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Involvement of women and mothers in the U.S. Modern anti-vaccination movement: an analysis of second wave feminism and historical power imbalances

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In retrospect, it isn't surprising that the anti-vaccination movement sprang up in the United States in the 1980s. The surprise is that it didn't happen sooner. -Paul Offit.

Prologue

The development of vaccinations has been noted as one of the greatest public health achievements of the 20th century. Inoculation was responsible for a 99% decrease in deaths from vaccine preventable disease in 2007 compared to 1907 (Rousch 2007). Measles, polio, and pertussis, several of many diseases that used to kill children and medically vulnerable adults, were no longer an issue in the developed world. By 1960, vaccination had become common sense, and assumed mandatory when mothers brought their children to the pediatrician for a check-up. But with any new technology comes a wave of protest. In 1982, a highly influential and public documentary called *Vaccine Roulette* was aired on NBC. Before long, rumors were brewing about concerns behind vaccination, leading to conversations speckled with words like thimerosal, autism, and seizures. With all this talk thrown around in the new media and in parental circles, a protest was brewing.

With all the acclamation and success that has come from vaccines, it is often hard for public health professionals to conceptualize the origin of the vaccine rejection rebellion, and further how ideology about the dangers of vaccines continue to thrive in a world where the CDC, scientists, public health professionals, and pediatricians nationwide have fervently denounced these anti-vaccination campaigns. However, as generations have become further and further removed from the turmoil and distress these now preventable diseases once caused, parents began to ask questions. Why don't we know what is in vaccines? Why don't doctors consult parents when making decisions about my child's health? Many of these questions received

amplification and a greater following when the second wave feminism movement developed, its central dogma to think critically and question hegemonic masculine societal structures that were in place. Critiquing medicine, a male dominated and paternalistic institution where women's health and opinions were marginalized, was a natural extension of the dialogue already taking place in second wave feminism.

This paper strives to examine exactly what aspects of second-wave feminism and motherhood aided in the development of the modern anti-vaccination movement, and what allows it to continue to thrive among maternal community. It also begins to conceptualize what a different kind of patient/physician relationship would look like, and how this relationship could be key to addressing vaccine hesitancy or refusal through mothers with concerns about inoculation.

Overview

My thesis has four parts. To begin, I will analyze the parallel histories of the anti-vaccine movement and second-wave feminism, looking first at the 1982 documentary, *DPT: Vaccine Roulette*, the media responses that followed, such as magazine columns, science reports and research responses, during the changeover from broadcast and print to social media communication technology. Part two will continue this discussion into a critique of the overall existing power imbalances in the structure of medicine itself, and how gendered and racialized roles help to cement the idea that the medical profession isn't on everyone's side. Part three will look specifically at how whiteness and privilege enable certain mothers to choose to forgo vaccines. Finally, part four will think forward about how we can use this theory of anti-vaccination as a continuation of feminist paternalistic rebellion to change the way the medical

industry approaches vaccine information, using studies and new approaches to bedside manner as evidence and support.

Chapter one:

Emerging and Converging Histories of Anti-Vaccination and the Radical Feminist Movement

Anti-vaccination before 1975

In an effort to ensure that all children, particularly those in the poorer class, had access to vaccination, Great Britain introduced the Compulsory Vaccination Act of 1853, stating that it be mandatory that all children receive the smallpox vaccine (Cawkwell 2015). While anti-vaccination movements are typically conceptualized as a product of the past century, with this law also came appropriate protest. *Our Medical Liberties* was a 64-page pamphlet published by John Gibbs (Cawkwell 2015). Many of its arguments are similar to anti-vaccination arguments today. "The author states that he does not believe the smallpox vaccine affords an efficient and assured protection against the invasion of smallpox. The new law was written to steal away our medical liberties" (Cawkwell 2015). After this law was introduced in Great Britain, compulsory vaccination legislation in the United States soon followed. The first state to include a compulsory vaccination law in the United States was Massachusetts in 1855, with most of the New England States passing similar legislation by 1890 (Cawkwell 2015).

The nineteenth century anti-vaccination movement as a response centered around a disillusionment with compulsory vaccination, stating that they were "un-American for their violation of individual freedoms" (Conis 2014). As the United States moved into the 1900's, the nation's poor economy during the great depression prevented vaccine politics from being front and center on the stage (Conis 2014). After the development of the polio vaccine by Jonas Salk in 1955, vaccines enjoyed a period of unquestioned superiority and utility in both healthcare and

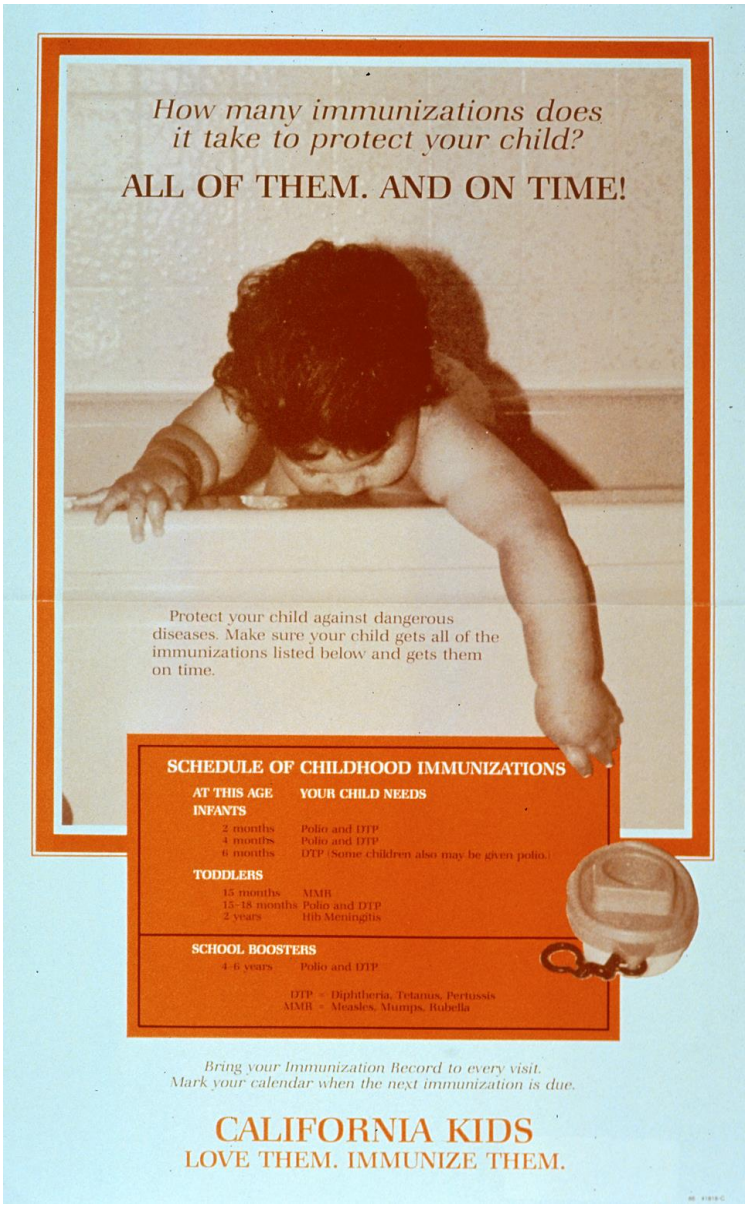
political spheres. By the 1960s, President Kennedy had made it his personal mission to improve child health outcomes, and vaccines were an important first step. Despite the immense progress and status that vaccines had experienced recently, when Kennedy took office in 1961 “80 percent of adults and two thirds of children under five, the majority from low-income families, were not fully immunized against polio, diphtheria, pertussis, and tetanus” (Conis 25). Importantly, these disparities were largely localized. In 1960, most people in the United States lived in the suburbs. In contrast, only 5% of the nation’s population of Black Americans joined them. Urban and poor were two terms used together, in the same sentence, to explain the same phenomenon. Depending on the city you lived in, non-white people were 8-16 times more likely to contract polio (Conis 2014). Thus, in 1962, President Kennedy proposed the Vaccination Assistance Act of 1962, which provided states with grants to carry out immunization programs (Conis 2014). These grants provided money for state and local health departments to purchase vaccines as well as hire individuals to carry out immunization, but did not address urban populations specifically, and let the states decide how to distribute the government resources (Colgrove 2007). In this federal government intervention, two different arguments emerged, one arguing for government intervention in the lives of the poor, and one arguing against (Colgrove 2007). Interestingly, the justification for the bill didn’t always match the real issues involved. Government emphasis was placed on ensuring children were vaccinated, but poverty as an influencing factor was sharply ignored, at a time when the disparity between inoculation in low income children versus middle/high income children was unquestionable (Conis 2014). Further, representatives pressed the importance of vaccination for the economic possibilities that the United States could achieve if childhood illness and complications were eliminated (Conis 2014). “The economy would be preserved in times of peace, by changing the productive capacity of individuals who are now

handicapped as a result of these diseases" (Conis 2014). Dissent for the bill was minimal, but present, and mainly took issue with its strategy, or the federal government involvement in state healthcare policy (Conis 2014). The Kennedy administration, in an unintentional foreshadowing to the mission of the Carter administration, also supported the involvement of mothers in the push for immunization and urged wives of senators to create women's groups addressing the issue (Colgrove 2007). "The Kennedy Foundation proposed programs that emphasized education of mothers, since 'many mothers simply have not been educated about the benefits of immunization. If they knew, they would make sure their children were protected'" (Colgrove 2007). Anti-vaccination sentiment before 1975 was minimal, but when it existed, erred on the side of government mistrust, with little empirical evidence or professional opinion to offer support.

