

## Chapter 3

### Disgust, Contamination, and Vaccine Refusal

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#### Abstract

Vaccine refusers often seem motivated by disgust, and they invoke ideas of purity, contamination and sanctity. Unfortunately, the emotion of disgust and its companion ideas are not directly responsive to the probabilistic and statistical evidence of research science. It follows that increased efforts to promulgate the results of vaccine science are not likely to contribute to increased rates of vaccination among persons who refuse vaccines because of (what has been called) the ‘ethics of sanctity’. Furthermore, the fact that disgust-based vaccine refusal is not monolithic – vaccine refusers manifest disgust at different objects and invoke different ideas about purity and contamination – further complicates public health efforts to increase vaccination rates.

“[V]accines are metaphors . . . for capitalist corruption, cultural decadence, and environmental pollution” (Biss 2013, 33).

#### 1 Introduction

Parents in the United States, Australia, and the United Kingdom (among other countries) are increasingly refusing routine childhood vaccines (Omer et al. 2009; Omer et al. 2012; Nicholson and Ramet 2013; Konner 2011; Glanz et al. 2013). Many of these 'vaccine refusers' invoke ideas about *sanctity*.<sup>1</sup> They think vaccines are disgusting (or otherwise contaminated), or they think that vaccines are unnecessary when individuals and communities avoid broader forms of cultural and bodily pollution. The ethics of sanctity helps to make sense of three otherwise inscrutable aspects of vaccine refusal:<sup>2</sup>

1. *Historical Invariability*: Vaccine refusers have been making many of the same objections for 200 years, even though vaccines are now much more safe and effective than they were when mass immunization began (Wolfe and Sharp 2002; Offit 2010, 105; Allen 2007, 333–337; Kitta 2012, 11).
2. *Educated Error*: Vaccine refusers are, on average, better educated than are persons who do not refuse vaccines, even though there is overwhelming scientific evidence that vaccines are safe and effective (Mnookin 2011a, 12; Largent 2012, 32).

3. *Bipartisanship*: Vaccine refusal is equally common among liberals and conservatives (Kirby 2006, xiv; Mooney 2011) This is unlike other contemporary forms of mass science refusal, which are strongly correlated with political ideology (e.g., denial of evolution and climate change among conservatives; denial of GMO safety among liberals) (D. Kahan and Braman 2006).

One reason for the historical invariability of vaccine refusal is that ideas about sanctity and contamination are largely insensitive to the facts about harms and benefits which are established by vaccine science. Even though vaccines are now both more beneficial and less harmful than they were in previous generations, such facts may fail to adequately defend vaccines against the charge that they transgress boundaries between the sacred and the profane. Educated error may also arise from an ethics of sanctity. More educated people may know more about how vaccines are made or how vaccine policy is promulgated, and this knowledge may trigger disgust or other adverse sanctity-based responses. The ethics of sanctity may also help to explain the bipartisanship of vaccine refusal. Vaccines contain (or are believed to contain) ingredients which are among the core objects of disgust across human populations (and across political divides): decaying parts of animal and human bodies. Also, when the scope of disgust (and other adverse responses to violations of sanctity) extends beyond these core objects, it is informed by diverse social, political, and religious ideals.

## 2 Core Objects of Disgust

Almost all human beings are disgusted by a core group of objects. These include bodily waste, spoiled foods, corpses, and animal body parts. While the complete scope of disgust varies among persons and between cultures, these core objects attract near-universal aversion (Schaller and Park 2011; Curtis and Biran 2001; W. I. Miller 1997; Haidt 2012). Disgust is not merely an emotional response; it also has cognitive content. Disgust includes an underlying belief that a person can become degraded if decaying matter (e.g., from dead animals or human beings) enters her body (Rozin and Fallan 1987; Rozin, Haidt, and McCauley 2000). This contamination undermines her humanity: It compromises her purity, her nonanimality, and her life itself.<sup>3</sup> Importantly, the beliefs which inform the disgust response do not focus upon moral wrongs or measurable harms, but upon one's status in the order of nature. Jonathan Haidt illustrates this idea when he reflects upon the near-universal human aversion to bestiality: "Even if it does no harm and violates nobody's rights when a man has sex with a chicken carcass, [people believe that] he still shouldn't do it because it degrades him" (2012, 100).<sup>4</sup> As Haidt implies, the beliefs which underlie disgust are not likely to be responsive to evidence about harms and benefits. This is because the disgust response is informed

by our thoughts about the ontological status and the metaphysical health of the human person, and not by scientific evidence or naturalized moral arguments. As Martha Nussbaum puts it, the cognitive content of disgust “is typically unreasonable, embodying magical ideas of contamination, and impossible aspirations to purity, immortality, and nonanimality” (2004, 14).<sup>5</sup>

## 2.1 Historical Vaccine Refusal and the Core Objects of Disgust

In 1798, Edward Jenner first publicized his success in immunizing persons against smallpox (Jenner 1798).<sup>6</sup> To vaccinate against smallpox, he made an incision upon a healthy person’s body. He extracted pus from the blisters of a person infected with cowpox and inserted the pus into the wound he had opened on the first person’s body. The vaccinated person later experienced a non-life-threatening infection, but was thereafter immune to smallpox.

Pus is disgusting. The pus from *animal-disease blisters* is even worse. It was predictable that people would respond to Jenner’s methods with disgust, and that they would object to vaccination on the grounds that it contaminated children’s bodies with cowpox pus. Consider Benjamin Moseley’s 1806 book-length criticism of Jenner’s methods, titled *Commentaries on the Lues Bovilla or Cow Pox* (Mosely 1806). Mosley objected to the fact that Jenner’s immunizations involved “the injection of the morbid matter of a diseased animal into a healthy child” (Mosely 1806). Moseley thought it beyond belief “[t]hat a people would be found to contaminate their offspring with a poison taken from the brute creation.” Notice that Mosley did not claim that Jenner’s methods were ineffective at preventing smallpox, nor did he claim that immunization caused measurable harms. Instead, he asserted that there was something intrinsically damaging about introducing decaying animal material into the bodies of healthy children. This sentiment was pervasive among members of early anti-vaccine movements, who worried that vaccination placed one’s humanity at risk, and who feared that “a beast be put into their children” (Durbach 2005, 125).<sup>7</sup> Consider an evocative engraving published by Great Britain’s Anti-Vaccination Society in 1802. This work, entitled “The Cow-Pock—or—the Wonderful Effects of the New Inoculation!”, shows Jenner vaccinating a room full of patients; they all begin to sprout cows from their heads, torsos, and appendages after Jenner is done with them (Gillray 1802).

## 2.2 Contemporary Vaccine Refusal and the Core Objects of Disgust

Doctors today do not spread cowpox pus into wounds they have opened upon children’s bodies. We have moved vaccination away from the filth of the barnyard and into the sterility of a

pediatrician's office. There, a syringe conceals the contents of vaccines from patients (and from their parents). For these reasons, Seth Mnookin observes that “[r]eceiving a shot in a doctor’s office might not activate the disgust response in the way that early inoculation methods did” (2011a, 195). Even so, contemporary vaccine refusers continue to claim that vaccination contaminates healthy persons by introducing decaying animal (and now human) body parts into their bodies.

Consider Neil Miller, the author of many best-selling books which criticize vaccines. He writes that one reason not to vaccinate is that vaccines contain “[m]onkey kidney, calf serum, and chick embryo [which] are foreign proteins – biological matters composed of animal cells” (1996, 48). Miller does not present scientific evidence to support his claim that one ought to avoid injecting these materials into one’s body (or into the body of one’s child). Instead, Miller invokes ideas of contamination, but he does so with a contemporary twist. He worries that introducing this animal material into human bodies will “change our genetic structure,” by introducing animal genes into the human genome (1996, 48).<sup>8</sup> Gene transfer is a real phenomenon, but there is no evidence that vaccination contributes to a harmful transfer of genes from animals to humans.<sup>9</sup> Instead, Miller seems driven by a traditional aversion to animal contamination, rather than by a scientific prediction of harmful outcomes. Accordingly, the differences between some contemporary vaccine refusers, like Miller, and the early anti-vaccinationists are largely superficial. Even though Miller frames his concerns in the rhetoric of science, he seems motivated by an age-old aversion to the contamination of the human body by animal body parts.

