diseases,” *New England Journal of Medicine* 360, no. 19 (2009): 1981-88; Saad Omer et al., “Geographic Clustering of Nonmedical Exemptions to School Immunization Requirements and Associations with Geographic Clustering of Pertussis,” *American Journal of Epidemiology* 168, no. 12 (2008): 1389-96.

⁵Katrina F. Brown et al., “Factors Underlying Parental Decisions About Combination Childhood Vaccinations Including MMR: A Systematic Review,” *Vaccine* 28, no. 26 (2010): 4235-48.

⁶Gregory A. Poland and Robert M. Jacobson, “The Age-old Struggle Against the Antivaccinationists,” *New England Journal of Medicine* 364, no. 2 (2011): 97-99; Nadja Durbach, “‘They Might as Well Brand Us’: Working-Class Resistance to Compulsory Vaccination in Victorian England,” *Social History of Medicine* 13, no. 1 (2000): 45-63; Dorothy Porter and Roy Porter, “The Politics of Prevention: Anti-Vaccinationism and Public Health in Nineteenth-Century England,” *Medical History* 32, no. 3 (1988): 231-52; Robert M. Wolfe and Lisa K. Sharp, “Anti-Vaccinationists Past and Present,” *British Medical Journal* 325, no. 7361 (2002): 430-32.

⁷Feifei Wei et al., “Identification and Characteristics of Vaccine Refusers,” *BMC Pediatrics* 9:18 (2009).

⁸R.E. Spier, “Ethical Aspects of Vaccines and Vaccination,” *Vaccine* 16, no. 19 (1998): 1788-94; A.M. Viens, C.M. Bensimon, and R.E.G. Upshur, “Your Liberty or Your Life: Reciprocity in the Use of Restrictive Measures in Contexts of Contagion,” *Journal of Bioethical Inquiry* 6, no. 2 (2009): 207-17; Thomas May and Ross D. Silverman, “Free-Riding, Fairness and the Rights of Minority Groups in Exemption from Mandatory Childhood Vaccination,” *Human Vaccines* 1, no. 1 (2005): 12-15. Also consider best-selling pediatrician Dr. Robert Sears’s endorsement (or, at least, lack of abhorrence) of free-riding: “Some parents, however, aren’t willing to risk the very rare side effects of vaccines, so they choose to skip the shots. Their children benefit from herd immunity (the protection of all the vaccinated kids around them) without risking the vaccines themselves. Is this selfish? Perhaps. But as parents you have to decide ... We all put our own children first in most situations.” Robert Sears, *The Vaccine Book: Making the Right Decision for Your Child* (New York: Little, Brown, 2007), p. 220. Importantly, I do not

systems are often advised to refuse routine childhood vaccines.⁹

In this paper, I focus on parents who refuse routine childhood vaccines for a different reason. *Vaccine denialists*¹⁰ refuse vaccination because they reject the current mainstream medical consensus that childhood vaccines are safe and effective; they *deny* important aspects of contemporary immunology, epidemiology, and pediatrics.¹¹ I argue that one reason why vaccine denialists disagree with vaccine proponents about the reasons for and against vaccination is that they also disagree about the sorts of practices that are conducive to good reasoning about healthcare choices. Vaccine denialism is an alternative epistemological space. In place of the authoritarianism that too often plagues mainstream medicine, vaccine denialism fosters democratic communities of “parent-researchers” and teamwork between parents and healthcare professionals.¹² In place of the priority that mainstream medicine places upon em-

endorse the claim, which is implicit in Dr. Sears’s comments, that parents who refuse routine childhood vaccines accurately assess their children’s interests. I mention this case only to highlight that some vaccine refusers are likely motivated by an exclusive focus on the (supposed) interests of their children. For further discussion of immoral free-riding among vaccine refusers, see my article, “Resisting Moral Permissiveness About Vaccine Refusal,” *Public Affairs Quarterly* 27 (2013), forthcoming.

⁹Centers for Disease Control and Prevention, *Recommendations of the Advisory Committee on Immunization Practices (ACIP): Use of Vaccines and Immune Globulins in Persons with Altered Immunocompetence*, April 9, 1993, <http://www.cdc.gov/mmwr/pdf/rr/rr4204.pdf>; Centers for Disease Control and Prevention, “Possible Side-Effects from Vaccines,” February 27, 2012, <http://www.cdc.gov/vaccines/vac-gen/side-effects.htm>.

¹⁰There is a contentious politics of terminology surrounding the movements and individuals who reject mainstream medical beliefs and practices surrounding vaccination. It has been commonplace to name these people and practices as *anti-vaccine*. However, members of these movements often reject this label, and describe themselves as *pro-science* or as advocates of *vaccine safety*. See Andrew J. Wakefield, *Callous Disregard: Autisms and Vaccines: The Truth Behind a Tragedy* (New York: Skyhorse Publishing, 2011), pp. 4-6; National Vaccine Information Center, “About Us,” n.d., <http://www.nvic.org/about.aspx>. To avoid terminological disputes, I use the terms *vaccine denialism* and *vaccine denialist*, because it should be uncontroversial to claim that parents who refuse routine childhood vaccinations deny some of the mainstream medical consensus regarding the safety or efficacy of vaccines. Furthermore, these terms are relatively common in the literature. For example, see Michael Specter, *Denialism: How Irrational Thinking Hinders Scientific Progress, Harms the Planet, and Threatens Our Lives* (New York: Penguin, 2009).

¹¹Parental involvement in vaccine denialist social movements varies, e.g., from reading a book to actively participating in online and in-person communities of nonvaccinating parents. Furthermore, the social groups that promote vaccine denialism differ according to which additional social causes they advocate. These may include both early childhood issues (e.g., “alternative” birthing practices, breastfeeding, autism “prevention” and “treatment”), and broader social issues (e.g., food politics, environmental justice).

¹²By “medical authorities/professionals,” I mean physicians, nurses, educators, researchers, and others involved in developing and delivering medical knowledge and

pirically grounded and peer-reviewed research, vaccine denialists offer uncritical affirmation of parents' existing beliefs about their children's health and a refusal to recognize differences in medical expertise or competence.

My task in this paper is both descriptive and evaluative. On one hand, I aim to contribute to our understanding of the social phenomenon of vaccine denialism, by describing the different epistemic practices and values of this movement. On the other hand, I aim to inform our judgments about vaccine denialism, by showing that some of their practices are better than those that are prevalent within mainstream medicine, while some of them are much worse. The fact that vaccine denialists are motivated by a commitment to good epistemic practices, like non-authoritarian relationships between pediatricians and parents, is a reason for thinking that vaccine denialists are not as "irrational" as many have claimed them to be. However, vaccine denialists are not vindicated by the fact that they engage in one practice that is better suited to inquiry than the corresponding practice prevalent in mainstream medical contexts. A fuller explanation of vaccine denialists' alternate epistemological space illustrates that they are insufficiently committed to truth-oriented inquiry. The poor epistemic practices prevalent within their movement prevent them from accepting the truth of the well-established results of vaccine science.¹³

healthcare services. "Medical authorities/professionals" and "vaccine denialists" are impure groups, since some physicians are involved in vaccine denialism (as I discuss below). I use the term "mainstream" to denote those medical authorities/professionals who do not participate in vaccine denialism.