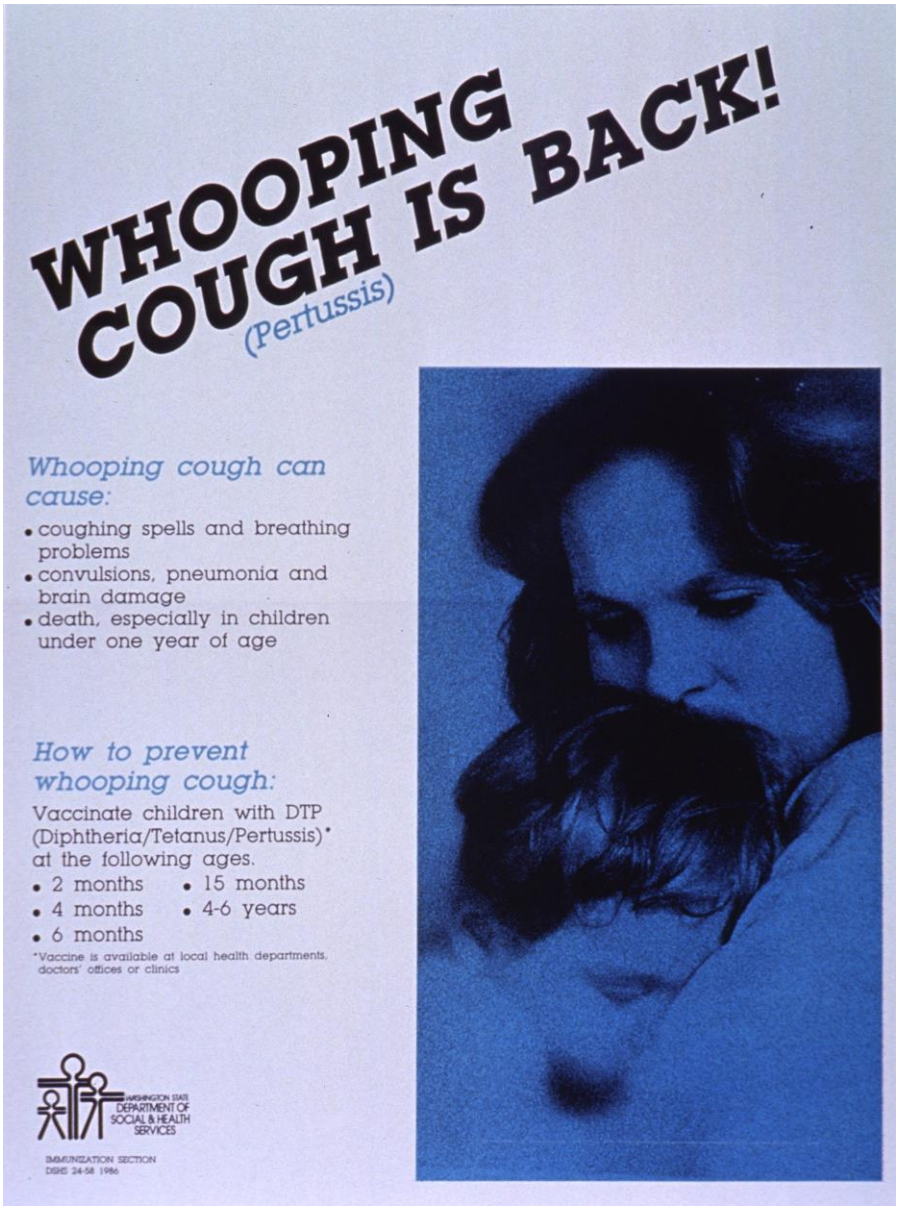
Anti-vaccination after 1975

The anti-vaccination movement after 1975 in the United States is what I will be referring to in this thesis as the modern anti-vaccination movement. After president Kennedy, the next president to take up the cause of vaccination was the American boy, Jimmy Carter. The Carter administration was, in many ways, the beginning of blaming disease and low rates of vaccination on mothers. Women and mothers have generally been viewed as a target population for blame by government as well as private health promotion agencies. At the time just before the modern anti-vaccination movement began, mothers were the individuals tasked with being the main caregivers of children, ensuring that they attended all of their medical appointments and physicals, and were meeting their growth and developmental milestones. This association and role not only had to do with the physical aspect of the women giving birth to her children, but the

heteronormative idea that the mother was responsible for being the primary caregiver in all situations. During President's Carter time in office, the administration certainly took advantage of these societal norms when crafting their campaign to increase vaccine among children under 5. When President Jimmy Carter was inaugurated, the percentage of middle-class and upper-class children that were inoculated had already increased dramatically from before Kennedy's presidency. However, still only 41% percent of children from lower income families had received all of their recommended vaccinations. Carter called upon mothers to "take on moral duties, and work together with the government in the spirit of individual sacrifice for the common good" (Conis 2014). The first lady Rosalynn Carter was also highly invested in childhood vaccination campaigns. Late in 1978 at a volunteer organizing event for the administration's national vaccine initiative, Carter told the crowd, "'Mothers need to know the crucial importance of shots early in their children's lives'" (Conis 2014). In fact, federal efforts to increase the numbers of children who were vaccinated almost entirely depended on the mothers who brought the children into the doctor (Conis 2014). Images in vaccine promotion centered around caregiving. An Alabama campaign for inoculation in the 1970's pictured a woman in a rocking chair with an infant, pleading with mothers to "treasure the sacred moments" of health with their children, and to protect them at all costs (Conis 2014). Other depict images of children with pleas for the help of vaccination from their mothers.



Source: California Department of Health 1980



Source: Washington State Department of Social and Health Services, unknown year

Targeting mothers in this health campaign sent two messages: that the health and wellbeing of their children was their ultimate responsibility, and further that only two opinions relevant on the

topic of child health were those of the government and of their doctors. “Modern vaccine recommendations generally built on socially determined expectations of women as child-bearers, members of the nation’s workforce, mothers, and the primary caretakers of children” (Conis 2014). The administration appealed to mothers to complete their duties as good citizens and vaccinate. “When measles outbreaks erupted across the country in the late sixties, many in the medical and public health community found fault with mothers: mothers who failed to bring their children to clinics, mothers who failed to realize the vaccine was available, and mothers who failed to recognize the new measles vaccine’s importance” (Conis 2014). When the administration cracked down on parents who weren’t vaccinating their children, poor women of color were often blamed and thought of as uneducated or uncaring about their children as a population who had had low vaccination rates historically. It is important to take note of this blame, for its difference from the modern anti-vaccination movement that is almost exclusively powered by white women from the upper and middle classes. Regardless, what’s important to take note of from the Carter campaign was that taking children to the doctor was typically a role associated with femininity and caregiving. Thus, as the anti-vaccination movement developed, it would follow that those most involved would be the women, who were seen as already belonging to and being active in the sector.

The start of the modern anti-vaccination movement as a battle powered by mothers got its real energy from the 1982 documentary *Vaccine Roulette* (Offit 2010). Lea Thompson, a investigative reporter who was white, female, and had children, wrote, produced, and starred in the documentary that would air on April 19th 1982, on NBC during primetime. At the center of her film were other mothers with a story to tell, mothers who had put their faith in the medical industry, and who felt failed. It is interesting to notice that mothers were centered in the anti-

vaccination movement right from the beginning. While the stories were supported with information from a few doctors and other professionals, the first-hand stories about the children who were allegedly harmed by these vaccines were at the center of the anti-vaccination narrative.

The documentary received large amounts of attention from media outlets and continued to air on NBC as well as on the Today Show (Offit 2010). Kathi Williams, Jeff Schwartz, and Barbara Loe Fisher, three parents that would eventually form an anti-vaccination organization called "Dissatisfied Parents Together", all shared a similar narrative (Offit 2010).

> "I had taken my son into the doctor's office for his fourth DPT shot. I was a very well-educated parent. I'd read every book on childcare, childbirth, nursing. There was never one word about vaccinations and vaccine problems. So I was horrified when I saw this show because four days prior my very happy, healthy boy who never cried, screamed his head off for over eight hours. My doctor told me it was normal" (Offit 2010).

Eighteen days after the documentary first aired, legislative action would begin to follow. Senator Paula Hawkins called a congressional hearing to evaluate possible brain damage caused by the pertussis vaccine (Offit 2010). Parents began expressing concerns about giving the DPT shot to their children, and got on the phone to the vaccine manufacturers and their pediatricians (Boom and Cunningham 2014). Medical professionals did not respond by listening to or validating these claims, but instead by insisting that vaccines were completely safe, and a vital compliment to America's innovative scientific progress, and the media echoed this. In 1956, the Philadelphia Tribune wrote, "Since federal safety standards were adopted in Spring of 1995, some ten million children have received the vaccine throughout the nation- with a perfect safety record" (Federal 1956). This sentiment was supported by government officials as well. The director of the CDC from 1977-1983, William Foege, is credited with a global strategy for smallpox eradication. He is well known for stating that, "Vaccines are the tugboat of public health," (PBS 2005) referring

to the marine industry success that the tugboat began, and the cascade of innovation that followed, and implying that inoculation was bound to bring similar success to the medical field.

More recently, the anti-vaccination response has utilized media strategies similar to those used in *Vaccine Roulette* to address a new vaccine controversy, whether or not vaccines cause autism. These "facts" came from a study published in 1998, in one of the most prestigious medical journals in the world, the *Lancet* (Conis 2014). Andrew Wakefield produced a study of 12 autistic children, which claimed that the "MMR vaccine caused bowel problems that hampered a child's ability to absorb nutrients, thereby leading to developmental disorders" (Conis 2014). The scientific community wasn't impressed by the study, and it was quickly debunked and unable to be reproduced by peer scientists (Conis 2014). Nevertheless, the rumors that vaccines caused autism stuck, partially because another explanation for the rise of autism was nowhere to be found. "In the late 1980's, autism affected 1 in 10,000 children. In 2001, studies estimated it affected as many as 1 in 500 children" (Conis 2014). Further, this study was emerging during the time of computer information technology. Resources outside of direct medical advice were more and more readily available to mothers who had concerns about their children's health. "Lyn typed in a-u-t-i-s-m and hit the enter key. That night, she learned she was far from alone" (Kirby 2006). The community formed among mothers who had shared experiences proved to be the basis for a different kind of community that eventually would become anti-vaccination activists.