Changes in the ways that vaccines are made have led contemporary vaccine refusers to invoke one of the core objects of disgust that was not invoked by early anti-vaccinationists. Some vaccine refusers now object that vaccines contain “aborted fetal tissue” (Kirby 2006, 97).<sup>10</sup> This objection is based on the fact that many vaccines contain viruses that were grown in human cell cultures, and that these human cell cultures were cultivated from tissues harvested from aborted fetuses. For example, the human cell line WI-38 is used to make rubella vaccine, the human cell line MRC-5 is used to make hepatitis A vaccine, and the human cell line PER C6 is now being used to research and develop many new vaccines. All of these cell lines originated from the tissues of aborted fetuses (Plotkin 2011; Wong 2010).<sup>11</sup> Consider the worries of Shelley Reynolds, who spoke before the U.S. House Government Reform Committee about her concerns as a mother of a vaccinated child. She claimed that it was foolish to think that one could inject aborted fetal tissue into children’s bodies “and not expect [that]... it will not [sic] alter their minds and bodies” (Kirby 2006, 97). The implication is that it is damaging to children to inject them with these materials. Why?

An anti-abortion group – “Physicians for Life” – fills in the blanks. According to them, “more than 23 vaccines are contaminated by the use of aborted fetal cells,” and this contamination causes genetic damage which leads to diseases including lupus, multiple sclerosis, and autism (Deisher 2009). Like Miller, the members of “Physicians for Life” frame their objection in the rhetoric of science, and like Miller, they invoke the possibility of harmful gene transfer between vaccines and the genomes of vaccinated children. But these worries are not based on scientific evidence. Instead, the members of this group believe that decaying human body parts are sources of contamination.

### 3 Vaccines as Contaminants

The scope of the ethics of sanctity can extend beyond the core objects. Broader notions of disgust and contamination are informed by diverse social, political, and religious ideals. However, since people often disagree about social, political, and religious ideals, they also often disagree about the content of the ethics of sanctity, whenever it extends beyond the core objects of disgust.

#### 3.1 Divine Commands and Spiritual Contamination

Among the early anti-vaccinationists, sanctity-based vaccine refusal took a distinctively religious shape, even when it was not marshaled in response to the core objects of disgust. Early anti-vaccinationists often claimed that vaccines contaminated the body in ways that compromised a person’s spiritual status. In particular, early anti-vaccinationists invoked Biblical commands against making cuts upon the body (Allen 2007, 56). (For example, *Leviticus* 19:28 – “Do not cut your bodies for the dead or put tattoo marks on yourselves.”) Some early anti-vaccinationists believed that the scars from smallpox vaccination were “the mark of the beast;” these scars were an outward sign of a person’s rejection of God and of their commitment to follow Satan (Durbach 2005, 118). Accordingly, becoming vaccinated was “unchristian” and a form of “devil worship,” and some went so far as to say that vaccination turned a child into an “anti-Christ” (Durbach 2005, 118, 121). On such a view, vaccines were contaminants *not* (only) because they contained the core objects of disgust, but because they placed a person outside of the Christian community. Being vaccinated lowered one's standing in the eyes of God.

This explicitly religious characterization of the contaminating power of vaccines was prevalent among early anti-vaccinationists, but it is not nearly so common among contemporary vaccine refusers. For one indication of this change, consider that few parents in the United States ask for ‘religious’ exemptions to mandatory childhood vaccines, and that many of the small number

who do request religious exemptions are not actually objecting to vaccines for religious reasons (Associated Press 2007) . Consider, also, that very few contemporary religious leaders publicly support vaccine refusal.<sup>12</sup> Indeed, Mark Largent argues that public health officials make a serious error when they conclude that contemporary vaccine refusal results from religious convictions (Largent 2012, 25–26). Accordingly, in the remainder of this section, I examine three sources of the worry that vaccines are contaminants that are not explicitly religious: the dehumanization of modern medicine (3.2), the degradations of industrial capitalism (3.3), and the crises of contemporary childhood (3.4).

### 3.2 Doctors, Power, and Persons

Vaccine refusers often focus on (what they claim to be) the degrading ways in which modern medical professionals exercise power over their patients.<sup>13</sup> They claim that physicians treat people's bodies as mere objects upon which to work their craft. Even though young people may enter into a medical profession with noble motives, they soon become part of an inhuman machine, a machine whose power is not directed toward human health and well-being, but only toward the increase of its own power. An early 20<sup>th</sup> century anti-vaccinationist put her worries about the dehumanization of modern medicine this way: "Every doctor there [in the city] has become a cog in the medical machine. And once the machine gets its grip on you, you cannot escape, you are drawn in and ground through the mill" (Mnookin 2011a, 34–5; Allen 2007, 104–105). On this view, individual patients are mere source materials for the exercise of the medical machine's power, and vaccination is a sign of its degradations. Vaccination is the gateway through which innocent children pass in order to come under the power of the medical behemoth, a monster which cuts their bodies and injects them with poisons. Here, then, is another way of thinking of vaccines-as-contaminants, without invoking the core objects of disgust.

The medical profession is currently the most trusted profession in both the U.K. and the United States (Mludzinski 2011; Gallup 2012). Even so, many people today voice similar concerns about the profession of medicine as did earlier anti-vaccinationists. For example, consider Robert Mendelsohn. He is a prominent vaccine critic and he locates his criticism of routine childhood vaccination within a broader criticism of mainstream medicine. On his view:

There is never enough blood in the hospital temples of Modern Medicine to satisfy the surgeon's desire as he seduces his victims – primarily women – virgin and otherwise – to mount the holy altar so he can carry out his ritual mutilations. The wild blood-lust, starting with animal vivisection and proceeding to human mutilation,

stamps Modern Medicine as the most primitive weapon this world has ever seen (Mendelsohn 2003, cited at Offit 2010, 48).

These comments express an extremely cynical view of modern medicine, one that is certainly not widely shared, but which is continuous with a more 'moderate' criticism that vaccine refusers often endorse. For example, David Kirby reports that many vaccine refusers think of pediatricians as sadists who "poked and prodded" children "like some pet science project" (Kirby 2006, 23). Barbara Loe Fisher, the founder of the National Vaccine Information Center (NVIC) claims that physicians are so interested in preserving their power that they are unwilling to listen to parents (Specter 2009, 7, 60; Offit 2010, 81). These sorts of accusations are commonplace among contemporary vaccine refusers, who locate their refusal of vaccines within a broader rejection of (what they take to be) the deceptive and dehumanizing practices of the medical profession. On such a view, vaccines are tainted by association with the monstrosities of modern medical practices, and not only by the fact that they contain the core objects of disgust.