¹³Since one factor that distinguishes vaccine denialism from other forms of vaccine refusal is that vaccine denialists embrace non-mainstream epistemic practices and values, we can gauge a person's degree of participation in vaccine denialism according to her manifestation of these alternate dispositions towards inquiry. That is, a vaccine refuser "participates" in vaccine denialism to the degree that her vaccine refusal is motivated by a *denial* of the mainstream medical consensus that vaccines are safe and effective, and by her embrace of the alternate epistemic values and practices prevalent among vaccine denialists. So, for example, the mere fact that one prefers less authoritarian forms of pediatric practice does not make one a vaccine denialist. After all, some pediatricians manifest this epistemic virtue while retaining favorable attitudes towards vaccination; this includes some pediatricians who treat vaccine denialists. On this point, see Jason M. Glanz et al., "Parental Refusal of Pertussis Vaccination Is Associated with an Increased Risk of Pertussis Infection in Children," *Pediatrics* 123, no. 6 (2009): 1446-51; Omer et al., "Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-Preventable Diseases"; Daniel A. Salmon et al., "Vaccine Knowledge and Practices of Primary Care Providers of Exempt vs. Vaccinated Children," *Human Vaccines* 4, no. 4 (2008): 286-91. Relatedly, the mere fact that someone participates in online discussions about vaccines does not make this person a vaccine denialist. This is because a person could participate in online discussion groups while continuing to recognize the medical expertise of pediatricians, and while remaining open to challenges to her existing beliefs. Furthermore,

I recognize a fundamental asymmetry between mainstream medicine and vaccine denialism: mainstream pediatricians could develop less authoritarian ways of delivering medical services, while maintaining their commitment to the proven practices of empirically based medicine. In contrast, vaccine denialism could not survive as a social movement if it recognized differences in medical expertise or cultivated a truth-oriented giving-and-taking of reasons. It is essential to vaccine denialism's identity that it be committed to poor epistemic practices; these are the basis of vaccine denialism's denial of the safety and efficacy of vaccines. Given this asymmetry between mainstream medicine and vaccine denialism, it ought to be the goal of those who are committed to widespread routine childhood vaccination to reform the practices of mainstream pediatrics and to undermine support for vaccine denialism. First, mainstream pediatric practices ought to be purged of unnecessarily authoritarian pediatrician-parent relationships. This may allow them to attract some parents who might otherwise embrace vaccine denialism.¹⁴ Second, public health advocates ought to highlight the poor epistemic practices that vaccine denialists embrace. This is likely to assist in broader efforts to undermine the appeal of vaccine denialism.¹⁵ Advocates for routine childhood vaccination ought to argue that vaccine denialists are committed to both false beliefs about the safety and efficacy of vaccines and poor practices for reasoning about the safety and efficacy of vaccines.

2. Comments on Methodology: Epistemology, Feminist Philosophy, and Testimony

It may be helpful to make three preliminary points about my methodology. First, my arguments do not presuppose any particular epistemic theory, though I assume the falsity of epistemic relativism, since I take for granted that there is medical knowledge and that our dispositions and

since I argue that vaccine denialism's non-mainstream epistemic values and practices are both better and worse than those present within mainstream contexts, the degree to which my evaluative judgments about vaccine denialism apply to a particular vaccine denialist depends upon the degree to which she manifests these alternate epistemic values and practices.

¹⁴Robert Chen has made a similar point. He suggests that we might "prevent creating anti-vaccine activists" by promoting a "shift from traditional paternalistic to a shared decision making model" ("Vaccine Risks: Real, Perceived and Unknown," *Vaccine* 17 (1999): S44).

¹⁵For an account of the reasoning flaws of vaccine denialists that is broader than the one I discuss here, see Robert Jacobson, Paul Targonski, and Gregory Poland, "A Taxonomy of Reasoning Flaws in the Anti-Vaccine Movement," *Vaccine* 25, no. 16 (2007): 3146-52.

practices may more or less orient us towards medical knowledge.¹⁶ Furthermore, I assume an empirically grounded conception of medical knowledge.¹⁷ My use of terms like “epistemic virtue” (which I use interchangeably with “good epistemic practice”) and “epistemic vice” (which I use interchangeably with “poor epistemic practice”) should be understood in the context of these general presuppositions.¹⁸ Accordingly, an “epistemic virtue” relative to inquiry about medicine is a disposition or practice that facilitates the acquisition of empirically grounded medical knowledge. In contrast, an “epistemic vice” relative to inquiry about medicine is a disposition or practice that inhibits the acquisition of empirically grounded medical knowledge.

Second, I draw upon feminist work in this paper because the interactions that occur both in mainstream pediatric practice and among vaccine denialists are often influenced by gender, and because they manifest the sorts of gender-related power inequalities that have often been the focus of feminist work.¹⁹ For example, it is well documented that childcare—and parental care for children’s health—is gendered feminine, and that mothers are usually the primary decision-makers surrounding their children’s healthcare.²⁰ Relatedly, the epistemic practices of physicians are gendered masculine, even though many physicians are women.²¹ There-

¹⁶Indeed, one of my criticisms of vaccine denialists is that they engage in epistemic relativism when they assent to claims about medical science on the basis of nonepistemic reasons (e.g., when they claim that thimerosal/thiomersal, formaldehyde, or aluminum causes autism).

¹⁷This presupposition about medical knowledge does not entail a broader empiricism, but is consistent with the possibility that nonempiricist methods of inquiry are appropriate in other contexts. Instead, it entails only the falsity of conceptions of medical knowledge that do not prioritize the results of empirical research, e.g., “metaphysical” forms of medicine, such as traditional naturopathy or homeopathy.

¹⁸“Virtue Epistemology” puts less emphasis on beliefs (and on the necessary/sufficient conditions for beliefs to be knowledge) and more emphasis on knowers and on the epistemic virtues they might develop to better orient themselves towards knowledge. These virtues may include (epistemic) trustworthiness, credibility, and accuracy, among many others. For a longer list of the epistemic virtues, and a broader account of virtue epistemology, see Linda Zagzebski, *Virtues of the Mind: An Inquiry into the Nature of Virtue and the Ethical Foundations of Knowledge* (Cambridge: Cambridge University Press, 1996).

¹⁹This includes the impact of gendered power differences on inquiry, which has been a major focus of feminist work in epistemology. See Linda M. Alcoff and Elizabeth Potter (eds.), *Feminist Epistemologies* (New York: Routledge, 1993).

²⁰A report from the Henry J. Kaiser Family Foundation found that in 80% of households with children, mothers usually made decisions regarding the selection of a physician and were responsible for taking the children to the doctor (*Kaiser Women’s Health Survey*, 2001).

²¹On the ways in which the language and practice of scientific enterprises (like medicine) are gender-symbolized as masculine, see Phyllis Rooney, “Gendered Reason: Sex Metaphor and Conceptions of Reason,” *Hypatia* 6, no. 2 (1991): 77-103. We may hope

fore, the interactions between parents and pediatricians surrounding vaccination decisions take place against the background of gender inequalities and gendered conceptions of the reasoning of physicians and parents.

Third, I rely upon the autobiographical testimony of vaccine denialists because vaccine denialists have first-hand knowledge of how they have been treated by physicians and how the practices within vaccine denialist communities differ from those within mainstream medical contexts.²² Furthermore, relying on their testimony does little to prevent critical evaluation of the epistemic values and practices of vaccine denialists. Their own words often provide weighty evidence of both the virtues and vices of the alternative epistemological space that vaccine denialists inhabit.²³

3. The Diagnosis: Irrationality?

Supporters of routine childhood vaccination have often claimed that those who are drawn to vaccine denialism are irrational, overly emotional, or insufficiently attentive to the evidence regarding vaccine safety. According to such a view, the parents who are attracted to vaccine denialism have irrational fears about medical interventions that they do not (or cannot) understand. For example, Seth Mnookin writes for *The Atlantic* that vaccine denialism is characterized by “irrational rhetoric,” and Michael Specter writes, in *Denialism*, that they are victims of “irrational thinking.”²⁴ An article in *Scrubs* (a magazine for nurses) provides

that the increasing number of women in pediatric practice (e.g., 70% of medical residents in pediatrics are women) will mitigate the gendered dynamics of pediatric medicine. Women Chairs of the Association of Medical School Pediatric Department Chairs, “Women in Pediatrics: Recommendations for the Future,” *Pediatrics* 119, no. 5 (2007): 1000-1005.