In examining a portion of the history of vaccine controversy, we are able to observe several trends. First, women and mothers have been instrumental in pushing for action and research on vaccines. Secondly, assurance from the government and medical professionals that

vaccines were completely safe did not due much to convince suspicious mothers, and potentially played a role in severing trust being mothers and health care providers.

A brief history of US Feminism

The term feminism comes from the French word *feminisme* that evolved in the 1880's, combining the word for woman with an –ism, a suffix that denoted a movement that supported a change, such as socialism (Freedman 2002). There was a conflict between people who embraced the term, and people who felt that the middle class demands for suffrage and property rights that took the center stage in feminism didn't fully encompass working class women's need for a living wage and safe working conditions (Freedman 2002). "After the U.S women won the right to vote in 1920, the feminists' single-minded campaign to pass an equal rights amendment to the constitution further cemented the notion of feminism as related with extremism" (Freedman 2002). This fight for suffrage and the passage of the equal rights amendment would be referred to by later historians as the first wave of feminism. After this victory, feminism reached somewhat of a lull. During World War II, women were enlisted to leave the household and fill jobs traditionally done by men who were off to fight in the war (Celello 2007). There was some satisfaction and feeling of equality experience by women until the countercultural upheaval of the 1960's (Freedman 2002). At this time, a group of white, professionally employed women emerged. Said to be leading "a women's liberation movement", they took issue with "women's fundamental lack of equal opportunity" (Celello 2007). This movement would come to be known as second-wave feminism, and had a much larger list of demands than its first-wave counterparts, addressing not only political and economic inequality, but also how patriarchy infiltrated social and interpersonal relations (Freedman 2002).

Second wave feminism was different from first wave feminism in its core actions. While the suffragettes of first wave feminism mainly focused their efforts on the right to vote, second wave activists focused on many societal inequalities that were not plainly laid out in legalities. Central to this movement were issues surrounding expected familial and workplace norms. Mothers were the expected caretakers, attending to the household chores, taking care of the children, and increasingly, were also expected to be active members of the workforce. As women began to rebel against duties and traits that society assigned to women, second wave feminism was born.

Betty Friedan, a prominent feminist scholar, described second wave feminism as a response to "the problem with no name." The problem can be identified as "the unhappiness of the middle-class suburban housewife, for whom marriage, maternity, and domesticity failed to provide a compelling purpose in life" (Silver 2002). This second wave feminism had tangible goals of leveling the playing field between women and men in traditional gendered domains, such as the household. However, this goal was also a conceptual one - for tangible change to happen, individuals and society as a whole would need to change their mindsets about the equality of women in the household as compared to men. In her 1963 book *The Feminine Mystique,* Betty Friedan argued that the nuclear family ideal did not equal happiness for many women, and that the patriarchal othering was degrading to womanhood(Friedan 1963). Women had desires to be valued equally to men in society and develop self-worth that came from self-esteem as well as decision making power in the household, as well as within their own physical health and bodies.

An important difference to notice about the second wave of feminism was that unlike the first wave (a movement which thrived among middle class women), the second wave of

feminism situated itself alongside of other social movements, such as the anti-Vietnam war movement, and the civil rights movement. Publications and new media were central to the second wave. *Ms.* Magazine, founded by popular feminist Gloria Steinem in 1971, incorporated ideas of economic productivity and new capitalism. "*Ms.* sold readers on the idea that overturning tradition could be accomplished speedily by personal transformation that mimicked the speed of the change of times" (Zarnow 2010). The BITCH manifesto, written by Jo Freedman in 1969, was a popular declaration of the purpose of the second wave movement, and said this about its participants: "The most prominent characteristic of all bitches is that they rudely violate conceptions of proper sex role behavior. Their attitudes towards (sic) themselves and other people, their goal orientations, their personal style, their appearance and way of handling their bodies, all jar people and make them feel uneasy" (Freeman 1970). This is in stark contrast to first wave feminism, which did not examine changing societal structure and norms, but instead focused on the single tangible goal of voting in state and federal elections, and also used non-traditional methods of spreading awareness, like protest, compared to second wave's presence in the new media.

Our Bodies, Ourselves and the Reclaiming of Health Information

"Science and medicine had enjoyed unprecedented authority and power in post-World War II American when medical care became one of the nation's largest industries. But by 1970, medicine, along with other social institutions, had suffered a 'stunning loss of confidence'" (Kline 2010). A new view of the body and of feminism had emerged. While the typical view had been to separate the medical body from the socially involved mind (what had allowed science to achieve such status), women began to feel that in order to obtain equal status in patriarchal

society, they had to start by learning about (and thus gaining control over) their own bodies (Kline 2010). Further, the 1960's had been full of exposés on unethical experimentation or unfair treatment of patients in marginalized groups (Black Americans and women, in particular), leaving some factions of the American public with a general sense that they needed to be protected from doctors, not by them (Kline 2010). Our Bodies, Ourselves was a book written about sexual and reproductive health from the perspective of women and not medical professionals, led by a feminist collective in Boston (Our Bodies, Ourselves 2018). It was a beginning of reclamation of health information as a central pathway to accomplishing the goals of second wave feminism.

A Merging of Ideas and Interest Groups

In looking at the history of feminism, it is also highly relevant to examine the history of gender roles in America, as they pertain to children's medical care. The role of caregiver and responsibility has been assigned to mothers in American society since the development of the nuclear family unit in 17th century Europe. "Women's greater biological role in childbearing coupled with cultural expectations for motherhood, place them in a different parenting role than men, who have a smaller biological contribution but still face marked cultural expectations for fathers, such as serving as a breadwinner" (Katz-Wise et al. 2010). This societal structure of role division and separation has existed since the United States of America was conceptualized, the USA began with a war of rebellion from England, the mother of the colonies. The men went to work, or to war to support the fight, while the women were tasked with the responsibility of raising the children, the next generation. Thanks in part to second wave feminism, these roles, at least on surface levels, have become more egalitarian. "In contrast to mother's greater

investments in market work, father's complementary behavior in family caregiving has not changed as quickly. Although father's involvement in housework and childrearing has increased, it remains limited" (Katz-Wise et al. 2010). According to the Bureau of Labor Statistics, on an average day a woman spends two hours and fifteen minutes doing household work, while a man spends only one hour and twenty-five minutes (Bureau of Labor Statistics 2016). This lack of fit or lag between structural changes and cultural meanings at the societal level can translate into increased stress and conflict among married parents (Katz-Wise et al. 2010). This information is important for thinking about where the burden of childcare (and thus, vaccine decision making) falls in the United States.

The anti-vaccination movement and the second wave feminism movement have close historical connections, as explained above. Soon after the airing of *Vaccine Roulette,* mother's publications and women's groups began to take interest in the ideals of the anti-vaccination movement. "The nation's history of vaccination promotion based on gendered assumptions combined with the emergence of the women's health and related movements of the seventies to give shape and content to vaccine critiques in the eighties" (Conis 2014). Interestingly, the anti-vaccination movement seems to transcend most other typical political boundaries. *Mothering* magazine, a magazine that promoted alternative mothering techniques, strategies, and ideals was next to catch onto the anti-vaccination craze. Initially thought of as a hippie and natural read, the response to its call for stories and opinions about increasing government involvement in vaccines reached many states, across a variety of professions, cultures, and political leanings. This early stage involvement from a diverse group of populations seemed to hint at the vaccine movement's ability to reach far and wide across many interest groups and political beliefs, with their one main trait in common being their whiteness. Noteworthy, often times people think that parents

who refuse to vaccinate their children come from strict conservative or religious backgrounds. However, school records released in 2015 from Boulder, Colorado, a haven for liberals, show that 18% percent of children don't have up to date vaccination records present in school, adding up to 5,200 children unvaccinated (Watts 2015). As a testimony to its left-ness, in 1975, Boulder was only the second county in the United States to grant same sex marriage licenses (O'Connor 2014). In comparison, we have the state of Alaska. Since 1972, republicans have won the state by large margins. To look at their rates of childhood vaccination, in 2015, 66.3 % children aged 19-35 months received the combined recommended vaccines, below the 75% goal established by Health Alaskans 2020 (Alaska Department of Health and Social Services 2016). There are women who are democrat and women who are republican who are uniting against a common enemy, the mandatory vaccine. This rhetoric follows that of the second wave feminism unification, a movement that reached women of many different political and social views. Second wave feminism created a "we" and "sisterhood" rhetoric that, in the beginning of the movement, brought together many different groups of women and minimized their differences (Mann and Huffman 2005).

Through reviewing a brief timeline of major vaccine moments and movements led by different political administrations and the responses that followed, like the DPT documentary and the Wakefield study, we are able to begin to set a stage for thinking about how the modern anti-vaccination movement came to be. Further, in analyzing the rhetoric and demographics of second wave feminism, we can see how vaccine politics and subsequent anti-vaccination beliefs followed a similar path; a path of whiteness and fear and mistrust of paternalistic institutions such as healthcare and the government. An important tenet of second wave feminism was the reclaiming of health information and health decision making power back from physicians in to

the hands of the women themselves. This narrative followed through to vaccine politics, and shaped the current dialogue, and will need to be considered in crafting health policy to promote vaccination among these members of these movements, as well as those affected by the information that these groups spread.

Chapter Two:
Power imbalances embedded in the structures of medicine and counter rebellions

The medical field has often been constructed as unbiased and pure, an offshoot of the direct knowledge that comes from science itself. The field of STS contests this, pointing out that science (as well as medicine) is just as likely to be plagued by societal biases (Sismondo 2004). In order to understand how and why vaccination as an issue has been taken up specifically by white women, we must first understand how societal injustices influence the quality of health and healthcare a person is able to receive. This is also referred to as the Social Determinants of Health. The theory of feminist biology then developed as a response to the unfair conceptualization of gender (mainly biological essentialism) and treatment of women by the medical field. Biological essentialism serves to create another dualism, which through Donna Haraway's cyborg theory can be understood as a mechanism of control used by dominant groups on minorities. Through analyzing the historically paternalistic nature of medicine, we are able to have a better sense of the resulting second wave feminism response, and eventual development of anti-vaccination politics.