### 3.3 Capitalist Corruption

Some vaccine refusers identify the profit-seeking behavior of pharmaceutical companies as a source of vaccines' pollution. They argue that corporations degrade the environment, poison people, and corrupt social and political institutions. Vaccine refusers who engage in this sort of rhetoric echo the classic leftist criticism of capitalist modes of production: Capitalism transforms persons into mere instruments of production and it turns all forms of social and political life into economic relationships; it leaves nothing sacred.<sup>14</sup>

The idea that capitalism necessarily pollutes everything it touches provides a helpful lens for viewing the popular claim that vaccines contain 'toxic' chemicals, including mercury (thimerosal/thiomersal), aluminum, formaldehyde, and anti-bacterial agents (e.g., Neomycin, Polymyxin B, Streptomycin). None of these objects are among the core objects of disgust; we do not hesitate to wrap food in aluminum foil or place mercury thermometers in the mouths of sick children. Furthermore, there is no evidence that these ingredients are harmful to persons in the quantities that are present in vaccines. So why is the fact that some vaccines contain trace amounts of these ingredients supposed to count against becoming vaccinated? One reason may be that some vaccine refusers associate these ingredients with industrial pollution. They believe that corporations necessarily pollute both the natural environment and the bodies of our children, and they associate the 'chemicals' in vaccines with industrial pollution. This idea is continuous with a popular (and

broader) worry that many consumer products contain industrial pollutants, e.g., hormones in meat and milk, pesticides in produce, BPA in plastics, VOCs in paints, and other chemicals in health and beauty products. Like other purity-focused consumers, some vaccine refusers seek out alternative products and treatments that do not contain 'toxins', or they demand that manufacturers remove 'toxins' from existing products. A version of the latter strategy is evident in Jenny McCarthy's demand that pharmaceutical companies 'Green Our Vaccines'. McCarthy says that she and her fellow vaccine refusers "are not an anti-vaccine group. We are demanding safe vaccines. We want to reduce . . . the toxins" (Kluger 2009).

The fact that vaccines are manufactured by profit-seeking corporations also informs a broader worry – that industry has corrupted the practice of medicine and public health. Eula Biss discusses an example of this charge: The chair of the Council of Europe's health committee accused the World Health Organization (WHO) of faking the 2009 H1N1 pandemic in order to sell more vaccines (Biss 2012).<sup>15</sup> The idea that government officials and physicians have been bought-off by pharmaceutical companies – and that they are now 'pushing' Big Pharma's drugs – is prevalent among vaccine refusers. One vaccine refuser writes that public vaccination programs are the same as "the federal government giving every kid a carton of cigarettes and saying, 'Get to work'" (Mnookin 2011a, 196). Another vaccine refuser says that doctors and governments "turn the pharmaceutical spigot on children" to make money for drug companies (Converse 2011, 106–107). On such a view, vaccines are contaminated, not (only) by the presence of the core objects of disgust, but by their association with the corruptions of industrial capitalism.

### 3.4 The Crises of the Contemporary Family

Vaccine refusers may sometimes associate vaccines with the breakdown of the 'traditional family'. In particular, the idea that vaccines are contaminants may sometimes be informed by cultural anxieties about recent changes in motherhood and childhood.

#### 3.4.1 Contamination and Absent Mothers

Contamination legends often emerge in times of great social upheaval, where they serve to focus general anxieties towards concrete objects (Kitta 2012, 80).<sup>16</sup> Developed societies have recently experienced a rapid increase in (middle-class) women's participation in the formal workforce. This change has been accompanied by women's transition away from 'traditional' forms of 'housewife' mothering, and a greater reliance on both mass-produced foods and alternative childcare



relationships. There is good evidence that cultural anxiety about the changing practices of motherhood contributes to contamination legends about mass-produced convenience foods (Kapferer 1990, 153). I think that similar anxieties also inform some instances of vaccine refusal.

Consider that our food is safer than it has ever been. Pasteurization prevents children from developing cholera or listeria after drinking tainted milk. Refrigeration allows consumers to purchase produce unspoiled by bacteria. Regulations and inspections now prevent unhealthy ingredients – like lead, arsenic, and gypsum – from being added to food products. However, only 30 percent of Americans believe that technology has made their food safer, and many believe that our food is unsafe and unhealthy (Matchar 2013).<sup>17</sup> Some have argued that contemporary food practices are tainted by their association with the demise of mythological middle-class motherhood. Cultural anxieties about the fact that fewer mothers now spend their days preparing home-cooked meals may generate the feeling that contemporary food is not safe or healthy, even in the face of contradictory evidence.<sup>18</sup>

Similar anxieties may lurk in the background of many of the ‘contamination legends’ told by vaccine refusers. Andrea Kitta (2012) argues that the belief that vaccines are contaminants may arise as a way to focus cultural anxieties about changes in mothering practices, e.g., the increased presence of small children in daycare. Accordingly, saying that ‘vaccines are contaminants’ may be a way of expressing otherwise inscrutable worries about whether children are well cared-for, and whether there isn’t *something more* that mothers might do for their children.<sup>19</sup> In this light, it is no coincidence that vaccine refusers often promote labor-intensive alternatives to vaccination (e.g., home-cooked organic and gluten-free meals, chelation, and enemas). Vaccine refusers also often participate in intensive mothering activities, including attachment parenting, baby-wearing, extended breastfeeding, elimination communication, and home-schooling.

### 3.4.2 The Loss of Childhood Innocence

Some vaccine refusers seem fixated on the idea that vaccines jeopardize childhood innocence. Accordingly, some instances of vaccine refusal may express anxieties about perceived violations of the protective bubble in which (it is imagined that) previous generations of children were allowed to develop. On such a view, vaccines are contaminants because they are tainted by ‘adult’ behaviors, including sexual activity and intravenous drug use. Consider that vaccine refusers commonly complain that some routine vaccines immunize children against diseases that are unlikely to affect

children. For example, consider the following report from Jennifer Margulis about the vaccine for hepatitis B:

When my daughter was born in 1999, the nurse bustled in with her tray and said, “OK, it's time for your hepatitis B vaccine.” And I looked at my daughter and I looked at the nurse and I said, “Isn't hepatitis B a sexually transmitted disease?” And I said, “Why am I supposed to vaccinate my newborn baby against a sexually transmitted disease?” And the nurse got really mad (Palfreman 2010).

What distresses Margulis is that a nurse has presumed to vaccinate her child against a sexually transmitted disease. But why does this distress her? It is not (or should not be) because the hepatitis B vaccine is harmful or unnecessary. There are many good (and easily accessible) reasons in favor of universal vaccination of newborns against hepatitis B. For example, the CDC reports that

[A]dministering a birth dose to infants ... serves as a “safety net” to prevent perinatal infection among infants born to HBsAg-positive mothers who are not identified because of errors in maternal HBsAg testing or failures in reporting of test results (Centers for Disease Control and Prevention 2006).

Hepatitis B is nasty. Early detection can be difficult, and this disease can cause serious liver damage and death if left untreated. Infected mothers are likely to transmit hepatitis B to newborns during childbirth, unless their newborns receive the vaccine. Unfortunately, selective vaccination is not effective, since errors in testing or in reporting test results are relatively common.

I think that part of what motivates Margulis' spirited rejection of the hepatitis B vaccine is a kind of disgust: a visceral negative reaction to the idea of performing sexually-related interventions upon the body of an infant. Margulis asks “Why am I supposed to vaccinate my newborn baby against a sexually transmitted disease?” but I don't think that she is open to reasoning about the harms and benefits of universal vaccination of infants against STDs. Instead, I think that the (implied) response to her (rhetorical) question – “There is obviously no good reason to vaccinate her newborn against a sexually transmitted disease” – reveals a deep aversion to associating babies with adult sexuality (and with its consequences). Infants are too pure and innocent to be tainted by sex.

#### 4 Health through Sanctified Living

In the previous section I argued that the idea that vaccines are contaminants need not emerge only from reflection upon the fact that vaccines contain the core objects of disgust. It can emerge also from reflection upon the entanglement of vaccines with broader forms of social, political, or spiritual corruption. In this section I turn my attention to the idea that vaccines are unnecessary or ineffective, because disease results from dirty or unnatural living, rather than from exposure to

pathogens.<sup>20</sup> Accordingly, vaccines are not (necessarily) contaminated, but they are unnecessary for people who are otherwise avoiding contamination. If you are properly attentive to disgust, then you have a reason not to vaccinate, even if you are not disgusted by vaccines.