²²Additionally, there is good reason to lend credibility to the reports of social subordinates about the conditions of their social subordination. Patients—and especially women patients—who believe that they have been treated disrespectfully by physicians are likely to have accurate knowledge about how they have been treated. On standpoint epistemology, see Nancy C.M. Hartsock, “The Feminist Standpoint: Developing the Ground for a Specifically Feminist Historical Materialism,” in Sandra Harding and Merrill B. Hintikka (eds.), *Discovering Reality: Feminist Perspectives on Epistemology, Metaphysics, Methodology, and Philosophy of Science*, 2nd ed. (Dordrecht: Kluwer, 2003), pp. 283-310.

²³For feminist defenses of reliance on testimony, see Sue Campbell, *Relational Remembering: Rethinking the Memory Wars* (Lanham, Md.: Rowman & Littlefield, 2003), and Ann Garry, “A Minimally Decent Philosophical Method? Analytic Philosophy and Feminism,” *Hypatia* 10, no. 3 (1995): 7-30.

²⁴Seth Mnookin, “What Drives Irrational Rhetoric? The Case of Childhood Vaccinations,” *The Atlantic*, January 11, 2011, <http://www.theatlantic.com/national/archive/2011/01/what-drives-irrational-rhetoric-the-case-of-childhood-vaccinations/69291/>; Specter, *Denialism*.

advice for overcoming the “irrational fears” patients may have about vaccines, while a book reviewer for *NewScientist.com* frames the differences between advocates of mainstream medicine and vaccine denialists in terms of “vaccines vs. irrationality.”²⁵ Even writers who have tried to be more sympathetic to vaccine denialists have taken for granted that they are committed to irrational beliefs.²⁶ More troubling has been the occasional tendency of critics to ascribe a particularly gendered idea of irrationality to vaccine denialists: hysteria. For example, both the *New York Post* and National Public Radio (NPR) have attributed decreased rates of childhood vaccination to “vaccine hysteria,” and this term is also the focus of a lengthy wiki entry that otherwise appears to be on the topic of vaccine denialism.²⁷

There are many good reasons for resisting the quick conclusion that vaccine denialists are “irrational.” First, supporters of oppressive practices often claim that members of oppressed groups are irrational, as part of their defense of oppression. For example, ideals of reason have often been tied to ideas of masculinity, while conceptions of irrationality have been tied to ideas of femininity, and the supposed dichotomy of the “rational man” and the “irrational woman” has often been invoked to deny women equal social and political status.²⁸ Therefore, at the very least, we ought to resist the quick conclusion that vaccine denialism can be explained by parents’ (and, specifically, mothers’) scientific illiteracy or by their failure to exercise reasonable control over their emotions. The phenomenon of vaccine denialism requires additional investigation.

A second reason to resist the quick charge of irrationality is that we

²⁵“Patients with an Irrational Fear of Vaccinations,” *Scrubs*, September 2, 2011, <http://scrubsmag.com/patients-with-an-irrational-fear-of-vaccinations/>; Chris Mooney, “Irrationality vs. Vaccines: Fighting for Reality,” *New Scientist: CultureLab*, January 13, 2011, <http://www.newscientist.com/blogs/culturelab/2011/01/irrationality-vs-vaccines-fighting-for-reality.html>.

²⁶David Ropeik, “The Perception Gap: An Explanation for Why People Maintain Irrational Fears,” *Scientific American*, February 3, 2011, <http://blogs.scientificamerican.com/guest-blog/2011/02/03/the-perception-gap-an-explanation-for-why-people-maintain-irrational-fears/>.

²⁷Marty Moss-Coane, “The History and Hysteria Around Vaccines,” *Radio Times*, WHY, March 1, 2011, <http://why.org/cms/radiotimes/2011/03/01/the-history-of-and-hysteria-around-vaccines/>; Robert Goldberg, “A Deadly Hysteria,” *New York Post*, September 13, 2011, sec. Columnists, http://www.nypost.com/p/news/opinion/opedcolumnists/deadly_hysteria_cQ6rr4Fm6nmNL20tPqnVxO; “Vaccine Hysteria,” *Rational Wiki*, n.d., http://rationalwiki.org/wiki/Vaccine_hysteria.

²⁸Susan R. Bordo, *The Flight to Objectivity: Essays on Cartesianism and Culture* (Albany: State University of New York Press, 1987); Virginia Held, “Feminist Transformations of Moral Theory,” *Philosophy and Phenomenological Research* 50 (1990): 321-44; Genevieve Lloyd, *Man of Reason: “Male” and “Female” in Western Philosophy*, 2nd ed. (Minneapolis: University of Minnesota Press, 1993).

ought to be sensitive to the ways in which the authority of medical experts may be used to silence questions or dissent about problematic medical practices. For example, feminist work in bioethics has documented many ways in which medical authority and practice can participate in the systematic oppression of women.²⁹ For example, feminist activists and scholars have revealed and criticized the tendency of physicians to treat women's bodies as mere objects on which to perform their craft, rather than as the loci of autonomous agents.³⁰ The fact that medical authorities have often participated in the oppression of women provides a reason for mothers to be especially persistent when seeking answers to their questions about the safety and efficacy of vaccines.³¹ It is not irrational for mothers to refuse to (blindly) trust their children's pediatricians when they insist that childhood vaccines are safe and effective.³²

4. Epistemic Vices of Mainstream Medicine

I have argued that facts about gender oppression provide parents (and especially mothers) with good reason to be *skeptical* of physicians' assurances regarding the safety and efficacy of vaccines. However, to say that vaccine skepticism is justified is to say only that parents are right to

²⁹Hilde Lindemann writes that "[t]he primary contribution of feminism to bioethics is to note how imbalances of power in the sex-gender system play themselves out in medical practice and in the theory surrounding the practice." "Feminist Bioethics: Where We've Been, Where We're Going," in Linda Martín Alcoff and Eva Feder Kittay (eds.), *The Blackwell Guide to Feminist Philosophy* (Hoboken, N.J.: Wiley-Blackwell, 2007), chap. 6, p. 117.

³⁰Susan Sherwin, *No Longer Patient: Feminist Ethics and Health Care* (Philadelphia: Temple University Press, 1992).

³¹One dramatic (and regrettably contemporary) example of the medical establishment's oppression of women is the case of nonconsensual pelvic exams. In many countries, it has, until very recently, been common (if unofficial) practice for rooms full of medical students to perform pelvic examinations on women who had been anesthetized for medical procedures. In many cases, pelvic exams were not indicated for the procedures women had consented to receive. Yvette Coldicott, Catherine Pope, and Clive Roberts, "The Ethics of Intimate Examinations: Teaching Tomorrow's Doctors," *British Medical Journal* 326 (2003): 97-101; James Dwyer and Julie Rothstein, "Case Study: One More Pelvic Exam," *The Hastings Center Report* 23, no. 6 (1993): 27-29.

³²Another reason to resist the claim that skepticism about vaccine safety is irrational is the medical history of blaming mothers for autism. See Seth Mnookin, *The Panic Virus: A True Story of Medicine, Science, and Fear* (New York: Simon & Schuster, 2011), pp. 76-77. For example, Bruno Bettelheim wrote that autism resulted from dysfunctional early attachment between mother and child. Bruno Bettelheim, "Joey: A Mechanical Boy," *Scientific American* 200, no. 3 (1959): 117-26. Given the continued emphasis on maternal responsibility for children's health, it makes sense for mothers/parents to be hypervigilant about the safety of medical interventions.

demand that medical professionals provide accurate and adequate answers to their questions about vaccines. Clearly, demanding answers to one's questions about vaccines is not equivalent to rejecting the mainstream medical consensus about the safety and efficacy of vaccines. While what I have said so far may defend vaccine *skeptics* against the claim that they are irrational, it does not do much to defend vaccine *denialists* against this charge.