The structure of medicine was built on the ideas of paternalism, the idea that the general population didn't have the knowledge to take care of their bodies, and that individuals with specific higher education were needed to improve their health outcomes. "Feminism and medicine are often seen as incompatible. On one hand, feminism is the movement to promote equality between women and men; on the other, medicine is a profession which epitomizes an 'inegalitarian' relationship between doctors (who are mainly men) and patients (who are mainly women)" (Mahowald 1987). This inegalitarian relationships manifests itself in many ways. Almost always historically and in the modern-day U.S., the doctor is white, having racial privilege over black and brown people in US society. In 1980, only 7 percent of graduates from

medical school identified as people of color, while around 20% of the overall population in the US identified as non-white (American Association of Medical Colleges 2006). Further, this imbalance continues when looking at other factors in the doctor/patient relationship. In a doctor's office, the role of the doctor is expected to have greater education, and larger social capital, compared to the role of patient. As far as the gender imbalance statistically seen in medicine, in 1990, only 17 percent of physicians were women (American Association of Medical Colleges 2006). The structure of power that enabled men to tell women the right way to behave, and that forced women to listen, was in place inside of doctor's offices and hospitals, as well as inside of the home. Women also faced a myriad of inequalities trying to gain access to health care. Most insurance companies charged women with higher premiums for the same services men received (Clancy and Collins Sharp 2013). Insurance companies were not required to offer coverage for prenatal care (Clancy and Collins Sharp 2013). These laws didn't change until 2010, when the Affordable Care Act was passed. To add, many reproductive care procedures, such as the pap smear, fits the same narrative of power imbalance. During the procedure, the woman would lie down in a position of submission, the man standing, the women remaining quiet, the man interrogating. These inequalities came under fire from second wave feminism as the activists criticized the plethora of ways that women were treated as second class citizens.

Social Determinants of Health

Health in the United States is conceptualized as extremely individualistic, with individual choice and lifestyle generally thought of as the number one indicator of the quality of life and richness of health that an individual will experience throughout his or her lifetime (Huberfeld and Roberts 2016). However, this has been largely disproven, and the CDC states that "We know that poverty

limits access to healthy foods and safe neighborhoods, and that more education is a predictor of better health. The difference in health between communities becomes striking" (Center for Disease Control and Prevention 2018). Existing power imbalances in the structure of medicine continues to contribute to the distrust of certain communities in the abilities and altruism of the medical community.

Historically, race and socioeconomic status have both been risk factors for disease and illness. Using social determinants of health, this can begin to be deconstructed by thinking about the complex history of labor as well as educational attainment in the US. Black people in the United States were not allowed to hold jobs (in this case, defined as willful and paid work) until after the civil war. Until the 1960's, education for people of color was extremely limited, with secondary schools being funded at much lower levels than the schools that white people were allowed to attend (Rothstein 2013). In 1960, only three percent of black Americans graduated from college (U.S Census Bureau 1999). Today, these rates are still diminished, with 34% of white Americans graduating from a bachelor's granting institution, but only 24% of black Americans (Bureau of Labor Statistics 2009). The average college graduate earns about 57,000 dollars per year, an 80 percent increase over high school graduates, which equals about 750,000 dollars over a lifetime (Bureau of Labor Statistics 2009). The reduced educational opportunities as well as opportunities for earning power for people of color in the United States directly influences their health outcomes as a population.

A Feminist Perspective to Biological Theory

Human biology, and thus, offshoots such as biomedicine, revolves around the dichotomy that there are two genders, male and female, that share different physical characteristics that define

their sex. Modern and historical western society has elaborated on this, creating the theory of biological essentialism. Biological essentialism is one of several gender lenses that are embedded into western culture (Gaunt 2006). It revolves around "the longstanding tendency of biological theorists to naturalize the social and economic inequalities between men and women, rationalizing and legitimizing gender polarization and male dominance by treating them as inevitable consequences of biological nature" (Gaunt 2006). As briefly discussed when looking at the history of second wave feminism, society continued to hold onto the view that men were superior to women well after white women had secured the right to the national vote through first wave feminism and the 19th amendment, and biological essentialism provided "scientific" proof for these beliefs in inequality.

One of the opposing theories to biological essentialism is the theory of the social construction of gender. This theory, conceptualized by Judith Butler in 1998, states that ideas about characteristics, qualities, and mannerisms that accompany the two biological sexes are completely determined by society, and are influenced by political, economic, as well as historical contexts. This can be emphasized by different historical definitions of what qualifies someone as a woman. Feminist law professor Julie Greenberg writes that in the late 19th century and early 20th century, "when reproductive function was considered one of a woman's essential characteristics, the medical community decided that the presence or absence of ovaries was the ultimate criterion of sex" (Greenberg 2002). Currently, as represented in the social construction of gender as a fluid and changing notion, medical practitioners generally assign gender based on the appearance of genitalia at birth. This change in criteria helps to illustrate the fluidity in the social defining of what makes a person a member of a certain gender group.

From biological essentialism follows that “a normal human being is assigned with being a man, women as a group are subordinated to men, and men and boys are valued higher than women and girls” (Hamberg 2008). Further, that women are associated with traits of caregiving and emotion. “When children fall ill, parents are placed in a special position where their responsibility to care for their child is put under the spotlight by others, particularly healthcare professionals. This is especially true for mothers who are primary caregivers” (Gunnarsson et al. 2013). Biological essentialism has often resulted in motherhood being viewed as essential to femininity, as well as traits that make an individual a ‘good mother’ as being completely innate to all females. However, it is essential to remember every concept that we think, every experience that we live, is not immune from the general social structure and rules that tell us from birth exactly how we should be thinking. From biological essentialism arises the theory that women are naturally more nurturing than their male counterparts and form stronger caregiving bonds and desires due to the physicality of giving birth to the child, as well as breastfeeding. An interesting thing about this assumption and theory is that it is extremely hard to study in the context of the United States, because science and research can never be immune from social influences, an important tenet of STS theory (Sismondo 2004). One way to conceptualize this is to consider different ethnic groups globally, such as the Aka nomadic tribe of the Central African Republic and the Democratic Republic of Congo, and the Arapesh tribe of New Guinea. These are just some examples of a societal structure where the men take a more nurturing caregiving role that is normally seen as a feminine quality in western society (Hewlett 1991). This is exemplified by men spending large percentages of their day looking after or holding the children, and even some partaking in male breast feeding, where the infant sucks the male nipple as a

comfort (Hewlett 1991). This represents how the ideas of what makes a person masculine or feminine is a socially constructed ideal that can vary.

Dichotomies and dualisms provide advantages for oppressive regimes. In a world of ever expanding and joining technology and analysis of social experience in the late 20th century came Donna Haraway with "A Cyborg Manifesto". Haraway has many arguments, with one of the central ones being that the division and lines that are drawn between human and machine are replications of the divisions and lines drawn between men and women, serving to further life lived in boxes and zones, where things never overlap and are always black and white (Haraway 1984). She argues that this has produced a mythical image of a woman, an image that is impossible to fully embody as well as so far from the multitude of images and experience that represent womanhood outside of the idealized patriarchal context. "The international women's movements have constructed 'women's experience,' as well as uncovered or discovered this crucial collective object" (Haraway 1984). Haraway discusses how in sexual objectification, the woman as a person is separated and alienated from her reproductive system as well as her "utility" in creating sexual pleasure for men. Finally, Haraway thinks of the world as an integrated circuit, with women historically being created and "programmed" for specific roles in certain sectors, which Haraway states are: Home, Market, Paid Work Place, State, School, Clinic-Hospital, and Church.

Donna Haraway's role theory can be applied to the expected role and rhetoric of a woman or mother in a medical situation. When a mother brings the child into the doctor, she has a role that she is expected to play in the scene. The mother serves as the vehicle, who transports the child to the doctor to hear the expert opinion of a historically white male pediatrician. The mother explains any problems that she may have witnessed while caring for the needs of the

children, and then listens quietly and attentively for the recommendations of the pediatrician. She dutifully nods, asking minimal questions and heeding the advice, accepting without question any prescriptions, lifestyle recommendations, and vaccinations that the doctor deems necessary. The separation of women's utility from personhood allows the patriarchy to easily dismiss her personal opinion as invalid. These separations are tools of control, tools for medical paternalism and convincing mothers to vaccinate. "Cyborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves" (Haraway 1984), or can suggest a way to complicate the woman/male and patient/physician dualisms in the doctor's office.

Using Haraway's cyborg theory, we have a framework for understanding how dichotomies are used to oppress women- but what are the actual clinical effects seen in medical practice? Women have long been the victim of clinical care. In the discipline of psychology, mother blaming "has become the bread and better of traditional psychotherapy" (Endlemen 1984). "The history of the medical field reveals a troubling relationship to women. Diagnoses such as nymphomania, hysteria, neurasthenia, kleptomania, and masochism have served to enforce conformity to norms of female domesticity, subordination, and subservience to men's sexual needs" (Gergen and Davis 1996). In 2017, a case claiming that women received appropriate treatment for blood clots at about 50% of the rate that men did caused a stir in the medical ethics community. Studies from the NIH confirmed that women were more likely to die of blood sepsis (a consequence of not receiving appropriate treatment for blood clots) than men (Pietropaoli et al. 2010). In surveys conducted in 2015, women were much more likely to rate the quality of hospital care they received as "unsatisfactory" than men were, with a p value of <.0007 (Teunissan 2015). Women are significantly less likely than men to receive more

advanced diagnostic and therapeutic interventions in the hospital (Hamberg 2008). This gender bias can also harm men as well as women, in the case of diseases that are feminized. “Realizing that depression is a disease plagued by gender bias, how can we then assess the fact that billions of antidepressants are prescribed to women (and perhaps withheld from men) of all ages? (Hamberg 2008).