#### 4.1 Disease, Spiritual Degradation, and Divine Judgment

The original anti-vaccinationists often claimed that disease was a divine punishment for humanity's sins (Allen 2007, 25).<sup>21</sup> From this point of view, "vaccination interfered with God's plans or cast doubt upon his omnipotence" (Allen 2007, 56). People who accepted vaccines were attempting to usurp God's providence; they were trying to redeem themselves from their 'fallen' condition through their own efforts, rather than by trusting in divine grace (Minardi 2004). The idea that health and disease are grounded in deeper spiritual realities – and that vaccines deny the spiritual core of health and disease – motivated many early anti-vaccination efforts. Importantly, this worry is distinct from the claim that vaccines contain the core objects of disgust or that they otherwise violate spiritual purity.

Contemporary vaccine refusers also sometimes claim that vaccines mistake the spiritual causes or the supernatural purposes of disease. For example, they sometimes resist vaccines against sexually transmitted diseases on the grounds that these diseases are a divine punishment for sexual impurity – a punishment that vaccines attempt to escape. One parent writes that the hepatitis B vaccine "supports the devil in his effort to encourage [my] daughter to engage in sex and intravenous drug use" (Allen 2007, 391). Another writes that "immunizing my children against hepatitis B gives the appearance that my children will be sexually promiscuous or drug users," in violation of God's commands (Allen 2007, 391). Mark Largent gives voice to these worries: "Instead of engaging in the arduous task of altering people's behaviors, [some believe that] these vaccines, with the ease of a few simple shots, would do away with what moralists consider the natural consequences of problematic behaviors" (Largent 2012, 22). In this context, disgust gets directed at the behaviors for which it is imagined that diseases are appropriate (super)natural punishments. Accordingly, persons who manifest this sort of disgust may refuse vaccines, but they may do so without thinking that *vaccines* are disgusting.

#### 4.2 Health and Physical Purity

Sanctified ideas of health and sanctity can emerge from sources other than the commands of an anthropomorphic deity. The problems of modernity provide new resources for characterizing the

'fallen' condition of mankind. Various aspects of life in industrialized societies prevent persons from 'natural' health. For example, we no longer perform much manual labor, we wear constricting clothing, we eat low nutrient foods full of sugar and salt, and we live in filthy and overcrowded cities, where we breathe polluted air and are far removed from nature. On such a view, the modern city illustrates humanity's degraded condition; and communicable diseases are a principal sign of the impurities of modern urban life (Mnookin 2011a, 33). In the words of the famous naturalist, Lord Alfred Russel Wallace, smallpox was a "filth disease" and it would go away on its own once cities got rid of "foul air and water, decaying organic matter, overcrowding and other unwholesome surroundings" (Wallace 1910, 267–268). Similarly, the President of the late 19<sup>th</sup> century National Anti-Vaccination League (UK) wrote that "infection [by germs is] merely a theoretical bogey, worked to frighten laymen, and diverting attention from the real enemy of the human race: *dirt*" (Durbach 2005, 160, emphasis added).

The theory that disease originates from – or is transmitted by – the sorts of dirt, decay, and corruption present in the modern city has had great staying power. For example, consider the records of mid-20<sup>th</sup> century polio researchers, which indicate that "the most common misconceptions about how one contracted polio included bathing in polluted water ... and consuming lots of 'sugar drinks,' especially Coca-Cola" (Oshinsky 2006, 93n4). Albert Sabin, a lead polio researcher, received many letters from members of the public who wanted to share their ideas about the causes of (the transmission) of polio. Among the more popular were that "polio came from...the smoking habits of pregnant women" (Oshinsky 2006, 93). Lora Little, an early 20<sup>th</sup> century advocate of 'natural health' focused much of her attention on the idea that disease arose from excessive consumption of "white sugar" (Allen 2007, 104) The idea that disease results from impure diet and lifestyle retains its power. Annemarie Colbin wrote recently that that the real causes of disease are not pathogens, but bottle-feeding, cow milk, processed foods, snacks, and insufficient fruits and vegetables (Colbin 2011).

It follows that advocates of these sanctity-based conceptions of health are unlikely to support vaccination, since they do not believe that vaccines address the real causes of disease. This is because vaccines presuppose a false 'germ theory of disease,' according to which diseases are caused by the presence and growth of microorganisms. In contrast, advocates of these 'natural' health theories embrace more 'holistic' conceptions of health, according to which proper care of the body – and maintenance of its inner purity – is the pathway to health. These conceptions of health are versions of what Anna Meigs has called the "religion of the body" (Meigs 1984). Followers of

religions of the body go to great efforts to protect and restore vital bodily essences, and they follow strict diets and purification rituals. For example, an early 19<sup>th</sup> century anti-vaccinationist argued that the best way to prevent smallpox was not vaccination, but keeping “the blood pure, the bowels regular, and the skin clean” (Durbach 2005, 121). Among the founders of the Anti-Vaccination League of America were homeopaths and naturopaths, and chiropractors – practitioners of forms of ‘medicine’ which celebrate the body’s ability to heal itself, whenever it is removed from ‘toxic’ environments (Allen 2007, 102–103). Early advocates of body-building and personal fitness were also among early 20<sup>th</sup> century American anti-vaccinationists. These persons advocated spas, enemas, and weight-lifting, in addition to good nutrition. Chief among these was Bernarr MacFadden – a predecessor of fitness gurus Charles Atlas and Jack Lalanne – who published over 100 fitness books, ran a fitness-focused publishing empire, and established many fitness resorts (Adams 2010). Bernarr – he changed his name from ‘Bernard’ because he wanted a more masculine and powerful moniker – even attempted to found a religion based on his principles. This religion – ‘Cosmotarianism’ – combined mainstream Protestant Christianity with regular exercise, vegetarian diet, fasting, and a rejection of both mainstream medicine and processed foods.

The ‘natural health’ practices of today’s vaccine refusers are continuous with those that were embraced by earlier vaccine refusers. Today’s vaccine refusers buy ‘pure’ products in order to resist disease. They don’t buy clothes from Walmart or Target that contain flame retardants, they don’t buy carpets with nasty chemicals, and they are sure to protect their bodies by consuming vitamins and supplements (Mnookin 2011a, 16). They are particularly focused on diet. The mother of a child who caused a recent measles outbreak in California explained her decision not to vaccinate by appealing to the protection that she believed good nutrition provides. On her view, “[c]hildren will do fine with these diseases [e.g., measles] in a developed country that has good nutrition” (Mnookin 2011a, 19). This sort of reasoning leads Judy Converse to write that “nutrition status is what drives a child’s ability to fight infections,” not vaccines (Converse 2011, 107). Vaccine refusers claim to be able to “withstand diseases like whooping cough because of the healthy lifestyles they lived” (Allen 2007, 364). On such a view, persons who avoid impure foods and disgusting activities will be healthy and, hence, have no need for vaccines.

#### 4.2.1 The Myth of ‘No Autistic Amish’

One example of the role that the idea of ‘natural health’ plays in contemporary vaccine refusal is the prominence of the myth that there are ‘no autistic Amish’.<sup>22</sup> The Amish are a group of traditional

Christians who engage in simple living and who avoid many modern technologies (e.g., automobiles, electrified homes, home telephones). The idea that the Amish do not vaccinate and, consequently, that their children do not have autism, is a commonplace of contemporary vaccine refusal literature (Olmsted 2005; Kirby 2006, 112; Colbin 2011, 206). But both component claims of this myth are false. The Amish vaccinate, although some communities have lower vaccination rates than the general public (Yoder and Dworkin 2006; Mnookin 2011b). And some Amish are autistic, though rates of autism in Amish communities are slightly lower than rates among the general public (Robinson et al. 2010). But this difference is likely due to underreporting, especially in the case of ‘mild’ or ‘high-functioning’ autism. The tight-knit Amish often do a good job of integrating such persons into the full life of their communities and do not label persons with manageable forms of autism as ‘disordered’.