Here, it will be helpful to discuss a third reason for resisting the conclusion that the parents (and especially mothers) who participate in vaccine denialism are irrational: vaccine denialists often report that their children's pediatricians failed to be respectful listeners or to offer adequate accounts of the usefulness or safety of vaccines. It will be helpful to begin with their reports:

(1) Barbara Loe Fisher "founded America's modern-day vaccine denialism movement" and created the National Vaccine Information Center (NVIC), the "the most powerful anti-vaccine organization in America."³³ Fisher became an activist after she concluded that physicians had lied to her about the possible side effects of the pertussis vaccine.³⁴ Specifically, she claims that physicians were insufficiently attentive to her reports of her child's developmental regression in the aftermath of vaccination. It seemed to Fisher that her doctors were "elitists and frauds" and that their failure to be attentive to the trustworthy testimony of the parents of vaccinated children (like her) contributes to their practice of harming children through vaccination. She has dedicated her life to building a social movement that can bring this "truth" to light.

(2) Jenny McCarthy, a model and actress, is a prominent advocate for "vaccine safety" and for "curing autism." She is the spokesperson for *Generation Rescue*, an advocacy group that claims that vaccines cause autism. According to McCarthy, her child's pediatrician mocked her concerns about the existence of a link between the Measles-Mumps-Rubella (MMR) vaccine and autism. Additionally, McCarthy claims that this doctor dismissed her observations of her child's physical and mental regression in the immediate aftermath of his vaccination.³⁵ As a result of these experiences, McCarthy committed herself to building and support-

³³Specter, *Denialism*, pp. 7, 60.

³⁴Paul A. Offit, *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All* (New York: Basic Books, 2010), p. 81.

³⁵Jenny McCarthy, *Mother Warriors: A Nation of Parents Healing Autism Against All Odds* (New York: Dutton Adult, 2008), and "Foreword," in Andrew J. Wakefield, *Callous Disregard* (New York: Skyhorse Publishing, 2011), p. iii; Mnookin, *The Panic Virus*, pp. 250-60.

ing a social movement that would empower parents to make informed choices about vaccines. In the words of Oprah Winfrey, Jenny McCarthy decided to become a leader of the vaccine denialism movement because she refused to “bow to authority,” and insisted that her voice be heard.³⁶

Other vaccine denialists often tell stories similar to those of the leaders of this movement. David Kirby, the author of *Evidence of Harm* (a book that reports favorably upon vaccine denialism), says that many of the parents he interviewed became critical of vaccines after they had negative interactions with physicians.³⁷ These parents report being talked down to, being “barked at” and feeling as if they were “banished to a small corner of the room” when they shared their experiences of their children’s developmental regression in the aftermath of vaccination, or when they raised critical questions about vaccines.³⁸ According to Kirby, many vaccine denialists have come to think of pediatricians as sadists who “poked and prodded” children “like some pet science project.”³⁹ They believe physicians are so interested in preserving their power that they are unwilling to listen to parents.

Vaccine denialists often report that pediatricians have not granted appropriate credibility to their testimony about their children’s responses to vaccinations, or that they have been disrespectful and dismissive in response to their questions about vaccine safety. On its own, this is evidence of a poor epistemic practice. Pediatricians who are not disposed to grant appropriate credibility to the testimony of parents thereby manifest an epistemic vice. Furthermore, this epistemic vice also often contributes to an *epistemic injustice*, specifically, *testimonial injustice*,⁴⁰ since it is likely “prejudice [which] causes a hearer to give a deflated level of credibility to a speaker’s word.”⁴¹ Pediatricians may discount or dismiss a

³⁶Mnookin, *The Panic Virus*, p. 253.

³⁷David Kirby, *Evidence of Harm: Mercury in Vaccines and the Autism Epidemic: A Medical Controversy* (New York: St. Martin’s Griffin, 2006).

³⁸*Ibid.*, p. 13.

³⁹*Ibid.*, p. 23.

⁴⁰While I focus here on instances of testimonial injustice, the fact that pediatricians have also been unwilling to answer questions or to seriously consider objections is a reason for thinking that vaccine denialists are likely subject to other forms of epistemic injustice, too. For discussion of forms of epistemic injustice that extend beyond testimonial injustice, see Christopher Hookway, “Some Varieties of Epistemic Injustice: Reflections on Fricker,” *Episteme* 7 (2010): 151-63.

⁴¹Miranda Fricker, *Epistemic Injustice: Power and the Ethics of Knowing* (Oxford: Oxford University Press, 2007), p. 1. The term “epistemic injustice” has been popularized by Fricker, e.g., in “Epistemic Justice and a Role for Virtue in the Politics of Knowing,” *Metaphilosophy* 34 (2003): 154-73, and in *Epistemic Injustice*. However, the idea it denotes has been explored in earlier work in feminist social epistemology, e.g., Kathryn Pyne Addelson, “The Man of Professional Wisdom,” in Harding and Hintikka (eds.),

mother's experiential or intuitive knowledge on the grounds that it lacks the rigor or objectivity of medical knowledge, or because it arises from the experiences of a nonprofessional.⁴² When a physician discounts a mother's "experiential testimony" because she is a woman (or a nonprofessional), the relationship between the two "stops being merely a hierarchy and becomes an oppressive hierarchy."⁴³ It is oppressive because it "excludes the subject [the mother] from trustful conversation," on the basis of her membership in a disadvantaged social group.⁴⁴

Given the important role that participation in trustful conversation plays in persons' lives, exclusion from the respectful give-and-take of reasons is an especially grave offense, one that causes moral harm to the victim of epistemic injustice and which undermines the likelihood that inquiry will achieve its epistemic goals.⁴⁵ Miranda Fricker has stressed the importance of being included in trustful conversation, and the seriousness of the harms of testimonial injustice. She says that testimonial injustice

marginalizes the subject in her participation in the very activity [trustful conversation] that steadies the mind and forges an essential aspect of identity—two processes of fundamental psychological importance for the individual. Further, testimonial injustice is not merely a moment of exclusion from this doubly psychologically valuable activity, it is a prejudicial exclusion.⁴⁶

We all need to be able to participate in a respectful give-and-take of reasons with those with whom we share our lives. Trustful conversation helps us to avoid mistaken ways of thinking and it allows us to identify ourselves as valued participants in communities of knowing. When pediatricians commit testimonial injustices against the mothers of their patients, they may cause significant harm.

Under optimal conditions, a pediatrician would be a trusted authority (perhaps the most trusted authority) on the safety and efficacy of childhood vaccines.⁴⁷ However, when a pediatrician refuses to take seriously a

Discovering Reality, pp. 165-86.

⁴²Fricker, *Epistemic Injustice*, pp. 90 f.

⁴³Lindemann, "Feminist Bioethics," pp. 122-23. For discussion of the way in which the professional/nonprofessional hierarchy can become oppressive, see Iris Marion Young, "Five Faces of Oppression," in *Justice and the Politics of Difference* (Princeton, N.J.: Princeton University Press, 1990), chap. 2, pp. 56-58.

⁴⁴Fricker, *Epistemic Injustice*, p. 53.

⁴⁵On the relationship between the moral harms and the epistemic failures to which epistemic injustices may contribute, see Lorrain Code, "The Power of Ignorance," *Philosophical Papers* 33, no. 3 (2004): 291-308, and Helen Longino, *The Fate of Knowledge* (Princeton, N.J.: Princeton University Press, 2001).

⁴⁶Fricker, *Epistemic Injustice*, pp. 53-54.