Throughout history, the power in the doctor’s office resided with the doctor. The male physician was the one who was assumed to have seen it all. He generally had more education, more money, and greater societally assigned gender power than the women who was sitting across from him, trying to ensure either her own health, or the health and safety of the child society put her as ultimately responsible for. The ease of access to information that all forms of web 2.0 such as blogging, forum usage, and online reviewing has begun to redistribute this power. “A new postmodern paradigm of healthcare has emerged, where power has shifted from doctors to patients, the legitimacy of science is questioned, and expertise is redefined” (Kata 2012). This evolution of the science citizen, or a untrained community member who does their own research about different scientific issues, has been met with mixed reviews. Scientists in the medical field argue that it makes for a society that is less well-educated on matters- by rejecting the opinions of “professionals” and by having the average citizen become more informed on issues at hand that are considered in the field of science, more false information could be spread. “Physicians consider consultations with internet informed patients to be problematic if patients insisted on a false information or inadequate interpretations” (Sommerhalder et al. 2009). It’s clear that the science citizen has the opportunity to redistribute power in the doctor’s office – but that the accuracy of information and the willingness of both the patient and the physician to collaborate is essential.

Power imbalances in the medical field are essential to our understanding of its mechanisms. However, through considering different aspects of feminist biology, and varying international social constructions of parenting, we can complicate its inherently biased view, and begin to think about a vaccine educational strategy that goes beyond the inherent power imbalance of the male doctor and female patient.

Chapter three:

Anti-Vaccination as a White Feminist Movement

In this chapter, I will address how, from second wave feminism, the anti-vaccination movement continued to develop into a crusade of mainly white, upper class women, many of whom who held second wave feminist ideals. While the beginnings of the feminist movement were mainly centered around efforts for suffrage, second wave feminism was formed out of a diverse group of women who noticed problems and inequalities that women experienced in societal spaces, such as educational institutions, domestic environments, and workplaces. While different sects of the movements had different ideas about how to accomplish the solution, the problem was identified as a greater societal attitude toward women that was supported through laws, rules, and policies of institutions. Second wave feminism used legal pathways to accomplish their goals. In the early 1970's Title IX was passed to ensure equality in institutions of higher education, in the classroom and on the sports fields. In 1973 Roe V. Wade established that women had the legal right to choose an abortion. Many of these second wave feminist concerns neglected to think about the different lived experiences that women of color had (Mann and Huffman 2005). For example, while white women were fighting for abortion rights, many women of color still didn't have access to prenatal services, and this was not an item high on the agenda for second wave feminism. Thus came the next wave of feminist thought. Third wave feminism rejected many concerns that were exclusive to middle class white women and examined the different experiences that were held by women of multiple identities, such as women of color, immigrant women, single mothers, and queer women (Crawford 2007). Many members of this third wave feminism embraced that the US political and justice system was inherently built to profit off and ignore the needs of marginalized populations and rejected legal means of trying to achieve

reform (Crawford 2007). These differences in methodology can be seen within the anti-vaccination movement. White women, who had the social structures to feel comfortable seeking police assistance and utilizing courts of law for their benefit due to past legal privileges, fought for vaccine exemptions using legal pathways (Offit 2010). Women of color felt less comfortable using legal systems to their advantage due to the recent legality of discrimination and police brutality; there wasn't a clear place for them in this second wave feminist strategy. Thus, the distinction between second and third wave feminism began to give language for the conversation around an anti-vaccination movement built specifically for white women.

An essential fact to note is that not all underimmunization, defined as a level of immunization suboptimal for a person or a population, is caused by vaccine hesitancy or refusal. Approximately only 15% of under vaccination is caused by parents refusing a vaccine because they question its safety (Leib et al. 2011). Further, statistically this is another point where we can see how the anti-vaccination movement is racialized. African Americans and Latinos use health services at lower rates than white Americans (Ashton et al. 2003). Abundant evidence shows that compared with whites, African Americans and Latinos have lower incomes, less education, lower rates of private health insurance coverage, a higher probability of being underinsured, and greater dependence on public health care programs, all of which impede the ability to seek and obtain timely services (Ashton et al. 2003). In a study funded by the Research Center of Excellence in Race, Ethnicity and Health Disparities, 37% of black adults had the flu vaccine, in comparison to 45% of white adults and these disparities has remained consistent over the years. Research also indicated that "increasing access to affordable vaccines through convenient locations can potentially increase passive acceptance of the vaccine for the sometimes-takers" (Quinn et al. 2016). One barrier for low income and people of color for receiving regular

vaccinations is the lack of a medical home, that is, a primary provider that they see regularly and develop a continuous relationship with. This differs from the reasons why white children are undervaccinated, and thus is important to understand in analyzing anti-vaccination as a white feminist movement. “Children from white, high socioeconomic status families are more likely to be undervaccinated for parental safety concerns, while black, poorer children are more likely to be undervaccinated due to other factors” (Leib et al 2011).

A common perpetuation is that vaccine preventable disease outbreaks are caused by foreigners, immigrants, and people of color. In a westernized world view, countries in the east and the global south are thought of as having weaker health systems than the west, and a larger number of diseases as well. In the CDC’s 2014 report on measles in the United States, two points were highlighted in its analysis of the 23 measles outbreaks in 2014: an Amish area in Ohio, which was a rather large outbreak of 383 cases, as well as mentioning that many cases of measles in the United States were brought in from people visiting or from citizens returning from international trips (Weber 2015). This idea has further been perpetuated by elected officials; in February of 2015, Rep. Mo Brooks (R-Ala), told a radio show host that, “illegal aliens have clearly brought deadly diseases into America,” putting the blame on perceived less vigorous and less effective healthcare systems in other countries (Weber 2015). This is a contradiction observed between belief and reality in vaccination politics in the United States.

A web-based rebellion

The rise of the internet and social media has provided a relatively instantaneous medium for vaccine misinformation to spread via. In 2009, the number of users on the social media platform Facebook was 175 million, just under the population of Brazil (Haenlien and Kaplan 2010). As a

child of the social media age, I am no stranger to the sense of community that online chat rooms and forums can bring, and the uniqueness as well as sense of anonymity that comes along with comfortably being able to post freely from a distance, as well as the damages that can be done from false information spreading rapidly. However, to mothers who were struggling with concerns about their children falling ill from vaccinations, this newly available machine provided the ability to connect with others in similar circumstances, without worrying about being shamed or facing public scrutiny. The community formed among mothers who had shared experiences proved to be the basis for a deeper community that eventually would become anti-vaccination activists. Consequently, this shift of vaccine rebellion to the internet was still remarkably racialized. In August of 2000, the US Census bureau reported that 43% of white families in the United States owned a desktop computer, compared to only 23% of black families. Often referred to as "the digital divide", it has been understood as the growing difference in accessibility to physical computers as well as the internet (Gorski 2003). Location of access also matters- African-Americans and Latino(a)s are less likely to have access to a computer at home, school, or work, and thus more likely to have to seek alternative (and often public) means of access through libraries or community centers (Gorski 2003). Thus, the movement of the vaccine rebellion to the internet continued to allow the discourse to be mainly accessible by white women.

Who are the Anti-Vax mothers?

Between 2009 and 2015, a comprehensive study was established to analyze anti-vaccination tweet demographics on the social media platform Twitter. 549,972 tweets were incorporated. California, Connecticut, New York, Massachusetts, and Pennsylvania had anti-vaccination tweet

volumes that deviated from the national average (Tomeny et al. 2017). The study also found that income correlated with anti-vaccination belief, with a p value of <.05 (see table) (Tomeny et al. 2017). In addition, another study done that analyzed information about the individuals posting on the 6 largest, public, anti-vaccination pages on Facebook, found that the majority were women (Smith and Graham 2017). The research found that the movement was largely "feminized" with "present-day discourse centering around moral outrage and structural oppression by institutional government" (Smith and Graham 2017).

Table 2
Correlations between household income and anti-vaccination beliefs.

Census-level household income in past 12 Months (Census variable code)	Anti-vaccination beliefs
Less than $10,000 (B19001002)	−0.09*
$10,000-$14,999 (B19001003)	−0.19***
$15,000-$19,999 (B19001004)	−0.21***
$20,000-$24,999 (B19001005)	−0.22***
$25,000-$29,999 (B19001006)	−0.23***
$30,000-$34,999 (B19001007)	−0.22***
$35,000-$39,999 (B19001008)	−0.20***
$40,000-$44,999 (B19001009)	−0.18***
$45,000-$49,999 (B19001010)	−0.14***
$50,000-$59,999 (B19001011)	−0.13***
$60,000-$74,999 (B19001012)	−0.06
$75,000-$99,999 (B19001013)	−0.06
$100,000-$124,999 (B19001014)	0.21***
$125,000-$149,999 (B19001015)	0.27***
$150,000-$199,999 (B19001016)	0.35***
$200,000 or more (B19001017)	0.41***

Note. Household income reflects the percentage of households in each income bracket per micropolitan/metropolitan area.
*$p < 0.05$. ***$p < 0.001$.

Source: Tomeny et al. 2017

Why the anti-vaccination movement is about race and class

A rejection of the vaccine mandates implies that vaccines were readily and easily available in the first place. Through a theory of the modern anti-vaccination movement as a response to health and government injustices, one might expect African Americans to be leading the marches against government mandated vaccines, as a population who has been wronged by the United States Medical system in the past. If this is really about trust, the African American community

in the US has been victim to many unethical medical experimentations at the hands of the US government, such as Tuskegee. “It’s very easy to hold marches on the steps of the Capitol about the treachery of vaccinations when your family has access to all sorts of other medical care and resources. African Americans, still lagging behind whites in access to affordable care, may be suspicious of the government, but many don’t have the option to ‘refuse’ immunizations that may not be offered to begin with” (NBC News 2015). Access to easily accessible vaccination is a precursor to a critique, and thus helps to conceptualize why the anti-vaccination movement is predominantly white and upper class.