Why do vaccine refusers cling to the myth that there are ‘no autistic Amish’ in the absence of any good supporting evidence? I don’t think that ‘mere ignorance’ is a sufficient explanation. Disconfirming evidence is ample and accessible, and the people who are propagating this myth are well-educated. Instead, I suspect that vaccine refusers hold onto the myth of ‘no autistic Amish’ because they are committed to an ideal of health as sanctity, and because they believe that the Amish realize this ideal (though they do so in ways that 21<sup>st</sup> century vaccine refusers do not want to entirely emulate). The idea of Amish cultural purity is a story about how hard physical work, limited engagement with technology and modernity, economic self-sufficiency, plain foods, and an intimate relationship with both farm animals and the land protects the noble Amish from the problems of the modern world. If vaccine refusers are committed to a conception of ‘natural’ health that is grounded in this sort of ethic of sanctity, then it follows easily enough that this (mythical) way of life should suffice to protect the Amish from autism.

#### 4.3 Disease and the Impurity of the ‘Other’

There is political upshot to the idea of ‘health as purity’ – and its partner idea of ‘disease as impurity’. This is because the contents of *purity* are partially constituted by the ideas which bind together one’s social and political communities (Douglas 2002). Correspondingly, the contents of *impurity* are partially constituted by the ideas which shape the community’s understanding of those who are outside of the community. To be pure is to live according the ideals of my people; to be impure is to live like foreigners.<sup>23</sup> Accordingly, vaccines are not as necessary when the community is intact as they are when foreigners are present (Kitta 2012, 89).

The United States has a long history of blaming diseases upon the presence of ‘others’ within the community. David Oshinsky writes that :

In the 1840s, the Irish were accused of bringing cholera to New York City; fifty years later, the Jews were suspected of spreading tuberculosis, also known as 'the tailor's disease.' Each time an epidemic appeared, native New Yorkers looked reflexively toward the immigrant slums (Oshinsky 2006, 20).

The same was true of polio outbreaks, which were often blamed upon the poor sanitation conditions in the neighborhoods populated by immigrants, blacks, and Latinos (Oshinsky 2006, 2). This tendency to blame disease upon ‘disgusting’ and ‘dirty’ foreigners is not supported by the evidence. For example, the most serious outbreaks of polio “occur[ed] in the advanced 'sanitary' nations of the West,” and were often concentrated within areas of those countries that had “the lowest population density and the best sanitary conditions” (Oshinsky 2006, 9, 22). But the belief that disease comes from outsiders persists, and it plays a role in contemporary debates about immigration. For example, consider the following quote, which was featured on *Lou Dobbs Tonight* (a CNN program in the United States):

We have some enormous problems with horrendous diseases that are being brought into America by illegal aliens [including] diseases we have only rarely had here in America, such as Chagas Disease, leprosy, malaria (Waldman et al. 2008).

Pat Buchanan, a conservative commentator and political candidate, adds that “a lot [of] diseases are coming back. And it's because these 12 million illegals are coming across the border” (Waldman et al. 2008). Here, the object of disgust is the ‘diseased foreigner’ and the relevant sanctity is that of the political community. While these ideas of disgust and sanctity need not lead directly to vaccine refusal, they may direct attention toward ‘public health’ programs that emphasize deportations and other restrictions on immigration, rather than mass vaccination.

## 5 Sanctification through Illness

Another way in which the ethics of sanctity may inform vaccine refusal is through the idea that diseases sanctify. If communicable diseases purify individuals or the community, this may be a reason to refuse routine childhood vaccines. This is distinct from the worry that vaccines are contaminants (Section 3) or that vaccines are unnecessary or ineffective for persons with natural health (Section 4). In this section I focus on the idea that diseases provide valuable social and personal forms of purification, and that vaccines prevent the realization of these goods.

## 5.1 Disease Purifies the Race

Some have claimed that disease outbreaks purify the political community. They think of diseases – and the deaths they cause – as valuable natural mechanisms for maintaining the size and the health of the population. The most famous proponent of this view was Thomas Malthus. In the early 19<sup>th</sup> century he argued that smallpox played a commendable role in regulating the population of Europe (Malthus 1806). Malthus was an Anglican minister and he framed his concerns about the health of the community in religious terms: God allowed disease outbreaks in order to preserve the overall health of the human community; mankind’s attempts to prevent disease-related deaths only expanded the population beyond sustainable levels and would lead to unnecessary suffering. Malthus’ views – or something like them – have been embraced at various times by a wide variety of persons, from late 19<sup>th</sup> century social Darwinists to early 20<sup>th</sup> century American eugenicists. Advocates of the view that it is good for the community to experience regular mass disease outbreaks and deaths may believe that they have good reason to resist vaccination. They may think that vaccination weakens the community by preventing opportunities for purifying the race.

## 5.2 Disease and Childhood Development

We are fortunate that the idea that diseases sanctify the community – by killing off its weakest members – is not especially popular among contemporary vaccine refusers. A more popular idea is that suffering from disease sanctifies individual persons (especially children), and that vaccines prevent persons from reaping the (spiritual) benefits that come from fighting disease. One form of this idea is that regular exposure to communicable diseases strengthens children, and that vaccines (relatively) weaken children. Some vaccine refusers seek out infections for their children by hosting 'measles parties', 'pox parties', and 'flu parties'. At these events a sick child is a guest of honor, and a gaggle of healthy children play a series of 'games' with the sick child to facilitate disease transmission (Ubelacker 2009; Young 2010; Kitta 2012, 9). A recent book, entitled *Melanie's Marvelous Measles*, celebrates these parties and the developmental benefits that childhood diseases supposedly provide (Messenger 2012). The author, a vaccine refuser and activist named Stephanie Messenger, aims to “educate children on the benefits of having measles and how you can heal from them naturally and successfully” (Amazon). We learn about two children who had been vaccinated against measles, but who contract measles anyway (since vaccines supposedly do not work). Unfortunately, these children experience very severe symptoms of measles, because becoming vaccinated (and eating junk food!) has caused great damage to their immune systems.<sup>24</sup> In contrast, we meet some unvaccinated



children who experience very mild symptoms of their disease and who enjoy their 'sick days' home from school. I don't think that Messenger (or others like her) is speaking the language of science. Instead, this sort of vaccine refusal seems to emerge from an ethic of sanctity and, in particular, from the idea that diseases like measles purify and sanctify children in ways that prepare them for 'naturally' healthy adulthoods.

In *Vaccine*, Arthur Allen recounts his exposure to a different (and, one hopes, rare) form of the idea that diseases sanctify children. He discusses a belief promulgated by Rudolf Steiner – the founder of anthroposophy and the Waldorf Schools – that "children need to become quite ill with infectious diseases in order to develop into spiritually whole beings" (Allen 2007, 328). Accordingly, one ought to refuse vaccines because they prevent children from experiencing spiritual growth.<sup>25</sup> Vaccines *degrade* children – not because vaccines are contaminants – but because they keep children from becoming the sorts of spiritual beings that they have the potential to become. Vaccines, Steiner thought, were a “spiritual trick” (Allen 2007, 344). His views are echoed by the parents of students at today's Waldorf schools. One parent says

[T]here's a little bit of soulfulness with getting ill. ... Sometimes people say that after a fever you see a difference in a child's being. It really strengthens them. ... [People who vaccinate their children] never allow them the soulfulness of being ill (Allen 2007, 351).

Views like these might not be worth addressing if Waldorf schools were not experiencing a surge of popularity and growth. In the last 30 years, the number of accredited Waldorf schools has gone from around 200 to over 1000. If you count Waldorf Kindergartens and special education centers, the numbers reach almost 4000 worldwide, and this does not count Waldorf-themed charter schools and homeschooling communities. It should come as no surprise that “Waldorf schools around the world are disproportionately unvaccinated, and these schools have often been epicenters of vaccine-preventable illnesses, particularly in the United States and Germany” (Allen 2007, 343–344). Given their commitment to the sanctifying power of childhood illnesses, participants in Waldorf school communities are likely to be especially difficult targets of public health campaigns aimed at increasing rates of childhood vaccination.