⁴⁷Indeed, parents (in aggregate) place more trust in medical professionals' advice

mother's reports about her child's deteriorating health in the aftermath of vaccination, or when he refuses to respectfully respond to her worries about the necessity or safety of vaccination, he may also undermine the trust that she is willing to place in *his testimony* about vaccines.⁴⁸ Such a pediatrician demonstrates that he is deficient in his performance of an important epistemic practice: making judgments about the credibility of sources of (putative) knowledge. The fact that a pediatrician is not skillful in his assessment of the credibility of sources of (putative) knowledge is a reason for a mother to withhold her assent from that pediatrician's testimony about the science surrounding routine childhood vaccination. In this way, the existence of authoritarian pediatrician-parent relationships may provide a reason for mothers to be skeptical of the pediatrician's claims about vaccine science and to seek out communities of medical practice that affirm her status as a knower.

Mothers who are subjected to testimonial injustice by their children's pediatricians have good reason to find other pediatricians, specifically, pediatricians who will not subject them to testimonial injustice. Victims of oppression have a right to escape oppressive conditions. Even if they may sometimes be obligated to resist their oppression, the best way to resist one's oppression may sometimes be to abandon oppressive relationships and to create new forms of social life. Of course, there may be good reason for a mother who has faced epistemic injustice at the hands of a mainstream pediatrician to seek out another mainstream pediatrician (but to insist that the new pediatrician include her in trustful conversation). However, a mother who believes that testimonial injustices are much less common among vaccine denialists may have a good reason (about *reasoning*) for abandoning mainstream pediatric practices. The fact that there is a good (albeit defeasible) reason for embracing vaccine denialism undercuts a quick ascription of irrationality to vaccine denialists.

5. Epistemic Virtues of Vaccine Denialism

One thing that distinguishes vaccine denialism from other forms of mass skepticism or refusal of mainstream medical practices is that vaccine

about vaccine safety than in any other source. See Heidi J. Larson et al., "Addressing the Vaccine Confidence Gap," *The Lancet* 378 (2011): 526-35, p. 532. On the role of experts in informed decision-making, see Alvin Goldman, "Experts: Which Ones Should You Trust?" *Philosophy and Phenomenological Research* 63, no. 1 (2001): 85-110; Philip Kitcher, *The Advancement of Science: Science Without Legend, Objectivity Without Illusions* (Oxford: Oxford University Press, 1993).

⁴⁸On the vulnerability of the oppressed to the power of experts, see Lorraine Code, *What Can She Know? Feminist Theory and the Construction of Knowledge* (Ithaca, N.Y.: Cornell University Press, 1991); and Sherwin, *No Longer Patient*.

denialism offers an attractive *alternative epistemological space*. It manifests epistemic virtues that correspond to some of the epistemic vices of mainstream medicine. Those who participate in vaccine denialism are doing much more than merely refusing to participate in routine childhood vaccination. They are also participating in an alternative community of knowers, one whose methods of inquiry reflect different values from those reflected by the practice of mainstream medicine.

The most distinctive epistemic virtue of vaccine denialism is its *democratic allocation of epistemic authority*.⁴⁹ This is manifest in three ways. First, vaccine denialism has generated online and in-person communities in which anyone may access and contribute information about vaccination. An article from *The Lancet* observes that vaccine denialists

have changed the environment around vaccines from top-down expert-to-consumer (vertical) communication towards non-hierarchical, dialogue-based (horizontal) communication, through which the public increasingly questions recommendations of experts and public institutions on the basis of their own, often web-based, research.⁵⁰

One need not have a medical degree to enter into inquiry among vaccine denialists. For example, Jenny McCarthy reports that “[t]he University of Google is where I got my degree from.”⁵¹ Like many vaccine denialists, McCarthy used the Internet to seek out information about vaccines. And, like other vaccine denialists, she developed online relationships with other parents who had similar experiences and worries surrounding childhood vaccination. One place that fosters such relationships is the online message board sponsored by *Mothering* magazine, which now contains over 27,000 conversations (and over 300,000 posts) on the topic of childhood vaccination.⁵² For many parents, such online forums encourage respectful and inclusive discussion, and motivate parents to become active participants in inquiry. As a result, some vaccine denialists have come to call themselves “parent-researchers.”⁵³ The most active vaccine denialists have developed an alternative industry of labs and journals, where the relevant evidence consists, among other things, of compilations of the “parental reports of autistic children.”⁵⁴ It provides epistemic

⁴⁹On the importance of egalitarian norms for allocating epistemic authority, see Elizabeth Anderson, “The Democratic University: The Role of Justice in the Production of Knowledge,” *Social Philosophy & Policy* 12, no. 2 (1995): 186-219; Longino, *The Fate of Knowledge*.

⁵⁰Larson et al., “Addressing the Vaccine Confidence Gap,” p. 528.

⁵¹Mnookin, *The Panic Virus*, p. 253.

⁵²“Forums,” *Mothering*, n.d., <http://www.mothering.com/community/f/>.

⁵³Mnookin, *The Panic Virus*, p. 135.

⁵⁴*Ibid.*, pp. 143-44. For one example of “research” into vaccine safety based on the reports of parents, see S. Bernard, A. Enayati, L. Redwood, H. Roger, and T. Binstock,

privilege to parents (and especially to mothers).⁵⁵

A second manifestation of the democratic allocation of epistemic authority within vaccine denialist spaces is the prevalence of collaborative relationships that exist there between pediatricians and parents. The physicians who are vaccine denialists—or who are willing to treat the children of vaccine denialists—present themselves as co-equal participants with parents.⁵⁶ They may see themselves as a corrective against the paternalistic abuses of medical authority that other physicians commit. For example, Andrew Wakefield explains that his involvement in vaccine denialism was a response to

[attempts to] dismiss parents' claims of a link between their child's disorder and MMR without due investigation, in breach of the most fundamental rules of clinical medicine ... When parents have their claims dismissed, out of hand ... they create frustration, resentment, and distrust; similarly disaffected parents form into self-help groups.⁵⁷

Wakefield presents himself, and his work, as an antidote to pediatricians who unreflectively dismiss parents' testimony regarding their children's health and disregard parents' concerns regarding vaccine safety. Jenny McCarthy writes that Andrew Wakefield “did the sort of thing most of us expect out of our doctors ... he listened closely to the stories of parents and he told the truth.”⁵⁸ As I discuss in the next section of this paper,

“Autism: a Novel Form of Mercury Poisoning,” *Medical Hypotheses* 56 (2001): 462-71. The following comment from the editors of the journal in which this “research” appears is instructive: “The purpose of *Medical Hypotheses* is to publish interesting theoretical papers. The journal will consider radical, speculative and non-mainstream scientific ideas provided they are coherently expressed.” Editors of *Medical Hypotheses*, “Medical Hypotheses: Guide for Authors,” n.d., http://www.elsevier.com/wps/find/journaldescription.cws_home/623059/authorinstructions. It seems likely that some of these “alternative” forms of research are not so much manifestations of (the epistemic virtue of) egalitarian practices of inquiry, but manifestations of (the epistemic vice of) a failure to recognize differences in medical expertise. I discuss this vice, and the tension between the epistemic virtues and vices of vaccine denialism, in the following sections of the paper.

⁵⁵On granting epistemic privilege in response to epistemic injustices, see Linda M. Alcoff, “Epistemic Identities,” *Episteme* 7, no. 2 (2010): 128-37; and Kristina Rolin, “Standpoint Theory as a Methodology for the Study of Power Relations,” *Hypatia* 24, no. 4 (2009): 218-26.

⁵⁶This is not to say that the medical professionals who treat vaccine denialists are also necessarily vaccine denialists. There is evidence that many physicians who treat nonvaccinated children have a high opinion of vaccines, though they also tend to believe that the CDC understates the side effects of vaccination. See Glanz et al., “Parental Refusal of Pertussis Vaccination is Associated with an Increased Risk of Pertussis Infection in Children”; Omer et al., “Vaccine Refusal, Mandatory Immunization, and the Risks of Vaccine-Preventable Diseases”; Salmon et al., “Vaccine Knowledge and Practices of Primary Care Providers of Exempt vs. Vaccinated Children.”