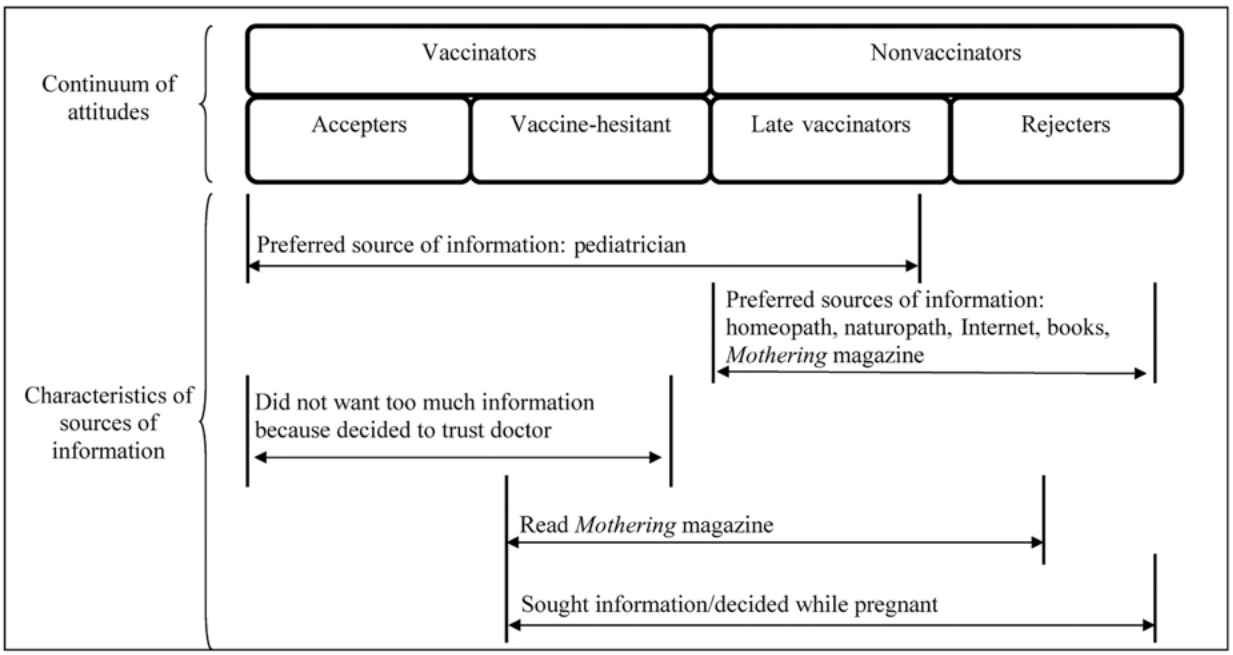
Statistically, mothers who are vaccine hesitant or hold poor opinion on vaccination are white and upper class, concentrated in the northeast but geographically fluid, and many of them are online. This information, that contradicts certain mainstream ideas about anti-vaxxers, is highly valuable in creating policy that aims to target vaccine hesitant mothers in the right places, and furthermore is useful in training the physicians of tomorrow.

Chapter Four:
Vaccine Educational Strategies and Applications of Theory

This thesis has looked at historical information and reasoning of the anti-vaccination movement with an overall goal of identifying a potential strategy for response. Specifically, we have analyzed second wave feminism's rejection of medical paternalism, and how this trajectory led to mothers rejecting mandatory vaccines for their children. Given the theory that the anti-vaccination coalition of mothers responded as such because of isolation and exclusion from the paternalistic medical community, how can we efficiently respond so to create a basis of knowledge and understanding about the benefits of vaccination, as well as a parent/physician partnership that results in change? One idea is to simply remove exemptions for personal and religious beliefs for school inoculation. Mississippi has done this and reports a 99.7% rate of children entering kindergarten with the MMR vaccine, compared to 94.7% nationally (Cawkwell 2015). However, the state performs extremely poorly in other health categories, with a 35% obesity rate as well as a 25% smoking rate and no indoor smoking ban (Cawkwell 2015). By improving patient/physician communication and trust, the opportunity lies to improve many health outcomes, not just vaccination rates. Using legislation to conquer the problem of anti-vaccination ignores the underlying issues caused by poor physician/patient trust, communication, and overall relationship. This chapter will investigate how and why working to build strong physician/patient connections can serve as an important mechanism to increasing vaccination rates.

One of the most fruitful ways for me to learn about maternal anti-vaccination beliefs has been to simply listen to mother's stories. People are generally interested in my topic, and willing to share their personal narratives and experiences. Speaking to one of my professors at Vassar College, I had told her that I would be absent from class to present my research. As she inquired

about my topic, I asked what her experiences with vaccination had been. She told me that she knew nothing about vaccines when she had her first daughter, and that the sheer number of vaccines that the doctors were recommending were daunting. However, she continued to explain that, the strength of her relationship with her physician provided her with the trust that he had her, and her child's, best interests at heart. This qualitative information has been confirmed by studies done on the source of vaccine information for different kinds of parents, as seen in the research results below:



Source: American Academy of Pediatrics, 2006.

Telling the truth, and nothing but the truth

The common historical and overwhelming current narrative in medicine and vaccination science is that vaccines pose no risk and are 100% safe. In one example of this narrative, Dr. Tommy Schechtman responded to mother's concerns in a West Palm Beach, Florida newspaper. "It is

clear that the science is irrefutable – Vaccines are safe" (Pacenti 2015). Interestingly, this is in stark contrast to discussion of other medical interventions provided by the healthcare industry. Listening to any commercial for a new prescription drug, the ending is full of a list of side effects that may have resulted from the drug. As science knows, correlation vs. causation is hard to establish from simply observation of drug effects, and the general response is to mention as many possible side effects to avoid lawsuits for the pharmaceutical companies. When taking a new medication, the risk of side effect is accepted, correctly, as unavoidable, and the extent of that risk and its minimization is what is given energy and thought. This, however, is completely different for vaccines, which are expected to be completely safe. This is in part the fault of the medical industry, whos incessant insistence that vaccines are 100% safe and risk-free only served to provide confusion when parents claimed that vaccines harmed their children.

A common tenet of paternalistic medicine is that by 'protecting' the patient from certain information, the patient will feel compelled to trust in the information that the doctor gives them. This justification has been used for not explaining the full risks involved in a procedure, with concern that the patient will opt out due to fear. However, this risk management strategy does not consider what happens if things don't go exactly as planned. "When a risk management strategy does not consider the public's perceptions sufficiently, public outrage and distrust with regard to the responsible agencies may result" (Visschers 2008). Mothers who had children suffer ill side-effects from vaccines reached out to their doctors. They called, asked for help, and were told to give Motrin and the event would pass. This brushing off concerns by doctors does not bode well for encourage mothers to continue to vaccinate their children. I argue that it is essential for medical institutions to inform mothers about the risks of vaccination. The CDC keeps a database called VAERS, which stands for vaccine adverse event reporting system. Anyone can submit to

the database, and as the CDC says, there is no way to ensure the true cause of the events reported, or the accuracy of the information provided. The number of events reported for 2017 were 80,078. The most common adverse reactions to vaccines reported in 2017 were redness, swelling, fever, vomiting, social disturbances, and fatigue. In the fall of 2017, approximately 3.8 million children were enrolled in public kindergarten, not including the children at private schools. If this number is used to estimate children in a year receiving a vaccine, that accounts to about .02 percent of children having some kind of adverse reaction to a vaccine. According to VAERS, 252 children reported having seizures after a vaccine, 25 children were reported to have either mental disorder or impairment, and 12 children were reported to have lost their hearing. Of all the children who theoretically received vaccines to enter kindergarten, the risks are approximately .000072% that your child will have seizures, and as follows, lower than that for deafness and mental impairment, if they were found to be causally linked. Statistics like this can tell us many things; an extremely small number of children have reactions to vaccines that cause permanent and long-lasting health struggles. In comparison, let's look at measles, a disease that has made a comeback in the United States as more parents choose not to vaccinate. According to the CDC, 1 in 1,000 children who contract measles will die from the disease. Two young missionaries returned from the Philippines in 2014, to their small Amish community, where many had not received recent or up to date vaccines. About 12 in 1,000 individuals in the community of 32,000 individuals were affected. This equates the likelihood of those exposed to the disease contracting it to .01 percent, much higher than the likelihood of a child who received the vaccine having a permanently damaging reaction. Taking the time to explain these statistics to mothers may decrease their feelings of unknown about vaccination and increase inoculation statistics. Further, in the extremely rare case that a vaccine reaction does occur, parents can feel

reassured knowing that their doctor explained to them that it was a possibility and presented the facts to them on an honestly platform. Both physician and patient must be free to make informed decisions within the confines of the clinic walls (Mahowald 1987).

Patient and Physician Relationships

Rebellion against the medical industry in the feminist movement evolved from the fact that women were not on equal terms with men within the walls of the clinic. This is not new. In 1938, Virginia Woolf said, “Medicine, it would seem, is not sexless; she is a man, a father, and infected, too” (Woolf 1938). To begin, this is present on a practitioner level. In 1993, “the percent of female medical school deans is 0%, of female physicians, 16%. Female doctors earn 62% of what men earn, in part because they are clustered in the lowest paying specialties” (Turshen 1993). That is to speak only of professionals. The power imbalance between physician and patient is well documented, with the doctor generally being white, older, richer, male, and more educated than his patient. “Applying that critique to the physician/other relationship, the feminist would clearly reject medical paternalism, as reflecting the legally reinforced social paternalism that has kept women in their place, at home raising children, dependent on a man” (Mahowald 1987). Women are greeted with patronizing smiles, and told that they should simply rest, or take a bath, and that their health issues will improve. For decades, women have debated going to the doctor. Helen Holmes considers this in her article for the feminist philosophy journal *Hypatia*. “Should she bring her child in for an earache, or will she be scowled at for taking the doctor’s time away from more “serious” cases?” (Holmes 1989). As discussed when examining the history of second wave feminism, the societal standing and resulting treatment of women was a hot issue. Applying this to anti-vaccination, many advocates who are vaccine

hesitant cite lack of information on what is in vaccines and their use and utility. One mommyblogger writes, “I decided to ask my own doctor to see the insert of the vaccine at Evelyn’s last doctors visit. I was told that ‘you wouldn’t be able to understand it even if we did give it to you to read’” (Stead 2017). Having access to information that is clear and able to be understood about vaccines is essential in mitigating fears of risk. Furthermore, Davies et al. (2002) states that it is highly probable that parents (who weren’t anti-vax) will find conflicting information on the web regarding safe vaccines or vaccine choice, making it even more important for the doctors to address the rumors, and provide accurate information so that parents feel fulfilled in their understanding of vaccines. Melissa McCarthy, a well-known celebrity again vaccination, echoed similar feelings. “Sometimes mothers know instinctively what works and what doesn’t, but the doctor wasn’t interested in anything I had to say” (McCarthy 2007). Patronizing women in pediatrician’s offices isn’t the way to encourage vaccinations; instead, a new approach where the woman feels as though she has agency must be taken.