## 6 Government Coercion and the Sanctity of the Person and the Family

The United States military, like many other federal agencies, requires its members to receive vaccines. All 50 of the states in the U.S. require that children be vaccinated to attend public schools or daycare centers. Some vaccine refusers invoke the ethics of sanctity to protest the use of state

power to coerce vaccination. They claim that mandatory vaccination violates the both the inviolable right of individual adults to make their own healthcare choices and the sacred right of parents to make decisions regarding the care of their children. Of course, these sorts of objections to mandatory vaccination are likely informed by ideas of morality and justice that are only tangential to the ethics of sanctity. Regardless, I address them here because the language of sanctity and disgust is explicit in many such complaints against mandatory vaccination.

Some focus their objections to mandatory vaccines on perceived violations of human dignity. They claim that mass vaccination is based on a similar disregard for the sanctity of life as was the Nazi idea of ‘life unworthy of life’ (Sharav 2011). Just as Nazi doctors performed disgusting (yet potentially socially useful) experiments on the bodies of persons detained at concentration camps, so, too, do today’s governments aim to ‘protect the herd’ by coercing mass vaccination. These critics charge advocates of ‘herd immunity’ with a crass Utilitarianism that is indifferent to the sacred dignity of each individual person (Tate 2011). These vaccine refusers manifest disgust at the government’s willingness to allow “defective” children to die as a consequence of “protecting the herd” (Sharav 2011, 79; Converse 2011, 108). One author compares such indifference to human dignity – in the pursuit of social goals – to the American torture of prisoners at the Abu Ghraib prison in Iraq (Rovet 2011, 126).

Others focus their objections to mandatory vaccination on apparent violations of parental rights. For example, William J. Wagner, of the Center for Law, Philosophy and Culture at Catholic University of America, writes that “[p]arents, not the state, have responsibility for and authority over decisions concerning the raising of their children – including vaccination choices” (Wagner 2011, 45). This is a “sacred” and “God-given authority” (Wagner 2011, 45). On such a view, government-mandated vaccination is evidence of a broader corruption, i.e., that “the government ...increasingly substitutes itself for God” (Wagner 2011, 47). This is the breakdown of the traditional family, in the name of the left’s cult of an all-powerful government. On Wagner’s view, those who support mandatory vaccination are not only misguided; they seek to have the government violate the sacred trust that God has placed in parents.

## 7 Two Consequences for Public Health

I have argued that the ethics of sanctity contributes to vaccine refusal. If I am right, there are two important consequences for public health efforts to increase rates of vaccination. First, some vaccine refusers are unlikely to be responsive to scientific research in favor of the safety and efficacy of

vaccines, since such evidence may not mitigate feelings of disgust or contamination. Second, public health efforts to overcome the tendency of ethics of sanctity to lead to vaccine refusal will have to respond to the fact that a diverse set of values motivates sanctity-based vaccine refusal.

### 7.1 Ethics of Sanctity and Scientific Facts

Vaccine refusers often invoke different values than those that are usually presupposed by advocates of public health. Public health advocates invoke the statistics and probabilities of research science to identify courses of action with the highest expected benefits (and the lowest expected harms). They support vaccination because there is overwhelming evidence both that the goods it provides – individual and community immunity – are immensely valuable, and that vaccine complications are very rare and usually not serious. In contrast, many vaccine refusers invoke ideals of sanctity and purity that are grounded in values (social, political, and religious) that may not be directly responsive to scientific evidence.

Two things follow. First, persons who refuse vaccines because of an ethics of sanctity are unlikely to be persuaded to vaccinate by the arguments that public health advocates often make. This is because statistics about the likely benefits and harms of vaccines do not address the sources of their concerns. These vaccine refusers are worried that vaccines are contaminated (by their ingredients or their association with broader corruptions), or that vaccines are not necessary for persons who otherwise avoid contamination, or that vaccines prevent the sanctifying benefits of disease, or that vaccination programs violate the dignity of persons and the sanctity of the family. In the most direct sense, an ethics of sanctity speaks a different language than the language of probabilities, harms, and benefits which is spoken by public health advocates.<sup>26</sup> Second, if some people are led to refuse vaccines by an ethics of sanctity, then it is inaccurate to characterize (their) vaccine refusal as an entirely irrational or emotional phenomenon. Instead, persons who refuse vaccines because of the ethics of sanctity are motivated by their commitment to an organized system of values. They have decided to reject vaccines after reflecting upon (even deliberating about) whether vaccination best promotes these values.

The fact that an ethics of sanctity leads some to become vaccine refusers may be obscured by the fact that vaccine refusers often use scientific-sounding language when they criticize vaccines.<sup>27</sup> In fact, vaccine refusers sometimes claim that they are more committed to science than are proponents of mass vaccination. But vaccine refusers who invoke an ethic of sanctity are not making scientific objections – even if their rhetoric has a scientific flavor. For example, Arthur Allen

says that “[b]y invoking science while implying that government and industrial science are corrupted by power and money, [some vaccine refusers] gloss over the extent to which alternative philosophies, rather than science, shape their critique of vaccination” (2007, 336). There are many possible evidence-based criticisms of vaccines and vaccine policy. However, sanctity-based vaccine refusal is not usually accompanied by scientific evidence. Instead, it often seems motivated by a faith that government, industry, and other institutions are corrupt, and that our social world is ‘spiritually dead’. On such a view, science “cannot alter the fact that we are a fallen civilization” (Allen 2007, 334).

## 7.2 The Varied Sources and Shapes of Sanctity-Based Vaccine Refusal

If the ethics of sanctity informs vaccine refusal in the variety of ways that I have claimed, then this also has consequences for how public health advocates ought to respond to vaccine refusal. First, while many vaccine refusers claim that vaccines are *contaminants*, the fact that they do not agree about *why* vaccines are contaminated means that interventions that may appease some of these vaccine refusers are unlikely to appease others. For example, removing animal body parts from vaccines may appease someone who finds vaccines disgusting because they contain these materials. However, this change is unlikely to appease a vaccine refuser who identifies vaccines as contaminants because of their association with industrial pollution, modern medicine, or the breakdown of the family.

Second, not all forms of sanctity-based vaccine refusal focus upon the idea that vaccines are contaminants. Persons who embrace *health-as-sanctity* may think vaccines are unnecessary, persons who embrace *disease-as-sanctification* may think vaccines are an interference, and persons who think that *government violates sanctity* may think of vaccines as contingent tools of oppression. Changing vaccine ingredients or changing the relationship between vaccines and broader social corruptions may not undermine these forms of vaccine refusal. Accordingly, public health efforts that focus exclusively on vaccines – and on overcoming the idea that vaccines are contaminants – may not persuade vaccine refusers who are motivated by these other sanctity-based considerations.

## 8 Conclusion: Three Kinds of Strategies for Resisting Sanctity-Based Vaccine Refusal

There are three kinds of strategies one may pursue to attempt to prevent forms of vaccine refusal that emerge from the ethics of sanctity. First, one may attack the ethics of sanctity itself. Second, one may attempt to undermine the values which give rise to sanctity-based vaccine refusal. Finally, one

could remove or avoid the triggers that give rise to sanctity-based vaccine refusal. I examine each of these in turn.

### 8.1 Against the Ethics of Sanctity

One strategy for resisting sanctity-based vaccine refusal is to attack the ethics of sanctity directly. This entails convincing people that they should not make decisions – or, at least, not healthcare decisions – on the basis of disgust or the ideas of purity and contamination.