⁵⁷Wakefield, *Callous Disregard*, p. 85.

⁵⁸McCarthy, “Foreword,” p. iii.

Wakefield has recently been exposed as an unethical fraud.⁵⁹ However, there is no essential connection between his failures as an academic or as a physician and the fact that he treated parents as equal participants in decisions about their children's health. One can applaud his epistemic virtues without also applauding his epistemic and moral vices.

A third manifestation of the democratic allocation of epistemic authority within vaccine denialist spaces is the presence of members of otherwise subordinate groups among the leadership of this movement. Specifically, non-physician mothers have consistently been at the forefront of vaccine denialism's leadership. Lea Thompson has been credited with initiating the contemporary vaccine denialism movement with her 1982 NBC broadcast, "DPT: Vaccine Roulette."⁶⁰ She, along with Barbara Loe Fisher, was instrumental in getting the National Childhood Vaccine Injury Act passed in 1986.⁶¹ Senator Paula Hawkins, who was the first (and still the only) woman senator from Florida, chaired the first congressional hearings on whether vaccines caused brain damage. The current executive director of NVIC, the largest advocacy group for vaccine safety, is a woman (as are nine out of the thirteen members of its board and staff).⁶² Jenny McCarthy is now "America's most recognized anti-vaccine activist," with books, a television show, and numerous television and print interviews.⁶³ McCarthy's work has been promoted by Oprah Winfrey, who is, herself, one of the most powerful media personalities of our day.⁶⁴ The presence of these women in leadership positions signals to other non-physician mothers that their experiences, questions, and advice will be welcome within vaccine denialist communities.

There is good reason to seek out communities whose members engage in good epistemic practices. Therefore, parents who have been attracted to vaccine denialism by its epistemic virtues may have good reasons (about reasoning) for participating in vaccine denialism.

⁵⁹Brian Deer, "How the Vaccine Crisis Was Meant to Make Money," *British Medical Journal* 342 (2011): c5258; General Medical Council, *Fitness to Practice Panel Hearing, Andrew Wakefield, Determination of Serious Professional Misconduct*, May 24, 2010; Fiona Godlee, Jane Smith, and Harvey Marcovitch, "Wakefield's Article Linking MMR Vaccine and Autism Was Fraudulent," *British Medical Journal* 342 (2011): c7452.

⁶⁰Lea Thompson, "DPT: Vaccine Roulette," Washington, D.C.: WRC-TV (NBC), April 19, 1982.

⁶¹Offit, *Deadly Choices*, p. 60.

⁶²National Vaccine Information Center, "About Us."

⁶³Offit, *Deadly Choices*, p. 151.

⁶⁴"The Most Influential U.S. Liberals: 1-20," *The Telegraph*, October 31, 2007, <http://www.telegraph.co.uk/news/worldnews/1435442/The-most-influential-US-liberals-1-20.html>.

6. Epistemic Vices of Vaccine Denialists

Vaccine denialists also often manifest poor epistemic practices. These include epistemic relativism, the pursuit of an uncritical affirmation of their existing beliefs, and a failure to show appropriate regard for differences in expertise or competence. Parents who have been attracted to vaccine denialism by these (or other) epistemic vices are responding to bad reasons (about reasoning).

First, some vaccine denialists are committed to epistemic relativism, in that they endorse the truth of claims about vaccine safety for nonepistemic reasons.⁶⁵ One example is a belief that animates many vaccine denialists: that there are *toxins* in vaccines that cause diseases and disorders.⁶⁶ Vaccine denialists have a history of making confident assertions that ingredients in vaccines (e.g., thimerosal/thiomersal) cause disorders (e.g., autism).⁶⁷ Later, in the face of scientific studies that demonstrate that these ingredients are very unlikely to cause the relevant disorders, vaccine denialists make equally confident assertions that different ingredients in vaccines (e.g., formaldehyde, aluminum) cause those disorders.⁶⁸ The problem here is not that vaccine denialists are willing to

⁶⁵On epistemic relativism, see Paul Boghossian, *Fear of Knowledge: Against Relativism and Constructivism* (New York: Oxford University Press, 2007).

⁶⁶This charge is distinct from the trivial fact that vaccines contain pathogens that can sometimes cause the illnesses against which vaccines aim to provide immunity.

⁶⁷Kirby, *Evidence of Harm*; Robert F. Kennedy, Jr., “Deadly Immunity,” *Rolling Stone*, July 14, 2005. Both *Rolling Stone* and *Salon.com* (which published vaccine denialist pieces by Robert F. Kennedy, Jr.) later retracted Kennedy’s articles. See Jim Edwards, “Rolling Stone Retracts Autism Article, but Lots of Junk Journalism Remains—CBS News,” *CBS News*, January 21, 2011, http://www.cbsnews.com/8301-505123_162-42847146/rolling-stone-retracts-autism-article-but-lots-of-junk-journalism-remains/?tag=bnetdomain; Kerry Lauerman, “Correcting Our Record,” *Salon.com*, January 16, 2011, http://www.salon.com/2011/01/16/dangerous_immunity/. The Centers for Disease Control and the American Academy of Pediatrics did not help matters when they issued a joint statement requesting that vaccine manufacturers remove thimerosal from vaccines, absent any evidence that that ingredient was harmful. See Centers for Disease Control and Prevention, “Thimerosal in Vaccines: a Joint Statement of the American Academy of Pediatrics and the Public Health Service,” July 9, 1999, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4826a3.htm>; Centers for Disease Control and Prevention, “Impact of the 1999 AAP/USPHS Joint Statement on Thimerosal in Vaccines on Infant Hepatitis B Vaccination Practices,” February 16, 2001, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5006a3.htm>.

⁶⁸Eric Fombonne, “Thimerosal Disappears but Autism Remains,” *Archives of General Psychiatry* 65, no. 1 (2008): 15-16; Catherine Frompovich, “Formaldehyde in Vaccines,” *Vactruth.com*, June 14, 2011, <http://vactruth.com/2011/06/14/formaldehyde-in-vaccines/>; Jeffrey S. Gerber and Paul A. Offit, “Vaccines and Autism: A Tale of Shifting Hypotheses,” *Clinical Infectious Diseases* 48, no. 4 (2009): 456-61; Lawrence Palevsky, “Aluminum and Vaccine Ingredients: National Vaccine Information Center,” *National Vaccine Information Center*, n.d., <http://www.nvic.org/doctors-corner/Aluminum-and->

abandon their confident beliefs about the etiology of disorders and diseases in the face of weighty contradictory evidence. (That is an epistemically virtuous disposition.) Rather, the problem is that vaccine denialists have a history of moving from unjustified confidence in one supposed cause of a disorder to unjustified confidence in another supposed cause of that disorder. This is not a practice of truth-oriented inquiry. Instead, it seems driven by the deep desire that some parents have to identify the *cause* of their children's disorder and to believe that there is something they can do to *prevent* other children from experiencing the same fate.⁶⁹ These motivations are understandable and commendable. However, inasmuch as these are reasons why vaccine denialists have endorsed the truth of claims about vaccine safety, they provide evidence of a poor epistemic practice: treating nonepistemic reasons as considerations in favor of assenting to claims about medical science.