Misinformation about vaccination can largely be considered a result of paternalistic medicine approaching medical care with the attitude that patients are less knowledgeable and should take the information provided to them by the physician without question or concern. In a study done by the American Association of Pediatrics, this assumption of the misinformed or uninformed parents was confirmed

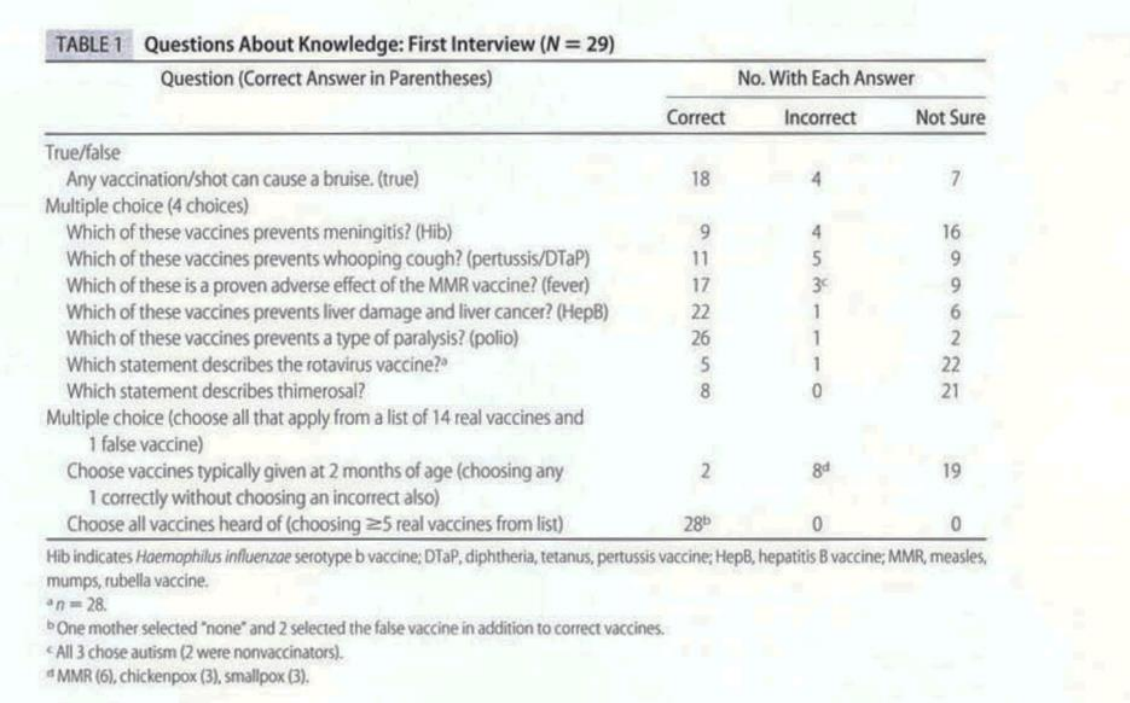


TABLE 1 Questions About Knowledge: First Interview ($N = 29$)

Question (Correct Answer in Parentheses)	No. With Each Answer		
	Correct	Incorrect	Not Sure
True/false			
Any vaccination/shot can cause a bruise. (true)	18	4	7
Multiple choice (4 choices)			
Which of these vaccines prevents meningitis? (Hib)	9	4	16
Which of these vaccines prevents whooping cough? (pertussis/DTaP)	11	5	9
Which of these is a proven adverse effect of the MMR vaccine? (fever)	17	3[c]	9
Which of these vaccines prevents liver damage and liver cancer? (HepB)	22	1	6
Which of these vaccines prevents a type of paralysis? (polio)	26	1	2
Which statement describes the rotavirus vaccine?[a]	5	1	22
Which statement describes thimerosal?	8	0	21
Multiple choice (choose all that apply from a list of 14 real vaccines and 1 false vaccine)			
Choose vaccines typically given at 2 months of age (choosing any 1 correctly without choosing an incorrect also)	2	8[d]	19
Choose all vaccines heard of (choosing ≥5 real vaccines from list)	28[b]	0	0

Hib indicates *Haemophilus influenzae* serotype b vaccine; DTaP, diphtheria, tetanus, pertussis vaccine; HepB, hepatitis B vaccine; MMR, measles, mumps, rubella vaccine.

[a] $n = 28$.

[b] One mother selected "none" and 2 selected the false vaccine in addition to correct vaccines.

[c] All 3 chose autism (2 were nonvaccinators).

[d] MMR (6), chickenpox (3), smallpox (3).

Source: American Association of Pediatrics 2006

This research data shows a series of questions posed to mothers, who were 1-3 days post-partum, about different vaccine facts and fictions. While there were a few incorrect answers, the majority report feeling uncertain about many of the statements posed to them.

Strategies for the new vaccinated generation

This section of the chapter will focus on how the goal of increasing physician trust and information communication can help mothers accept and feel comfortable with vaccination. The belief that physician office visits were decreasing in length has been commonplace since the overall increased management of the healthcare industry (cite). This decrease in visit length, along with the increase in accessibility to the internet, has led to 86% of adults who have access to the internet using it for health information on a regular basis (Shaw et al. 2010). Thus, a doctor in an office will inherently be competing for the patient's (and in this case, the parent's) trust, in

a contest with internet sources (fictitious or otherwise) and personal narratives received from other mothers or family members. This is of importance particularly when the internet is a hotbed of information, much of it anecdotal or false, for new mothers. According to the Pew Research Center, 15% of young people aged 18-29 believe that vaccines aren't safe compared to 4% of Americans years 65 or older. It's clear that the internet will continue to be an important resource for young Americans looking to find information on vaccines.

Training the New American Physicians

Some individuals who have studied vaccine denialism argue that at its core, it is a rejection of certain practices of modern medicine, and a call for a new, anti-paternalism and holistic system of healthcare. "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" (Navin 2013). There has been some movement in the medical community to offer flexibility in the once rigid world of biomedicine. For example, the Medical College Admissions Test one only included Chemistry, Biology, Physics, and Verbal Reasoning skills. In 2015, the test was expanded to include sociology and psychology, and more emphasis throughout the exam on critical thinking skills. The AAMC said this about the new exam, "Medical schools curricula includes new coursework that includes inter-professional training, communication, and the social determinants of health" (AAMC 2013). This is a switch from years of learning science and then applying it to the various body systems. Current medical school curriculum still includes this, but with added emphasis on patient communication, new healthcare technology, and the different roles and utility played by other members of the healthcare field. Given that vaccine politics have been a hot topic for nearly 40 years, it seems

that pediatric residents would receive some sort of training of the proper way to address these concerns in their medical education. However, studies show that is not the case. While 81.5% percent of the Association of Pediatric Program Directors agree that teaching parents about vaccine safety is a priority, 59% percent of pediatric residents reported that they did not receive any formal training on vaccine safety in their residency programs (Williams and Swan 2014).

Didactic information has been the traditional way that healthcare workers have interacted with patients. Didactic instruction is generally defined as the intention to teach, mainly using lecture or text-based methods, sometimes using rhetoric of ethical necessity or communicating a moral superiority in an effort to persuade or convince (Windrum et al. 2016). It can also be thought of as a patronizing method of instruction, where the teacher feels as though his position and understanding is superior to that of the student. This kind of medical education often features a large amount of talking and dialogue on the part of the physician, and large amounts of listening by the patient. Finally, didactic instruction is generally one-sided, the teacher giving the correct information to the student. In this method, the student does not have a place to ask questions or participate in the learning process. From didactic doctors arises the concept of adherence. “The word adherence to (or compliance with) a medication regime is generally defined as the extent to which patients take medications and treatments as prescribed by their healthcare provider” (Osterberg and Blaschke 2005). This term immediately puts the doctor in the active position of decision making, and the patient in the passive position of “complying” or “adhering”. Future, adherence culture of care is also accompanied by a stigmatization of those who for varying factors, do not make every doctor’s appointment or take every pill (Osterberg and Blaschke 2005).

This is traditionally the type of instruction that goes on in the doctor's office setting in the United States. However, research has been conducted that shows benefits to using workshop or simulation instruction instead of simply didactic instruction in a medical setting. A study was conducted by the Center for Health Enhancement Systems Studies in rural Wisconsin and Detroit, Michigan with 353 women currently living with breast cancer, asking about the best methods of educating new breast cancer patients on their new diagnosis. The study stated this: "Patient information is most commonly provided in didactic formats (e.g., fact sheets, brochures, questions and answers, charts, articles)"(Wise et al. 2007). Recently, patient educators have suggested that salient patient narratives in print or video presentations may be more effective, because they are more engaging and show how real people integrate technical knowledge into their healthcare within a specific cultural context—thus providing social role models (Wise et al. 2007). It has been suggested that knowing information and statistics about vaccination is not enough to encourage behavior change, and that social norms and emotional reactions play a larger role in the behavior that will ensue, which suggests why workshop or simulation instruction could be a helpful tool in changing vaccine beliefs. Below are two examples of suggested dialogues when having conversations with parents about vaccines, with humanized conversational strategies used.