This kind of strategy has two core components. First, it requires making vaccine refusers aware of the fact that they are refusing vaccines on the basis of the ethics of sanctity. Some people who refuse vaccines because of disgust, etc., may believe that they are refusing vaccines because of their well-informed judgments about the safety and efficacy of vaccines. This chapter aims to make some progress toward the goal of showing that some vaccine refusers are motivated by the ethics of sanctity, rather than by scientific evidence. Of course, these ideas require both further investigation and much greater public promulgation.

The second part of this strategy is to convince people that the ethics of sanctity is a poor basis for making judgments about human well-being and health, and that persons ought, instead, to rely upon other values – e.g., autonomy, preference satisfaction, or capabilities. Many philosophers, including Martha Nussbaum and Peter Singer, have been making these sorts of arguments for years (Nussbaum 2004; Nussbaum 2010; Singer 2002). Indeed, efforts aimed at undermining the ethics of sanctity may have played a role in recent political and legal reforms. For example, consider the fights in recent decades over the political and legal status of gays and lesbians and, in particular, debates about gay marriage. Those who oppose equality for gays and lesbians often invoke an ethics of sanctity. They manifest disgust at the sexual acts which (they believe that) gay and lesbian persons perform, and they invoke the ‘sanctity’ of opposite-gender marriage as a reason to deny marriage rights to gays and lesbians (Inbar et al. 2009; Inbar, Pizarro, and Bloom 2009). In contrast, those who defend equality for gay and lesbian persons argue that one’s political status should not be contingent upon (the absence of) other people’s disgust, nor should the state’s sponsorship of marriage be based upon parochial conceptions of the ‘sanctity’ of that institution. Instead, the case for gay rights is based upon values including liberty, equality, and well-being – and the case for gay marriage is based upon the fact that gay marriage (like straight marriage) promotes personal and social goods (e.g., relationships of mutual life-long caring) (Corvino and Gallagher 2012).

A direct attack on the ethics of sanctity may be promising, but it will meet with significant resistance. The ethics of sanctity is very popular.<sup>28</sup> William Miller argues that the degree of civilization in a society can be measured by how much distance it has placed between itself and the disgusting (W. I. Miller 1997, chap. 7). Leon Kass (the head of President George W. Bush’s Bioethics Commission) argues that disgust communicates a “wisdom” about boundaries that should not be transgressed (Kass and Wilson 1998, 19). But the ethics of sanctity is not only invoked to support conservative political goals (D. M. Kahan 1998; D. M. Kahan 1999; Dworkin 1994). In particular, Dan Kahan, a law professor and director of Yale University’s *Cultural Cognition Project*, argues that disgust helps liberals to condemn cruelty (D. M. Kahan 1998). Michael Sandel has argued that the reasons some things should not be for sale – organs, soldiers, citizenship – is that selling such things corrupts their intrinsic worth (Sandel 2012). Unlike Debra Satz, who argues that markets in these goods are ‘noxious’ because they act upon and reinforce unjust social inequalities, Sandel argues that these goods are defiled or degraded when one attaches prices to them (Satz 2010).

‘Desanctification’ may be a worthwhile long-term goal, but efforts that aim at this goal are likely to receive forceful resistance for the foreseeable future.

## 8.2 Revising Underlying Values

A second kind of strategy for resisting sanctity-based vaccine refusal is to attack the particular values that give rise to sanctity-based vaccine refusal. This strategy does not attack the ethics of sanctity. Instead, it seeks to undermine the particular social, political, or religious values that the ethics of sanctity may act upon to generate vaccine refusal.

This chapter uncovers and identifies some of the values which can give rise to sanctity-based vaccine refusal. These include ideas about spiritual purity, sexual morality, the bases of authentic health, and the evils of capitalism and of tyrannical government. Accordingly, public health advocates might attempt to prevent vaccine refusal by attacking these values. The obvious problem with this approach is that it invites culture war on all fronts. It picks fights with social conservatives, political libertarians, natural health advocates, and critics of corporations. And it has the potential to alienate members of these groups who would otherwise support vaccination.

## 8.3 Removing and Avoiding Triggers

A final kind of strategy is to attempt to ‘short-circuit’ sanctity-based vaccine refusal. Here, we aim to remove or avoid potential triggers for sanctity-based vaccine refusal. First, we might try to eliminate

aspects of existing vaccines (and vaccine policies) that may lead to sanctity-based vaccine refusal. So, for example, if we remove parts of animal bodies or aborted fetal tissues from vaccines, this may mitigate vaccine refusal among those who refuse vaccines because they contain these core objects of disgust. Similarly, if we nationalized the manufacture of vaccines, this may mitigate forms of vaccine refusal which emerge from the idea that private pharmaceutical companies are intrinsically corrupt and ‘dirty’. I think that these sorts of proposals have potential to succeed, but their limits are two-fold. First, some of these efforts are likely to work at cross-purposes, given the diversity of values that can give rise to sanctity-based vaccine refusal. For example, even though nationalizing the manufacture of vaccines may mitigate forms of vaccine refusal that arise from the idea that private industry is corrupt, nationalizing industry is unlikely to mitigate forms of vaccine refusal that emerge from the idea that government already has too much power. In fact, it may contribute to even higher rates of vaccine refusal among political libertarians. Second, some of these efforts at removing triggers are likely counterproductive to the goal of increasing mass vaccination. For example, one way to mitigate forms of vaccine refusal that emerge from the belief that mandatory vaccination programs violate the sanctity of parental rights is to leave childhood vaccination entirely at parents’ discretion. But such an effort would win a Pyrrhic victory if it led to lower rates of vaccination.

Second, we may attempt to shape the physical and social space in which decisions about vaccines get made, so as to avoid triggering sanctity-based vaccine refusal. This may take two different shapes. On one hand, physicians, researchers, and public health officials may work to create better spaces for deliberation about vaccination, i.e., spaces that are less likely to trigger disgust and other adverse sanctity-based responses.<sup>29</sup> So, for example, they may pursue personal and institutional changes to cultivate more trusting relationships between parents and pediatricians. On the other hand, and perhaps more importantly, leaders of various communities could do more to advocate vaccination for members of their communities. They could make more (and more public) arguments to the effect that their community’s values are not compromised by vaccines. For example, the Roman Catholic Church currently teaches that vaccination is generally a moral duty, even though some vaccines contain materials grown from aborted fetal tissues. If the Church increased its efforts to communicate its teaching on vaccines to its members, this may help to avoid triggering the disgust response among Catholic persons who would otherwise fixate on the presence of materials grown from aborted fetal tissues in vaccines. For other examples, leaders of the political left may argue that vaccines are not implicated industrial pollution and leaders of the political right may argue that mandatory vaccination is not evidence of tyranny. In all of these sorts of cases, the

goal is to have leaders of particular communities assuage worries that their members may have about whether vaccines are contaminated, or whether vaccination policy is implicated in broader social corruptions. The importance of this sort of ‘cultural cognition’ – and of broader ways in which group membership affects one’s decisions about vaccines – is the focus of the next chapter.

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<sup>1</sup> There are many plausible explanations for parental refusal of routine childhood vaccines (Brown et al. 2010; Kennedy, Brown, and Gust 2005). I focus in this chapter on the way in which disgust – and a broader ethics of sanctity – may contribute to vaccine refusal.

<sup>2</sup> I assume that the ethics of sanctity – which marshals feelings of disgust to resist contamination and preserve purity – has the ability to influence our beliefs and actions. There is wide support for the idea that disgust can influence our decisions about what we ought to do (Kelly 2011; Plakias 2012; Prinz 2007; Greene 2008; Nussbaum 2004). Importantly, there are ongoing debates about the precise scope and intensity of disgust’s causal powers. For example, Greene (2008) and Prinz (2006; 2007) defend an expansive scope and robust causal powers, while May (forthcoming) claims that the empirical evidence supports a more restricted scope and more modest powers for disgust. But the arguments in this chapter do not depend upon the outcome of such debates, since there is wide agreement that disgust can influence decisions within the domain of ‘purity’ or ‘sanctity’, which is all that I presuppose.