A second epistemic vice of vaccine denialists is their pursuit of uncritical affirmation of their existing beliefs. Vaccine denialists manifest this epistemic vice when they seek to avoid engaging in the giving and taking of reasons about vaccines with their pediatricians. Some vaccine denialists go to great lengths to find healthcare providers who will not challenge their beliefs. They often replace their children's pediatricians with naturopaths, homeopaths, and chiropractors, that is, "medical" professionals whose training in alternative therapies often makes them unprepared to understand research science, predisposed to reject evidence-based forms of medicine, and less willing to challenge parents' preconceptions.⁷⁰ Consider the following advice that a user ("Cristiaz") of the *Mothering* magazine online discussion forums provides to mothers who are shopping for health care professionals:

[A]s their mother ... you are there [sic] doctor! No one knows your kids better than you. Doctors are just human being [sic] who make a lot [sic] money. Find a doctor who won't

Vaccine-Ingredients.aspx.

⁶⁹For an illustration of the comfort and hope that parents may experience as a result of "learning" that their children's autism was caused by vaccines, see McCarthy, *Mother Warriors*.

⁷⁰Edzard Ernst, "Rise in Popularity of Complementary and Alternative Medicine: Reasons and Consequences for Vaccination," *Vaccine* 20 (2001): S90-S93. Vaccine denialists' embrace of alternative medical professionals is also an example of the third epistemic vice: a failure to recognize differences in expertise and competence. (I discuss this vice immediately below.) Importantly, a desire for uncritical affirmation of one's beliefs does not necessarily also demonstrate insufficient recognition of expertise and competence. One may seek uncritical affirmation of one's beliefs in contexts in which there are no experts. I thank an anonymous referee of this journal for encouraging me to highlight this distinction.

give you hell about not vaxing ... do all your own research ... and find a naturopath there for assistance when necessary.⁷¹

A parent fails to engage in the best practices for inquiry when she seeks out healthcare providers who will not challenge her beliefs and when she treats them as mere instruments for her reception of medical services.

A third epistemic vice of vaccine denialists is a failure to show appropriate regard for differences in expertise and competence. Some vaccine denialists seem unwilling to recognize that some persons (e.g., physicians and medical researchers) are more likely than non-physician parents to (be able to) well understand immunology, epidemiology, and other topics related to vaccination. This is a vicious overdevelopment of vaccine denialism's otherwise virtuous practice of inviting parents and pediatricians to partner together in inquiry about children's healthcare. Furthermore, vaccine denialists have been willing to discount the findings of medical researchers and the decisions of medical authorities when these have been critical of their movement.

The case of Andrew Wakefield is an evocative example of the failure of vaccine denialists to recognize differences in expertise or competence. Wakefield was the lead author of the 1998 *Lancet* paper that claimed to find a link between the MMR vaccine and behavioral regression (i.e., of the sort that autistic children often display).⁷² As a result of this (and other) work, Wakefield became a celebrated leader of the vaccine denialism movement, headlining conferences and serving as vaccine denialists' model of "a physician who listens to parents."⁷³ The *British Medical Journal* later confirmed that the 1998 study was fraudulent, and was shot through with conflicts of interest.⁷⁴ Furthermore, the General Medical Council found Wakefield guilty of many serious ethical lapses and, for that reason, barred him from practicing medicine in Great Britain.⁷⁵ While vaccine denialists have had diverse responses to these developments, many have rallied around Wakefield. Major autism activist groups have continued to support him, and have denounced those who

⁷¹"Forums > Health > Vaccinations > I'm Not Vaccinating > Give Me Strength," *Mothering*, September 22, 2009, <http://www.mothering.com/community/t/1135869/give-me-strength> (ellipses in original).

⁷²Andrew J. Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children," *The Lancet* 351, no. 9103 (1998): 637-41.

⁷³For example, Wakefield was the headline speaker at both the NVIC's 2009 annual conference and the International Chiropractors Association's 2008 annual conference.

⁷⁴Deer, "How the Vaccine Crisis Was Meant to Make Money"; Godlee, Smith, and Marcovitch, "Wakefield's Article Linking MMR Vaccine and Autism Was Fraudulent."

⁷⁵General Medical Council, *Fitness to Practice Panel Hearing, Andrew Wakefield, Determination of Serious Professional Misconduct*.

have criticized him.⁷⁶ Wakefield's 2011 book, *Callous Disregard*, was well-reviewed by high-profile members of the vaccine denialism movement.⁷⁷ Parents who continue to put their trust in the views of Andrew Wakefield clearly do not grant sufficient credibility to the processes by which academic journal articles are retracted or by which physicians are stripped of their licenses to practice. These vaccine denialists have granted insufficient epistemic weight to medical and academic experts.

There may seem to be a tension between my criticism of the failure of vaccine denialists to recognize the authority of medical experts and my advocacy of more democratic allocations of epistemic authority within pediatric practice. Indeed, it is a common criticism of feminist epistemology that its advocacy of inclusive and egalitarian communities of knowers is inconsistent with the recognition of differences in expertise and competence.⁷⁸ Perhaps authoritarian pediatrician-parent relationships are a necessary (though unfortunate) means for encouraging proper recognition of the differences in expertise and competence that exist between parents and pediatricians.

In response, some egalitarian epistemic practices are surely consistent with the recognition of differences in expertise and competence within pediatric practice. First, pediatricians may acknowledge that parents are generally experts on many topics, including their children's symptoms, general dispositions, and medical histories. Even if parental reports on these topics are fallible, the fact that parents spend so much time with their children means that they should be granted at least as much epistemic authority on these topics as is granted to pediatricians (who usually see their patients only infrequently). Second, pediatricians may treat parents as partners in deliberations about healthcare choices for their chil-

⁷⁶Age of Autism et al., "Autism Advocacy Organizations and Parent Groups Support Dr. Andrew Wakefield," January 12, 2011, <http://www.prnewswire.com/news-releases/autism-advocacy-organizations-and-parent-groups-support-dr-andrew-wakefield-113355509.html>.

⁷⁷Consider the following comment from a review of *Callous Disregard* by Mary Holland, Esq., Co-Founder, Elizabeth Birt Center for Autism Law and Advocacy: "Dr. Wakefield sets the record straight. It was not he who showed callous disregard towards vulnerable, sick children with autism. It was the British medical establishment, the General Medical Council, the media and the pharmaceutical industry that threw the children under the bus to protect the vaccine program," Mary Holland, "Callous Disregard," 2011, <http://www.callous-disregard.com/reviews.htm>.

⁷⁸Cassandra Pinnick, Noretta Koertge, and Robert Almeder (eds.), *Scrutinizing Feminist Epistemology: An Examination of Gender in Science* (New Brunswick, N.J.: Rutgers University Press, 2003). Feminist epistemologists have insisted that democratic allocations of epistemic authority can be consistent with the recognition of legitimate differences in expertise or competence. See Anderson, "The Democratic University"; Elizabeth Anderson, "How Not to Criticize Feminist Epistemology: Review of Pinnick, Koertge, and Almeder," n.d., <http://www-personal.umich.edu/~7Eeandersn/hownotreview.html>.

dren. This is not only because parents possess expert knowledge on some topics. It is also because of the epistemic harms pediatricians may cause to parents when they refuse to listen to parental reports or respond respectfully to parents' questions and concerns. When pediatricians act from paternalistic motives or with a tone of condescension, they may thereby prevent parents from realizing the epistemic benefits that might otherwise be generated by more respectful exchanges. Neither of these two egalitarian pediatrician-parent dynamics is inconsistent with a parent's recognition that pediatricians are often experts on many topics in medical science (including the safety and efficacy of vaccines). Mainstream medicine can appropriate vaccine denialism's chief epistemic virtue without falling victim to its epistemic vices.