Table 6 Example of dialogue with the hesitant parent

Health professional:	Good morning Mrs Wilkinson. I understand you have brought Robbie for his first infant vaccinations today.
Mother:	That's right.
Health professional:	OK, have you read the leaflet about the injections? What questions are on your mind? (*build rapport, seek questions and concerns*)
Mother:	Well, I'm pretty nervous – he seems so young.
Health professional:	You sound quite worried (*empathic response*), let's talk it through together, tell me what you are concerned about? (*further building rapport and eliciting concerns*)
Mother:	One of the mums in my mothers' group said that one of the injections has got five ingredients and that's too many for their immune systems to cope with. He does seem so young to be having injections against all these diseases at once. Won't it make him ill?
Health professional:	OK, we can talk about this (*guiding*) but do you have other worries as well? *(eliciting further concerns)*
Mother:	Well I read also that they can get a sore leg afterwards, so that's another worry.
Health professional:	(*pausing to allow mother to interject if she has questions and to observe body language*) Right, let's talk about the five ingredients and then we can talk about the chances of getting a sore leg (*signposting and structuring of explanation*). You're right that the injection has got five ingredients which would protect Robbie from the diseases called diphtheria, tetanus, whooping cough, polio and *Haemophilus influenzae* b (Hib). It seems a lot doesn't it *(empathic response).* Children, even newborn babies, have to deal with enormous amounts of bacteria and other foreign material every day, and the immune system responds to each of these in various ways to protect the body. Babies' immune systems can handle this, and the vaccines these days are so refined that babies can easily cope with several vaccines in one go. (*chunk of information provided followed by pause for mother to raise further questions and health professional to observe mother's body language*).
Mother:	OK, and will he get a sore leg?
Health professional:	Most children don't have any reaction at all, other than having a cry with the injection, and even then they generally settle really quickly with a cuddle and some comforting words from mum (*empowering*). It's true that a small number of children, about 10%, or 1 in 10, can get a redness or a sore area where the needle goes in *(acknowledging)* – but these reactions don't usually distress the child, and only last a couple of days, then go away. So what I ask mothers to do is to watch their child and if they are concerned bring them back to the clinic so we can check them over. How does that sound? (*avoid being overly persuasive, positive framing of risk*)
Mother:	Is there anything in particular I should watch for?
Health professional:	Robbie may be a bit unsettled for a day or so after his injection but he shouldn't be ill with it. The leaflet tells you about what to look out for and what to do if you are concerned.
Mother:	Thanks – I'm still a bit nervous but I think we should get it done.

Source: Leask et al. (2012).

This dialogue provides an example of language to use with patients who are unsure about vaccines. Note the importance of listening and addressing any concerns the mother may be feelings, while placing the final agency in the hands of the mother.

Table 7 Example of dialogue with the vaccine-refusing parent

	There is a discussion about Oliver's upper respiratory tract infection then:
Health professional:	Do you mind if we take a moment to talk about Oliver's vaccinations?
Mother:	Ah, yes, we did some research into it and decided not to vaccinate him.
Health professional:	OK, can I just talk it through so I understand your decision? (*asking permission to discuss and use of a guiding style*)
Mother:	Yeah, OK.
Health professional:	To start with can I just ask you how important you think it is to get Oliver protected from the diseases vaccines are designed to prevent? (*assessing importance*)
Mother:	Well, mostly the diseases aren't that much of a problem in healthy children and we keep Oliver very healthy with a good diet, organic food, and plenty of fresh air.
Health professional:	You're right, most children will overcome illnesses without too much of a problem (*acknowledging*). Unfortunately, there are still children that get pretty sick with these diseases, and sadly a significant number of children end up in hospital with complications from the disease. With measles, for example, 9 in every 100 children get pneumonia and some need to go to hospital (*pause*).
Mother:	I didn't know that.
Health professional:	Yes, it can still be a serious problem. Could I ask now how confident you are that the vaccinations are safe? (*assessing confidence)*
Mother:	I'm not all confident in them being safe.
Health professional:	What have you heard? *(exploring)*
Mother:	Well on one internet site it said that children can get brain damage and all kinds of problems after vaccination. And the drug companies try to cover it up.
Health professional:	That sounds frightening (*empathic response*). Which vaccines are you most concerned about? (*eliciting specific concerns*)
Mother:	The MMR one because it can cause autism.
Health professional:	I understand you are concerned about vaccinations *(building rapport by accepting rather than rebutting concerns)* but I'd just like to give you my view if that's OK? *(Mother nods.)* Although there has been some research that raises concerns about vaccine safety, each time a concern comes up, new research is done to check whether the results are consistent or not. The vaccines that we use are very safe and serious side effects are very rare. Would you like to look at the MMR vaccine decision aid which can help you weigh up the risks of the vaccine and the diseases? (*respecting autonomy, offering information*)
Mother:	Well, I guess I could have a look but I'm still pretty cautious about Oliver getting these jabs.
Health professional:	Well, take a look at the decision aid and then if you like, come back to the clinic for another talk. We have a clinic each Tuesday and I'll be here most weeks. Would you like to come back in two weeks? (*leaving door open to further discussion*)
Mother:	OK thanks.

Source: Leask et al. (2012)

This dialogue provides an example of patient communication when a mother refuses a vaccine, focusing on active listening and beginning to establish a relationship.

What do women look for in a pediatrician? Moreover, what physician qualities influence her likelihood to adhere to the recommendations? “Alongside credentials, physicians’ interpersonal rapport is one of the most important factors in selecting a physician” (Sims et al. 204). Studies have confirmed that solid communication and social skills are high influencing factors in physician selection and the following patient trust (Jagosh et al. 2011). In a survey conducted by the McGill University health center, a sample of patients were asked the question, “How would you describe a good doctor?” A typical response was: “I would say a good doctor is somebody who will listen to what the problem is and will explain to you what it is and what is being done” (Jagosh et al. 2011). But what exactly is listening, and how is it perceived when the patient enters the doctor’s office? Harvard Business Review defines physician active listening as not only finding out what is the matter, but finding out what is important to the patient, and translating all of this information into an appropriate and competent patient care plan (Awdish and Berry 2017). “A doctor’s medical toolbox and supply of best practice guidelines, ample as they are, do not address a patient’s fears, grief over a diagnosis, practical issues of access to care, or reliability of their social support system” (Adwish and Berry 2017). The doctor, who went to medical school, knows exactly how vaccines work, and why they’re an incredibly important public health tool. However, the ability to translate this into a narrative that addresses patient uncertainty and personal experience is something that research has shown will have direct effects on parents who are vaccine hesitant. “Listening demonstrates concern and a certain amount of humility. Communicating well openly demonstrates respect, allows the patient to judge motivations and identify any shared values. A shared narrative strengthens trust of doctor for patient” (Goold 2002). Furthermore, attentive listening early on in the beginning of the appointment by the physician is associated with all of the patient’s concerns being revealed at the

beginning of the appointment, instead of "late concerns" that pop up when the appointment is almost over, or the concern never being addressed at all during the appointment" (Jagosh et al. 2011). One patient in the research described his conceptualization of a traditional doctor as such: "I call them [doctors] by the book. If something doesn't coincide with something they read in a book, it doesn't exist" (Jagosh et al. 2011). Alternatively, another patient discussed how they feel a doctor should approach patients in office. "They should trust the person in front of them and hear what they're saying, because I know my body better than anyone else" (Jagosh et al. 2011).

Conclusion

History has much to tell us about the current state of scientific controversies. In the case of the modern US anti-vaccination movement, history aids us in creating public health interventions for change. Often, people in the scientific community simply conceptualize members of the anti-vaccination movement as stupid, uneducated, or unwilling to learn about new technology and its benefits. This is an easy opinion to hold, but not a constructive one. It is important to examine the historical context behind movements of rebellion and dissent, in order to properly think about how one can persuade individuals and change opinions. In this thesis, I examined the historical context behind the anti-vaccination movement and argue that it developed from the narrative of rejection of medical paternalism used by second-wave feminism. In part because of the methodologies associated with second-wave feminism, the anti-vaccination movement became led by upper middle class white women taking an individualistic approach to parenting. We used both social and STS theory to consider these ideas and to give them context, particularly Donna Haraway's idea of feminist biology and the cyborg. Finally, we looked at how the medical and

public health fields can synthesize this information (historical and current data) and put it into a tangible policy and practice change that takes the patronizing out of pediatric healthcare, embracing conversations with mothers instead of dictating and ordering, in hopes of a world where more mothers are vaccinating because they understand the importance behind it, and not because they feel coerced or forced by the government or institute of medicine.

These thought processes allow us to see potential research opportunities for the future of public health. We can begin to conceptualize how this might look. For example, a correlation could be observed in a study analyzing the quality of a family's relationship with their pediatrician, and how they felt about vaccination, or if their children personally received vaccines in accordance to the schedule released by the US NIH. This could be a qualitative or quantitative study, with the goal of exploring a possible correlation between these two factors. The medical field as well as individual physicians can work toward examining their implicit biases when a female patient or mother with child enters the office. Outside of the doctor's office, the general public can be critical of how they consume media related to health, disease, and illness. We can also remember that the problem of anti-vaccination is not a problem of people choosing to make erroneous decisions out of ignorance; many anti-vaxxers are highly educated. Simplifying the problem as such only increases the difficulty of creating programming and solutions that create tangible change.

As a conclusion to this thesis, I think it could be serving to put ourselves in the shoes of the mother. At a big pediatric office, she doesn't even know her doctor's first name. Everytime she enters the room with him, it always seems like he's looking for ways to make her appointment as short as possible – she doesn't feel like she has the time with him to ask the questions she has. Would he laugh at her, or think she was dumb? What would he say about the

vaccine topic? She had heard so many different stories and narratives on the internet and in magazines. How did she know who to trust? Society held her responsible for the protection of her children, and they were so important to her. Thus, she had a decision to make. As medical professionals, public health educators, and scholars, understanding the ties that the modern US anti-vaccination movement has to second wave feminism has the potential to aid in developing health care practices and policies that create equality in the medical sphere, and respect the unique and historically marginalized position mothers are in when faced with the question, “So, you’re vaccinating, right?”

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