<sup>3</sup> Martha Nussbaum captures the idea of contamination in this way: “if you ingest what is base, this debases you” (Nussbaum 2004, 88)

<sup>4</sup> This is part of Haidt’s discussion of the ‘ethic of divinity’ of Richard Shweder. See Shweder (1990; 1997).

<sup>5</sup> Nussbaum continues: “Its core idea is the belief that if we take in the animalness of animal secretions we will ourselves be reduced to the status of animals. Similarly, if we absorb or are mingled with the decaying, we will ourselves be mortal and decaying” (2004, 89).

<sup>6</sup> What was (relatively) new about Jenner’s method was that it immunized against smallpox by introducing *cowpox* into human bodies. Previously, artificial immunization against smallpox had been generated by introducing pus from the blister of a person with a mild case of smallpox (*variola minor*) into a wound upon a healthy person’s body. These persons would contract a mild form of smallpox and would thereafter be immune to subsequent (and more severe) infections (of *variola major*). This process was called *variolation* (after the name of the smallpox pathogen, *variola*). Lady Mary Wortley Montagu learned of variolation in the late 1710s while living in Istanbul as the wife of the British ambassador to the Ottoman Empire (Fenner et al. 1988, 55). She introduced smallpox variolation to British high society in the 1720s (Fenner et al. 1988, 90). Variolation was introduced in the American colonies at around the same time. Cotton Mather, a famous early American religious leader, learned of the method from one of his slaves (Onesimus), and Mather worked to spread it in the colonies (Niven; Silverman 2001; Henderson 2009, 45).

<sup>7</sup> The early anti-vaccinationists’ fear of animal contamination extended beyond the bovine origins of the cowpox pus. A broader paranoia emerged surrounding the source of the materials that doctors were smearing into children’s wounded bodies. Anti-vaccinationists believed that these materials included “poison of adders, the blood, entrails, and excretions of bats, toads, and suckling whelps”



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(Durbach 2005, 114; cited at Offit 2011, p. 110). For more on the history of worry of contamination-by-animal in vaccines, see Howard (2003).

<sup>8</sup> Miller is relying here on James (1988, 14–15).

<sup>9</sup> The idea that vaccines transfer harmful animal genes to human beings is pervasive among some vaccine refusers (and among a broader community of skeptics and conspiracy theorists). For example, consider a book entitled *The River*, by journalist Edward Hooper (1999), which makes the case that HIV transferred from chimpanzees to human beings when HIV-infected chimp kidney was present in the oral polio vaccine. These claims have been rebutted by research science (Blancou et al. 2001; Poinar, Kuch, and Paabo 2001).

<sup>10</sup> Kirby is quoting parental testimony at the hearing of the House Government Reform Committee on April 7, 2000 – “Autism: Present Challenges, Future Needs – Why the Increasing Rates?” 106<sup>th</sup> Congress, 2<sup>nd</sup> Session, *Congressional Record*, serial no. 106-80 (April 2000): 1-7.

<sup>11</sup> Those who object to the fact that vaccines include these materials may have moral reasons for their objection, specifically, moral reasons that do not originate in ideas of sanctity and degradation. But my focus here is on the idea that there is something harmful-in-itself about injecting into the human body materials which originated from aborted fetuses.

<sup>12</sup> Very few members of the professional clergy have endorsed vaccine refusal. Those who have often appear to lead very small parishes. For example, consider the Faith Tabernacle Congregation and the First Century Gospel Church in Philadelphia, which were the epicenters of a measles outbreak in the early 1990s (Lewin 1991).

<sup>13</sup> For more discussion of the contribution to vaccine refusal made by the breakdown in trusting communication between parents and pediatricians, see Navin (2013).

<sup>14</sup> For example, see Karl Marx’s *The German Ideology* (esp. Part I) and the *Economic and Philosophic Manuscripts of 1844*.

<sup>15</sup> In response, the WHO convened a group of independent experts to investigate this charge, and they found no merit to the charges (Biss 2012).

<sup>16</sup> So, for example, it was widely believed that the Black Death of the 14<sup>th</sup> Century was the result of an intentional mass poisoning (Hollister 2005, 326).

<sup>17</sup> Consider the current ‘industry’ of criticizing the health and safety of contemporary food systems, e.g., (Pollan 2007; Kingsolver, Kingsolver, and Hopp 2008; Schlosser 2012).

<sup>18</sup> Public advocates for ‘healthier’ foods often explicitly blame feminist transformations of the family for the (supposed) decrease in the safety and health of food. Michael Pollan writes that cooking healthy foods was “a bit of wisdom that some American feminists thoughtlessly trampled in their rush to get women out of the kitchen” (Pollan 2009). Caitlin Flanagan, a regular contributor to *The Atlantic*, says that 1970s feminists thought that “[c]ooking nourishing dinners was an oppressive act” (Flanagan 2007, 175). British celebrity cookbook author Rose Prince writes that “it’s feminism we have to thank for the spread of fast-food chains and an epidemic of childhood obesity” (Prince 2010). For a broader discussion, see Matchar (2013), which was my immediate source for the three preceding quotations.

<sup>19</sup> Consider, also, the history of blaming mothers for autism (Mnookin 2011a, 76–77). For example, Bruno Bettelheim wrote that autism resulted from dysfunctional early attachment between mother and child (Bettelheim 1959). If vaccine contamination legends express anxieties about changing mothering norms, then it is understandable that these legends would also invoke worries about autism, given the history of blaming autism on poor mothering.

<sup>20</sup> Of course, an individual vaccine refuser may invoke the ethic of sanctity in both ways: she may refuse vaccines because they are contaminants *and* because they are unnecessary or ineffective for

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persons with natural health. But these two ways of invoking the ethic of sanctity in defense of vaccine refusal are analytically distinct; neither implies the other.

<sup>21</sup> “The pious response to a smallpox epidemic was to accept its divine judgment as an opportunity for repentance” (Allen 2007, 25).

<sup>22</sup> Other versions of this myth include the claim that the Amish do not suffer from measles, polio, or other communicable diseases.

<sup>23</sup> For example, consider the arguments of Christine Hayes (2002, chap. 2). Hayes argues that the Biblical requirements of ritual purity (e.g., *Leviticus* 12-15) help to mark the unique covenant between God and the Israelite people. The fact that gentiles are not bound by ritual purity laws marks them as outside of this covenant.

<sup>24</sup> I could not justify buying this book. My plot summary is from Skepticat (2013). The book has since been pulled from some Australian bookstores (Sheperd 2013).

<sup>25</sup> For a different, but related, example of the idea that diseases sanctify, consider a story Martha Nussbaum tells about a conference she attended: “[A] French anthropologist now delivers her paper. She expresses regret that the introduction of smallpox vaccination to India by the British eradicated the cult of Sittala Devi, the goddess to whom one used to pray to avert smallpox” (Nussbaum 1998, 35). The idea here is that vaccination destroys forms of spiritual life that existed prior to the introduction of vaccines. Ironically, the cult of Sittala Devi involved *variola* against smallpox, i.e., self-infection with a mild form of smallpox that got one sick (and made a person contagious) but that made one immune to later (and more severe) smallpox infection.

<sup>26</sup> See Leiss and Douglas (2004) on problems in communicating about risk across cultural differences.

<sup>27</sup> See, e.g., Mnookin (2011a, 135f) on the pseudo-scientific ‘research’ conducted by some vaccine refusers.

<sup>28</sup> The discussion in this paragraph benefits from work done by Nussbaum (2004), especially pp. 72-74.

<sup>29</sup> On the context-sensitivity of disgust, see Schnall, Benton, and Harvey (2008).

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