7. Blaming Physicians, Blaming Parents

Our judgments about the poor epistemic practices of pediatricians and vaccine denialists must be attentive both to the dynamics of particular cases and to broader structural phenomena. First, pediatricians who commit testimonial injustices against the mothers of their patients may not do so intentionally. In fact, it is unlikely that many pediatricians think of themselves as sexists or consciously exclude mothers from trustful conversation. Instead, many of those pediatricians who subject mothers to testimonial injustice likely do so on the basis of *implicit biases*.⁷⁹ The power of their implicit biases may be magnified by the fact that many physicians are likely underprepared for dealing with patients who expect to be informed and active participants in their medical care.⁸⁰ The fact

⁷⁹The contemporary idea of implicit bias emerges from work in social psychology on "implicit cognition" and from the results of the Implicit Association Test (IAT). See Anthony G. Greenwald, Debbie E. McGhee, and Jordan L.K. Schwartz, "Measuring Individual Differences in Implicit Cognition: The Implicit Association Test," *Journal of Personality and Social Psychology* 74, no. 6 (1998): 1464-80. One famous experiment on implicit bias (that did not rely upon the IAT) showed that when identical fictitious resumes were sent in response to job adds, those resumes to which "white" names were attached were 50% more likely to generate interviews than the resumes to which "black" names were attached. See Marianne Bertrand and Sendhil Mullainathan, "Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination," *American Economic Review* 94, no. 4 (2004): 991-1013.

⁸⁰Of course these norms are not novel, but patient invocation of these norms in medical practice is becoming increasingly widespread. For an early work on patient autonomy and informed consent, which traces the historical development of these ideas, see Ruth R. Faden, Tom L. Beauchamp, and Nancy M.P. King, *A History and Theory of Informed Consent* (New York: Oxford University Press, 1986). On the specific intersection of issues of patient autonomy, informed consent, and childhood vaccination, the following passage from Dr. Robert Sears is instructive: "In the old days, most parents simply fol-

that there is often very little time during pediatric office visits for the kinds of discussions that could adequately and respectfully address parents' concerns is also likely a contributing factor to physicians' participation in testimonial injustice.⁸¹

Second, the fact that some parents (and especially mothers) have been subjected to disrespectful (even abusive) treatment by pediatricians makes their resistance to reasoning with pediatricians less blameworthy. Also, many of the parents who do not want to reason with physicians, or who no longer consider them to be medical experts, may have developed confidence about their views about vaccines after numerous online and in-person discussions with fellow vaccine denialists. They may (believe that they) have already given sufficient consideration to the reasons in favor of vaccination. Finally, parents whose children have serious disorders (e.g., autism) are likely to be physically and emotionally exhausted by caring for their children. This fact may make it less blameworthy for the parents of such children to assent to claims about the etiology of their children's disorders for nonepistemic reasons.

Another factor that may mitigate the blameworthiness of parents' participation in vaccine denialism is that acts of testimonial injustice can be self-fulfilling.⁸² When a pediatrician treats a mother as if she were incapable of understanding vaccine science, or as if she were unable to provide reliable testimony regarding her child's health, these failures of trustful communication may contribute to the construction of the very phenomena they presuppose. They may be instances of *stereotype threat*, that is, when a member of a disadvantaged group instantiates a negative stereotype of her group after she has been made anxious or frustrated under conditions in which she has the potential to confirm that negative stereotype.⁸³ When a mother is confronted by a pediatrician who assumes that she does not (and cannot) understand the science of vaccines, the

lowed their doctor's advice and automatically got their children vaccinated. But now virtually every parent has heard that there may be some side effects and other problems with vaccines, and they are confused." *The Vaccine Book*, p. xi.

⁸¹On the relationship between the temporal duration of patient-physician interactions and patient satisfaction with their roles in healthcare decision-making, see David Dugdale, Ronald Epstein, and Steven Pantilat, "Time and the Patient-Physician Relationship," *Journal of General Internal Medicine* 14, no. S1 (1999): 34-40.

⁸²Miranda Fricker describes this phenomenon: "[T]he prejudice operating against the speaker may have a self-fulfilling power, so that the subject of the injustice is socially *constituted* just as the stereotype depicts her (that's what she counts as socially), and/or she may be actually *caused* to resemble the prejudicial stereotype working against her (that's what she comes in some measure to be)." *Epistemic Injustice*, p. 55 (emphasis in original).

⁸³Claude M. Steele, *Whistling Vivaldi: And Other Clues to How Stereotypes Affect Us* (New York: W.W. Norton, 2010).

anxiety or anger that this confrontation generates may, in turn, undermine a mother's ability to understand the relevant science. Furthermore, women in sexist societies are frequently subjected to stereotype threat, and long-term exposure to stereotype threat within a particular domain can encourage women to avoid the domains within which they experience that stereotype threat.⁸⁴ Women who have frequently been subjected to stereotype threat under conditions that require the demonstration of scientific knowledge may attempt to avoid conditions that require the demonstration of scientific knowledge. Among other things, they may seek out vaccine denialism so as to avoid confrontations with pediatricians about the science of vaccines, confrontations in which they may frequently be subject to stereotype threat. And, when they find a medical professional (like Andrew Wakefield) who fosters a comfortable clinical space, they may be especially reluctant to recognize this person's epistemic (and moral) failures.

8. Looking Forward: Gender Justice and Public Health

I have argued that vaccine denialists reject not only the *reasons* mainstream medicine offers in favor of vaccination, but also the practices of *reasoning* that are prevalent in mainstream medical contexts. Furthermore, I have argued that vaccine denialist communities have, in some ways, improved upon mainstream medicine's status quo. For that reason, it would be overly simplistic to claim that vaccine denialists are irrational. However, vaccine denialists are also often committed to poor epistemic practices. These include a failure to recognize differences in expertise or competence, a willingness to make truth ascriptions for nonepistemic reasons, and a pursuit of uncritical affirmation of their existing beliefs. So, even if vaccine denialists are not completely irrational, they are also not committed to the best practices for inquiry.

It is a consequence of my view that public health efforts to increase the rates of routine childhood vaccination ought to aim not only at educating parents and physicians about the reasons in favor of vaccination (e.g., the safety and efficacy of vaccines, vaccination's role in public health). They also ought to aim at undermining the epistemic vices that exist within mainstream medical communities, with an eye towards rep-

⁸⁴A common example is of girls and women who, after facing chronic stereotype threat in contexts that require the demonstration of mathematical knowledge, decide to avoid contexts that require the demonstration of mathematical knowledge J. Steele, J.B. James, and R.C. Barnett, "Learning in a Man's World: Examining the Perceptions of Undergraduate Women in Male-Dominated Academic Areas," *Psychology of Women Quarterly* 26, no. 1 (2002): 46-50.

licating the epistemic virtues present in vaccine denialist communities. In particular, advocates of routine childhood vaccination programs should work to root out practices of testimonial injustice (and epistemic injustice, more generally) in mainstream medical contexts, in exchange for a more democratic allocation of epistemic authority among parents and pediatricians.

Of course, the changes I recommend would require major changes to the ways in which medicine is often practiced. For example, parents and pediatricians would need time to engage in the giving and taking of reasons, and time to develop the trusting relationships that make the informed and respectful giving and taking of reasons possible. As is well documented, current managed medical care makes this goal difficult (or impossible) to achieve.⁸⁵

Of particular interest to me in this paper is that greater social and political gender equality may help to rid mainstream medicine of some of the epistemic vices that vaccine denialists report. Recall that epistemic injustices, like testimonial injustice, are parasitic upon broader forms of social and political inequality. Inasmuch as prejudices rooted in gender inequalities contribute to the epistemic injustices to which vaccine denialists have been subjected, increased gender equality is likely to foster better informed and more respectful communication between patients and physicians. Of course, public health advocates cannot hope to defeat sexism by themselves. However, the fact that social and political forms of sexist oppression may undermine the practice of routine childhood vaccination should motivate those who care about public health to become engaged in broader feminist struggles.⁸⁶

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⁸⁵Dugdale, Epstein, and Pantilat, "Time and the Patient-Physician Relationship."

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